UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 20-F

☐ **REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR 12(g) OF THE SECURITIES EXCHANGE ACT OF 1934**

OR

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15 (d) OF THE SECURITIES EXCHANGE ACT OF 1934**

FOR THE FISCAL YEAR ENDED 30 JUNE 2022.

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15 (d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from __________ to __________

OR

☐ **SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

Date of event requiring this shell company report __________

Commission file number: 001-09526

BHP GROUP LIMITED
(ABN 49 004 028 077)
(Exact name of registrant as specified in its charter)

VICTORIA, AUSTRALIA
(Jurisdiction of incorporation or organisation)

171 COLLINS STREET, MELBOURNE,
VICTORIA 3000 AUSTRALIA
(Address of principal executive offices)

STEFANIE WILKINSON
BHP GROUP LIMITED
171 COLLINS STREET
MELBOURNE VIC 3000
AUSTRALIA
TELEPHONE AUSTRALIA 1300 55 47 57
TELEPHONE INTERNATIONAL +61 3 9609 3333
FACSIMILE +61 3 9609 3015
(Name, telephone, email and/or facsimile number and address of company contact person)

Securities registered or to be registered pursuant to Section 12(b) of the Act.

Title of each class	Trading symbol(s)	Name of each exchange on which registered
American Depositary Shares*	BHP	New York Stock Exchange
Ordinary Shares**	BHP	New York Stock Exchange

* Evidenced by American Depositary Receipts. Each American Depositary Receipt represents two ordinary shares of BHP Group Limited.

** Not for trading, but only in connection with the listing of the American Depositary Shares.

Securities registered or to be registered pursuant to Section 12(g) of the Act.
None

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act.
None

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of the close of the period covered by the annual report.

	BHP Group Limited
Fully Paid Ordinary Shares	5,065,820,556

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934. Yes ☐ No ☒

Note – Checking the box above will not relieve any registrant required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 from their obligations under those Sections.

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Emerging growth company	☐

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards† provided pursuant to Section 13(a) of the Exchange Act. ☐

† The term "new or revised financial accounting standard" refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP ☐ International Financial Reporting Standards as issued by the International Accounting Standards Board ☒ Other ☐

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow. Item 17 ☐ Item 18 ☐

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

Company details

BHP Group Limited's registered office and global headquarters are at 171 Collins Street, Melbourne, Victoria 3000, Australia.

'BHP', the 'Company', the 'Group', 'our business', 'organisation', 'we', 'us', 'our' and 'ourselves' refer to BHP Group Limited, and except where the context otherwise requires, our subsidiaries. Refer to Financial Statements note 28 'Subsidiaries' for a list of our significant subsidiaries and to Exhibit 8.1 – List of Subsidiaries for a list of our subsidiaries. Those terms do not include non-operated assets.

This Report covers functions and assets (including those under exploration, projects in development or execution phases, sites and closed operations) that have been wholly owned and/or operated by BHP or that have been owned as a joint venture[1] operated by BHP (referred to in this Report as 'operated assets' or 'operations') from 1 July 2021 to 30 June 2022.

BHP also holds interests in assets that are owned as a joint venture but not operated by BHP (referred to in this Report as 'non-operated joint ventures' or 'non-operated assets'). Notwithstanding that this Report may include production, financial and other information from non-operated assets, non-operated assets are not included in the BHP Group and, as a result, statements regarding our operations, assets and values apply only to our operated assets unless stated otherwise.

On 31 January 2022, we unified our company structure under BHP Group Limited, with a primary listing on the Australian Securities Exchange. BHP holds a standard listing on the London Stock Exchange, a secondary listing on the Johannesburg Stock Exchange and an ADR program listed on the New York Stock Exchange.

All references to websites in this Annual Report are intended to be inactive textual references for information only and any information contained in or accessible through any such website does not form a part of this Annual Report.

Forward-looking statements

This Report contains forward-looking statements, including: statements regarding trends in commodity prices and currency exchange rates; demand for commodities; reserves and resources and production forecasts; expectations, plans, strategies and objectives of management; climate scenarios; approval of certain projects and consummation of certain transactions; closure or divestment of certain assets, operations or facilities (including associated costs); anticipated production or construction commencement dates; capital costs and scheduling; operating costs and supply of materials and skilled employees; anticipated productive lives of projects, mines and facilities; provisions and contingent liabilities; and tax and regulatory developments.

Forward-looking statements may be identified by the use of terminology including, but not limited to, 'intend', 'aim', 'ambition', 'aspiration', 'goal', 'target', 'project', 'see', 'anticipate', 'estimate', 'plan', 'objective', 'believe', 'expect', 'commit', 'may', 'should', 'need', 'must', 'will', 'would', 'continue', 'forecast', 'guidance', 'trend' or similar words. These statements discuss future expectations concerning the results of assets or financial conditions, or provide other forward-looking information.

Examples of forward-looking statements contained in this Report include, without limitation, statements describing (i) our strategy, our values and how we define our success; (ii) our expectations regarding future demand for certain commodities, in particular copper, nickel, iron ore, metallurgical coal, steel and potash, and our intentions, commitments or expectations with respect to our supply of certain commodities, including copper, nickel, iron ore and potash; (iii) our future exploration and partnership plans and perceived benefits and opportunities, including our focus to grow our copper and nickel assets; (iv) the structure of our organisation and portfolio and perceived benefits and opportunities; (v) our outlook for long-term economic growth and other macroeconomic and industry trends; (vi) our projected and expected production and performance levels and development projects; (vii) our expectations regarding our investments, including in potential growth options and technology and innovation, and perceived benefits and opportunities; (viii) our reserves and resources; (ix) our plans for our major projects and related budget allocations; (x) our expectations, commitments and objectives with respect to sustainability, decarbonisation, natural resource management, climate change and portfolio resilience and timelines and plans to seek to achieve or implement such objectives, including our new 2030 'People, Planet and Prosperity' goals, our approach to equitable change and transitions, our Climate Transition Action Plan, Climate Change Adaptation Strategy and goals, targets and strategies to seek to reduce or support the reduction of greenhouse gas emissions, and related perceived costs, benefits and opportunities for BHP; (xi) the assumptions, beliefs and conclusions in our climate change related statements and strategies, including in our Climate Change Report 2020, for example, in respect of future temperatures, energy consumption and greenhouse gas emissions, and climate-related impacts; (xii) our commitment to social value; (xiii) our commitments to sustainability reporting, frameworks, standards and initiatives; (xiv) our commitments to improve or maintain safe tailings storage management; (xv) our commitments to achieve certain inclusion and diversity targets, aspirations and outcomes; (xvi) our commitments to achieve certain targets and outcomes with respect to Indigenous peoples and the communities where we operate; and (xvii) our commitments to achieve certain health and safety targets and outcomes.

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1 References in this Annual Report to a 'joint venture' are used for convenience to collectively describe assets that are not wholly owned by BHP. Such references are not intended to characterise the legal relationship between the owners of the asset.

Forward-looking statements are based on management's current expectations and reflect judgements, assumptions, estimates and other information available as at the date of this Report and/or the date of BHP's planning or scenario analysis processes. These statements do not represent guarantees or predictions of future financial or operational performance and involve known and unknown risks, uncertainties and other factors, many of which are beyond our control and which may cause actual results to differ materially from those expressed in the statements contained in this Report. BHP cautions against reliance on any forward-looking statements or guidance, including in light of the current economic climate and the significant volatility, uncertainty and disruption arising in connection with the Ukrainian conflict and COVID-19.

For example, our future revenues from our assets, projects or mines described in this Report will be based, in part, on the market price of the minerals or metals produced, which may vary significantly from current levels. These variations, if materially adverse, may affect the timing or the feasibility of the development of a particular project, the expansion of certain facilities or mines, or the continuation of existing assets.

Other factors that may affect the actual construction or production commencement dates, revenues, costs or production output and anticipated lives of assets, mines or facilities include: (i) our ability to profitably produce and transport the minerals and/or metals extracted to applicable markets; (ii) the impact of foreign currency exchange rates on the market prices of the minerals or metals we produce; (iii) activities of government authorities in the countries where we sell our products and in the countries where we are exploring or developing projects, facilities or mines, including increases in taxes; (iv) changes in environmental and other regulations; (v) the duration and severity of the COVID-19 pandemic and its impact on our business; (vi) political or geopolitical uncertainty; (viii) labour unrest; and (viii) other factors identified in the risk factors set out in OFR 9.1.

Except as required by applicable regulations or by law, BHP does not undertake to publicly update or review any forward-looking statements, whether as a result of new information or future events.

Past performance cannot be relied on as a guide to future performance.

Emissions and energy consumption data

Due to the inherent uncertainty and limitations in measuring greenhouse gas (GHG) emissions and operational energy consumption under the calculation methodologies used in the preparation of such data, all GHG emissions and operational energy consumption data or references to GHG emissions and operational energy consumption volumes (including ratios or percentages) in this Report are estimates. There may also be differences in the manner that third parties calculate or report GHG emissions or operational energy consumption data compared to BHP, which means that third-party data may not be comparable to our data. For information on how we calculate our GHG emissions and operational energy consumption data, see our Methodology tab in our ESG Standards and Databook.

Form 20-F Cross Reference Table

Item Number		Description	Report section reference
1.		**Identity of Directors, Senior Management and Advisors**	Not applicable
2.		**Offer Statistics and Expected Timetable**	Not applicable
3.		**Key Information**	
	A	[Reserved]	—
	B	Capitalization and indebtedness	Not applicable
	C	Reasons for the offer and use of proceeds	Not applicable
	D	Risk factors	9.1
4.		**Information on the Company**	
	A	History and development of the company	Cover page, Company details, Chair's review, Chief Executive Officer's review, Operating and Financial Review 1 to 10, Additional information 2, 4 to 9.4
	B	Business overview	Operating and Financial Review 1 to 5, 10, Additional information 2, 4 to 8, 9.3, 9.8 and Note 1 to the Financial Statements
	C	Organizational structure	Additional information 9.3 and Note 28 to the Financial Statements
	D	Property, plants and equipment	Operating and Financial Review 3, 5.1, 5.2, 7 to 10, Additional information 2, 4 to 6 and Notes 11, 15 and 21 to the Financial Statements
4A.		**Unresolved Staff Comments**	None
5.		**Operating and Financial Review and Prospects**	
	A	Operating results	Operating and Financial Review 4, 10, Additional information 9.8
	B	Liquidity and capital resources	Operating and Financial Review 4, Financial Statements 1.4, Notes 11, 20 to 23 and 37 to the Financial Statements
	C	Research and development, patents and licenses, etc.	Operating and Financial Review 3, 5 to 10, Directors' Report 10, Additional information 2, 5, 6 and Notes 11 and 15 to the Financial Statements
	D	Trend information	Chair's review, Chief Executive Officer's review, Operating and Financial Review 1 to 5, 7, 9, 10, Additional information 2, 4 to 7
	E	Critical Accounting Estimates	IFRS is applied in the Financial Statements as issued by the IASB
6.		**Directors, Senior Management and Employees**	
	A	Directors and senior management	Governance 4.1, 6.1, Directors' Report 2.1
	B	Compensation	Remuneration Report
	C	Board practices	Governance 4.1, 4.6, 5.2, 5.4, Remuneration Report
	D	Employees	Operating and Financial Review 6, Additional information 7
	E	Share ownership	Remuneration Report, Directors' Report 3, 4 and Notes 16, 17 and 25 to the Financial Statements
7.		**Major Shareholders and Related Party Transactions**	
	A	Major shareholders	Additional information 9.5
	B	Related party transactions	Remuneration Report and Notes 24 and 31 to the Financial Statements
	C	Interests of experts and counsel	Not applicable
8.		**Financial Information**	
	A	Consolidated Statements and Other Financial Information	Operating and Financial Review 8, Additional information 8, 9.6, Financial Statements beginning on page F-1 in this Annual Report and Financial Statements 1A
	B	Significant Changes	Note 33 to the Financial Statements
9.		**The Offer and Listing**	
	A	Offer and listing details	Additional information 9.2
	B	Plan of distribution	Not applicable
	C	Markets	Additional information 9.2
	D	Selling shareholders	Not applicable
	E	Dilution	Not applicable
	F	Expenses of the issue	Not applicable
10.		**Additional Information**	
	A	Share capital	Not applicable
	B	Memorandum and articles of association	Additional information 9.3, 9.4
	C	Material contracts	Not applicable
	D	Exchange controls	Additional information 9.8
	E	Taxation	Additional information 9.9
	F	Dividends and paying agents	Not applicable
	G	Statement by experts	Not applicable
	H	Documents on display	Additional information 9.4
	I	Subsidiary information	Note 28 to the Financial Statements and Exhibit 8.1
11.		**Quantitative and Qualitative Disclosures About Market Risk**	Note 23 to the Financial Statements
12.		**Description of Securities Other than Equity Securities**	
	A	Debt Securities	Not applicable
	B	Warrants and Rights	Not applicable
	C	Other Securities	Not applicable
	D	American Depositary Shares	Additional information 9.7 and Exhibit 2.1
13.		**Defaults, Dividend Arrearages and Delinquencies**	There have been no defaults, dividend arrearages or delinquencies
14.		**Material Modifications to the Rights of Security Holders and Use of Proceeds**	
	A		Additional information 9.3, 9.4 and Exhibits 1.1 and 2.1
	B		Not applicable

BHP, bringing people and resources together to build a better world.

Our values

Sustainability

Putting health and safety first, being environmentally responsible and supporting our communities.

Integrity

Doing what is right and doing what we say we will do.

Respect

Embracing openness, trust, teamwork, diversity and relationships that are mutually beneficial.

Performance

Achieving superior business results by stretching our capabilities.

Simplicity

Focusing our efforts on the things that matter most.

Accountability

Defining and accepting responsibility and delivering on our commitments.

We are successful when:

- Our people start each day with a sense of purpose and end the day with a sense of accomplishment.
- Our teams are inclusive and diverse.
- Our communities, customers and suppliers value their relationships with us and are better off for our presence.
- Our asset portfolio is world class and sustainably developed.
- Our operational discipline and financial strength enables our future growth.
- Our shareholders receive a superior return on their investment.
- Our commodities support continued economic growth and decarbonisation.

Contents

Governance

Corporate Governance Statement

Additional information

Chair's review

Dear Shareholders,

I am pleased to provide BHP's Annual Report for FY2022 which was a transformational year for your company.

During the year BHP:

- unified our dual listed company structure under a single parent company listed on the Australian Securities Exchange
- merged our Petroleum business with Woodside to create a top 10 energy provider and provide shareholders with further choice as to their exposure to oil and gas
- simplified the coal portfolio through the sale of our interests in Cerrejón and BHP Mitsui Coal to concentrate on higher-quality metallurgical coal which is forecast to be critical for making the steel necessary to support decarbonsiation and infrastructure growth over coming decades
- approved an investment of US$5.7 billion in our Jansen Potash Project in Canada, marking BHP's entry into a new commodity which provides shareholders with exposure to the growing population megatrend

Your Board would like to thank all shareholders for the trust you have shown in supporting these changes which set your company up to deliver value into the future.

That trust is built over time and through performance, and this year Mike Henry, his management team and all our people, have continued to deliver strong operational and financial performance through a challenging period of ongoing pandemic disruption, global supply chain challenges and cost pressures.

Safety and wellbeing

In terms of safety, FY2022 was the third consecutive year in which there were no workplace occupational fatalities, and the Group made strong progress on other leading safety indicators such as a 30 per cent reduction in high-potential injuries.

These are pleasing indicators of the progress we can make when our focus is unwavering. To achieve truly safe, inclusive and diverse workplaces for all our people we know we must bring this same focus to bear on all aspects of workplace safety including addressing sexual harassment, racism and bullying.

The value we create

It is against a backdrop of commitment to performance and continuous improvement, that BHP has delivered considerable value to you, our shareholders.

In FY2022, the Board determined dividends worth US$36 billion to shareholders (including the distribution of Woodside shares). This takes the total amount returned to shareholders over the past four years to more than US$50 billion.

But it is not just value to shareholders. This year, we also made substantial headway in our sustainability aspirations and focus on social value. We provided shareholders with the first 'Say on Climate' shareholder resolution in the Australian market, and our Climate Transition Action Plan (Plan) was supported by almost 85 per cent of shareholders. This Plan aligns our climate goals with our strategic goals, and provides a clear basis for measuring BHP's climate performance.

We also launched a social value framework and scorecard with 2030 goals to bring additional transparency to our social value goals and outcomes. We are working hard to embed social value in our strategy, capital allocation decisions, plans, processes and culture. It is not only the right thing to do, but we believe it provides a significant competitive advantage for BHP and is vital to delivering long-term sustainable value.

As well as the value delivered to shareholders, this year, we made significant contributions to the communities where we operate, through employment, partnerships, and taxes and royalties paid to governments. This amounted to US$57.5 billion in Australia, US$7.7 billion in Chile and US$12.9 billion in the rest of the world, and our local procurement has increased 40 per cent over the past three years with US$2.7 billion directed to 2,700 local suppliers during FY2022.

Board succession

We welcomed Michelle Hinchliffe and Catherine Tanna to the BHP Board as independent Non-executive Directors. Both bring over 35 years' experience to BHP – Michelle in financial controls and risk management, and Catherine in energy, long-life capital allocation and HSE. We are delighted to welcome Michelle and Catherine.

At the other end of the succession process, we will farewell Malcolm Broomhead and John Mogford at the conclusion of the 2022 Annual General Meeting. Both have announced their intention to retire following exceptional periods of service, and I would like to thank Malcolm and John for their outstanding contribution to BHP and the Board.

FY2022 was a successful year of transformation for our business. I am confident we are building BHP for the future and to create enduring value for our shareholders and communities, customers, suppliers and partners.

Thank you for your continued support of BHP.

Ken MacKenzie

Chair

Chief Executive Officer's review

Dear Shareholders,

BHP performed well in FY2022. Our strong production outcomes and solid cost control allowed us to capture the greatest benefit from the tailwind of high commodity prices during the year. It was pleasing to all of us at BHP to be able to deliver not only record returns to shareholders, but also record contributions to our other stakeholders. We paid record taxes and royalties during the year of US$17.3 billion, slightly higher than our cash returns to shareholders of US$16.4 billion.

Most importantly, we did so safely and sustainably. No one has lost their life while working at BHP for over three and a half consecutive years now. This is a very significant milestone, but we must guard against complacency. We will continue to prioritise our efforts to reduce fatal risk from our workplaces. We also reduced our operational greenhouse gas emissions by 24 per cent over the past two years and have reduced freshwater withdrawals by almost 30 per cent since 2017.

We were successful in partially mitigating the impacts of a number of external challenges, including the ongoing pandemic, to deliver well against our production and unit cost guidance for the year. We achieved record full-year shipments from our Western Australia Iron Ore business for the third year running, and we remain the world's lowest cost major producer. In copper, our Escondida business in Chile had record material mined and near-record concentrator throughput, while Olympic Dam in South Australia performed strongly in the fourth quarter after our major smelter maintenance overhaul, which takes place every four years.

We anticipate the economic headwinds, including inflation and tight labour markets, and the impacts from COVID-19 will continue through the year ahead. We aim to navigate these challenges better than our competitors and have the focus and capabilities in place to enable us to do so. Our continued high performance in the past year is thanks to 80,000 highly capable, diverse, engaged people across BHP, who have continued to show tremendous resilience in the face of the multiple challenges thrown at us by the external environment.

We will be safer, more reliable, lower cost and more productive if we are able to more fully harness the experience, passion and ingenuity of everyone across BHP. This is being hard-wired through the BHP Operating System (BOS), which is building a continuous improvement culture and capability right through to the fingertips of the company. This shift, coupled with our progress on creating a more inclusive and diverse workforce is unlocking performance and achieving this in a way that is exciting for BHP and more fulfilling for our people.

I am proud to say that the proportion of females and Indigenous peoples at BHP continues to grow. Representation of female employees reached 32.3 per cent in FY2022 and the executive leadership team is fully balanced. Indigenous peoples now represent 8.3 per cent of our operational workforce in Australia, 8.7 per cent in Chile and 7.2 per cent in our Jansen Potash Project in Canada.

While we have made strong progress in improving the composition of our workforce, you will see in this year's report increased disclosure in respect of cases of sexual harassment, racism and bullying that have occurred during the year in the company. I am ashamed that these behaviours still occur in BHP. We are fiercely determined to stop them from happening. During the year, we progressed work on upgrading our facilities, improving our processes, providing more support to impacted persons and bystanders, and shifting culture. In the past year, we invested more than US$200 million to improve the security and experience in our accommodation villages, established a global support service to provide dedicated, end-to-end case coordination for anyone impacted by sexual harassment, and enhanced training programs, including for both leaders and bystanders. Most recently we took time out from work and production across all of BHP to discuss sexual harassment, racism and bullying. These Safety Stops involved the whole of the workforce globally and were intended to build awareness, understanding, capability, and collective commitment to action.

As well as building an even safer and more inclusive workplace at BHP, we must help to build a better world for all of our stakeholders. We aim to create social value, which is the positive contribution BHP makes to society: our people, partners, the economy, the environment and local communities for the mutual benefit of shareholders and the community. We see this as fundamental to our long-term success and a competitive advantage that will support growth. During the year, we launched our new social value framework and set short-term milestones as well as 2030 goals under each of our six social value pillars. Our commitment to social value contributes to the relevant United Nations (UN) Sustainable Development Goals and aligns with our continued support for the UN Global Compact and its 10 principles.

FY2022 was a year in which we also made significant progress transforming our business for the future through reshaping our portfolio and simplifying our corporate structure. We divested our Petroleum business and created a stronger, more resilient stand-alone business by merging it with Woodside, creating more choice and opportunity for value for shareholders. We further optimised our coal portfolio through the divestment of our stakes in BHP Mitsui Coal and in Cerrejón. We approved the Jansen Stage 1 Potash Project in Canada, opening up a new long-term growth front for the company in potash, a fertiliser that will enable more sustainable farming globally. Finally, we unified our corporate structure, removing the more complex dual listed structure in place since the BHP and Billiton merger of 2001.

We now have a leaner, more agile and more efficient BHP, with a portfolio more aligned to the global megatrends unfolding around us, and better positioned to grow value by supplying the commodities required for a decarbonising world.

I am excited about our plans for the year ahead and for the future. Despite external volatility, the fundamentals that underpin our business are positive and strongly position BHP for enduring success.

Thank you for your ongoing support.

Mike Henry

Chief Executive Officer

Operating and Financial Review

1 Our business

Our commodities

Iron ore	Copper	Coal	Nickel	Potash
FY2022 production 253.2 Mt	FY2022 production 1,574 kt	FY2022 production 42.8 Mt	FY2022 production 76.8 kt	Jansen Stage 1 is our US$5.7 bn potash project
Revenue US$30.8 bn	Revenue US$16.8 bn	Revenue US$15.5 bn	Revenue US$1.9 bn	
Underlying EBITDA US$21.7 bn	Underlying EBITDA US$8.6 bn	Underlying EBITDA US$9.5 bn	Underlying EBITDA US$420 m	

2 Delivering value

2.1 Our business model

By prioritising both financial and social value, we deliver long-term value and resilience for our shareholders and all our stakeholders.

What we need

Our people

We employ around 80,000 people across the globe. Our aim is for them to be engaged and supported in a way that sees them work in safer and more productive ways.

We are on track to meet our aspirational goal of a gender-balanced workforce by FY2025 and have raised the proportion of Indigenous employees in Australia, Chile and at our Jansen Potash Project in Canada.

More inclusive and diverse teams are delivering safer and better business performance at BHP.

For more information refer to OFR 6.

Strong, mutually beneficial relationships

We seek to build long term mutually beneficial relationships with our stakeholders and partners based on respect, transparency and trust.

- **Suppliers:** More than 8,000 suppliers in 47 countries provide us with goods and services.
- **Partners:** We seek to be the partner of choice for customers, business partners and community stakeholders.

For more information refer to OFR 2.2.

World-class assets

We have a portfolio of large, high-quality, low-cost assets. We are investing in technology to improve productivity and drive sustainable growth across our operations.

For more information refer to OFR 5.

Exceptional capability

Operational excellence and capital discipline are key to generating long term value.

Industry-leading knowledge and operating capability

For more information refer to OFR 2.2.

Effective risk management

For more information refer to OFR 9.

Disciplined use of capital

For more information refer to OFR 2.2.

Responsible natural resource management

We seek to efficiently and responsibly manage water and power and to be long-term stewards of more than 8 million hectares of land and sea.

For more information refer to OFR 7.

Value outcomes

Investment in community initiatives
US$186.4 m
FY2021 $174.8 m

Total freshwater withdrawals[2]
107.4 Gl
29% from adjusted FY2017 baseline

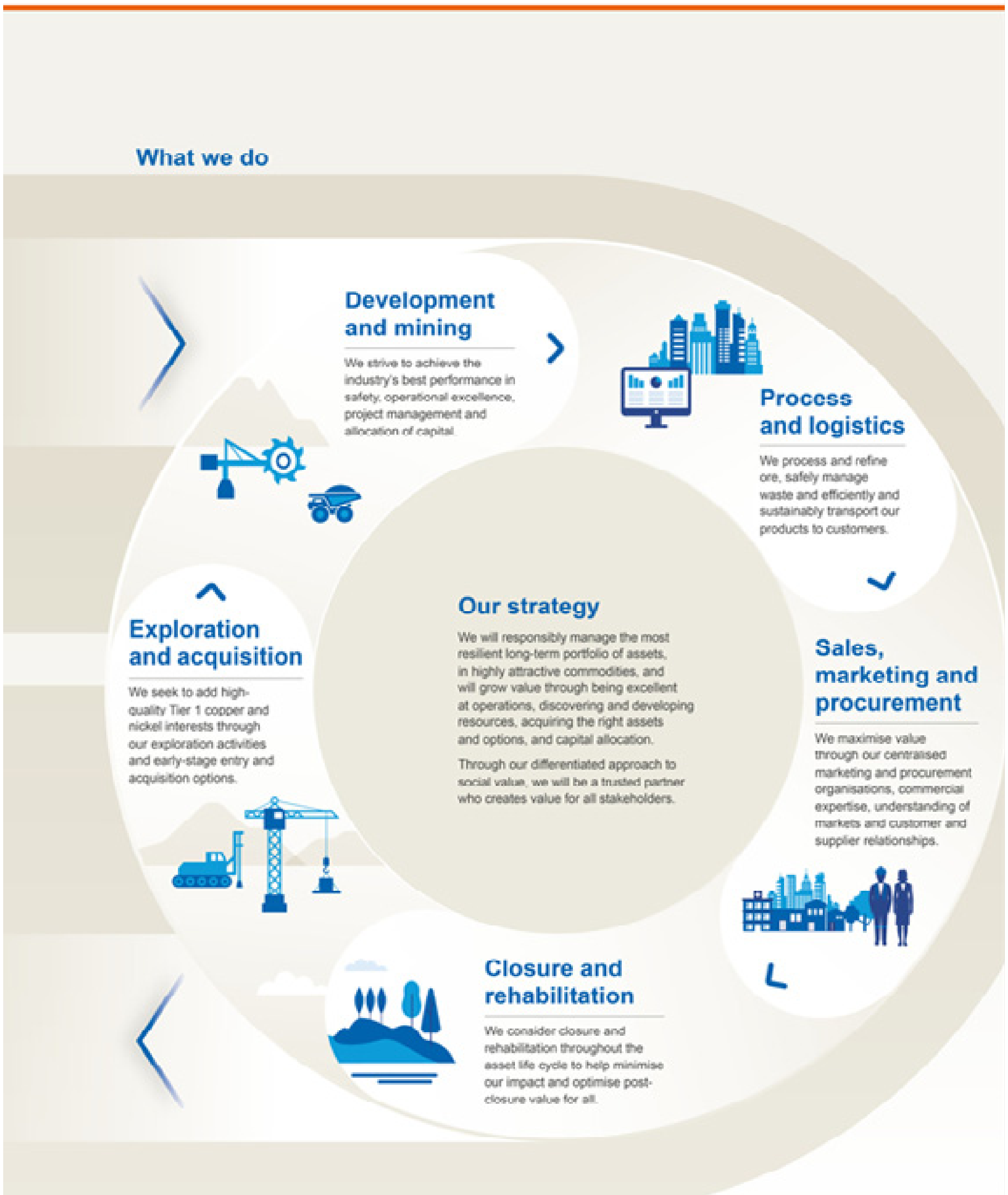
Tax, royalty and other payments to governments[1]
US$17.3 bn
FY2021 US$11.1 bn

Payments to suppliers[1]
US$18.8 bn
FY2021 US$16.5 bn

Salary, wages and incentives for our employees[4]
US$4.5 bn
FY2021 US$4.4 bn

Shareholder dividends[3]
US$36.0 bn
FY2021 US$15.2 bn

1 Presented on a Total operations basis. For more information refer to BHP Economic Contribution Report 2022.
2 For information on adjustment to the FY2017 baseline, refer to OFR 7.16.
3 This includes US$19.6 billion in specie dividend from distributing Woodside shares received as consideration for the sale of BHP Petroleum.
4 Calculated on an accruals and presented on a Total operations basis. For more information refer to BHP Economic Contribution Report 2022.


What we do
Development and mining
We strive to achieve the industry's best performance in safety, operational excellence, project management and allocation of capital.
Process and logistics
We process and refine ore, safely manage waste and efficiently and sustainably transport our products to customers.
Sales, marketing and procurement
We maximise value through our centralised marketing and procurement organisations, commercial expertise, understanding of markets and customer and supplier relationships.
Closure and rehabilitation
We consider closure and rehabilitation throughout the asset life cycle to help minimise our impact and optimise post-closure value for all.
Exploration and acquisition
We seek to add high-quality Tier 1 copper and nickel interests through our exploration activities and early-stage entry and acquisition options.
Our strategy
We will responsibly manage the most resilient long-term portfolio of assets, in highly attractive commodities, and will grow value through being excellent at operations, discovering and developing resources, acquiring the right assets and options, and capital allocation.
Through our differentiated approach to social value, we will be a trusted partner who creates value for all stakeholders.

2.2 How we create and grow value

We produce some of the essential resources needed to support global megatrends, such as decarbonisation, and we strive to produce them sustainably, efficiently and ethically.

We seek to create value with the communities where we operate and for our shareholders:

- We are committed to continuous improvement and we strive to operate more reliably and productively than our competitors. Being the best operator will help us safely generate better return on capital employed and outcompete others for new opportunities.
- We have delivered strong and consistent results and returns through our portfolio and operating discipline. We achieved net operating cashflow on a Total operations basis of US$32.2 billion in FY2022, above US$15 billion for the sixth consecutive year.
- We believe our focus on social value will lead to us being the partner of choice with communities, governments, suppliers, and customers. We seek respectful, mutually beneficial relationships with the communities where we operate and the suppliers, customers and governments we interact with. Our experience has been that engaging with those around us creates optionality, stronger relationships and access to more diverse thinking. It helps us be more creative and to find different ways to problem solve. It also means we are better able to see things coming towards us and can act pre-emptively. Aligning strongly with partners can prevent issues or delays with projects and, if issues do arise, means we are better able to collectively work on solutions.
- We assess and rank decarbonisation projects across our operated assets through our Capital Allocation Framework (CAF). During FY2022, we integrated our 1.5°C Paris-aligned scenario into our strategy and capital allocation process, helping to ensure our capital expenditure plans are not misaligned with the Paris Agreement's aim to pursue efforts to limit global warming to 1.5°C.
- We recruit and retain the best people and empower them to run our operations safely and productively. We promote an inclusive and diverse environment where safety and wellbeing are the highest priorities, invest in development programs to build capability and improve performance and offer competitive remuneration. We invest in technology to manage risk, streamline processes and improve productivity.
- The combination of our people, strategy and operational systems will help us to outperform our competitors and attract a lower cost of capital, while our CAF helps us make better use of this capital.

We bring together essential resources, a strong balance sheet and a differentiated operating capability underpinned by our technical Centres of Excellence and the BHP Operating System (BOS).

This combination of operational excellence, a strong portfolio of large, long-life, quality assets and focus on social value will assist us to grow value more consistently for all stakeholders and underpin continued attractive returns and long-term value for our shareholders.

Our people

Health and safety

Our highest priority is the safety of our workforce and the communities where we operate. We achieved a third consecutive year without a fatality and have seen a sustained improvement in the high-potential injury frequency rate which fell by 30 per cent in FY2022 from FY2021.

We are committed to protecting the health and wellbeing of our workforce. Over the past five years, we have achieved a 68 per cent reduction in the total number of workers exposed to our most material occupational exposures. For more information refer to OFR 7.4 and 7.6.

Our focus on safety and health underpins our strong operational performance and this includes eliminating sexual harassment, racism and bullying. We are committed to eliminating incidents of sexual harassment in our workplaces and accommodation villages, and have strengthened our approach to prevention, reporting and response. Our focus on gender balance is an important factor in addressing this unacceptable behaviour. For more information refer to OFR 7.5.

Inclusion and diversity

We continue to build a more inclusive and diverse workforce that further enhances our performance and better reflects the communities where we operate:

- We remain on track to achieve our aspirational goal for a gender-balanced employee workforce globally by FY2025. For more information refer to OFR 6.
- We made progress during FY2022 against targets for increased Indigenous employment in our Minerals Australia operations, Minerals Americas operations in Chile and our Jansen Potash Project in Canada. For more information refer to OFR 6.

Our portfolio

We are reshaping our portfolio to focus on higher-quality iron ore and metallurgical coal preferred by our steelmaking customers, copper for electrification and renewable energy, nickel for electric vehicles and potash to make food production and land use more efficient and sustainable. For more information refer to OFR 3.

Iron Ore: We are the lowest-cost major iron ore producer globally.[1] Western Australia Iron Ore (WAIO) is one of the lowest emissions intensity iron ore operations[2] and is increasing its grade as the new South Flank mine ramps up. WAIO achieved record sales volumes in FY2022, allowing us to capitalise on the opportunity presented by higher iron ore prices. For more information refer to OFR 5.1.

Copper: We hold the world's largest copper endowment.[3] We are using technical innovation such as new floatation technology to help lower energy costs and unlock value and are looking to secure more copper resources through exploration, acquisition, and early-stage entry. Escondida in Chile is the world's largest copper mine. Escondida had record material mined and near-record concentrator throughput in FY2022, while Olympic Dam in South Australia performed strongly in the June 2022 quarter after planned major smelter maintenance. For more information refer to OFR 5.1 and 5.2.

Metallurgical coal: Our metallurgical coal operations in Queensland focus on higher-quality product and have one of the lowest production emissions intensities of benchmarked mines.[2] We believe that a wholesale shift away from blast furnace steel making, which uses metallurgical coal, is still decades in the future and that metallurgical coal will remain an essential input into the steelmaking process, which is critical to support decarbonisation infrastructure. We recently completed the sale of our interest in BHP Mitsui Coal (BMC), further focusing our coal portfolio on higher-quality coals for steelmaking with greater potential upside for quality premiums as steelmakers seek to improve blast furnace utilisation and reduce emissions intensity. For more information refer to OFR 5.1.

Nickel: We hold the second-largest nickel sulphide endowment globally[4] and our nickel operations in Western Australia have one of the lowest production emissions intensities of benchmarked mines.[2] We achieved our first saleable production of nickel sulphate crystals for the lithium-ion battery industry in the December 2021 quarter. We are growing value by supplying 87 per cent of BHP's battery-suitable nickel to battery material suppliers in FY2022. We are seeking more nickel resources through exploration, acquisition and early-stage entry. For more information refer to OFR 5.1.

Potash: We are developing one of the world's largest potash mines in Canada. The proposed mine has been designed based on a sustainable approach with a relatively low emissions footprint and low water intensity compared to existing potash mines. The Jansen Potash Project is expected to increase BHP's product diversification, customer base and operating footprint, opening up a new future growth front. The US$5.7 billion Jansen Stage 1 is tracking to plan and opportunities to bring forward Jansen S1 continue to be assessed. For more information refer to OFR 5.2.

Exceptional performance

Operational excellence

We seek to continuously improve performance by empowering our people through BOS principles, practices and tools. BOS is, at its heart, a people program. It is designed to provide a way of working that creates a culture at BHP where we make continuous improvement central to everyone's role.

We continued to deploy BOS throughout our business in FY2022 and expect full deployment by the end of FY2024. BOS has delivered over US$2 billion in estimated, recurring and one-time cost and revenue improvements since we developed it in CY2018. Based on the success we are seeing, we believe it will deliver further gains in the future.

1 Based on published C1 unit costs of major iron ore producers. There may be differences in the manner that third parties calculate or report unit costs data compared to BHP, which means that third-party data may not be comparable to our data.
2 For more information refer to OFR 7.8.
3 Based on ownership interest. Peers include: Anglo American, Antofagasta, Codelco, First Quantum Minerals, Freeport, Glencore, Rio Tinto, Southern Copper and Teck. Source peers: Wood Mackenzie Ltd, Q1 2022.
4 Based on ownership interest. Source peers: MinEx Consulting.

What is the BHP Operating System?

The BHP Operating System (BOS) is a way of working that seeks to make improvement part of what we do every day through the application of BOS tools and practices. It is anchored in three principles that will help us deliver exceptional safety and productivity performance and an inclusive and empowered culture:

- **Serve our customers** – deliver what internal and external customers need, at the right time and at the appropriate levels of quality and cost.
- **Pursue operating perfection** – pursue 100 per cent safety for our people, 100 per cent value for our customers, 0 per cent waste.
- **Empower our people** – support our people with the right conditions and leadership to excel. They know their work and how to improve it.

Through BOS principles and practices we are delivering more to our employees and contractors, suppliers, shareholders, customers and the communities whose resources we develop.

Embracing technology and innovation

The power of data, innovation and technology, together with the BOS, have helped accelerate continuous improvement across our value chain, from the geoscience required in exploration through to the marketing of our products.

We have used technology to:

- maintain safe, predictable and productive operations
- drive productivity improvements, with an emphasis on automation and real-time, data-driven insights and decision-making
- help drive inclusion and diversity by providing greater opportunities for roles that were traditionally labour intensive
- unlock the next stage of value growth at BHP, from realising greater margins at our existing operations to finding new assets
- improve sustainability outcomes through innovation

The use of technology such as in autonomous trucks, production innovation such as primary sulphide leaching at our copper assets (which has helped us to extract more copper from ore) and digital transformation across all parts of our business has helped to improve safety, increase productivity, reduce costs, build capability and accelerate value creation.

Examples of our application of technology and innovation in FY2022 include:

- We continued to automate our global trucking fleets. At South Flank we began to automate our fleet of 41 Komatsu haul trucks in the June 2022 quarter, with the program expected to be completed within 18 months. We continued deployment at Goonyella Riverside (expected to be completed by the end of December 2022) and completed the rollout at Daunia. We also commenced autonomous drilling at Spence. We expect to commence the rollout of automated trucks at Spence in FY2023.
- We began testing two automated shiploaders at the Port Hedland export facility in Western Australia. In what we believe is a world first, 3D laser scan technology has been used in the A$50 million project. We intend to fully automate eight shiploaders by FY2024. The project is expected to enable an increase in production of more than 1 million tonnes of iron ore each year through greater precision, reduced spillage, faster load times and equipment optimisation.
- Our in-house Grade Adjustment Model has been introduced at multiple WAIO sites and is expected to enable a US$22.8 million annual revenue uplift at WAIO. The model uses machine learning to target a reduction in iron ore grade variability across the supply chain. It uses data sources that capture movements of ore to map the iron ore grade coming from the mine to the iron grade shipped at port.
- Through our Maintenance and Engineering Centre of Excellence, we continued the rollout of our Total Equipment Strategies (TES), which were initially applied to our mobile fleets and have been extended to our fixed plant. These strategies use mathematical analysis of breakdowns, maintenance patterns and original equipment manufacturer recommendations to recalibrate our maintenance programs to increase availability and reliability, and reduce maintenance costs and inventory values. For example, at our Newman iron ore operation in Western Australia, the mobile TES project for CAT 6060 excavators helped to extend the average equipment life by 40 per cent and delivered an availability uplift of 2 per cent. The outcome is 3.5 years of extra life which has helped to achieve capital productivity by deferral of US$120 million of capital expenditure over five years.

Financial excellence

We use the Capital Allocation Framework (CAF) to assess the most effective and efficient way to deploy capital. This prioritises maintaining safe and reliable operations, meeting our social value and GHG emissions reductions targets, goals and strategies, keeping our balance sheet strong and delivering strong growth and returns for our shareholders. We then look at what would be the most valuable risk-adjusted use for any excess capital. We evaluate the range of investment opportunities and aim to optimise the portfolio based on our assessment of risk, returns and future optionality. We then develop a long-term capital plan and guidance for the Group.

Since the CAF's introduction in FY2016, we have balanced reinvestment in the business with cash returns to shareholders. We want shareholders to see the short-term benefit of these cash returns and trust us to plan for the future by investing where it matters.

Social value

Social value is BHP's positive contribution to society – our people, partners, the economy, the environment and local communities. It is about creating enduring, mutual benefit for BHP, our shareholders and the broader community.

Doing this well is essential to better business outcomes and long-term shareholder value, and will create a competitive advantage.

How social value can create competitive advantage

We recognise that decisions we make have the potential to positively or negatively impact those around us, and the environment. Our aim with social value is to be deliberate and proactive in taking into account social, environmental and financial impact in the choices we make.

Embedding social value into everything we do will open up opportunities, increase resilience and help us manage risk. It will influence our access to resources, partners, markets, the best talent, and capital.

Our commitment to social value

We have been committed to sustainability and social value for many years and are making progress in responsibly providing more of the resources the world needs:

- We have set GHG emissions reduction targets and goals (that are described in OFR 7.8) and our Climate Transition Action Plan 2021 (CTAP) received majority approval from shareholders in the 'Say on Climate' advisory vote at our 2021 Annual General Meetings.
- We are working to create nature-positive[4] outcomes through the new goal we have set to have at least 30 per cent of the land and water we steward under conservation, restoration or regenerative practices by 2030. For more information refer to 2030 social value scorecard below and OFR 7.15.
- We are working to transition our operations to renewable electricity. For more information, refer to OFR 5.1 and 7.8.
- We are working with suppliers to drive innovation by participating in initiatives such as Komatsu's GHG Alliance, which aims to develop commercially viable zero-GHG emissions haul trucks. For more information refer to OFR 7.8.
- Our spend with Indigenous businesses increased by 75 per cent to US$149.9 million in FY2022 and the number of Indigenous vendors engaged rose by 53 per cent to 148. WAIO announced its intention to more than double its spend with Indigenous vendors to more than US$300 million by the end of FY2024. For more information refer to OFR 7.13.
- We completed our most recent five-year sustainability targets in FY2022. Highlights included three years fatality-free, a reduction in the total number of workers exposed to our most material occupational exposures by 68 per cent, social investment of US$681.4 million over five years and a 29 per cent reduction in freshwater withdrawal volumes from our adjusted FY2017 baseline. For more information refer to OFR 7.3 and 7.8.
- Our Chilean operations Escondida and Spence, and Olympic Dam in Australia were awarded the Copper Mark during FY2022 recognising responsible production practices. For more information on our social value performance refer to OFR 7.

2030 social value scorecard

In June 2022, we launched our social value scorecard with 2030 goals, metrics and milestones (below). We believe it will enhance our opportunity to run our business in a way that delivers long-term, sustainable value to BHP, our shareholders and the broader community.

This scorecard provides clarity to our teams on our ambitions and allows us to measure progress, transparently report, and hold ourselves to account.

Our metrics will evolve over time and some are future metrics that will be developed in the coming years. They show where we are headed with measuring our performance.

At its core, this scorecard represents an emphasis on partnerships, listening and co-design, recognising that it is not for us alone to decide what is of value to communities or the environment, and that addressing challenges like climate change require collaboration.

We will disclose our performance against this scorecard every year as part of our Annual Report, starting in FY2023.

2030 social value scorecard[1]

How we will report from FY2023

Planet • People • Prosperity

Pillars	Decarbonisation	Healthy environment	Indigenous partnerships
2030 goals	At least 30% reduction in operational GHG emissions, support 40% emissions intensity reduction of BHP-chartered shipping of our products, and support development of technologies and pathways capable of 30% emissions intensity reduction in integrated steelmaking.[2,3]	Create nature-positive[4] outcomes by having at least 30% of the land and water we steward under conservation, restoration or regenerative practices. In doing so we focus on areas of highest ecosystem value both within and outside our own operational footprint, in partnership with Indigenous peoples and local communities.	Respectful relationships that hear and act upon the distinct perspectives, aspirations and rights of Indigenous peoples and support the delivery of mutually beneficial and jointly defined outcomes.
Key metrics	% reduction in operational emissions from FY2020[3] % reduction in emissions intensity of BHP-chartered shipping of our products[3] *Available in FY2023* $ committed in steelmaking partnerships and ventures to date (US$)	% area under nature-positive management practices[5] # assets with natural capital account[6] *Available from FY2023*	% Indigenous workforce participation, by region $ Indigenous procurement (US$) *Available in 2024*
Short-term milestones	**FY2023:** 95% of study phase projects are presented for tollgates or meet milestones as scheduled in BHP's operational decarbonisation plan **FY2024:** Operationalise five low/zero GHG emission vessels **FY2024:** Complete at least one pilot or industrial scale steelmaking-related plant trial	**FY2023:** Publish context-based water targets **FY2023:** Complete important biodiversity and ecosystems (IBE) baseline mapping for all land and water areas[7] **FY2024:** Establish 'nature-positive' asset plans to deliver the Group-level 2030 goal	**FY2023:** Release revised Global Indigenous Peoples Strategy **FY2023:** Increase formal Indigenous voice mechanisms in decision-making **FY2024:** Co-create plans which define priorities and are designed to deliver mutually beneficial outcomes

	Progress on plan[8]		Relationship health[9]
Australia	O	Traffic light	O
Canada	O	Traffic light	O
Chile	O	Traffic light	O

BHP commits to social investment of at least 1% pre-tax profit[10]

1 In setting BHP's 2030 goals, we had regard to existing public sustainability frameworks, including the UN Sustainable Development Goals, the Paris Agreement, Convention on Biological Diversity, The Global Business Collaboration for Better Workplace Mental Health, and the UN Declaration of the Rights of Indigenous Peoples. Our pillars map to the UN Sustainable Development Goals as follows: Decarbonisation – Goal 13; Healthy environment – Goals 6, 14, 15; Indigenous partnerships – Goals 8, 10, 17; Safe, inclusive and future-ready workforce – Goals 3, 5, 10; Thriving, empowered communities – Goals 3, 4, 6, 7, 8, 9, 10, 11, 16 and Responsible supply chains – Goals 10, 12, 16, 17.

2 With widespread adoption expected post-2030.

3 These positions are expressed using terms that are defined in the Glossary to this Report, including the terms 'target', 'goal', 'net zero' and 'carbon neutral'. The baseline year(s) of our targets will be adjusted for any material acquisitions and divestments, and to reflect progressive refinement of emissions reporting methodologies. The targets' boundaries may in some cases differ from required reporting boundaries. The use of carbon offsets will be governed by BHP's approach to carbon offsetting described at bhp.com/climate. The Scopes 1 and 2 operational emissions target is for FY2030. The Scope 3 goals are for CY2030. For further information on our GHG targets and goals, refer to 'BHP's climate change targets and goals' in OFR 7.8.

4 Nature positive is defined by the WDCGD/TNFD as 'A high-level goal and concept describing a future state of nature (e.g. biodiversity, ecosystem services and natural capital) which is greater than the current state.' It includes land and water management practices that halt and reverse nature loss – that is, supporting healthy, functioning ecosystems.

5 Land under stewardship which has a formal management plan including nature-positive practices. Data reflects the period up to 30 June 2021.

6 Natural capital accounts are a way to measure the amount, condition and value of environmental assets in a given area. It helps describe changes in ecosystems and how these impact wellbeing and economies.

Safe, inclusive and future-ready workforce	Thriving, empowered communities	Responsible supply chains
A thriving workforce that is safe, healthy, gender balanced at every level, culturally diverse[10] and inclusive and skilled for the future.	Partner with communities and stakeholders to co-create and implement plans that deliver jointly defined economic, social and environmental outcomes.	Together with our partners, we create sustainable, ethical and transparent supply chains.
# reduction in life-altering injury or illness[11] *Available in FY2023* % engagement and Perception Survey wellbeing score % female workforce representation *Diversity index available in FY2024*	% co-created plans *Delivery metric to be added in FY2024* # community feedback on co-creation and implementation process *Available in FY2024* $ total economic contribution (US$)	# customer Net Promoter Score (NPS)[14] # supplier Net Promoter Score (NPS)[14]
FY2023: Achieve 100% adherence to sexual harassment program[12] **FY2024:** >90% implementation of plan for controls identified and approved through the Fatality Elimination Program and 100% adherence to the psychosocial risk[13] management program **FY2024:** Female workforce representation exceeds 37%	**FY2023:** Release Equitable Transition principles – refer to OFR 7.1 **FY2023/2024:** Embed co-creation approach including metrics and measurement **FY2025:** Implement co-created plans that are designed to deliver jointly defined outcomes	**FY2024:** Implement LME Responsible Sourcing requirements **FY2024:** Complete ICMM Performance Expectations for all operating assets **FY2024:** Determine ethical supplier improvement plans with partners, where required

7 All land and water areas across Minerals Americas and Minerals Australia.
8 Progress to plan will be partner-measured using a traffic light score on Indigenous partnership satisfaction in relation to the milestones agreed in partnership.
9 Relationship health will be partner-measured using a traffic light score.
10 Cultural diversity in our workforce will be measured based on our substantive progress towards reflecting the cultural diversity of the community.
11 Reduction in life-altering injury or illness: includes life-altering or long-term permanent disabling injuries and illnesses as defined by the BHP Risk Management Framework.
12 The core components of the sexual harassment program include: culture, leadership and training; security measures at accommodation villages; recruitment processes; contractor and third-party engagement; emergency response; trauma-informed (wellbeing) care; accessible, confidential reporting and person-centric investigations; and appropriate disciplinary action.
13 Psychosocial risks or hazards are factors in the design or management of work or the social conditions that increase the risk of work-related stress and can lead to psychological or physical harm. Examples of psychosocial hazards include exposure to unreasonable behaviours, including bullying, racism and sexual harassment, fatigue, poor supervisor support, poor communication or change management or high job demands.
14 Net Promoter Scores show respective feedback from our customers and suppliers, and measures the willingness of our customers/suppliers to recommend BHP to others. It is used as a proxy for gauging overall satisfaction.
15 Social investment to be assessed as a total over the entire period to FY2030, rather than a specific annual commitment. This investment is in addition to our direct operational decision-making and financial contributions.

Supporting local economic development

We aim to source and promote locally available goods and services as an important part of our external expenditure, to help local communities thrive. Our operated assets develop local procurement plans designed to identify opportunities for local suppliers, including small businesses.

In FY2022, BHP made US$18.8 billion in payments to suppliers globally, including US$17.6 billion in payments to more than 8,000 suppliers in the regions where we operate. Of the latter amount, US$2.7 billion, or 15.2 per cent, was paid to local suppliers in the communities where we operate. Our expenditure with local suppliers was primarily in Australia (59 per cent) and Chile (30 per cent). Of our total supplier spend, 94.4 per cent was in the regions where we operate.

3 Positioning for the future

Reshaping our corporate structure and portfolio

In FY2022, we took steps to create a simpler, more agile and efficient BHP, better able to capitalise on the megatrends shaping our world.

A simpler corporate structure

For the past two decades, we operated with a dual listed company (DLC) structure with two parent companies – BHP Group Limited in Australia with its shares listed on the Australian Securities Exchange and BHP Group Plc (now known as BHP Group (UK) Ltd) in the United Kingdom with its shares listed on the London Stock Exchange.

Following shareholder approval in January 2022, we unified our corporate structure to one parent company and one share price – under BHP Group Limited. We believe unification gives us a corporate structure that is simpler, more agile and more efficient.

Merging Petroleum with Woodside

During FY2022, we merged our Petroleum business with Woodside Energy Group Ltd (Woodside) to create a global top 10 independent energy company by production. Woodside acquired BHP's Petroleum business in exchange for Woodside shares that were distributed to BHP shareholders through an in specie dividend.

Based on Woodside's share price of US$21.39 (A$29.76) at 31 May 2022, the closing date of the transaction, the implied value of BHP's Petroleum business was US$19.6 billion (A$27.2 billion).

BHP shareholders gained exposure to assets in Woodside through the transaction and greater choice about how to weight their exposure to the different investment and sector propositions. The transaction increased BHP's portfolio weighting towards future facing commodities that support economic growth and have potential upside through the energy transition.

Consolidating our coal portfolio

In January 2022, we divested our 33.3 per cent interest in Cerrejón, a non-operated energy coal joint venture in Colombia, to Glencore, for a total cash consideration of approximately US$294 million.

In May 2022, we divested our 80 per cent interest in BHP Mitsui Coal Pty Ltd (BMC), a metallurgical coal joint venture in Queensland operated by BMC, to Stanmore Resources Limited, for a total cash consideration of up to US$1.35 billion in paid and deferred amounts, plus a final completion adjustment amount.

In June 2022, we announced that, following a two-year review, we would retain New South Wales Energy Coal (NSWEC). We will be seeking approvals to continue mining at NSWEC beyond its current mining consent that expires in 2026 and intend to proceed with a managed process to cease mining at the asset by the end of FY2030.

These portfolio changes are consistent with our strategy to focus on producing higher-quality metallurgical coal.

Investing in a new commodity – potash

Potash enables more efficient and sustainable farming, which we believe will be increasingly important in feeding a growing population, and potentially opens a new long-term growth front for BHP.

In August 2021, we approved US$5.7 billion in capital expenditure for Jansen Stage 1 in Saskatchewan, Canada, with first potash production expected in CY2027. We are working to bring forward Jansen Stage 1 first production and are assessing options to accelerate Jansen Stage 2.

The US$2.97 billion Jansen project to finish the excavation and lining of the production and service shafts, and to continue the installation of essential surface infrastructure and utilities, was completed in June 2022. For FY2023, approximately US$740 million in capital expenditure is planned for work at Jansen Stage 1, which will continue to focus on civil and mechanical construction on the surface and underground, as well as equipment procurement and port construction.

Unlocking growth potential at our assets

The large endowments we have under our control are becoming increasingly valuable as the resources industry finds high-quality, Tier 1 (large, low-cost and long-life) resources harder to access, deeper, of lower grade, or in countries with more challenging operating conditions.

Copper

We hold the largest copper endowment in the world at among the highest average grade.[1]

- This includes 27 billion tonnes of ore at an average grade of 0.52 per cent at Escondida, where we are targeting an annual average of 1.2 million tonnes (Mt) of copper production over the medium term, a 20 per cent increase on Escondida's FY2022 production of 1 Mt.
- On the basis that tailings storage facility anomalies are resolved, production at Spence is expected to reach and average approximately 270 kilotonnes per annum (ktpa) of production for four years (including cathodes) following the completion of Spence Growth Option (SGO) plant modifications. This will be supported by capital expenditure of approximately US$100 million, which is planned for the SGO plant modifications and these are currently planned to be completed in CY2023, with further studies ongoing for additional capacity uplift.
- At Olympic Dam, we have improved operating stability over time. Smelter operations have been strong following our planned major smelter maintenance, completed in January 2022. The next major rebuild is not expected for six years.

Nickel

We hold the second-largest nickel sulphide endowment globally[2] and own the majority of tenements of known resource in the Agnew-Wiluna basin in Western Australia.

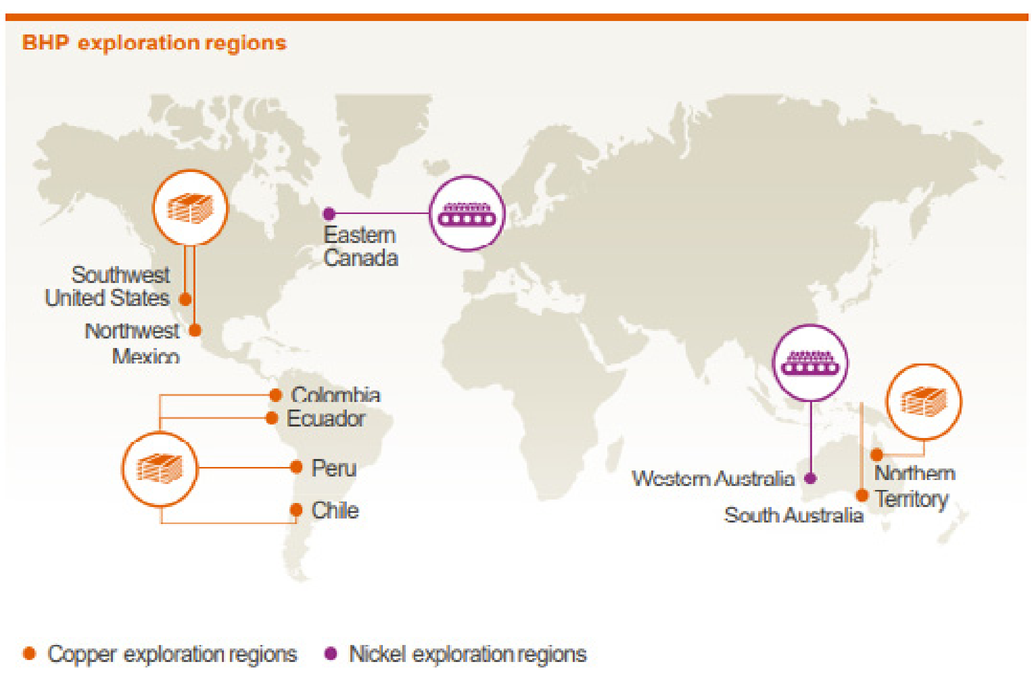
- Our nickel sulphate plant at Nickel West delivered first crystals in October 2021, allowing us to add further value to our nickel production. We intend to capitalise on the expected ongoing global demand for nickel for the electric vehicle industry, as the method we use to produce nickel sulphate results in a product we believe is ideal for battery production.
- We continue to explore ways to increase the scale of Nickel West.

Iron Ore

We are one of the world's largest iron ore producers and expect to increase production over the medium-term.

- We have secured an increase to our WAIO iron ore environmental licence to expand port operations up to 330 million tonnes per annum (Mtpa) subject to the outcomes of a standard appeals process.
- The ramp up of WAIO's US$3.6 billion South Flank mine is ahead of schedule and we have revised our medium term production guidance to more than 300 Mtpa. We are assessing expansion alternatives to take us toward 330 Mtpa of production.

Growth through exploration, focused on copper and nickel



1 Based on ownership interest. Peers include: Anglo American, Antofagasta, Codelco, First Quantum Minerals, Freeport, Glencore, Rio Tinto, Southern Copper, and Teck. Source peers: Wood Mackenzie Ltd, Q1 2022.

2 Based on ownership interest. Source peers: MinEx Consulting.

Our exploration program is focused on copper and nickel. We look to identify and gain access to new search spaces to test targets capable of delivering high-quality, Tier 1 deposits, and maintain research and technology activities aligned with our exploration strategy.

Despite the slowdown and restrictions on movement due to the COVID-19 pandemic, in FY2022 our field teams pursued copper opportunities in Chile, Colombia, Peru, Ecuador, the United States and Australia. This involved early-stage reconnaissance work through target definition and drill testing. Elsewhere for copper, we continued to seek, secure and test concessions in regions such as Ecuador, South Australia, Chile, Mexico and Peru.

We have also increased the number of high-quality nickel projects within the exploration pipeline. We are actively exploring nickel targets in Western Australia, while in Canada, we continued our partnership with Midland Exploration Inc in Canada, through our 5 per cent interest and collaboration on a target generation program. BHP made a US$40 million investment in Kabanga Nickel in Tanzania in FY2022, which offers an opportunity to expand the immediate search space to add to the known resource.

Our business partnerships continued to deliver encouraging results. In Ecuador, we maintained a 13.6 per cent ownership in SolGold plc, the majority owner and operator of the Alpala porphyry copper-gold project. In Mexico, we continued our financial agreement with Riverside Resources, a US company with significant operating experience in Mexico, securing additional areas that are scheduled to be drill tested during FY2023. In Australia, we initiated work with Encounter Resources to explore for sediment-hosted copper deposits in the Northern Territory. We also entered into a Letter of Intent with Mundoro to cooperatively explore for copper resources in the highly prospective belt in Serbia and Bulgaria. Several drill-ready targets are scheduled to be tested during FY2023.

Exploration expenditure

Our resource assessment exploration expenditure increased by 30 per cent in FY2022 to US$179 million, while our greenfield expenditure increased by 43 per cent to US$77 million. Expenditure on resources assessment and greenfield exploration over the last three financial years is set out below.

Year ended 30 June	**2022 US$M**	2021 US$M	2020 US$M
Greenfield exploration	**77**	54	44
Resources assessment	**179**	138	132
Total metals exploration and assessment	**256**	192	176

Exploration expense

Exploration expense represents that portion of exploration expenditure that is not capitalised in accordance with our accounting policies, as set out in Financial Statements note 11 ‘Property, plant and equipment’.

Exploration expense for each segment over the last three financial years is set out below.

Year ended 30 June	**2022 US$M**	2021 US$M	2020 US$M
Exploration expense			
Copper	**85**	53	54
Iron Ore	**54**	55	47
Coal	**6**	7	9
Group and unallocated items[1]	**54**	19	13
Total Group	**199**	134	123

1 Group and unallocated items includes functions, other unallocated operations, including Potash, Nickel West and legacy assets (previously disclosed as closed mines in the Petroleum reportable segment), and consolidation adjustments.

4 Financial review

4.1 Group overview

We prepare our Consolidated Financial Statements in accordance with International Financial Reporting Standards (IFRS), as issued by the International Accounting Standards Board. We publish our Consolidated Financial Statements in US dollars. All Consolidated Income Statement, Consolidated Balance Sheet and Consolidated Cash Flow Statement information below has been derived from audited Financial Statements. For more information refer to Financial Statements.

We use various non-IFRS financial information to reflect our underlying performance. Non-IFRS financial information is not defined or specified under the requirements of IFRS however, is derived from the Group's Consolidated Financial Statements prepared in accordance with IFRS. Non-IFRS financial information is consistent with how management reviews financial performance of the Group with the Board and the investment community. OFR 11 'Non-IFRS financial information' includes our non-IFRS financial information and OFR 11.1 'Definition and calculation of non-IFRS financial information' outlines why we believe non-IFRS financial information is useful and the relevant calculation methodology. We believe non-IFRS financial information provides useful information, however it should not be considered as an indication of, or as a substitute for, statutory measures as an indicator of actual operating performance (such as profit or net operating cash flow) or any other measure of financial performance or position presented in accordance with IFRS, or as a measure of a company's profitability, liquidity or financial position.

Summary of financial measures

Year ended 30 June **US$M**	**2022**	2021
Consolidated Income Statement (Financial Statements 1.1)		
Revenue[1]	**65,098**	56,921
Profit/(loss) after taxation from Continuing operations[1]	**22,400**	13,676
Profit/(loss) after taxation from Continuing and Discontinued operations attributable to BHP shareholders	**30,900**	11,304
Dividends per ordinary share – paid during the period (US cents)	**350.0**	156.0
Dividends per ordinary share – determined in respect of the period (US cents)	**325.0**	301.0
In specie dividend on merger of Petroleum with Woodside (US cents)	**386.4**	–
Basic earnings/(loss) per ordinary share (US cents)	**610.6**	223.5
Consolidated Balance Sheet (Financial Statements 1.3)		
Total assets	**95,166**	108,927
Net assets	**48,766**	55,605
Consolidated Cash Flow Statement (Financial Statements 1.4)		
Net operating cash flows	**32,174**	27,234
Capital and exploration expenditure[2]	**7,545**	7,120
Other financial information (OFR 11)		
Net debt	**333**	4,121
Underlying attributable profit	**23,815**	17,077
Underlying attributable profit – Continuing operations[1]	**21,319**	16,985
Underlying EBITDA[1]	**40,634**	35,073
Underlying basic earnings per share (US cents)	**470.6**	337.7
Underlying basic earnings per share – Continuing operations (US cents)[1]	**421.2**	335.9
Underlying return on capital employed (per cent)	**48.7**	32.5

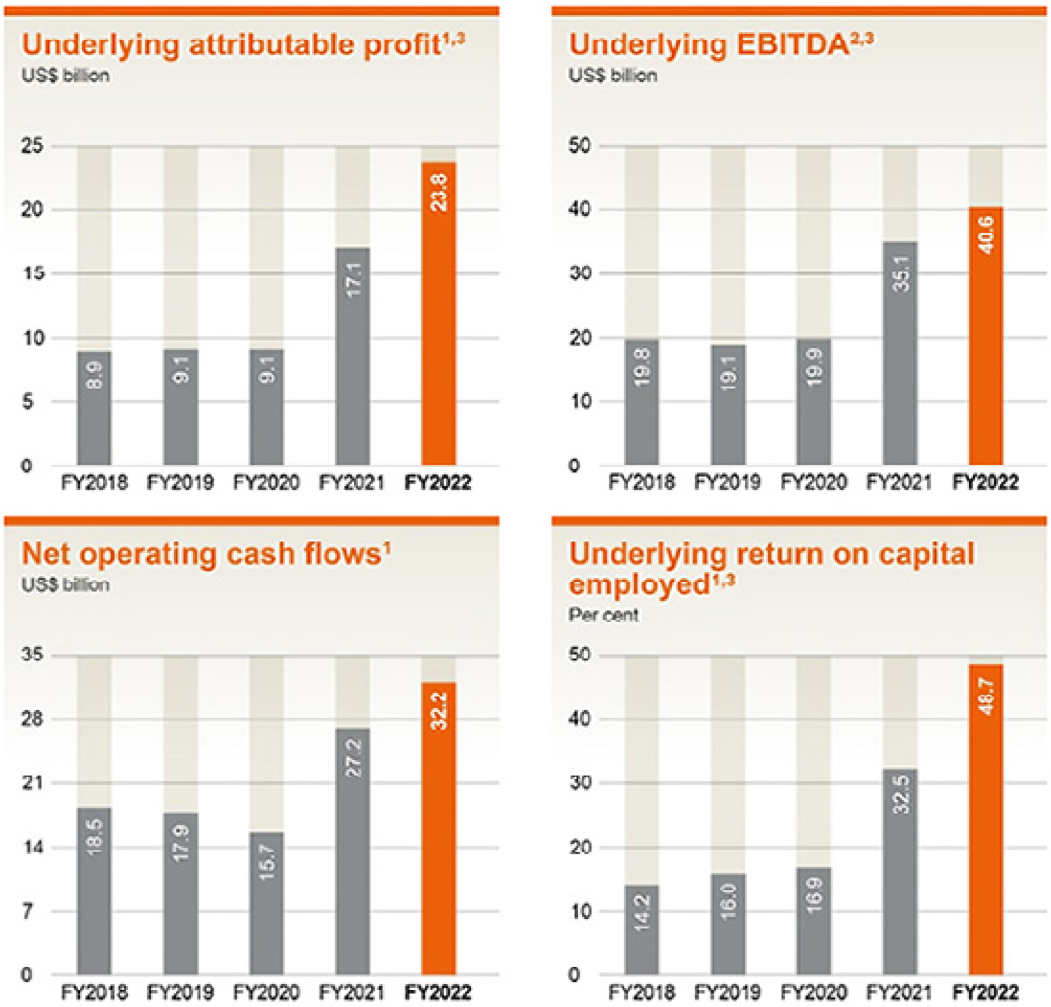
1 Comparative periods have been adjusted for the effects of applying IFRS 5 'Non-current Assets Held for Sale and Discontinued Operations' and discloses them on the same basis as the current period figures. For more information refer to Financial Statements note 27 'Discontinued operations'.

2 Includes US$1,434 million related to Discontinued operations (FY2021: US$1,316 million).

4.2 Key performance indicators

Our key performance indicators (KPIs) enable us to measure our sustainable development and financial performance. These KPIs are used to assess performance of our people throughout the Group. For information on our approach to performance and reward refer to Remuneration Report. For information on our overall approach to executive remuneration, including remuneration policies and remuneration outcomes refer to Remuneration Report.

Following BHP's sale of the Onshore US assets in FY2019 and subsequently the merger of our Petroleum business with Woodside in FY2022, the contribution of these assets to the Group's results are presented as Discontinued operations. To enable more meaningful comparisons with prior year disclosures and in some cases to comply with applicable statutory requirements, the data in OFR 4.2, except for Underlying EBITDA, has been presented to include Petroleum assets. Footnotes to tables and infographics indicate whether data presented in OFR 4.2 is inclusive or exclusive of Petroleum assets. Details of the contribution of the Petroleum assets to the Group's results are disclosed in Financial Statements note 27 'Discontinued operations'.



1 Includes data for Continuing and Discontinued operations for the financial years being reported.

2 Excludes data from Discontinued operations for the financial years being reported.

3 For more information on non-IFRS financial information refer to OFR 11.

Reconciling our financial results to our key performance indicators

Profit

	Profit		US$M
Measure:	**Profit after taxation from Continuing and Discontinued operations**		**33,055**
Made up of:	Profit after taxation		
Adjusted for:	Exceptional items before taxation	**620**	
	Tax effect of exceptional items	**454**	
	Exceptional items after tax attributable to non-controlling interests	–	
	Exceptional items attributable to BHP shareholders – Continuing operations		1,074
	Exceptional items attributable to BHP shareholders – Discontinued operations		(8,159)
	Profit after taxation from Continuing and Discontinued operations attributable to non-controlling interests		(2,155)
To reach our KPIs	**Underlying attributable profit**		**23,815**
Why do we use it?	Underlying attributable profit allows the comparability of underlying financial performance by excluding the impacts of exceptional items.		

Earnings

	Earnings	US$M
Measure:	**Profit after taxation from Continuing and Discontinued operations**	**33,055**
Made up of:	Profit after taxation	
Adjusted for:	Exceptional items before taxation	**620**
	Tax effect of exceptional items	**454**
	Depreciation and amortisation excluding exceptional items	**5,683**
	Impairments of property, plant and equipment, financial assets and intangibles excluding exceptional items	**515**
	Net finance costs excluding exceptional items from Continuing operations	**679**
	Taxation expense excluding exceptional items	**10,283**
	Profit after taxation from Discontinued operations (including exceptional items)	**(10,655)**
To reach our KPIs	**Underlying EBITDA**	**40,634**
Why do we use it?	Underlying EBITDA is used to help assess current operational profitability excluding the impacts of sunk costs (ie. depreciation from initial investment). It is a measure that management uses internally to assess the performance of the Group's segments and make decisions on the allocation of resources.	

Cash

	Cash	US$M
Measure:	**Net operating cash flows from Continuing operations**	**29,285**
Made up of:	Cash generated by the Group's consolidated operations, after dividends received, interest, proceeds and settlements of cash management-related instruments, taxation and royalty-related taxation. It excludes cash flows relating to investing and financing activities	
Adjusted for:	Net operating cash flows from Discontinued operations	2,889
To reach our KPIs	**Net operating cash flows**	**32,174**
Why do we use it?	Net operating cash flows provide insights into how we are managing costs and increasing productivity across BHP.	

Returns

	Returns		US$M
Measure:	**Profit after taxation from Continuing and Discontinued operations**		**33,055**
Made up of:	Profit after taxation		
Adjusted for:	Exceptional items after taxation		**(7,085)**
	Net finance costs excluding exceptional items from Discontinued operations		**159**
	Net finance costs excluding exceptional items from Continuing operations		**679**
	Income tax expense on net finance costs		**(287)**
	Profit after taxation excluding net finance costs and exceptional items		26,521
	Net assets at the beginning of period	**55,605**	
	Net debt at the beginning of period	**4,121**	
	Capital employed at the beginning of period		**59,726**
	Net assets at the end of period	**48,766**	
	Net debt at the end of period	**333**	
	Capital employed at the end of period		**49,099**
	Average capital employed		**54,413**
To reach our KPIs	**Underlying return on capital employed**		**48.7%**
Why do we use it?	Underlying return on capital employed is an indicator of the Group's capital efficiency. It is provided on an underlying basis to allow comparability of underlying financial performance by excluding the impacts of exceptional items.		

4.3 Financial results

The following table provides more information on the revenue and expenses of the Group in FY2022.

Year ended 30 June	**2022 US$M**	2021 US$M Restated	2020 US$M Restated
Continuing operations			
Revenue[1]	**65,098**	56,921	38,924
Other income	**1,398**	380	720
Expenses excluding net finance costs	**(32,371)**	(30,871)	(25,453)
Loss from equity accounted investments, related impairments and expenses	**(19)**	(915)	(508)
Profit from operations	**34,106**	25,515	13,683
Net finance costs	**(969)**	(1,223)	(858)
Total taxation expense	**(10,737)**	(10,616)	(4,197)
Profit after taxation from Continuing operations	**22,400**	13,676	8,628
Discontinued operations			
Profit/(loss) after taxation from Discontinued operations	**10,655**	(225)	108
Profit after taxation from Continuing and Discontinued operations	**33,055**	13,451	8,736
Attributable to non-controlling interests	**2,155**	2,147	780
Attributable to BHP shareholders	**30,900**	11,304	7,956

1 Includes the sale of third-party products.

Profit after taxation attributable to BHP shareholders increased from US$11.3 billion in FY2021 to US$30.9 billion in FY2022. Attributable profit of US$30.9 billion includes an exceptional gain of US$7.1 billion (after tax), compared to an attributable profit of US$11.3 billion including an exceptional loss of US$5.8 billion (after tax) in the prior period. The FY2022 exceptional gain includes a US$1.1 billion exceptional loss related to Continuing operations comprising of Samarco dam failure impacts, corporate structure unification costs and US deferred tax asset impairments partially offset by the net gain on disposal of BMC. The net gain on merger of our Petroleum business with Woodside is included as an exceptional item related to Discontinued operations included within Profit/(loss) after taxation from Discontinued operations. For more information on Exceptional items refer to Financial Statements note 3 ‘Exceptional items’ and Financial Statements note 27 ‘Discontinued operations’.

Revenue of US$65.1 billion increased by US$8.2 billion, or 14 per cent from FY2021. This increase was mainly due to higher average realised prices for metallurgical coal, thermal coal, copper and nickel, partially offset by lower average realised prices for iron ore.

Lower volumes were experienced across the Group’s portfolio due to COVID-19 impacts, the planned major smelter maintenance campaign at Olympic Dam and lower feed grade at Escondida and Spence. Volume decline was partially offset by higher concentrate sales at Spence reflecting the continued ramp up of the Spence Growth Option. For information on our average realised prices and production of our commodities refer to OFR 10.

Total expenses excluding net finance costs of US$32.4 billion increased by US$1.5 billion, or 5 per cent from FY2021. This included higher raw materials and consumables of US$1.1 billion due to South Flank operational ramp up and higher input prices mainly due to higher diesel and acid prices, higher royalties of US$0.9 billion mainly driven by prices for metallurgical coal and thermal coal and US$0.7 billion third-party purchases mainly due to higher nickel prices. Higher depreciation and amortisation expense of US$0.6 billion reflected the commissioning of South Flank, Spence Growth Option, and the completion of the major smelter maintenance at Olympic Dam. The increase also included US$0.4 billion of costs related to corporate structure unification. This was partly offset by lower impairments of US$2.0 billion mainly due to Potash and NSWEC asset impairment charges in the prior period.

Loss from equity accounted investments, related impairments and expenses of US$19 million decreased by US$0.9 billion from FY2021. The decrease was primarily related to a lower increase in the Samarco dam failure provision compared to FY2021 and US$0.5 billion impairment of Cerrejón in FY2021. For more information on the total impact of the Samarco dam failure provision and impairment charges connected with equity accounted investments, refer to Financial Statements note 3 ‘Exceptional items’ and Financial Statements note 13 ‘Impairment of non-current assets’ respectively.

Net finance costs of US$1.0 billion decreased by US$0.3 billion, or 21 per cent from FY2021. This was mainly due to premiums of US$395 million paid as part of the multi-currency hybrid debt repurchase programs completed during FY2021. For more information on net finance costs refer to Financial Statements note 22 ‘Net finance costs’.

Total taxation expense of US$10.7 billion increased by US$0.1 billion from FY2021. The increase is primarily due to higher profits from higher prices offset by FY2021 reduction of US tax credits related to Chilean taxes and tax losses assessed as not recoverable not repeating. For more information on income tax expense refer to Financial Statements note 6 ‘Income tax expense’.

Principal factors that affect Underlying EBITDA

The following table and commentary describes the impact of the principal factors[1] that affected Underlying EBITDA for FY2022 compared with FY2021.

	US$M	
Underlying EBITDA for year ended 30 June 2021 (Restated)	**35,073**	
Net price impact:		
Change in sales prices	**6,594**	Higher average realised prices for metallurgical coal, thermal coal, copper and nickel, partially offset by lower average realised prices for iron ore.
Price-linked costs	**(1,047)**	Increased royalties reflecting higher realised prices for metallurgical coal and thermal coal and higher third-party concentrate purchase costs reflecting higher nickel prices, partially offset by lower royalties for iron ore.
	5,547	
Change in volumes	**(1,212)**	Lower volumes across our operations associated with the impacts of COVID-19 (US$952 million), lower volumes at Olympic Dam as a result of the planned major smelter maintenance campaign, lower copper concentrator feed grade at Escondida, lower BMA volumes due to significant wet weather impacts, and lower volumes at Nickel West due to an unplanned smelter outage in the June 2022 quarter. This was partially offset by higher concentrate sales at Spence reflecting the continued ramp up of the Spence Growth Option and favourable weather compared to the prior year at WAIO.
Change in controllable cash costs	**(540)**	Higher costs across our operations due to the impacts of COVID-19 (US$277 million) reported as an exceptional item last year, higher costs at WAIO due to South Flank operational ramp-up expenditure and higher rail maintenance costs. Higher costs at Escondida due to an increase in material mined and workforce bonus payments for a new collective bargaining agreement. Higher costs at Spence due to a ramp-up of concentrate volumes, and a prior year one-off gain due to the cancellation of power contracts at Escondida and Spence. This was partially offset by favourable inventory movements at Olympic Dam, Nickel West, Escondida and Spence, and lower costs at BMA due to cost efficiency initiatives.
Change in other costs:		
Exchange rates	**1,180**	Impact of movements in the Australian dollar and Chilean peso against the US dollar.
Inflation	**(867)**	Impact of inflation on the Group's cost base.
Fuel, energy, and consumable price movements	**(660)**	Predominantly higher diesel and acid prices.
Non-cash	**(3)**	
	(350)	
Asset sales	**2**	
Ceased and sold operations	**1,668**	Reflects the contribution of BMC prior to divestment and a decrease in costs related to the closure and rehabilitation provision for closed mines of US$297 million compared with the prior year.
Other items	**446**	Other includes higher recovery of freight costs caused by movements in the freight index on consecutive voyage charter (CVC) voyages and higher average realised sales prices received by Antamina, partially offset by the write-off of iron ore dormant stockpiles.
Underlying EBITDA for year ended 30 June 2022	**40,634**	

1 For information on the method of calculation of the principal factors that affect Underlying EBITDA, refer to OFR 11.2.

Discontinued operations

On 22 November 2021, the Group and Woodside signed a binding Share Sale Agreement ('SSA') for the merger of the assets with Woodside. Woodside has subsequently acquired the entire share capital of BHP Petroleum International Pty Ltd ('BHP Petroleum') in exchange for new Woodside ordinary shares.

While the merger had an economic effective date of 1 July 2021, the Group continued to control the Petroleum assets and carry on business in the normal course for 11 months until 1 June 2022 (Completion Date). As such, the Group recognises its share of revenue, expenses, net finance costs and associated income tax expense related to the discontinued operation until the Completion Date.

All income and expense items relating to the Petroleum Discontinued Operation have been removed from the individual line items in the Consolidated Income Statement. The post-tax loss of the Petroleum Discontinued Operation is presented as a single amount in the line item titled 'Profit/(loss) after taxation from Discontinued operations'.

Petroleum's contribution to BHP's 2022 financial results comprised a US$2.5 billion profit after taxation.

As consideration for the sale of BHP Petroleum, the Group received 914,768,948 newly issued Woodside ordinary shares at Completion Date. On the Completion Date, the Group paid a fully franked in specie dividend in the form of Woodside shares to eligible BHP shareholders. Eligible BHP shareholders received one Woodside share for every 5.5340 BHP shares they held on the Group's register at the record date of 26 May 2022. As part of completion and in order to reflect the economic effective date, the Group made a net cash payment of US$0.7 billion to Woodside in addition to US$0.4 billion in cash that was left in the BHP Petroleum bank accounts to fund ongoing operations. The total cash transfer of US$1.1 billion reflects the net cash flows generated by BHP Petroleum between 1 July 2021 and Completion Date adjusted for dividends Woodside would have paid on the newly issued Woodside ordinary shares, had the merger completed on 1 July 2021. The net cash completion payment to Woodside is subject to a customary post-completion review, which may result in an adjustment to the amount paid. The merger generated a net gain after tax of US$8.2 billion that has been included in the line item titled 'Profit/(loss) after taxation from Discontinued operations' and treated as an exceptional item.

For further information refer to Financial Statements note 27 'Discontinued operations'.

Cash flow

The following table provides a summary of the Consolidated Cash Flow Statement contained in Financial Statements 1.4, excluding the impact of foreign currency exchange rate changes on cash and cash equivalents.

Year ended 30 June	**2022 US$M**	2021 US$M Restated	2020 US$M Restated
Net operating cash flows from Continuing operations	**29,285**	25,883	14,685
Net operating cash flows from Discontinued operations	**2,889**	1,351	1,021
Net operating cash flows	**32,174**	27,234	15,706
Net investing cash flows from Continuing operations	**(4,973)**	(6,325)	(6,583)
Net investing cash flows from Discontinued operations	**(904)**	(1,520)	(1,033)
Net cash completion payment on merger of Petroleum with Woodside	**(683)**	–	–
Cash and cash equivalents disposed on merger of Petroleum with Woodside	**(399)**	–	–
Net investing cash flows	**(6,959)**	(7,845)	(7,616)
Net financing cash flows from Continuing operations	**(22,734)**	(17,884)	(9,713)
Net financing cash flows from Discontinued operations	**(33)**	(38)	(39)
Net financing cash flows	**(22,767)**	(17,922)	(9,752)
Net increase/(decrease) in cash and cash equivalents	**2,448**	1,467	(1,662)
Net increase/(decrease) in cash and cash equivalents from Continuing operations	**1,578**	1,674	(1,611)
Net increase/(decrease) in cash and cash equivalents from Discontinued operations	**1,952**	(207)	(51)
Net cash completion payment on merger of Petroleum with Woodside	**(683)**	–	–
Cash and cash equivalents disposed on merger of Petroleum with Woodside	**(399)**	–	–

Net operating cash inflows from Continuing operations of US$29.3 billion increased by US$3.4 billion. This reflects higher net commodity prices, favourable foreign exchange and strong underlying operational performance partially offset by COVID-19 impacts.

Net investing cash outflows from Continuing operations of US$5.0 billion decreased by US$1.4 billion. This is primarily due to net proceeds received of US$1.3 billion, including adjustment for working capital, related to the sale of BHP's 80 per cent interest in BMC to Stanmore Resources Limited completed in the current period.

For more information and a breakdown of capital and exploration expenditure on a commodity basis refer to OFR 10.

Net financing cash outflows from Continuing operations of US$22.7 billion increased by US$4.9 billion. This increase reflects higher dividends paid to BHP shareholders of US$10.0 billion offset by lower net repayments of interest bearing liabilities of US$5.6 billion mainly due to bond maturity payments and early repayment of hybrid bonds executed in the FY2021 year.

For more information, refer to Financial Statements note 20 'Net debt'.

Net cash flows from Discontinued operations relate to the Group's Petroleum business that was merged with Woodside on 1 June 2022. For further information, refer to Financial Statements note 27 'Discontinued operations'.

Underlying return on capital employed (ROCE) of 48.7 per cent increased by 16.2 percentage points (FY2021: 32.5 per cent) reflecting the significant increase in profit after taxation excluding net finance costs and exceptional items of US$6.4 billion. The increase is also due to the disposal of the Group's Petroleum business and BMC reducing average capital employed.

For more information on Assets under Construction refer to Financial Statements note 11 'Property, plant and equipment'.

The comparisons for the year ended 30 June 2021 to 30 June 2020 in connection with Financial results, Principal factors that affect Underlying EBITDA and Cash flow have been omitted from this annual report on Form 20-F and can be found in our annual report on Form 20-F for the fiscal year ended 30 June 2021, filed on 21 September 2021.

4.4 Debt and sources of liquidity

Our policies on debt and liquidity management have the following objectives:

- a strong balance sheet through the cycle
- diversification of funding sources
- maintain borrowings and excess cash predominantly in US dollars

Interest bearing liabilities, net debt and gearing

At the end of FY2022, Interest bearing liabilities were US$16.4 billion (FY2021: US$21.0 billion) and Cash and cash equivalents were US$17.2 billion (FY2021: US$15.2 billion). This resulted in Net debt[1] of US$0.3 billion, which represented a decrease of US$3.8 billion compared with the net debt position at 30 June 2021. This was primarily due to significant operating cash flows generated from strong coal and copper prices and reliable operating performance which more than offset the payment of record dividends. Gearing, which is the ratio of Net debt to Net debt plus Net assets, was 0.7 per cent at 30 June 2022, compared with 6.9 per cent at 30 June 2021.

During FY2022, gross debt decreased by US$4.6 billion to US$16.4 billion as at 30 June 2022. This decrease includes a US$0.5 billion repayment of 3.25 per cent USD senior notes that matured on 21 November 2021 and US$0.7 billion repayment of 2.875 per cent USD senior notes that matured on 24 February 2022. The reduction also includes US$2.3 billion of favourable foreign exchange and interest rate adjustments, along with US$0.5 billion of coal and Petroleum leases disposed following the coal divestments and merger of Petroleum business with Woodside.

At the subsidiary level, Escondida refinanced US$0.9 billion of long-term debt and borrowed US$0.3 billion in long-term debt.

1 We use non-IFRS financial information to reflect our underlying financial performance. For a discussion on the non-IFRS financial information we use refer to OFR 11. For the definition and method of calculation of non-IFRS financial information, refer to OFR 11.1. For the composition of net debt refer to Financial Statements note 20 'Net debt'.

Funding sources

No new Group-level debt was issued in FY2022 and debt that matured during the year was not refinanced.

Our Group-level borrowing facilities are not subject to financial covenants. Certain specific financing facilities in relation to specific assets are the subject of financial covenants that vary from facility to facility, as is considered normal for such facilities. In addition to the Group's uncommitted debt issuance programs, we hold the following committed standby facility:

	Facility available 2022 US$M	**Drawn 2022 US$M**	**Undrawn 2022 US$M**	Facility available 2021 US$M	Drawn 2021 US$M	Undrawn 2021 US$M
Revolving credit facility[1]	**5,500**	–	**5,500**	5,500	–	5,500
Total financing facility	**5,500**	–	**5,500**	5,500	–	5,500

1 During the year we completed a one-year extension of the facility which is now due to mature on 10 October 2026. The committed US$5.5 billion revolving credit facility operates as a back-stop to the Group's uncommitted commercial paper program. The combined amount drawn under the facility or as commercial paper will not exceed US$5.5 billion. As at 30 June 2022, US$ nil commercial paper was drawn (FY2021: US$ nil), therefore US$5.5 billion of committed facility was available to use (FY2021: US$5.5 billion). A commitment fee is payable on the undrawn balance and interest is payable on any drawn balance comprising a reference rate plus a margin. The agreed margins are typical for a credit facility extended to a company with the Group's credit rating.

For more information on the maturity profile of our debt obligations and details of our standby and support agreements refer to Financial Statements note 23 'Financial risk management'. Information in relation to our material off-balance sheet arrangements, principally contingent liabilities, commitments for capital expenditure and commitments under leases at 30 June 2022 is provided in Financial Statements note 11 'Property, plant and equipment', Financial Statements note 21 'Leases' and Financial Statements note 32 'Contingent liabilities', respectively.

In our opinion, working capital is sufficient for our present requirements. Our Moody's credit rating has remained at A2/P-1 outlook stable (long-term/short-term) throughout FY2022 and Moody's affirmed its credit rating on 2 June 2022. Our Standard & Poor's credit rating changed from A/A-1 outlook stable (long-term/short-term) to A/A-1 CreditWatch negative (long-term/short-term) on 23 August 2021, following the announcement of the proposed merger of our Petroleum business with Woodside. Upon completion of the merger, on 1 June 2022 Standard & Poor's lowered the Group's long-term credit rating by one notch and removed the credit rating from CreditWatch, and confirmed a credit rating of A-/A-1 outlook stable (long-term/short-term). Credit ratings are forward-looking opinions on credit risk. Moody's and Standard & Poor's credit ratings express the opinion of each agency on the ability and willingness of BHP to meet its financial obligations in full and on time. A credit rating is not a recommendation to buy, sell or hold securities and may be subject to suspension, reduction or withdrawal at any time by an assigning rating agency. Any credit rating should be evaluated independently of any other information.

The following table expands on the net debt, to provide more information on the cash and non-cash movements in FY2022.

Year ended 30 June	2022 US$M		2021 US$M	
Net debt at the beginning of the financial year		**(4,121)**		(12,044)
Net operating cash flows	**32,174**		27,234	
Net investing cash flows	**(6,959)**		(7,845)	
Free cash flow – Total operations		**25,215**		19,389
Carrying value of interest bearing liability net repayments	**2,227**		7,433	
Net settlements of interest bearing liabilities and debt related instruments	**(2,474)**		(7,424)	
Dividends paid	**(17,851)**		(7,901)	
Dividends paid to non-controlling interests	**(2,540)**		(2,127)	
Other financing activities[1]	**(149)**		(234)	
Other cash movements		**(20,787)**		(10,253)
Fair value adjustment on debt (including debt related instruments)[2]	**5**		58	
Foreign exchange impacts on cash (including cash management related instruments)	**27**		(1)	
Lease additions	**(736)**		(1,079)	
Divestment and demerger of subsidiaries and operations	**492**		–	
Others	**(428)**		(191)	
Non-cash movements		**(640)**		(1,213)
Net debt at the end of the financial year		**(333)**		(4,121)

1 Other financing activities mainly comprises purchases of shares by Employee Share Option Plan trusts of US$149 million (FY2021: US$234 million).

2 The Group hedges against the volatility in both exchange and interest rates on debt, and also exchange on cash, with associated movements in derivatives reported in Other financial assets/liabilities as effective hedged derivatives (cross currency and interest rate swaps), in accordance with accounting standards. For more information refer to Financial Statements note 23 'Financial risk management'.

Dividends

Our dividend policy provides for a minimum 50 per cent payout of Underlying attributable profit (Continuing operations) at every reporting period. The minimum dividend payment for the second half of FY2022 was US$1.15 per share. The Board determined to pay an additional amount of US$0.60 per share, taking the final dividend to US$1.75 per share (US$8.9 billion). In total, cash dividends of US$16.4 billion (US$3.25 per share) have been determined for FY2022. These returns are covered by total free cash flow of US$25.2 billion in FY2022.

In addition, an in specie dividend of US$19.6 billion (US$3.86 per share) was determined in FY2022, distributing the Woodside shares received as consideration for the sale of BHP Petroleum. The total dividends determined in FY2022, both cash and in specie, was US$36.0 billion (US$7.11 per share).

The comparison for the year ended 30 June 2021 to 30 June 2020 has been omitted from this annual report on Form 20-F and can be found in our annual report on Form 20-F for the fiscal year ended 30 June 2021, filed on 21 September 2021.

5 Our assets

5.1 Minerals Australia

Minerals Australia includes operated assets in Western Australia, Queensland, New South Wales and South Australia, focused on iron ore, metallurgical coal, copper, nickel and energy coal. The commodities produced by our Minerals Australia assets are transported by rail and road to port and exported to our global customers.

Iron Ore

Western Australia Iron Ore

Overview

Western Australia Iron Ore (WAIO) is an integrated system of four processing hubs and five open-cut operational mines in the Pilbara region of northern Western Australia, connected by more than 1,000 kilometres of rail infrastructure and port facilities.

WAIO's Pilbara reserve base is relatively concentrated, allowing development through integrated mining hubs connected to the mines and satellite orebodies by conveyors or spur lines. This approach seeks to maximise the value of installed infrastructure by using the same processing plant and rail infrastructure for several orebodies.

Ore is crushed, beneficiated (where necessary) and blended at the processing hubs – Mt Newman operations (which has our beneficiation plant), Yandi, Mining Area C and Jimblebar – to create lump and fines products that are transported along the Port Hedland – Mt Newman rail line to the Finucane Island and Nelson Point port facilities at Port Hedland.

There are four main WAIO joint ventures (JVs): Mt Newman, Yandi, Mt Goldsworthy (which includes the new South Flank mining area) and Jimblebar. BHP's interest in each is 85 per cent, with Mitsui and ITOCHU owning the remaining 15 per cent. The joint ventures are unincorporated, except Jimblebar.

BHP, Mitsui, ITOCHU and POSCO are also participants in the POSMAC JV. BHP's interest in POSMAC is 65 per cent. The ore from the POSMAC JV is sold to the main joint ventures.

All ore is transported on the Mt Newman JV and Mt Goldsworthy JV rail lines. The Nelson Point port facility is owned by the Mt Newman JV and the Finucane Island facility is owned by the Mt Goldsworthy JV. On 7 September 2021, BHP received regulatory approval to increase its export capacity at WAIO's Port Hedland operations up to 330 million tonnes per annum (Mtpa) (100 per cent basis) subject to the outcomes of a standard appeals process. We are assessing 330 Mtpa expansion alternatives.

Our near-term focus remains on sustainable production of 290 Mtpa of iron ore in the short term. Successful tie-in of capital projects, including the port debottlenecking project, is expected to enable growth in excess of 300 Mtpa in the medium term.

Key developments in FY2022

WAIO's production of 249 million tonnes (Mt) or 283 Mt on a 100 per cent basis was in line with the prior period, primarily reflecting continued strong supply chain performance and favourable weather compared to the prior period, offset by the impacts of temporary labour constraints relating to COVID-19 and planned major maintenance including the Jimblebar train load out and car dumper one. Our preventative maintenance programs continue to underpin the strength of the WAIO supply chain, delivering increased car dumper, reclaimer and ship loader availability year-on-year and enabling record sales volumes of 284 Mt (100 per cent basis).

South Flank ramp up to full production capacity of 80 Mtpa (100 per cent basis) is ahead of schedule with an average rate of 67 Mtpa achieved in the June 2022 quarter contributing to record production from the Mining Area C hub and record lump sales in FY2022. Yandi continues its end-of-life ramp-down as South Flank continues to ramp up. Yandi is expected to provide supply chain flexibility with a lower level of production to continue for a few years.

Testing of two new automated shiploaders has commenced at our Port Hedland operations. This project is utilising 3D laser technology, which is expected to support the full automation of WAIO's eight shiploaders by CY2023. Together with planned autonomous haulage rollouts at both South Flank and Newman West, these initiatives are expected to deliver significant safety, production and cost improvements as well as new job and development opportunities for our people.

Copper

Olympic Dam

Overview

Located in South Australia, Olympic Dam (BHP ownership: 100 per cent) is one of the world's most significant deposits of copper, gold, silver and uranium. It comprises underground and surface operations and is a fully integrated processing facility from ore to metal.

Ore mined underground is hauled by an automated train system to crushing, storage and ore hoisting facilities or trucked directly to the surface.

Olympic Dam has a fully integrated metallurgical complex with a grinding and concentrating circuit, a hydrometallurgical plant incorporating solvent extraction circuits for copper and uranium, a copper smelter, a copper refinery, including an electro-refinery and an electrowinning-refinery, and a recovery circuit for precious metals.

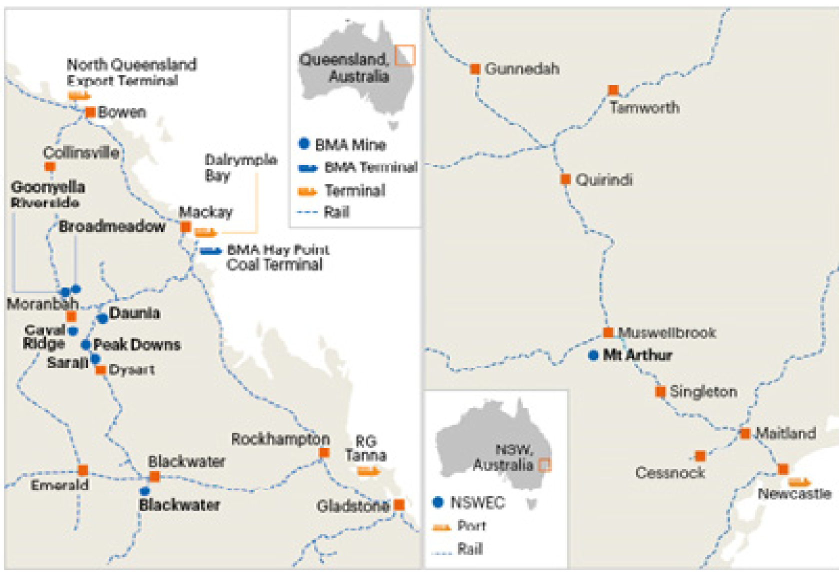
Key developments in FY2022

Olympic Dam copper production decreased by 33 per cent to 138 kilotonnes (kt) primarily as a result of a major smelter maintenance campaign (SCM21) completed in January 2022 which was delayed due to COVID-19 impacts on the availability of the workforce. Near-record production in the June 2022 quarter followed the successful ramp up of the smelter to full capacity in April 2022. Average copper grade of 2.14 per cent was achieved in FY2022 as the majority of material mined is from the Southern Mine Area, investment in which over the past few years enabled strong underground mine performance and a stable ore blend to be delivered to the processing plant. The maintenance campaign included the rebuild of the flash furnace and its ancillary equipment, and refurbishment of the acid plant, which has resulted in significant plant improvements. Short-term focus is on delivering operational stability and improved production performance, through debottlenecking existing facilities.

In February 2022, to support future secure and sustainable water sources for regional South Australia, Olympic Dam entered a Memorandum of Understanding with the South Australian Government, SA Water and OZ Minerals to progress a business case to examine the building of a desalination plant and pipeline. Olympic Dam has also entered into a renewable energy supply arrangement to enable the asset to draw energy supplies from a solar-wind hybrid plant to reduce the Scope 2 greenhouse gas emissions from its electricity consumption by 2025. In FY2022, Olympic Dam became the first Australian copper mine to be awarded the Copper Mark, an international accreditation that recognises responsible production practice.

The Oak Dam exploration program is continuing next stage resource definition drilling with six drill rigs now active on site, an increase from two drill rigs previously, after commencing the program in May 2021. This program is focused on resource definition and potential development pathways.

Coal



BHP Mitsubishi Alliance

Overview

BHP Mitsubishi Alliance (BMA) (BHP ownership: 50 per cent) operates seven metallurgical coal mines – Goonyella Riverside, Broadmeadow, Daunia, Peak Downs, Saraji, Blackwater and Caval Ridge in the Bowen Basin, Queensland. With the exception of the Broadmeadow underground longwall operation, BMA's mines are open cut. A small proportion of BMA's production is sold as energy coal. BMA has access to infrastructure, including a modern, multi-user rail network and owns and operates its own coal-loading terminal at Hay Point, near Mackay. BMA has contracted capacity at two other multi-user port facilities – the Port of Gladstone (RG Tanna Coal Terminal) and Dalrymple Bay Coal Terminal (DBCT). Following BHP's divestment of BHP Mitsui Coal Pty Ltd (BMC), BMA no longer has contracted access to BMC's port allocations at DBCT and North Queensland Export Terminal (NQXT).

Key developments in FY2022

BMA production decreased by 9 per cent to 29 Mt or 58 Mt on a 100 per cent basis. Significant wet weather impacts across most BMA operations and labour constraints, including COVID-19 related absences, which impacted stripping and mine productivity, more than offset record production at the Broadmeadow mine.

Following the automation of Daunia's truck fleet in November 2021, the automation of Goonyella's pre-strip truck fleet was completed in March 2022 with the Goonyella coal truck fleet expected to be fully autonomous by the end of December 2022.

During the year, BMA commenced a project for the fabrication and installation of a new berth superstructure and shiploader at Hay Point Coal Terminal, with a focus on improving the facility's operational resilience to withstand significant weather events and increasing its throughput capacity.

In response to regular wet weather events, BMA is continuing to implement a range of wet weather mitigation measures which are aimed at improving the ability to operate in adverse weather conditions. These measures include using drone mapping and rain on grid modelling to manage surface water flows to less impactful areas, improved road preparation and the use of nitrogen filled tyres to enable operation in lightning conditions.

Following the announcement of the change to the Queensland royalty regime from 1 July 2022, we will assess the impact on BMA economic reserves and mine lives, as well as the impact on production, jobs and the communities of Central Queensland. This further cost pressure is expected to discourage investment, operational growth, job creation and local business spending across the state.

New South Wales Energy Coal

Overview

New South Wales Energy Coal (NSWEC) (BHP ownership: 100 per cent) comprises the Mt Arthur Coal open-cut energy coal mine in the Hunter Valley. It has access to infrastructure in the Hunter Region, including a multi-user rail network and coal loading terminal access at the Port of Newcastle through Newcastle Coal Infrastructure Group (BHP ownership: 28 per cent) and Port Waratah Coal Services.

Key developments in FY2022

NSWEC production decreased by 4 per cent to 14 Mt primarily reflecting lower volumes due to an increased proportion of washed coal to capitalise on higher margins for higher quality coals, COVID-19 related labour constraints which impacted stripping performance and mine productivity and wet weather. Higher-quality coals made up almost 90 per cent of sales compared to approximately 60 per cent of sales in the prior year, generating a price premium of nearly 150 per cent between high-quality and lower-quality coals in FY2022.

On 16 June 2022, we announced that we will retain NSWEC in our portfolio, seek the relevant approvals to continue mining beyond its current mining consent that expires in CY2026 and proceed with a managed process to cease mining at the asset by the end of FY2030. A review was announced in August 2020 and a trade sale process for NSWEC was conducted, however the process did not result in a viable offer. Our assessment of the resource economics, geotechnical profile and future investment requirements led us to determine that continued mining in the near term and moving to closure in FY2030 provides the optimal financial outcome when compared to alternate options. Continuation of mining to the end of FY2030 is expected to afford eight years to work with our people, state and federal governments and local communities in the Hunter Valley region on an equitable transition approach that supports long-term community sustainability.

BHP Mitsui Coal divestment

On 3 May 2022, we completed the divestment of our 80 per cent interest in BMC, a metallurgical coal joint venture in Queensland operated by BMC, to Stanmore Resources Limited. Stanmore Resources paid US$1.1 billion cash consideration at completion plus a preliminary completion adjustment of approximately US$200 million for working capital. The sum of US$100 million cash remains payable to BHP on 3 November 2022, with potential for an additional amount of up to US$150 million in a price-linked earnout payable to BHP in CY2024. The total cash consideration for the transaction is up to US$1.35 billion plus the final completion adjustment amount.

Nickel

Nickel West

Overview

Nickel West (BHP ownership: 100 per cent) is a fully integrated nickel business located in Western Australia, with three streams of concentrate. It comprises open-cut and underground mines, concentrators, a smelter and refinery. Nickel West owns the majority of tenements of known resource in the Agnew-Wiluna basin in Western Australia.

Disseminated sulphide ore is mined at the Mt Keith open-pit operation and Mt Keith Satellite mine (Yakabindie) and crushed and processed onsite to produce nickel concentrate. Nickel sulphide ore is mined at the Cliffs and Leinster underground mines and processed through a concentrator and dryer at Leinster. A concentrator plant in Kambalda processes ore and concentrate purchased from third parties.

The three streams feed the Kalgoorlie nickel smelter, which uses a flash furnace to produce nickel matte. The Kwinana nickel refinery then turns this into nickel powder, briquettes and nickel sulphate.

Key developments in FY2022

Nickel West production decreased by 14 per cent to 77 kt primarily due to the significant impacts of COVID-19 related labour absences and workforce shortages, and unplanned downtime at the oxygen plant leading to a 15-day smelter outage in the June 2022 quarter.

The nickel sulphate plant at the Kwinana nickel refinery has been commissioned, with first saleable production achieved in the December 2021 quarter. The plant is expected to produce approximately 100 kilotonnes per annum (ktpa) of nickel sulphate for the lithium-ion battery industry.

Leinster B11, BHP's first block cave, continues development whilst producing. Ore is being hoisted to the Leinster concentrator and the undercut and drawbell development essential to this mining method are expected to be complete in CY2023.

Nickel West expanded its commitment to sourcing renewable energy through the execution of power purchase agreements for 100 per cent output of the 75MW Flat Rocks Wind Farm and for 50 per cent of the 100MW Merredin Solar Farm. The combined output from these two renewable farms is expected to generate the equivalent of greater than 100 per cent of the current power requirements of Nickel West's Kalgoorlie nickel smelter, Kambalda nickel concentrator and Kwinana nickel refinery from CY2024.

TransAlta has begun construction at the Northern Goldfields Solar Project, a large-scale, off-grid mining solar and battery energy storage systems, to help power Nickel West's Mt Keith and Leinster operations. The solar project, due to be commissioned in early 2023, is expected to reduce Scope 2 emissions by 12 per cent at these operations.

5.2 Minerals Americas

The Minerals Americas asset group includes projects, operated assets and non-operated joint ventures in Canada, Chile, Peru, the United States and Brazil.

Our operated copper assets in the Americas, Escondida and Pampa Norte, are open-cut mines that produce copper concentrate and copper cathodes. The non-operated assets in the Minerals Americas portfolio are open-cut mines that produce copper (Antamina) and iron ore (Samarco). We have a 45 per cent interest in the Resolution copper project in the United States and a 100 per cent interest in the Jansen Potash Project in Canada. The commodities produced by our Minerals Americas assets are transported to port by pipeline, rail or road and exported to customers around the world.

Copper

Escondida

Overview

Escondida (BHP ownership: 57.5 per cent) is a leading producer of copper concentrate, with by-products including gold and silver, and cathodes located in the Atacama Desert in northern Chile.

Escondida's two pits feed three concentrator plants, as well as two leaching operations (oxide and sulphide).

Key developments in FY2022

Escondida copper production decreased by 6 per cent to 1,004 kt primarily due to higher than expected concentrator feed grade decline of 4 per cent, public road blockades affecting access to site for both workers and supplies, and the impact of a reduced operational workforce from COVID-19. Despite these challenges, Escondida achieved record material mined for the 2022 financial year and near record concentrator throughput of 367 ktpd.

Pampa Norte

Overview

Pampa Norte (BHP ownership: 100 per cent) consists of two assets in the Atacama Desert in northern Chile – Spence and Cerro Colorado.

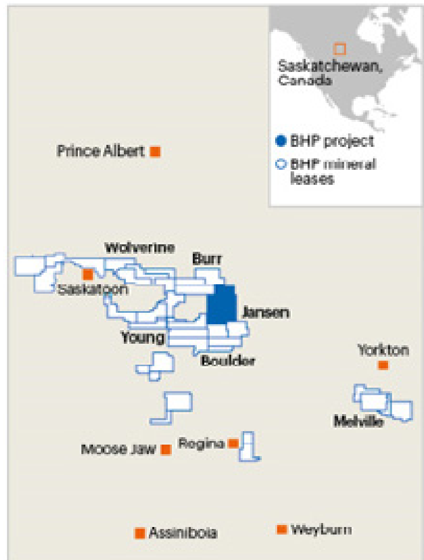
Spence produces copper cathodes and copper concentrate, with by-products including gold, silver and molybdenum.

Cerro Colorado produces copper cathodes. Its current environmental licence expires at the end of CY2023.

Key developments in FY2022

Pampa Norte copper production increased by 29 per cent to 281 kt reflecting the ramp up of the Spence Growth Option, partially offset by the impact of lower cathode production as a result of a 14 per cent decline in Pampa Norte stacking feed grade. The molybdenum plant at Spence produced and sold its first batch of molybdenum concentrate during Q4 FY2022. During May 2022, the new copper concentrator in Spence was inaugurated. The concentrator operates on desalinated seawater and is powered from renewable sources, and will allow the operation to be extended by 50 years.

Potash



Jansen Potash Project

Overview

The Jansen Potash Project (BHP ownership: 100 per cent) is located about 140 kilometres east of Saskatoon, Canada.

Jansen's large resource provides the opportunity to develop the project in stages, with Jansen Stage 1 (Jansen S1) expected to produce approximately 4.35 Mt of potash per annum on completion in CY2027 and sequenced brownfield expansions of up to 12 Mtpa (approximately 4 Mtpa per stage).

BHP holds mineral leases covering around 9,600 square kilometres in the Saskatchewan potash basin.

Key developments in FY2022

Excavation and lining of the production and service shafts was completed in June 2022.

On 17 August 2021, BHP approved US$5.7 billion (C$7.5 billion) in capital expenditure for Jansen S1. Jansen S1 includes the design, engineering and construction of an underground potash mine and surface infrastructure, including a processing facility, a product storage building and rail infrastructure. Jansen S1 product is intended to be shipped to export markets through Westshore in Delta, British Columbia. The project includes funding for the required port and rail infrastructure. First ore is targeted in CY2027, with construction expected to take approximately six years, followed by a ramp-up period of two years.

Opportunities to bring forward Jansen S1 continue to be assessed. In addition to Jansen S1, study of Jansen Stage 2 (Jansen S2) has commenced.

Non-operated minerals joint ventures

Copper

Antamina

Overview

Antamina (BHP ownership: 33.75 per cent) is a large, low-cost copper and zinc mine in north central Peru with by-products, including molybdenum and silver. Antamina is operated independently by Compañía Minera Antamina S.A.

Key developments in FY2022

Antamina copper production increased by 4 per cent to 150 kt (BHP share) reflecting higher copper head grades. Zinc production decreased by 15 per cent to 123 kt (BHP share) reflecting lower zinc head grades.

In April 2022, Antamina submitted to Peruvian authorities a Modification of the Environmental Impact Assessment to sustain mine life from 2028 to 2036 entirely within Antamina's current operational area.

Resolution Copper

Overview

Resolution Copper (BHP ownership: 45 per cent), located in the US state of Arizona, is operated by Rio Tinto (55 per cent ownership interest). Resolution Copper is one of the largest undeveloped copper projects in the world and has the potential to become one of the largest copper producers in North America. The Resolution Copper deposit lies more than 1,600 metres beneath the surface.

Key developments in FY2022

During FY2022, Resolution continued the engineering and permitting phase of the project. The project is subject to a federal permitting process led by the US Forest Service. The US Forest Service published a Final Environmental Impact Statement in January 2021, which was rescinded in March 2022 for the stated purpose of conducting additional analysis and consultation with Native American tribes. The project team has been cooperating with the US Forest Service as it completes this additional review. During this time, Resolution has sought to deepen its engagement and relationships with local communities and Native American tribes.

Iron Ore

Samarco

Overview

Samarco (BHP ownership: 50 per cent) comprises a mine and three concentrators located in the Brazilian state of Minas Gerais, and four pellet plants and a port located in Anchieta in the state of Espírito Santo. Three 400-kilometre pipelines connect the mine site to the pelletising facilities. Samarco is operated independently by Samarco Mineração S.A. Samarco's main product is iron ore pellets. Pellets are independently marketed by Samarco and sold to customers around the world.

Key developments in FY2022

Samarco produced 4 million tonnes of pellets and ore fines in FY2022 (BHP Share), operating at 26 per cent of its total 26 Mtpa production capacity following the resumption of operations in December 2020. Studies to increase production to 100 per cent by FY2029 are progressing.

The progressive decharacterisation of Samarco's upstream tailings dam structures is on track and planned to be completed by FY2029. These structures have been certified by independent third parties as stable, are following local stability and monitoring requirements, and have not received tailings since 2015.

Broader studies to unlock solutions for Samarco to operate without tailings dams beyond FY2030 are continuing.

For more information on the Fundão dam failure and the response refer to OFR 8.

5.3 Commercial

BHP's Commercial function seeks to maximise commercial and social value while minimising costs across the end-to-end supply chain.

The function is organised around the following core activities in our value chain, supported by credit and market risk management and strategy and planning activities.

Sales and Marketing

Sales and Marketing connects BHP's resources to market through commercial expertise, sales and operations planning, customer insights and proactive risk management. It presents a single face to markets across multiple assets, with a view to realising maximum value for our products and supporting sustainability initiatives in our downstream supply chain.

Maritime and Supply Chain Excellence

Maritime and Supply Chain Excellence manages BHP's enterprise-wide maritime transportation strategy and the chartering of ocean freight to meet BHP's inbound and outbound transportation needs. It focuses on supply chain excellence and sourcing cost-efficient marine freight in addition to partnering within the maritime ecosystem to reduce the GHG emissions intensity of BHP-chartered shipping of our products. It also seeks to manage supply chain risk by vetting the safety performance of the ships loading BHP cargo.

Procurement

Our global Procurement team connects asset teams and suppliers to procure the goods and services used by our projects, operated assets and functions globally. Procurement partners with our suppliers to optimise equipment performance, reduce operating costs, optimise working capital and generate social value. Through innovation, we work with suppliers to reduce the GHG emissions intensity of inbound goods and services and the operational GHG emissions of our operated assets. Procurement manages supply chain risk, fosters supplier innovation and develops sustainable relationships with global suppliers and local businesses in the communities where we operate.

Warehousing, Inventory, Logistics and Property

Warehousing, Inventory, Logistics and Property designs and operates our inbound supply chain networks for the delivery and warehousing of spare parts, operating supplies and consumables, and designs and operates our office workspaces globally.

Market Analysis and Economics

Our Market Analysis and Economics team develops BHP's proprietary view on the outlook for commodity demand and prices, as well as our input costs, the world economy, climate change and financial markets. The team works with our Procurement, Maritime and Supply Chain Excellence, and Sales and Marketing sub-functions to help optimise end-to-end commercial value, and with the Portfolio Strategy and Development and External Affairs functions to identify and respond to long-run strategic changes in our operating environment.

Global Business Services

Global Business Services unites shared services and repeatable process activity across the Group into a single operation. Commencing operation in FY2022 with the BHP Operating System and with process transformation capabilities at its core, it has the mandate to aggregate, operate and improve end–to-end processes on behalf of assets and functions to drive operational excellence.

6 People and culture

Our employees and contractors, around 80,000 globally, are the foundation of our business. We aim to attract, recruit, empower and retain the best people.

To enable our people to perform at their best, safety is our highest priority and we invest in technology and innovative and effective ways to manage risk, streamline processes and improve productivity. We offer competitive remuneration and invest in development programs to build capability and improve performance.

Developing our capabilities and an enabled culture

To drive continuous improvement, we respect people's differences and encourage self-accountability, a hunger to learn and a commercial mindset.

One of the ways we seek to achieve this is by applying the BHP Operating System (BOS) practices to help build leader capability. BOS is a way of leading and working that focuses on the safety of our people, value for our customers, setting clear goals and measuring progress and a mindset of zero waste. In FY2022, we continued to train our leaders through BOS learning academies to improve operational capability and culture, with more than 3,000 people leaders participating.

Three times a year we ask our employees and contractors about their experiences working with BHP via a short Engagement and Perception Survey. After each survey, our team leaders assess what is working well, what they can learn from others and take action to address improvement areas. Despite significant absences and workplace disruptions caused by COVID-19, we maintained a high response rate of 82 per cent of employees in March 2022 (81 per cent in February 2021) and achieved a strong engagement score of 82 per cent favourable (84 per cent in February 2021). In particular, 80 per cent of our employees and 88 per cent of our contractors (from 7,932 responses) would recommend BHP as a great place to work, which places us in the top third of global organisations as benchmarked by Qualtrics.

In FY2022, we transformed our approach to developing frontline leadership with the launch of BHP Leadership Programs for supervisors, superintendents and managers. Through a combination of assessment, workshops, experiences and coaching, the suite of programs is designed to identify and develop leaders and prepare them to take on greater responsibility. We anticipate more than 1,000 leaders each year will develop their ability through these programs to lead inclusively, ethically and through complexity as they play their critical role to deliver continuous improvement.

Our Operations Services business unit provides maintenance and production services across our Minerals Australia assets. It employs people on a permanent basis and supports skills building through a structured coaching and in-field training program designed to enable our workforce to deliver consistent equipment operation and maintenance that balances safety, maximum productivity and equipment reliability. Operations Services had more than 3,500 employees as at 30 June 2022 and is expected to continue to grow.

To help bolster Australia's skills base and create new career pathways into the mining sector, the BHP FutureFit Academy located in Perth, Western Australia and Mackay, Queensland provides a pathway to join Minerals Australia through an accredited maintenance and production traineeship or a trade apprenticeship. Once trained and qualified, employees move to one of our Australian operations. The FutureFit Academy training includes the skills required for an increasingly technological and digitised world and focuses on our safety, respectful behaviour, culture and productive ways of working. This helps FutureFit graduates to be 'BHP site ready' when they graduate. In FY2022, the FutureFit Academy trained more than 417 apprentices and trainees, with 175 graduating. In FY2023, the FutureFit Academy is expanding the program to include Western Australia Iron Ore (WAIO) and Nickel West. New curricula will be offered, including belt splicing, electrical and auto electrical. The belt splicing program will commence at Newman in August 2022. For more information on BHP's FutureFit Academy, see our case study at bhp.com/people.

In Minerals Americas, the focus has been on implementing an integrated approach to capability building through defining frameworks and programs for workforce upskilling and reskilling as we transition into autonomous operations at our operated assets. Early career programs (for graduates and trainees in roles such as operators, maintainers, supervisors and engineers) are also a key area to build a sustainable base of diverse talent with the required capabilities. We will also continue building partnerships with training and learning institutions to develop those identified capabilities for the future.

The talent market is dynamic and increasingly competitive. We continue to work on our attraction and retention strategies through strategic workforce planning, talent acquisition, inclusion and diversity, internal talent management, employee mobility and our total value proposition. We believe we are strongly and competitively placed in the market and regularly review our positioning and total reward strategies, with culture being our competitive edge. We have deployed new proactive recruitment methods, including recruitment marketing and talent pooling, strategies for securing critical skills and made improvements to our recruitment processes to increase speed while maintaining our focus on the suitability of candidates.

Inclusion and diversity

We believe that an inclusive and diverse workforce promotes safety, productivity and wellbeing, and underpins our ability to attract and retain employees. Our systems, processes and practices are designed to support fair treatment for our people. Our Inclusion and Diversity Position Statement confirms our vision, commitment and contributions to inclusion and diversity. We have further work to do to achieve this goal.

Our strategy is to focus on attracting and retaining a workforce that is truly representative of society. We intend to do this by addressing the barriers and impacts of bias and racism experienced by people within underrepresented groups by listening to their experience combined with insights from our engagement surveys and the recently deployed self-identification survey, 'Tell Us About You'. So far, around 10,000 people have confidentially shared with us information about themselves (a 22 per cent response rate), which is a good starting point and we expect to see participation grow over time. Our intention is to contrast this data with national/regional census data over time to measure how diverse we are against the general population.

To help mitigate gender pay disparities, we have taken steps to reduce potential bias in remuneration at the time of recruitment and we conduct an annual gender pay review, the results of which are reported to the BHP Remuneration Committee.

Respect is one of our values under *Our Charter* and is fundamental to building stronger teams and being an inclusive and diverse workplace. For some people, this has not been their experience of working at BHP and we are determined to address this.

For information on our approach to addressing workplace sexual harassment refer to OFR 7.5.

Our ambition to achieve a more diverse and inclusive workplace is focused on four areas:

- embedding flexibility into the way we work
- encouraging and working with our supply chain partners to support our commitment to inclusion and diversity
- uncovering and taking steps to mitigate potential bias in our systems, policies and processes, and in behaviours through the Respectful Behaviour campaign
- ensuring our workplaces are safe for and attractive to a diverse range of people

Gender balance[1]

In CY2016, we announced our aspiration to achieve gender balance within our employee workforce globally by the end of FY2025, which we define as a minimum 40 per cent women and 40 per cent men in line with the definitions used by entities such as the International Labour Organisation and HESTA.

We increased the representation of women working at BHP in FY2022 by 2.5 percentage points, with almost 8,000 more female employees at the end of the year than in 2016. At 30 June 2022, women represented 32.3 per cent of our employee workforce, up from 17.6 per cent when we set our aspirational goal. We are confident of achieving gender balance by the end of FY2025.

The percentage of employees newly hired to work for BHP in FY2022 was 52.7 per cent male and 47.3 per cent female. This is a marked increase on our baseline for our aspirational goal, which was 10.4 per cent female hired in FY2015.

We also improved our representation of women in leadership by 2.7 percentage points compared to FY2021, with 27.9 per cent female people leaders at the end of FY2022.

To further accelerate female representation in FY2022, we:

- continued market mapping to proactively target people or groups of people not actively looking to work for BHP or our industry
- implemented a 'Tell Us About You' survey, our first self-identification survey to measure the rich diversity of our workforce
- integrated inclusive leadership capabilities at all levels of our leadership learning curriculum
- embedded the Ways of Working Framework to guide employees and leaders to 'Work where you get great outcomes'
- launched Phase 3 of the Respectful Behaviour campaign to reinforce our zero tolerance of sexual harassment, racism and bullying including global 'Stop for Safety' sessions for all employees and contractors

1 Based on a 'point-in-time' snapshot of employees as at 30 June 2022, including employees on extended absence, as used in internal management reporting for the purposes of monitoring progress against our goals. This does not include contractors. People leaders are defined as employees with one or more direct report.

The table below shows the gender composition of our employees, senior leaders and the Board over the last three financial years[1,2]

	2022	2021	2020
Female employees	**12,674**	11,868	9,961
Male employees	**26,536**	27,953	27,557
Female people leaders	**1,695**	1,439	1,157
Male people leaders	**4,380**	4,276	4,002
Female Executive Leadership Team members	**5**	5	4
Male Executive Leadership Team members	**5**	5	6
Female Board members	**4**	4	3
Male Board members	**8**	8	9

1 Based on a 'point-in-time' snapshot of employees as at 30 June 2022, as used in internal management reporting for the purposes of monitoring progress against our goals. In FY2021 and FY2022 this includes employees on extended absence, 660 at 30 June 2021 and 948 in 2022, who previously not included in the active headcount.

2 For FY2022, this does not include employees who left BHP via the merger of BHP Petroleum and Woodside (approximately 1,000 employees) or the sale of BHP Mitsui Coal to Stanmore Resources (approximately 500 employees).

Indigenous employment

Indigenous peoples are critical partners of BHP's operations around the world. We recognise, as part of our Global Indigenous Peoples Strategy, that we can contribute to the economic empowerment of Indigenous peoples through providing opportunities for employment, training, procurement and by supporting Indigenous enterprises.

We have set targets to increase Indigenous employment in our Minerals Australia operations, Minerals Americas operations in Chile and our Jansen Potash Project and operations in Canada.

For information on our 2030 goals related to Indigenous partnerships refer to OFR 7.13.

Indigenous employee representation[1]

Location	**Period**	**Target (%)**	**30 June 2022 (%)**
Minerals America operations employees in Chile	By the end of FY2026	**10.0**	**8.7**
Minerals Australia operations employees in Australia [2]	By the end of FY2025	**8.0**	**8.3**
Jansen Potash Project and operation employees in Canada [3]	By the end of FY2027	**20.0**	**7.2**

1 Point in time data at 30 June 2022.

2 Indigenous employee representation overall in Australia as at 30 June 2022 was 7.4 per cent including Minerals Australia operations, 8.3 per cent Indigenous, and non-operational locations, 2.5 per cent Indigenous.

3 Indigenous workforce representation at Potash Jansen Project and operations of 20.7 per cent includes employees, 7.2 per cent Indigenous, and contractors, 23.8 per cent Indigenous.

In our Minerals Australia operations, we have achieved the Australian Indigenous employment target of 8 per cent ahead of schedule (8.3 per cent of employees at 30 June 2022) through significant effort with targeted Indigenous recruitment campaigns, a tailored application process focused on the cultural needs of applicants and BHP's commitment to the regional communities where we operate. A key focus in Australia now is the retention and development of our Indigenous workforce. New targets have been set and engagement strategies are being developed as part of BHP's next Minerals Australia Reconciliation Action Plan.

From FY2023 the targets for Indigenous employee representation are 9.7 per cent by the end of FY2027 in our Minerals Australia operations, 10 per cent by the end of FY2025 in our Minerals Americas operations in Chile and 20 per cent by the end of FY2026 in our Jansen Potash Project and operations in Canada.

LGBT+ inclusion

Our LGBT+ ally employee inclusion group, Jasper, established in 2017, is a natural extension of our inclusion and diversity aspirations and reflects our value of Respect under *Our Charter*.

Its membership base grew to around 2,000 in FY2022, with eight regional chapters globally.

In FY2022, we continued to close gaps for LGBT+ inclusion, such as releasing guidelines and implementing support for transgender and gender diverse recruitment, and updated our parental leave policy to be more inclusive by making language more gender neutral and ensuring it applies to birth, long-term guardianship and adoption aligned to changes in Australia.

Flexible working

Our flexible working has evolved throughout the COVID-19 pandemic and we have embedded a hybrid working model for employees in non-operational roles, allowing office and home-based working arrangements, while requiring 30 to 50 per cent of work to be based in the office, depending on the nature of work.

We understand many site-based employees are in roles that cannot be performed remotely. We continue to seek to provide flexible working through lifestyle-friendly rosters with some sites within WAIO moving away from two weeks on (seven days, seven nights)/one week off rosters to eight days on (day shift)/six days off then seven days on (night shift)/seven days off rosters. Part-time and job-share arrangements have increased including at senior levels.

Employee relations

Our four key focus areas for employee relations are:

- creating relations with our workforce based on a culture of trust and cooperation
- negotiating where there are requirements to collectively bargain (and recognising the rights of our workforce to collectively bargain)
- closing out agreements with our workforce in South America and Australia, with no lost time due to industrial action, to the extent possible
- ensuring we comply with legal obligations and regional labour regulations

In Australia, we are monitoring potential industrial relations legislative reform after the Government indicated an intention to introduce draft legislation during CY2022 that could have a material impact on our cost of labour and industrial landscape and negatively impact productivity.

Minerals Australia participated in five collective bargaining processes during FY2022:

- BHP Iron Ore Pty Ltd commenced bargaining in January 2022 for the BHPIO Locomotive Drivers Agreement 2022, which is ongoing.
- OS MCAP Pty Ltd recommenced bargaining in December 2022 for the Operations Services Production Agreement 2018, which is ongoing.
- OS ACPM Pty Ltd recommenced bargaining in December 2022 for the Operations Services Maintenance Agreement 2018, which is ongoing.
- BHP Coal Pty Ltd commenced bargaining in February 2021 for the BMA Enterprise Agreement 2021, which is ongoing.
- BM Alliance Coal Operations Pty Ltd commenced bargaining in June 2022 for the BMACO Broadmeadow Mine Agreement 2022, which is ongoing.

Minerals Americas participated in two collective bargaining processes during FY2022:

- Escondida: O&M union N°1 of 2,333 employees signed in August 2021 for 36 months.
- Cerro Colorado: O&M union N°1 of 705 employees signed in September 2021 for 36 months.

Negotiations to renew the collective agreements with BHP Chile's Specialists & Supervisors Union (150 employees) and Escondida's Intermel Union (140 employees) are expected to be completed in FY2023.

There were no legal industrial actions or strikes at Minerals Americas operated assets, Minerals Australia operated assets or our Jansen Potash Project and operations in Canada in FY2022.

Impacts and challenges from COVID-19 related to our people

The rising numbers of COVID-19 cases and measures taken by governments within Australia and Chile to control its spread in FY2022 resulted in continued changes to working patterns for our employees and contractors and unplanned absences. As a result of the COVID-19 restrictions, we implemented controls across our business to reduce the number of workers required onsite and manage planned and unplanned absences, such as temporary remote working arrangements, increased health and safety requirements, asset-based vaccination campaigns, self-testing and office-testing campaigns and hybrid working. In Australia we also introduced vaccination against COVID-19 as a site access requirement after consultation with employees and unions. In Canada, all employees are required to remain fully vaccinated against COVID-19 to perform work at site including a third booster shot.

With state border closures restricting the mobilisation of employees and contractors to our operating sites in Australia at times during FY2022, changes to rosters and hours of work were made to ensure operational requirements for essential work were met. There has also been a further extension of flexible work options for employees and contractors in Australia in response to government-imposed lockdowns preventing them from attending their normal place of work. Flexible work options, including staggered start times, working from home and adapted working hours were in place across many of our office settings.

For information on the impact of COVID-19 on our workforce refer to OFR 7.6.

More information on people is available at bhp.com/people.

7 Sustainability

7.1 Our sustainability approach

Our commitment to social value reflects our purpose and BHP's role in supplying products essential for the transition of society towards a more sustainable future, a role that we seek to perform in a responsible way.

Our management of sustainability helps generate social value. We also know our stakeholders and partners are increasingly focused on our sustainability performance and use it as a key determinant in assessing BHP and our industry. We strive to continuously improve and exceed these expectations.

A commitment to sustainability sometimes requires us to make difficult choices and we seek to gain and maintain the support of all our stakeholders and partners as we manage complex issues. We respect the right of every stakeholder and partner to challenge the choices we make and recognise that by listening to their views and concerns BHP becomes a better company.

We define our approach to sustainability through *Our Charter* and it is governed through the *Our Requirements* standards. These standards describe our mandatory minimum performance requirements and provide the foundation to develop and implement management systems at our operated assets.

Our approach to sustainability is overseen by BHP's Board. The Board's Sustainability Committee advises and assists the Board in its oversight of the Group's health, safety, environmental and community (HSEC) matters. For more information about the Sustainability Committee and its work refer to the Corporate Governance Statement.

Sustainability targets and goals

We set clear direction through our social value framework and we embed and measure sustainability performance through our public sustainability targets and goals. We completed our most recent five-year sustainability targets in FY2022. For more information on our performance against these targets refer to OFR 7.3.

This year we developed new 2030 goals under the pillars of People, Planet and Prosperity in line with the World Economic Forum and the United Nations (UN) Development Program, following extensive internal and external engagement (refer to OFR 2.2). The 2030 goals comprise overarching long-term goals across six key focus areas and are underpinned by short-term metrics and milestones. We are working to embed them through asset plans and capital allocation.

The key changes compared to the previous five-year sustainability targets include a new time horizon of seven years to align with BHP's 2030 climate change targets and goals and reference timelines set out in global frameworks and agreements, such as the UN Sustainable Development Goals, the Paris Agreement, the Convention of Biological Diversity and the Global Goal for Nature. The goals provide opportunities for BHP to engage and work in partnership with others, build capability and co-design approaches to deliver positive outcomes and shared prosperity for people and our planet. They are reinforced by our continued commitment to pursue zero significant health, safety, environment, community or supply chain events and to making a social investment of at least 1 per cent pre-tax profit[1].

Equitable change and transitions

We recognise that changes in our business, ranging from the opening to the closing of a mine, can have significant, and sometimes disproportionate, effects on communities where we operate. We also recognise that these same communities are navigating broader shifts in the global economy, such as the energy transition and digital disruption, and that the scope and nature of these transitions will continue to evolve.

We are committed to working with communities we are a part of in periods of change and transition to achieve long-term mutual value.

Our approach will be grounded in our existing strategies, policies and frameworks in relation to our people, the environment, communities and other stakeholders and partners. The interconnection of these policies and frameworks[2] aims to ensure change and transitions are equitable and deliberately considered across the life cycle of our business and for the communities where we operate.

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1 To date, our voluntary social investment has been calculated as 1 per cent of the average of the previous three years' pre-tax profit. For FY2023–FY2030, our social investment will be assessed as a total over the seven-year goals period to FY2030, rather than calculated as an average of the previous three years' pre-tax profit.

2 These include our Indigenous Peoples Framework, Social Value Framework, Inclusion and Diversity Statement, Climate Change Strategy, approach to the environment, Closure Strategy, Human Rights Policy Statement, and approach to community engagement.

Our approach to equitable change and transitions will:

- Recognise our responsibility to our workforce – where a major change in our business is expected to affect our workforce, we will engage in meaningful dialogue and support those impacted.
- Create opportunity for meaningful engagement and co-designed processes – we will seek to develop relationships with stakeholders and partners, including government, local businesses, community members, suppliers, Indigenous peoples and workers, that support understanding of the issues and co-creation of solutions. We will communicate transparently on the types of changes the business needs to make and enable active participation of those most impacted.
- Recognise the impacts associated with gender, land connectedness and social and economic vulnerability – we will not assume all people are affected similarly. We will seek to understand how impacts may be differently experienced, including for Indigenous peoples, and recognise that plans and solutions must take into account the particular strengths of each community and tackle the unique impacts they experience.
- Recognise that the economic, social and environmental dimensions of sustainable development are interrelated – we will aim to avoid or mitigate adverse environmental impacts of change and transitions, while pursuing opportunities to build climate resilience and environmentally sustainable communities.

Given change and transitions will involve multiple actors, we will seek to be a catalyst to bring people together and use our relationships to advocate for equitable change and transitions in line with the above principles.

Reporting standards and frameworks

We commit to many sustainability frameworks, standards and initiatives and disclose data according to their requirements. Our sustainability reporting, including on our website and in our ESG Standards and Databook, is prepared in accordance with the Global Reporting Initiative (GRI) 2021 Sustainability Reporting Standards, the International Council on Mining and Metals (ICMM) Sustainable Development Framework, the Task Force on Climate-related Financial Disclosures (TCFD) recommendations and the Sustainability Accounting Standards Board (SASB) Metals and Mining standard. It also serves as our UN Global Compact (UNGC) Communication on Progress on implementation of the UNGC Ten Principles and support for its broader development objectives. We have included a summary of our TCFD disclosures in the table below.

There are also responsible mining and sourcing standards that we commit to voluntarily or as part of our memberships. For more information about our implementation of these standards refer to OFR 7.9 Value chain sustainability.

Our sustainability approach – TCFD index[1,2]

Disclosure requirement	Reference in this Report
Governance	
Disclose the organisation's governance around climate-related risks and opportunities.	
a) Describe the board's oversight of climate-related risks and opportunities.	OFR 7.8
b) Describe management's role in assessing and managing climate-related risks and opportunities.	OFR 7.8
Strategy	
Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material.	
a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.	OFR 7.8
b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.	OFR 7.8; 9; 9.1 Financial Statements 1.5; 1.6
c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	OFR 7.8; 9; 9.1 Financial Statements 1.5; 1.6
Risk management	
Disclose how the organisation identifies, assesses, and manages climate-related risks.	
a) Describe the organisation's processes for identifying and assessing climate-related risks.	OFR 7.8; 9
b) Describe the organisation's processes for managing climate-related risks.	OFR 7.8; 9
c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	OFR 7.8; 9
Metrics and targets	
Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	
a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	OFR 7.8 Remuneration Report 3.2
b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	OFR 7.8
c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	OFR 7.3; 7.8
Cross-industry metrics	
– GHG emissions: absolute Scope 1, Scope 2, and Scope 3; emissions intensity.	OFR 7.8
– Transition risks: amount and extent of assets or business activities vulnerable to transition risks.	OFR 7.8
– Physical risks: amount and extent of assets or business activities vulnerable to physical risks.	OFR 7.8
– Climate-related opportunities: proportion of revenue, assets, or other business activities aligned with climate-related opportunities.	OFR 7.8
– Capital deployment: amount of capital expenditure, financing, or investment deployed toward climate-related risks and opportunities.	OFR 7.8
– Internal carbon prices: price on each tonne of GHG emissions used internally by an organisation.	OFR 7.8
– Remuneration: proportion of executive management remuneration linked to climate considerations.	OFR 7.8 Remuneration Report 3.2

1 Our sustainability standards index is included in our ESG Standards and Databook, available at bhp.com/sustainability.

2 Certain information has been omitted from this report for the purposes of US reporting.

7.2 Our material sustainability issues

Annual sustainability materiality assessment

Each year we identify the sustainability issues most material to our business and stakeholders by assessing the economic, social, environmental and cultural impact of our activities and business relationships.

In FY2022, we adopted the approach of the Global Reporting Initiative (GRI 3: Material Topics 2021) to consider actual and potential negative and positive impacts of our business in order to determine our material sustainability issues for reporting. In doing so we considered BHP's material risk profile,[1] information recorded in our internal event management system, our social value framework and social investment priorities and a number of other sources. These included issues raised at our Annual General Meetings and through industry sustainability standards and benchmark assessments. We also consult with stakeholders, such as through the BHP Forum on Corporate Responsibility, via ESG investor round tables and advisory groups and with internal stakeholders via focused discussions.

The material sustainability issues identified through our FY2022 assessment are shown in the table below. These issues are consistent with our FY2021 assessment with the addition of security services, sexual harassment and value chain sustainability.

Material sustainability issues identified in this year's assessment

Environment	People	Social	Governance	Other
Climate change OFR 7.8	People OFR 6	Indigenous peoples (including cultural heritage) OFR 7.13	Ethics and business conduct OFR 7.7	Critical incident risk management OFR 8; 9.1
Environment OFR 7.15	Safety OFR 7.4	Community OFR 7.10	Sustainability governance OFR 7.1	Digital security OFR 9.1
Biodiversity and land OFR 7.17	Health (including COVID-19) OFR 7.6	Human rights OFR 7.11	Value chain sustainability OFR 7.9	Economic performance ECR
Water OFR 7.16	Sexual harassment OFR 7.5			Market presence Annual Report 2022
Tailings storage facilities OFR 7.18	Security services OFR 7.12			Public policy OFR 8
				Tax ECR

1 'Material' in this context refers to the materiality of a risk under BHP's Risk Framework. For information on our Risk Framework refer to OFR 9.

7.3 Our sustainability performance: Non-financial key performance indicators

We completed our most recent five-year sustainability targets in FY2022. Highlights include three years fatality-free, a reduction in the total number of workers exposed to our most material occupational exposures by 68 per cent, social investment of US$681.4 million over five years and a 29 per cent reduction in freshwater withdrawal volumes from our adjusted FY2017 baseline.

The FY2017 baselines and FY2018 – FY2022 data for our occupational exposures, GHG emissions and withdrawal of freshwater have been adjusted for the merger of our Petroleum business with Woodside and divestment of our interest in BHP Mitsui Coal (BMC) in FY2022 (to exclude data related to those operations), together with adjustments made and reported in previous years to ensure ongoing comparability of performance. FY2022 data for safety, social investment and significant community and environmental events includes the operated assets in our Petroleum business up to the date of the merger (1 June 2022) and BMC up to the date of completion of the sale (3 May 2022).

	Target	**FY2022 result**	**Year-on-year**
People	Zero work-related fatalities	Zero work-related fatalities and there was a 30 per cent decrease in the high-potential injury frequency rate from FY2021. High-potential injury trends remain a primary focus to assess progress against our most important safety objective, eliminating fatalities.	FY2018[1] 2 FY2019[2] 1 FY2020 0 FY2021 0 FY2022[3] 0
	Year-on-year improvement of total recordable injury frequency (TRIF)[4] per million hours worked	An increase in total recordable injury frequency (TRIF) of 8 per cent from FY2021. This shift was influenced by COVID-19 through an 8 per cent reduction in hours worked between the first and second halves of FY2022. TRIF has decreased by 9 per cent since FY2018.	FY2018[1] 4.4 FY2019[2] 4.7 FY2020 4.2 FY2021 3.7 FY2022[3] 4.0
	50 per cent reduction in the number of workers potentially exposed[5] to our most material exposures of diesel particulate matter, respirable silica and coal mine dust compared to our FY2017[6] baseline by FY2022	We exceeded our target by reducing the total number of workers potentially exposed to our most material exposures by 68 per cent compared to our adjusted FY2017 baseline.[6]	Adjusted FY2017 baseline[6] 4,176 FY2018[6] 2,803 FY2019[6] 2,160 FY2020[6] 1,683 FY2021[6,7] 1,372 FY2022[6] 1,333
Society	Zero significant community events[8]	No significant community events resulting from BHP operated activities were recorded in FY2022	FY2018 0 FY2019 0 FY2020 0 FY2021 0 FY2022[3] 0
	Not less than 1 per cent of pre-tax profits[9] invested in community programs that contribute to the quality of life in the communities where we operate and support the achievement of the UN Sustainable Development Goals[10]	Social investment of US$681.4 million over five years	FY2018[1] US$77.1 million FY2019[11] US$93.5 million FY2020 US$149.6 million FY2021 US$174.8 million FY2022[3] US$186.4 million
	By FY2022, implement our Indigenous Peoples Strategy across all our operated assets through the development of Regional Indigenous Peoples Plans	Regional Indigenous People Plans have been implemented across Australia (Reconciliation Action Plan (RAP)) and North and South America	

Environment	Zero significant environmental events[8]	No significant environmental events resulting from BHP operated activities were recorded in FY2022	FY2018 0 FY2019 0 FY2020 0 FY2021 0 FY2022[3] 0
	Reduce FY2022 withdrawal of freshwater[12] by 15 per cent from FY2017 levels	Exceeded our target, with a 29 per cent reduction in freshwater withdrawal volumes compared to our adjusted FY2017 baseline[13]	Adjusted FY2017 baseline[13] 152,249 ML FY2018[13] 133,265 ML FY2019[13] 149,237 ML FY2020[13] 122,331 ML FY2021[13] 108,440 ML FY2022[13] 107,398 ML
	By FY2022, improve marine and terrestrial biodiversity outcomes by: • developing a framework to evaluate and verify the benefits of our actions, in collaboration with others • contributing to the management of areas of national or international conservation significance exceeding our disturbed land footprint ('area conserved' target)	Biodiversity framework was developed with the support of Conservation International and Proteus, a cross-sector partnership between the UN Environment Programme World Conservation Monitoring Centre (UNEP WCMC) and business 'Area conserved' target has been met by our operational and voluntary conservation investments over the target period, given BHP's FY2022 total disturbed land footprint was 149,312 hectares.	Year-on-year progress on development of framework to evaluate and verify the benefits of our actions The total land set aside for conservation on land on which we operate and other land we steward was 65,870 hectares in FY2022. In addition to these conservation areas, we made several voluntary investments over the target period, of which an area of 4,465,260 hectares contributed to achievement of the 'area conserved' target.

1 FY2018 data includes Continuing and Discontinued operations (Onshore US assets).

2 FY2019 data includes Discontinued operations (Onshore US assets) to 28 February 2019 and Continuing operations.

3 FY2022 data includes the operated assets in our Petroleum business up to the date of the merger with Woodside (1 June 2022) and BMC up to the date of completion of the sale (3 May 2022).

4 The sum of (fatalities + lost-time cases + restricted work cases + medical treatment cases) multiplied by 1 million/actual hours worked by our employees and contractors. Stated in units of per million hours worked. We adopt the US Government's Occupational Safety and Health Administration Guidelines for the recording and reporting of occupational injuries and illnesses.

5 For exposures exceeding our FY2017 baseline occupational exposure limits, without considering protection afforded by the use of personal protective equipment (where required). The baseline exposure profile (as at 30 June 2017) is derived through a combination of quantitative exposure measurements and qualitative assessments undertaken by specialist occupational hygienists consistent with best practice as defined by the American Industrial Hygiene Association.

6 The FY2017 baseline has been adjusted for Discontinued operations (Onshore US assets and Petroleum) and the divestment of BMC. These adjustments have also been applied to FY2018-FY2022 emissions stated in this table to aid comparability.

7 As of FY2021, the Occupational Exposure Limit for Coal was reduced to 1.5 mg/m3 compared to 2.0 mg/m3 in previous years.

8 A significant event resulting from BHP operated activities is one with an actual severity rating of four or above, based on our internal severity rating scale (tiered from one to five by increasing severity) as defined in our mandatory minimum performance requirements for risk management.

9 To date, our voluntary social investment has been calculated as 1 per cent of the average of the previous three years' pre-tax profit. For FY2023–FY2030, our social investment will be assessed as a total over the seven-year goals period to FY2030, rather than calculated as an average of the previous three years' pre-tax profit.

10 Expenditure includes BHP's equity share for operated and non-operated joint ventures, and comprises cash, administrative costs, including costs to facilitate the operation of the BHP Foundation.

11 FY2019 data includes Discontinued operations (Onshore US assets) to 31 October 2018 and Continuing operations.

12 'Withdrawal' is defined as water withdrawn and intended for use (in accordance with 'Water Reporting Good Practice Guide', ICMM (2021)). 'Fresh water' is defined as waters other than seawater, wastewater from third parties and hypersaline groundwater. Freshwater withdrawal also excludes entrained water that would not be available for other uses. These exclusions have been made to align with the target's intent to reduce the use of freshwater sources subject to competition from other users or the environment.

13 The FY2017 baseline has been adjusted to account for: the materiality of the strike affecting water withdrawals at Escondida in FY2017 and improvements to water balance methodologies at WAIO and BMA, exclusion of hypersaline, wastewater, entrainment, supplies from desalination and removal of data for Discontinued operations (Onshore US assets, Petroleum) and BMC. These adjustments have also been applied to FY2018-FY2022 freshwater withdrawal stated in this table to aid comparability.

7.4 Safety

Our highest priority is the safety of our workforce and the communities where we operate.

Our safety performance

In FY2022, we recorded:

- no fatalities at BHP
- a decrease of 30 per cent in the high-potential injury frequency rate from FY2021. The highest number of events with potential for one or more fatalities was related to vehicle and mobile equipment accidents. High-potential injury trends remain a primary focus to assess progress against our most important safety objective, eliminating fatalities
- an increase in total recordable injury frequency (TRIF) of 8 per cent from FY2021. This shift was influenced by COVID-19 through an 8 per cent reduction in hours worked between the first and second halves of FY2022. TRIF has decreased by 9 per cent since FY2018. The highest number of injuries was related to slips, trips and falls for both employees and contractors
- a consistent application of field leadership activities, which occurred at a sustainable frequency rate of 9,341 activities per million hours worked with over 1,517,117 activities completed and more than 68,000 employees and contractors participating in the program at least once. Scheduled activities compared to non-scheduled activities increased by 46 per cent from FY2021 and coaching increased by 6 per cent
- one safety fine at our operated assets

Performance data – workforce health and safety for FY2022[1]

High-potential injuries[2]

Year ended 30 June	**2022**	2021	2020
High-potential injuries	**23**	33	42

	Employees	Contractors
High-potential injury frequency [3]	0.03	0.03

Total recordable injury frequency

Year ended 30 June	**2022**	2021	2020
Total recordable injury frequency [4]	**4.0**	3.7	4.2

	Employees	Contractors
Total recordable injury frequency [3]	0.77	0.82

1 Data includes BMC up to the date of completion of the sale (3 May 2022) and operated assets in our Petroleum business up to the date of the merger with Woodside (1 June 2022)

2 High-potential injury includes injuries with fatality potential. The basis of calculation was revised in FY2020 from event count to injury count as part of a safety reporting methodology improvement.

3 Employee and contractor frequency per 200,000 hours worked.

4 Combined employee and contractor frequency per 1 million hours worked.

Our results were achieved through a sustained focus on improving our management of risk, including through new and existing programs such as:

- Fatality Elimination Program
- Integrated Contractor Management Program
- Field Leadership Program

Fatality Elimination Program

In FY2022, we continued our Fatality Elimination Program (FEL) towards our goal of no fatalities across our business.

Fatality elimination is not a new priority for us. We have been seeking to improve our safety performance for many years and have considerably reduced high-potential injuries. However, there continues to be more to do to systematise a common set of controls.

In FY2022 we:

- developed five-year fatality elimination roadmap guidelines, including the recommended sequencing of strengthened controls based on effort, cost and near miss reduction impact
- updated the *Our Requirements for Safety* standard to reflect FEL deliverables
- created the ‘Control Shift’ methodology for assets to replicate FEL processes for specific risks not considered within our top 10 risks (i.e. vehicle and mobile equipment, dropped object, electrical, lifting, geotechnical failure, entanglement/crushing, energy release, loss of containment, fire/explosion, fall from height)
- created an online dashboard to enhance local implementation plans, providing global visibility of challenges, similarities and differences, thereby assisting assets with their implementation
- published technical bulletins related to FEL controls to provide detailed implementation guidance based on site experience and lessons learnt
- undertook a human performance benchmarking study to identify the latest developments and best practices in the field of human behaviour

Integrated Contractor Management Program

Our Integrated Contractor Management Program is designed to make it safer and easier for contractors to work with us. Introduced in FY2020, the program is focused on building long-term mutually beneficial relationships, integrating and simplifying processes and systems, and creating an inclusive, respectful and caring workforce culture. Since its introduction, the program has standardised roles and responsibilities of contract owners and promoted improved partnerships with BHP service providers through the implementation of the *Our Requirements for Contractor Management* standard for existing and new onsite service contracts.

In FY2022 we:

- developed the scope of work library as an online resource containing best practice examples for different types of contractor engagements
- created contract execution plans as a means of applying the *Our Requirements for Contractor Management* standard
- established an integration stream ensuring enhancements are holistic and cover functional interactions
- undertook assurance and audit activities across BHP including contractor engagements
- implemented a contractor perception survey that runs in parallel with our internal survey. The survey highlighted some results on the experience of our contractor workforce consistent with the internal survey and other areas of focus
- determined organisational design changes to improve contract ownership and management practices
- commenced deployment of a technology solution which supports an enterprise-wide approach to contractor on-boarding and management

Field Leadership Program

Leaders spending time in the field is vital to maintaining safe operations. Our global Field Leadership Program encourages the workforce to provide feedback to their leaders about safety to reinforce an interdependent culture of safety. It involves leaders engaging with workers in the field to drive a common approach to improving health, safety and environment (HSE) performance. The program helps verify that critical safety controls are in place, being applied and are effective in managing risks that have the potential to result in fatalities.

In FY2022 we:

- enhanced the efficiency and effectiveness of supervisor time in the field by integrating the BHP Operating System (BOS) process confirmation and field leadership planned task observation processes into a planned task confirmation
- continued to improve the quality of field leadership activities by increasing coaching and delivery of field leadership engagements
- conducted field leadership activities to support the verification of risks that have the potential to result in fatalities across our operated assets
- embedded the global, standardised field leadership procedure designed to increase the effectiveness of field leadership activities across the business
- conducted field leadership on COVID-19 controls, designed to sustain effectiveness within the changing environment

More information on safety is available at bhp.com/safety.

7.5 Sexual harassment

Sexual harassment[1] is not acceptable and is contrary to our values. Our position on this is clear and aligned to our aspiration of a gender-balanced employee workforce by FY2025. Gender balance in every team and at every level is an important part of our approach to eliminate sexual harassment.

The Australian Human Rights Commission's most recent national survey on sexual harassment in Australian workplaces has found that 71 per cent of Australians have been sexually harassed in their lifetimes and 39 per cent of Australian women experienced sexual harassment in the workplace in the five years to 2018. The same survey concluded that in the mining industry an estimated 74 per cent of women and 32 per cent of men had experienced workplace sexual harassment in the past five years. Back in 2018, we accepted those findings as true for our industry and for BHP globally, and we have focused on understanding why the behaviours exist, and what we needed to do to urgently address them at BHP.

We are deeply sorry and apologise unreservedly to those who have experienced, or continue to experience, any form of sexual harassment anywhere at BHP. We recognise the harmful impacts on individuals resulting from these behaviours.

We understand that it can be difficult for people to come forward to report sexual harassment and thank all of those who have, for their courage in doing so. We are also grateful to our employees and other stakeholders for their insights and suggestions for changes in our workplaces. Their feedback informs our approach. We are determined to make continued progress in eliminating sexual harassment and in ensuring our workplaces are safe and inclusive for everyone.

Our approach to prevent sexual harassment

In 2018, we defined sexual harassment as a health and safety risk, to be overseen in the same way as other occupational health and safety risks. This approach provides the right framework for addressing these behaviours, allowing us to apply a systematic, risk-based approach to evaluating and managing the risks. Our approach includes conducting risk assessments to identify scenarios in which sexual harassment risks may arise, their causes and the controls we can implement to prevent them and reduce harm.

As part of our risk assessment processes, we engaged members of our workforce with experience at site and accommodation villages, and experts in health and safety, harassment and inclusion and diversity. Through this, we identified factors that can contribute to the risk of workplace sexual harassment that are more pronounced in the mining industry, as well as factors that are common across all industries and workplaces. Examples of risks that can be more pronounced in the mining industry include isolated or remote working locations, a largely male-dominated workforce and accommodation villages.

Taking these into account, we identified and developed controls and actions to help prevent sexual harassment and reduce its harmful impacts. Our core controls and areas for action are culture, leadership and training; security measures at accommodation villages; recruitment processes; contractor and third-party engagement; emergency response; trauma-informed (wellbeing) care; accessible, confidential reporting and person-centred investigations; and appropriate disciplinary action.

Reports of sexual harassment

The reporting rate of sexual harassment at BHP has increased in recent years. We believe this reflects the actions we have taken to increase awareness and promote and centralise reporting and investigations, along with broader societal developments and intolerance of this behaviour. Since October 2020, BHP managers and leaders have been required to enter any serious conduct issues raised directly with them, including sexual harassment, into EthicsPoint[2] (anonymously if requested). This year, 47 per cent of reports received into EthicsPoint have been logged by managers or leaders in accordance with this policy.

During FY2022, across BHP's global operations and offices, 103 reported and investigated cases of conduct of sexual harassment were substantiated.[3]

Of the 103 substantiated cases:

- 37 involved non-consensual kissing or touching of a sexual nature, which includes a broad range of behaviour of varying severity. None of these cases involved non-consensual penetration or intercourse, however we recognise that this conduct can occur and has occurred in the past
- 66 involved other forms of sexual harassment, including inappropriate comments of a sexual nature, unwelcome gestures or comments, sending inappropriate text messages or images, or other unwanted advances or invitations
- Of these 103 substantiated cases, in 101 cases the individual responsible has had their employment terminated (or they have been removed from site if a contractor), they have resigned or are otherwise no longer working at BHP.

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1 'Sexual harassment' is, as defined in the Respect@Work report, an unwelcome sexual advance, unwelcome request for sexual favours or other unwelcome conduct of a sexual nature, which makes a person feel offended, humiliated and/or intimidated, where a reasonable person would anticipate that reaction in the circumstances. Sexual harassment encompasses a range of conduct including displaying sexually graphic images, sexually suggestive comments, suggestive or inappropriate looks, gestures or staring, non-consensual touching or acts of a sexual nature and sexual assault.

2 EthicsPoint is our confidential reporting tool. It is accessible to all, including external stakeholders and the public, to report conduct that may be unethical, illegal or inconsistent with *Our Code of Conduct*.

3 This does not include investigations that are currently in progress.

In addition to the matters listed above, in FY2022 87 reports of sexual harassment went through Alternative Resolution Options (AROs). AROs are alternative forms of response and resolution other than investigations, including supported conversations with respondents, additional training, monitoring or awareness raising on BHP's expectations of respectful behaviours in the workplace. This process only occurs where an ARO is proportionate to the nature of the conduct and with the agreement of the impacted person.

We continue to work with external experts on how best to respond to cases to ensure we have a proportionate approach to reports. We will continue to monitor and review the use of AROs to ensure it is meeting the needs of impacted people where it is used and to improve reporting to support organisational learnings.

We will continue to encourage reporting and we are committed to taking action. We put the needs of anyone impacted by this behaviour at the forefront of our processes and we are committed to validating, caring for and supporting anyone in our business who is affected by this behaviour. This includes internal practical and wellbeing support mechanisms, support through our tailored Employee Assistance Program and options to access trauma-specific clinical and non-clinical care with experienced clinicians.

We are committed to working closely with our people, others in industry and other stakeholders to implement the necessary processes and systems designed to ensure our workplaces are safe and inclusive for everyone.

Actions we are taking

Oversight

In FY2022, a Project Management Office (PMO) was established through the office of the CEO to provide central governance over all sexual harassment work. The priority focus areas of that work include driving progress toward gender balance, creating a safe and respectful workplace, building accountability and capability of leaders, upskilling our workforce to be 'active bystanders', enhancing our policies, processes and controls, and providing person-centred and trauma-informed response and support. The PMO reports on progress against implementation of our critical controls and other key focus areas that underpin our overarching sexual harassment prevention strategy to senior management and the Board.

Security and physical infrastructure

We have continued to invest in security programs and physical infrastructure designed to prevent and respond to sexual harassment at our accommodation facilities. Our minimum security requirements for all BHP owned and operated accommodation villages include requirements for access controls, village policies and procedures to manage respectful behaviours, CCTV, lighting, security signage, room allocation procedures, security personnel and incident response.

Reporting and response

We encourage our workforce to report concerns, including providing centralised and confidential reporting tools and mandatory reporting requirements for line leaders. We do not tolerate any form of retaliation for raising a concern and we address these actions if they occur. We ceased using non-disclosure agreements (NDAs) or imposing confidentiality obligations on complainants in settlement agreements relating to sexual harassment in March 2019 and we do not enforce any NDAs or confidentiality obligations on complainants in historical agreements.

Investigation of reports of sexual harassment are conducted by our specialised Central Investigation team, which is independent of our other business units. This team includes experts trained in a person-centred, trauma-informed approach to ensure that the impacted person is placed at the centre of all decisions made during the investigation process and to minimise the risk of further harm to that individual.

We established our global Support Service in FY2022, to provide dedicated, end-to-end case coordination for anyone impacted by sexual harassment, designed to ensure they obtain appropriate support and information. The Support Service can also provide resolution options when an investigation is not wanted by the impacted person or cannot proceed.

Communication of expectations

Our position on sexual harassment has been reinforced through regular senior leadership communications. These include messages from our CEO, on-site signage regarding our expectations and avenues for support, and we have provided sexual harassment prevention training to BHP line leaders, aimed at setting clear expectations about appropriate conduct and driving consistent disciplinary outcomes. Across June and July 2022, we held Safety Stops specifically focused on sexual harassment, racism and bullying for our teams globally. The stops were intended to build awareness, understanding, and capability, as well as to reinforce expectations within our teams.

Alcohol use

As part of our commitment to health and safety, all workplaces should be free from the use of alcohol and illegal drugs, and the misuse of other substances, in accordance with *Our Code of Conduct*. All those who attend a BHP site, including employees, are expected to be alcohol and drug free, and may be asked to undergo random alcohol and drug testing. We also provide support for those who need it to address an alcohol or drug dependency.

For accommodation villages, our Minerals Australia Alcohol Management Standard was implemented across our owned and operated village facilities from 1 July 2021. It includes a range of limits on alcohol consumption. Residents and visitors who breach the standard may be subject to action, including removal of access to the village for a resident or visitor, or disciplinary action for employees. Since the introduction of the standard, our reviews have indicated that there has been a reduction in alcohol consumption and residents are making healthier choices, with an increase in the use of recreational facilities. Alcohol is not permitted at our accommodation villages in Chile and Canada.

Listening to employees, measuring progress and assigning accountability

We have channels through which the Board and senior leaders receive information on workplace culture and conduct. These include anonymous employee and contractor perception surveys and our Field Leadership Program. Our perception surveys are conducted three times per year and were redesigned in FY2021 to include more targeted questions to provide leaders with greater insight into key safety and engagement metrics, which we have identified as critical foundations for our culture. Executive leadership and Group-wide performance criteria are linked to remuneration that includes progress towards greater inclusion, diversity and gender representation. In FY2022, we introduced key performance indicators for our Executive Leadership Team and other BHP employees that linked remuneration outcomes to progress against our program of work to address sexual harassment. This includes implementation of controls in line with BHP's sexual harassment risk assessments.

Engaging with and learning from others

We continue to measure and test our focus and areas for action. In FY2022 we:

- engaged and learnt from external experts who reviewed the controls we have in place and advised on best practice in preventing sexual harassment, and minimising further harm when responding to sexual harassment
- engaged Kristen Hilton (former Victorian Equal Opportunity and Human Rights Commissioner) to provide expert guidance on our prevention and response framework
- conducted a sexual harassment audit across Minerals Americas further to the FY2021 sexual harassment audit conducted across Minerals Australia
- contributed to knowledge sharing with other industry participants in relation to addressing sexual harassment, and considered broader learnings from external reports such as the Australian Human Rights Commission's Respect@Work: Sexual Harassment National Inquiry Report and the Report into Workplace Culture at Rio Tinto by Elizabeth Broderick & Co
- worked with our contracting and supplier organisations to address sexual harassment, including collaboration on response protocols, joint training sessions and knowledge sharing
- undertook a series of listening workshops

Through these initiatives we identified a need for further focus on preventative controls, particularly with respect to culture and behaviours. This is in addition to the controls already in place or committed for implementation in FY2022 which included security, accommodation standards, alcohol measures, recruitment and discipline.

We are committed to working with others in the industry and beyond to address sexual harassment risks. BHP is a member of the Minerals Council of Australia Respect@Work Taskforce and the Chamber of Minerals & Energy WA Safe and Respectful Behaviours Working Group. Both groups aim to build industry capability and capacity though sharing knowledge and developing shared resources.

In FY2022, we participated in Western Australia's parliamentary inquiry into sexual harassment against women in the FIFO mining industry (WA Inquiry), including through a detailed written submission in August 2021 (available at parliament.wa.gov.au). BHP welcomes the final report titled 'Enough is enough' released on 23 June 2022. We acknowledge the significant work of the parliamentary committee and in particular, the many people who shared their stories and experiences as part of the inquiry process.

Continuing to make progress

While we have made progress, there is still much more to do. Our focus in FY2023 will be to continue:

- focusing on increasing female leader representation across our operations
- continuous improvement across our suite of controls
- engaging with our people, encouraging and empowering them to take action as active bystanders and enhance capability
- encouraging increased reporting
- enhancing our approach to supporting impacted persons to thrive at BHP and have successful careers with us

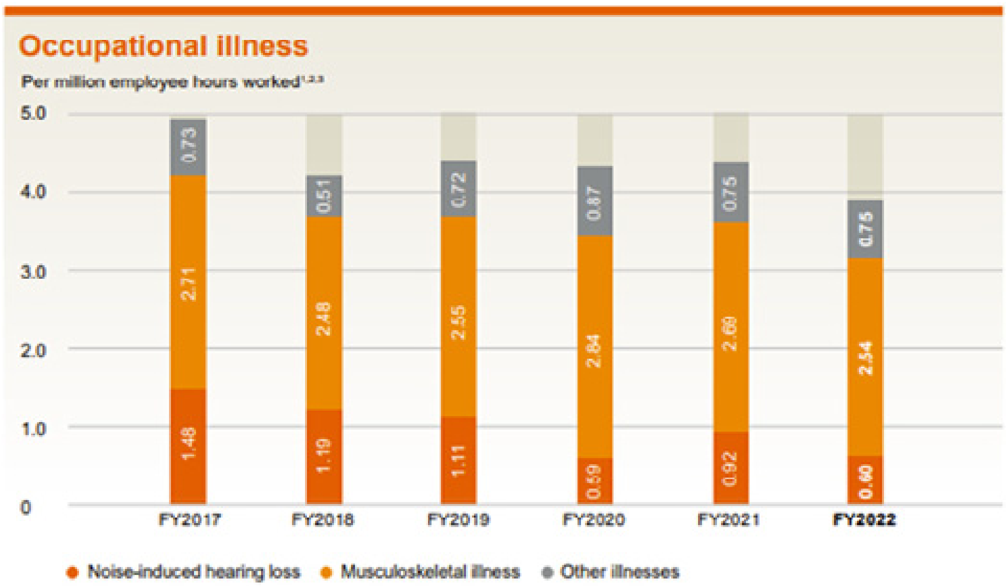
7.6 Health

We are committed to protecting the health and wellbeing of our workforce.

We set clear mandatory minimum performance standards to identify, assess and manage health risks and their potential impacts and monitor the health of our workforce.

Occupational illness

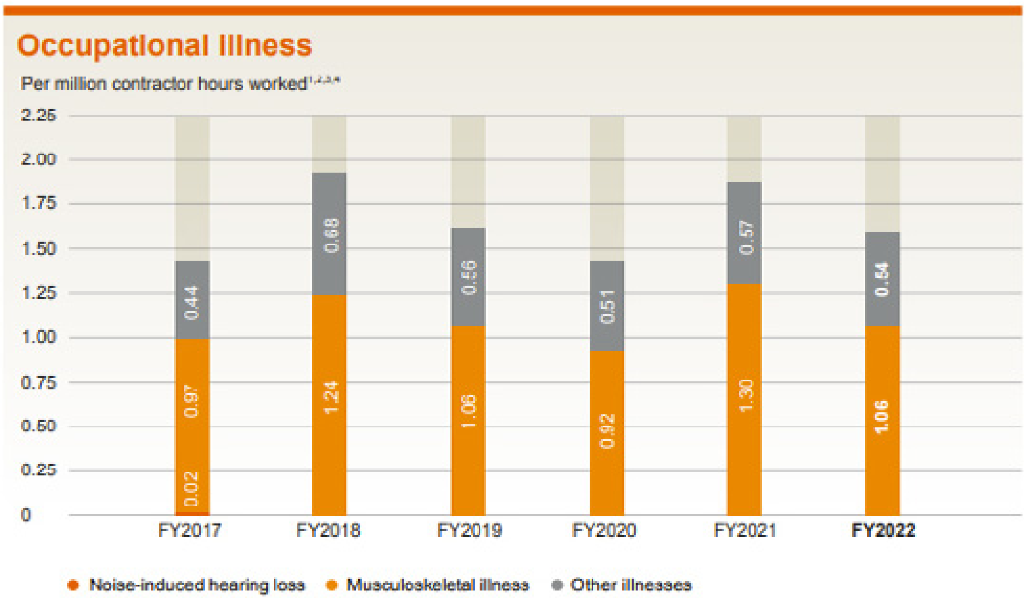
The reported occurrence of occupational illness[1] for employees in FY2022 was 265, which was 3.89 per million hours worked, representing a decrease in incidence compared to FY2021, which was 4.36 per million hours worked.



1 Data includes BMC up to the date of completion of the sale (3 May 2022), operated assets in our Petroleum business up to the date of the merger with Woodside (1 June 2022) and Onshore US assets up to the date of completion of the sale (31 October 2018), as applicable.
2 Occupational illnesses excludes COVID-19 related data.
3 Due to the lag nature of incident reporting and subsequent verification, final results may vary post reporting. Prior year data has not been adjusted.

For our contractor workforce, the reported occupational illness[1] in FY2022 was 151, which was 1.61 per million hours worked, representing a decrease in incidence compared to FY2021 which was 1.87 per million hours worked. Due to regulatory regimes and limited access to data, we do not have full oversight of the incidence of contractor noise-induced hearing loss (NIHL) cases.

1 An illness that occurs as a consequence of work-related activities or exposure.



1 Data includes BMC up to the date of completion of the sale (3 May 2022), operated assets in our Petroleum business up to the date of the merger with Woodside (1 June 2022) and Onshore US assets up to the date of completion of the sale (31 October 2018), as applicable.
2 Occupational illnesses excludes COVID-19 related data.
3 Due to the lag nature of incident reporting and subsequent verification, final results may vary post reporting. Prior year data has not been adjusted.
4 Due to regulatory regimes and limited access to data, we do not have full oversight of the incidence of contractor noise-induced hearing loss (NIHL) cases.

Musculoskeletal illness is the predominant occupational illness category representing 65 per cent of our workforce illnesses. These are conditions impacting the musculoskeletal system and connective tissues caused by repetitive work-related stress or strain or exposure over time. Musculoskeletal illness does not include disorders caused by slips, trips, falls or similar incidents.

Noise-induced hearing loss contributes to the second highest illness category representing 10 per cent of illnesses. Where workers are exposed to noise above acceptable levels, workers are placed in hearing conservation programs, which include a periodic hearing test and hearing protection fit testing. Through our Sustainability in Design program, we have also established design recommendations that seek to eliminate or reduce high or prolonged noise exposures. Other illness categories include skin diseases, temperature-related illnesses, mental illness, bites, stings and other unspecified illnesses.

Our occupational illness data excludes cases of COVID-19 among our employees and contractors. In settings of high levels of community transmission and with an evolving understanding of the epidemiological criteria for infection and COVID-19 variants with evidence of increased transmission, it is difficult to conclude, with reasonable certainty, that a person was infected because of work-related activities or exposure. For information on our response to COVID-19 refer to 'COVID-19' further in 7.6.

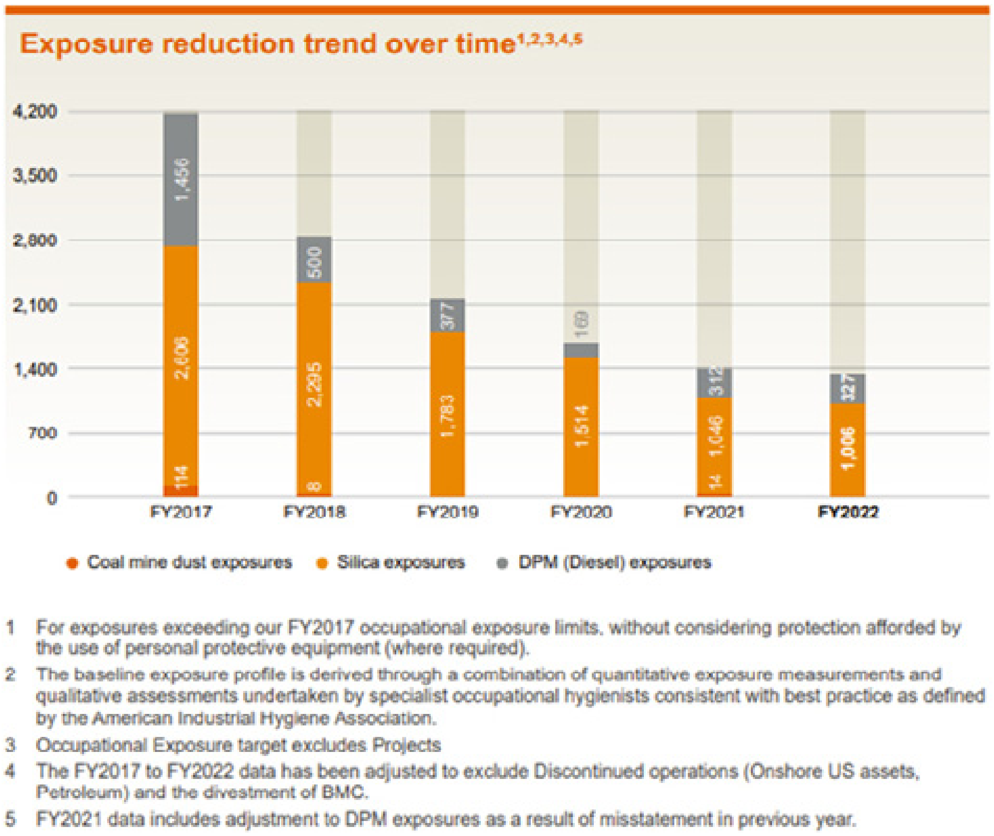
Occupational exposures

Occupational exposure limits (OELs) for our most material exposures are set according to the latest scientific evidence, which for a number of agents, such as diesel particulate matter (DPM), resulted in lower limits than the applicable regulatory requirements. Where exposures potentially exceed regulatory limits or our stricter limits, respiratory protective equipment is required.

For our most material exposures of DPM, silica and coal mine dust, we had a five-year target to achieve, by the end of FY2022, a 50 per cent reduction in the number of workers potentially exposed[1] as compared to our 30 June 2017 baseline exposure profile.[1,2,3] Exposure data in this Report in all cases is presented without considering protection afforded by the use of personal protective equipment (where required).

1 For exposures exceeding our FY2017 occupational exposure limits, without considering protection afforded by the use of personal protective equipment (where required).

We are pleased to have achieved our target by reducing the total number of workers potentially exposed to our most material exposures by 68 per cent. That achievement at the end of FY2022 in number of workers potentially exposed to levels exceeding our OELs include; no workers potentially exposed to coal mine dust 78 per cent reduction in the number of workers potentially exposed to DPM[4] and a 61 per cent reduction in the number of workers potentially exposed to respirable silica.



This year, an internal audit conducted on FY2021 workforce occupational exposures data at Nickel West identified that a statistical analysis error resulted in an underestimation of the number of workers assessed as potentially exposed to DPM. This has resulted in an increase in the FY2021 total number of workers potentially exposed to material exposures compared to what was reported last year.

With the conclusion of our five-year public target, we will continue to manage exposures to as low as reasonably practicable by focusing our efforts in FY2023 on further implementation of exposure reduction projects, sustaining the exposure reductions achieved by leveraging our Risk Framework and identifying exposure reduction opportunities for inclusion in FY2024 plans and beyond.

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1 The baseline exposure profile is derived through a combination of quantitative exposure measurements and qualitative assessments undertaken by specialist occupational hygienists consistent with best practice as defined by the American Industrial Hygiene Association.

2 Occupational Exposure target excludes Projects.

3 The FY2017 to FY2022 data has been adjusted to exclude Discontinued operations (Onshore US assets, Petroleum) and the divestment of BMC.

4 FY2021 data includes adjustment to DPM exposures as a result of misstatement in previous year.

Coal mine dust lung disease

As at 30 June 2022, 12 cases of coal mine dust lung disease (CMDLD)[1] among our employees were reported to the Queensland Department of Natural Resources Mines and Energy (DNRME).[2] In addition to these cases, there were four coal mine dust lung disease claims accepted in FY2022, which consisted of three former workers and one current worker. For cases involving current employees, we offer counselling, medical support and redeployment options where relevant.

Mental health

The mental health of our people continues to be a focus. In FY2022, we continued to implement our Group-wide Mental Health Framework to raise awareness of mental wellbeing, reduce stigma and increase the capacity of our leaders to recognise and support individuals experiencing mental illness. As a founding member of the Global Business Collaboration for Better Workplace Mental Health, we continue to contribute to the global business-led alliance to advocate for and accelerate positive change for mental health in the workplace worldwide.

To support the proactive management of mental wellbeing and give our workforce the tools and skills needed to build resilience and positive mental health, we provide and promote the Employee Assistance Program, our mental health toolkit, Thrive, education and awareness campaigns (including stigma reduction) and the BHP Resilience Program.

In May 2022, we continued with our annual BHP Mental Health month, with the aim of increasing mental wellbeing and encouraging everyone to support and look out for one another. We continued to support global mental health campaigns during FY2022, including World Mental Health Day, R U OK? Day and Movember.

In FY2022, we also commenced work to develop a Group-wide psychosocial risk management approach with the aim of taking a proactive and systemic approach to sustaining a mentally healthy workplace. This process will contribute to achieving our 2030 goal for a safe, inclusive and future-ready workforce.

COVID-19

We continued to navigate the challenges of the global COVID-19 pandemic, including high community transmissions and variants that are more transmissible. In FY2022, we continued to adapt COVID-19 controls based on current scientific evidence and medical advice designed to protect our workforce and minimise the risk of workplace transmission.

We strongly support vaccination as a control to protect the health of our workforce and the communities where we operate. As part of our COVID-19 controls, we require vaccinations as a condition of workplace entry subject to local laws and regulatory requirements. We also implemented pre-entry testing programs across our operations and offices globally – aimed at reducing workplace transmissions.

More information on health, including a case study on how we supported our people and the communities where we operate through COVID-19, is available at bhp.com/health.

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1 CMDLD is the name given to the lung diseases related to exposure to coal mine dust and includes coal workers' pneumoconiosis, silicosis, mixed dust pneumoconiosis and chronic obstructive pulmonary disease.

2 Cases reported to DNRME are not an indication of work relatedness. BHP evaluates each case for work relatedness and where identified, the case will be included in occupational illness reporting.

7.7 Ethics and business conduct

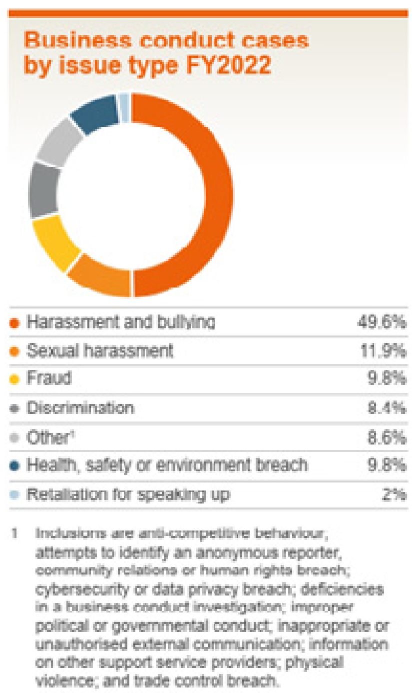
Our conduct

Our Code of Conduct (*Our Code*)[1] brings our values to life so we can make the right choices every day. It applies to everyone who works for us, with us, or on our behalf. To ensure all employees and contractors understand how *Our Code* applies, regular training is mandatory. There are consequences for breaching *Our Code* and we encourage people to speak up where a decision or action is not in line with *Our Code* or *Our Charter*.

Our Code is available in five languages and accessible at bhp.com.

BHP encourages individuals to speak up and report concerns about any conduct that is inconsistent with *Our Charter*, *Our Code* or internal requirements, or conduct that may be illegal or improper. BHP requires reports of business conduct concerns to be treated with appropriate confidentiality and prohibits any kind of retaliation against people who make or may make a report, or who cooperate with an investigation. We consider all forms of retaliation to be misconduct and grounds for disciplinary action, up to and including termination of employment.

In FY2022, 5,402 reports were received into EthicsPoint (of these 4,714 were classified as business conduct concerns)[2] representing an increase of 33 per cent in business conduct concerns from FY2021. These include reports directly made by employees, contractors or community members. It also includes reports made to leaders (31 per cent) who are then required to register them in EthicsPoint. We believe the increase corresponds to the continuous effort by BHP to promote the reporting of disrespectful behaviour to create an environment in which people can feel safe speaking up. The introduction of a global service to support people involved in sexual harassment incidents and discuss resolution options has also encouraged employees and contractors to report instances of sexual harassment. Of the business conduct reports received, 36 per cent were made anonymously[3], compared with 42 per cent in FY2021. Of the total business conduct reports closed during FY2022, 43 per cent contained one or more substantiated allegations.[4]



1 Information is available at bhp.com/our-approach/our-company/our-code-of-conduct/.

2 Some EthicsPoint reports are enquiries, or are not related to business conduct concerns, or are a duplicate of an existing report.

3 This excludes reports not containing a business conduct concern and excludes reports logged by leaders on behalf of others. Case classification is made at the time of the report.

4 The calculation is based on reports received and completed in FY2022, containing one or more substantiated allegations. Not all reports resulted in a finding. This can occur if there is insufficient information, the respondent is not able to be identified, was previously terminated, or that the impacted person did not wish to proceed.

Transparency and accountability

We support initiatives by governments of the countries where we operate to publicly disclose the content of our licences or contracts for the development and production of minerals that form the basis of our payments to government, as outlined in the Extractive Industries Transparency Initiative (EITI) Standard.

Other initiatives include our work in partnership with Transparency International, our representation on the Board of the EITI, our financial support for and Steering Committee membership of the Bribery Prevention Network (in Australia) and our funding of the BHP Foundation, including its Natural Resource Governance Global Program.

In FY2022, we also continued our active and public support for ultimate beneficial ownership transparency. This support included co-hosting (with EITI, Open Ownership and the B Team) a Beneficial Ownership Transparency Forum in London and leading efforts with EITI for BHP and other leading resources companies to publicly commit to a Statement by Companies on Beneficial Ownership Transparency, launched at the Forum. Through the Statement, BHP and other leading resources companies recognise the need for publicly available company ownership information and (among other things) commit to promote the global adoption of beneficial ownership transparency, to disclose beneficial ownership data and to identify and use beneficial ownership data in due diligence processes. Our efforts are complementary to BHP Foundation's partnership with EITI and Open Ownership to support governments to transform the availability and use of beneficial ownership data for effective governance in the extractive sector.

Multi-lateral measures to improve governance, such as these, should help ensure transparency and accountability are cornerstones of a successful energy transition that benefits the citizens of countries bestowed with critical minerals.

Anti-corruption

We continue our commitment to the global fight against corruption in the resources industry. Our commitment to anti-corruption is embodied in *Our Charter* and *Our Code*.

As part of this commitment, we prohibit authorising, offering, giving or promising anything of value directly or indirectly to anyone to influence them in their role, or to encourage them to perform their work disloyally or otherwise improperly. We also prohibit facilitation payments, which are payments to government officials for routine government actions. Our people must take care that third parties acting on our behalf do not violate anti-corruption laws. Disciplinary action including dismissal, or termination of contractual relationships, may follow from a breach of these requirements.

To manage corruption risk, we work to ensure optimal resource allocation to areas of our business with the highest exposure to corruption risks. The identification, assessment and management of corruption risks associated with growth opportunities remains a significant area of focus for our Compliance function, via a sub-team dedicated to supporting functions that are responsible for initiating transactions and growth opportunities in countries with high corruption risks.

All activities that potentially involve higher exposure to corruption risk require review or approval by our Compliance function, as documented in our anti-corruption compliance framework. In FY2022, Compliance and Global Corporate Affairs implemented a new end-to-end workflow system for sponsorships, donations and community development projects, which provides greater data for enhanced monitoring and increased governance over contracting and post-contact expenditure reporting.

Our Compliance function regularly reviews our anti-corruption framework for compliance with the requirements of the US Foreign Corrupt Practices Act, the UK Bribery Act, the Australian Criminal Code and the applicable laws and regulatory developments of all places where we do business. These laws are consistent with the standards of the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions.

Our Compliance function is independent of our assets and regions and reports to the Chief Legal Governance and External Affairs Officer. The Chief Compliance Officer also reports quarterly to the Risk and Audit Committee on compliance issues and meets at least annually with the Committee Chair.

The Compliance team also participates in anti-corruption risk assessments in respect of our operated assets or functions, our interests in non-operated assets and new business opportunities that we consider are exposed to material anti-corruption risks. In FY2022, the team provided input into 44 anti-corruption risk assessments.

Risk awareness in first-line employees remains a critical preventative measure. Anti-corruption training is required to be provided to all employees and contractors as part of mandatory annual training on *Our Code.* Our Compliance function also regularly communicates and engages with identified higher-risk roles. In FY2022, additional risk-based anti-corruption training was undertaken by 1,578 employees and contractors, as well as employees of some of our business partners and community partners.

More information on ethics and business conduct is available at bhp.com/ethics.

7.8 Climate change

We believe the world must pursue the aims of the Paris Agreement with increased levels of national and global ambition to limit the impacts of climate change.

In September 2021, we published our Climate Transition Action Plan (CTAP), which sets out our strategic approach to achieving our long-term GHG emissions reduction goals. The CTAP, together with more information on our climate positions, actions and performance, is available at bhp.com/climate.

BHP's climate change targets and goals[1]

Following completion of a number of portfolio changes in FY2022, we have taken the opportunity to streamline the expression (without change to the substance) of the climate change targets and goals we outlined in the CTAP, as set out here.

To support the net zero transition that the world must make, we will continue to pursue sustainable provision of our products, many of which are essential building blocks of decarbonisation.

For operational greenhouse gas (GHG) emissions (Scope 1 and Scope 2 from our operated assets), we have:

- a medium-term target to reduce operational GHG emissions by at least 30 per cent from FY2020 levels by FY2030
- a long-term goal to achieve net zero operational GHG emissions by 2050

For value chain greenhouse gas (GHG) emissions (Scope 3):

- We are pursuing the long-term goal of net zero Scope 3 GHG emissions by 2050. Achievement of this goal is uncertain, particularly given the challenges of a net zero pathway for our customers in steelmaking, and we cannot ensure the outcome alone. To progress towards this goal:[2]
  - We will target net zero by 2050 for the operational GHG emissions of our direct suppliers.[3]
  - We will target net zero by 2050 for GHG emissions from all shipping of BHP products.
  - We will continue to partner with customers and others to try to accelerate the transition to carbon neutral steelmaking and other downstream processes.
- Our 2030 goals are to:
  - support industry to develop technologies and pathways capable of 30 per cent emissions intensity reduction in integrated steelmaking, with widespread adoption expected post 2030
  - support 40 per cent emissions intensity reduction of BHP-chartered shipping of BHP products

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1 These positions are expressed using terms that are defined in the Glossary to this Report, including the terms 'target', 'goal', 'net zero' and 'carbon neutral'. The baseline year(s) of our targets will be adjusted for any material acquisitions and divestments, and to reflect progressive refinement of emissions reporting methodologies. The targets' boundaries may in some cases differ from required reporting boundaries. The use of carbon offsets will be governed by BHP's approach to carbon offsetting described at bhp.com/climate.

2 The targets are referable to a FY2020 baseline year. Our ability to achieve the targets is subject to the widespread availability of carbon neutral solutions to meet our requirements, including low/zero-emissions technologies, fuels, goods and services.

3 Operational GHG emissions of our direct suppliers means the Scope 1 and Scope 2 emissions of our direct suppliers included in BHP's Scope 3 reporting categories of purchased goods and services (including capital goods), fuel- and energy-related activities, business travel and employee commuting.

Climate Transition Action Plan progress

FY2022 progress on operational decarbonisation targets and goals

To support progress towards our long-term goal to achieve net zero operational GHG emissions by 2050, in FY2022, we achieved our short-term target due to significant progress made through the execution of Power Purchase Agreements (PPAs), particularly in Chile at two of our copper operated assets but also increasingly across our Australian operations. Meeting our FY2022 target keeps us on track to achieve our FY2030 medium-term target.

Targets	FY2022 progress
Short-term: Target to maintain operational GHG emissions at or below FY2017 levels by FY2022, while we continue to grow our business.	We have achieved and exceeded our FY2022 target on the basis of significant progress securing renewable energy supply via PPAs, notably in Minerals Americas, with Escondida and Spence mostly supplied by renewable energy for their electricity in the first half of CY2022.
Medium-term: Target to reduce operational GHG emissions by at least 30 per cent from FY2020 levels by FY2030.	

FY2022 progress on value chain decarbonisation targets and goals

Targets and goals	FY2022 progress
Steelmaking **2030 goal:** Support industry to develop technologies and pathways capable of 30 per cent emissions intensity reduction in integrated steelmaking, with widespread adoption expected post 2030.	• Announced a Memorandum of Understanding (MOU) for up to US$10 million investment with POSCO in October 2021 to jointly study optimising coal/coke quality for low-carbon blast furnace operation and Carbon Capture Utilisation and Storage (CCUS). • This, together with MOUs announced in FY2021, provides up to US$75 million for steel decarbonisation partnerships with four key customers representing approximately 12 per cent of reported global steel production. For more information refer to our steel decarbonisation framework in Value chain GHG emissions. • Commenced feasibility studies with Baowu, HBIS, JFE, into CCUS and Direct Reduced Iron (DRI) technologies, use of hydrogen in steelmaking, and iron ore blends suitable for DRI production. • Invested US$11 million in venture investments in electrolysis technology companies Electrasteel and Boston Metal.
Maritime **2030 goal:** Support 40 per cent emissions intensity reduction of BHP-chartered shipping of BHP products. **Target:** We will target net zero by 2050 for GHG emissions from all shipping of BHP products.	• In May 2022, we joined the First Mover's Coalition as a member in the shipping sector, on the basis of committing that 10 per cent of BHP's products shipped to our customers, on our time charter vessels, will be on vessels using zero emissions fuels by 2030.[1] • Formed a consortium with Rio Tinto, Oldendorff, Star Bulk, and the Global Maritime Forum to analyse and support the potential to develop an iron ore maritime green corridor, fuelled by green ammonia. • Chartered the world's first LNG-fuelled Newcastlemax bulk carriers to transport iron ore from Western Australia to Asia for five years. The fuel, along with improved efficiency of the vessel design, is expected to significantly reduce GHG emissions intensity per voyage.

FY2022 progress on CTAP climate change commitments

Commitment	FY2022 progress
Assessing capital alignment with a 1.5ºC world – our approach to strategy and operational and commercial decision-making in consideration of a range of different global, sectoral and regional scenarios, including a 1.5ºC outcome	• The impact of our 1.5°C Paris-aligned scenario on portfolio value was assessed and reviewed against the portfolio mix and major capital allocation decisions. All investment decisions now require an assessment of viability under our 1.5°C scenario. Work continues to determine future climate requirements for planning and capital allocation processes.
Climate policy engagement – including our strengthened approach to industry associations to ensure our review identifies areas of inconsistency with the Paris Agreement	• We plan to publish our next formal industry association review in the second half of CY2022. • As part of our normal practice, we intend to analyse the industry association reviews published by our peers and relevant material published by civil society groups and other stakeholders, with the goal of strengthening our own review methodology, where possible.
Just transition – our approach to dealing with the challenges associated with the transition of our communities and workforce as assets come to the end of their operating life	• We have set out our Equitable Change and Transition Position establishing our approach to changes and transitions in our communities. Refer to OFR 7.1.

1 Subject to the availability of technology, supply, safety standards, and the establishment of reasonable thresholds for price premiums.

Climate governance and management

Climate change is a material governance and strategic issue for us. Our Board is actively engaged in the governance of climate change issues, including our strategic approach, oversight of material risk management and performance against our targets, goals and strategies, supported by the Sustainability Committee and the Risk and Audit Committee.

The Board strengthened the link between executive remuneration and delivery of our climate change strategy in 2020, with performance on decarbonisation and adaptation now representing 10 per cent of the Cash and Deferred Plan scorecard.

The Board obtains advice from climate change experts, including by seeking the input of management (including Dr Fiona Wild, our Vice President Sustainability and Climate Change) and independent advisers. In addition, our Forum on Corporate Responsibility (which includes Don Henry, former CEO of the Australian Conservation Foundation and Changhua Wu, former Greater China Director, the Climate Group) engages with operational management teams and with the Sustainability Committee and the Board as appropriate.

Below Board level, key decisions in relation to climate change are made by the CEO and management, in accordance with their delegated authority. Our Executive Leadership Team (ELT) is held to account for a range of measures, including climate-related performance, which are then cascaded through the organisation. While our Board is ultimately responsible for our strategic approach to climate change issues, management has primary responsibility for the design and implementation of our climate change strategy with execution overseen by the Climate Change Steering Committee. BHP has a dedicated Climate Change team responsible for advising the ELT. The team collaborates with BHP's asset and function teams, external partners and industry to develop practical climate change solutions, designed to preserve and unlock long-term value for BHP. It regularly prepares information and advice for the ELT, Sustainability Committee, Risk and Audit Committee and the Board on climate-related strategy, risks (both threats and opportunities) and performance against climate-related metrics. It also uses key risk indicators to help monitor performance against our appetite for climate change related risks and monitors relevant signposts through our emerging risk process. Climate-related activity is also undertaken across the Group, including in our Portfolio Strategy and Development; Commercial; Planning and Technical; and Environment teams.

Climate risk management

BHP applies a single, Group-wide approach to the management of risk, known as the Risk Framework. Risks are assessed to determine their potential impacts and likelihood, enable prioritisation and determine risk treatment options. We then implement controls designed to prevent, minimise or mitigate threats, and enable or enhance opportunities. Risks and controls are reviewed periodically and on an ad hoc basis to evaluate performance. For more information on BHP's Risk Framework refer to OFR 9.

Climate-related risks can be grouped into two categories:

- **Transition risks** arise from policy, regulatory, legal, technological, market and other societal responses to the challenges posed by climate change and the transition to a low-carbon economy. For more information refer to Transition risks.
- **Physical risks** refer to acute risks that are event-driven, including increased severity and frequency of extreme weather events, and chronic risks resulting from longer-term changes in climate patterns. For more information refer to Physical risks.

Transition risks

Transition risks are identified, assessed and managed in line with BHP's Risk Framework. We consider these across short (up to two years), medium (two to five years) and long-term (five to 30 years) time horizons.

For more information on risks associated with the transition to a low-carbon economy and why these risks are important to BHP, potential threats and opportunities, and key management actions refer to OFR 9.1.

Scenario analysis

When forming strategy, we consider the impact of a range of future pathway scenarios, including our 1.5°C Paris-aligned scenario,[2] and potential responses to the threats and opportunities presented by climate change. At the time of publication of this Report, signposts do not yet indicate the appropriate measures are in place to drive decarbonisation at the pace or scale required for us to assess achieving the aims of the Paris Agreement as the most likely future outcome. However, as governments, institutions, companies and society increasingly focus on addressing climate change, the potential for a non-linear and/or more rapid transition and the subsequent impact on threats and opportunities increases.

We seek to maximise our exposure to products with significant opportunity under all scenarios and to minimise the risk that capital will be stranded in a rapidly decarbonising world – through portfolio commodity mix and the position of our operated assets on their cost curves.

Two scenarios (Central Energy View and Lower Carbon View)[1] are currently being used as inputs to our operational planning cases, based on our current estimates of the most likely range of future states for the global economy and associated sub-systems. In addition to our operational planning scenarios, we utilise a range of scenarios, including our 1.5°C Paris-aligned scenario when testing the resilience of our portfolio, forming strategy and making investment decisions. These scenarios are reviewed periodically to reflect new information and are benchmarked against scenarios from the Intergovernmental Panel on Climate Change (IPCC) and third-party energy and resource research organisations (including the International Energy Agency, IHS Markit, Wood Mackenzie, Bloomberg New Energy Finance and CRU); an update of the scenarios is expected during FY2023.

The energy and resources modelling from BHP's 1.5°C scenario, which was conducted in 2020, remains consistent with the updated carbon budget released in the Working Group I report as the first part of the IPCC's Sixth Assessment Report (AR6) in 2021.

Capital alignment

During FY2022, we systematically integrated our 1.5°C Paris-aligned scenario[2] into our strategy and capital allocation process to test the extent to which our capital allocation is aligned with a rapidly decarbonising global economy. Specifically, we apply our 1.5°C scenario to assess whether future demand for our products under that scenario supports ongoing capital investment. Our analysis and that of others, including the International Energy Agency, have shown that many of the commodities we currently produce are critical for the aims of the Paris Agreement to be met.

The impact of our 1.5°C scenario on our portfolio value was assessed after the merger of our Petroleum business with Woodside and the sale of a number of our coal assets, and was reviewed against portfolio mix and major capital allocation decisions. Our portfolio value increased under the 1.5°C scenario, consistent with the demand outcomes of the analysis published in the BHP Climate Change Report 2020[3] that indicated the world would need around twice as much steel, copper and potash, and four times as much nickel in the next 30 years as it did in the last 30. It also indicated a reduction in the future demand for oil and energy coal.

Our focus for capital expenditure is now on commodities we assess as having a significant upside through the transition. Furthermore, the internal allocation of capital under our Capital Allocation Framework and all major investment decisions now require an assessment of investment viability under our 1.5°C Paris-aligned scenario.

Through these processes, we demonstrate our commitment to ensuring our capital expenditure plans are not misaligned with the Paris Agreement's aim to pursue efforts to limit global warming to 1.5°C. Our total capital and exploration expenditure for Continuing operations in FY2022 was US$6.1 billion, of which US$73 million or 1 per cent was for our energy coal assets. Spend in FY2022 and all currently approved spend for energy coal assets is limited to maintenance capital. Additional capital is expected to be required for the proposed life extension of the Mt Arthur Coal mine through to the end of FY2030, should relevant approvals be received. This is expected to provide certainty for our people and the community about the future of the mine and time to work together with the community on a plan that contributes to helping the region diversify and strengthen its economy.

In FY2020, we announced a commitment of at least US$400 million to invest in GHG emissions reduction across our operated assets and value chain over the five-year life of our Climate Investment Program. We spent US$47 million on initiatives consistent with this program in FY2022, targeting operational, maritime, and steelmaking emissions and BHP Ventures investments. This figure does not include the operating expenditure associated with renewable electricity arrangements established at a number of our operations, which collectively represented the main source of operational emissions abatement for BHP in FY2022. More than US$200 million has been included in approved budgets for FY2023 as our decarbonisation programs further mature, and we will continue expenditure of up to US$75 million over the coming years channelled towards partnerships with our customers in the steel sector.

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1 Central Energy View reflects, and is periodically updated to respond to, existing policy trends and commitments. Lower Carbon View accelerates decarbonisation trends and policies, particularly in easier-to-abate sectors such as power generation and light duty vehicles. For more information refer to the BHP Climate Change Report 2020 available at bhp.com.

2 This scenario aligns with the aims of the Paris Agreement and requires steep global annual emissions reduction, sustained for decades, to stay within a 1.5°C carbon budget. 1.5°C is above pre-industrial levels. For more information about the assumptions, outputs and limitations of our 1.5°C Paris-aligned scenario, refer to the BHP Climate Change Report 2020 available at bhp.com.

3 There are inherent limitations with scenario analysis and it is difficult to predict which, if any, of the scenarios might eventuate. Scenarios do not constitute definitive outcomes for us. Scenario analysis relies on assumptions that may or may not be, or prove to be, correct and may or may not eventuate, and scenarios may be impacted by additional factors to the assumptions disclosed.

Our capital allocation process is structured to ensure capital expenditure plans are aligned with our FY2030 and 2050 operational emissions reduction target and goal. We expect to spend around US$4 billion on operational decarbonisation by FY2030, with plans reflecting an annual capital allocation of between approximately US$200 million and approximately US$600 million per year over the next five years. Going forward, as our climate response is further integrated into business-as-usual planning, our spending on climate initiatives is expected to become increasingly indistinguishable from normal business spending.

How we think about and use carbon pricing

Our assets and markets are likely to continue to be subject to variations in regulation and levels of carbon pricing depending on location and industry. Similarly, the competitiveness of our products and the processes in which they are used will be impacted by the adoption of carbon legislation in customer countries. We utilise an explicit regulatory carbon price forecast for major BHP operational, competitor and customer countries. In determining our forecast, we consider factors such as a country's current and announced climate policies and targets and societal factors such as public acceptance and demographics.

We have incorporated regional carbon price assumptions in our planning, investment decisions and asset valuations for more than 10 years. They are used together with our operational planning cases based on the current economic outlook for asset planning, asset valuations and operational decision-making.

Our carbon price forecasts are also used along with other qualitative and quantitative metrics, such as the outcomes of our 1.5°C Paris-aligned scenario analysis (refer to 'Scenario analysis' and 'Capital alignment'), in our assessment of investments under the Capital Allocation Framework and to inform our portfolio strategy and investment decisions.

When considering initiatives to meet our operational emission medium-term target and long-term goal, we consider a number of additional metrics, including the initiatives' position on our internal marginal abatement project cost curve, technology maturity and ultimate abatement potential. This informs the implied costs and benefits of our decarbonisation initiatives, allowing us to prioritise and rank those initiatives based on an implied price on carbon.

Physical risks

Our Adaptation Strategy outlines the proactive and collaborative approach we need to take to build the safety, productivity and climate resilience of our operated assets, investments, portfolio, supply chain, communities and ecosystems by adapting to the physical risks of climate change. We have analysed specific climate-related hazards and developed a more detailed approach to enable financial and economic evaluation of physical climate risks and adaptation measures in future years.

BHP requires operated assets and functions to identify and progressively assess potential physical climate change risks (including to our value chain) and build climate change adaptation into their plans, activities and investments. In FY2022, we progressed our Adaptation Strategy, conducting a physical climate risk identification process for our operated assets and supply chain. Risks associated with each hazard were prioritised in accordance with our risk process under BHP's Risk Framework, including consideration of their materiality. Across our portfolio of operated assets and associated value chains, we have identified a number of common, high potential impact physical climate risks; where the 'Highest potential impact physical climate risks across BHP's operated assets' table presents the top eight.[1] The risk management column in the table describes our current approach, which is subject to review for new or additional climate-related measures arising from the subsequent risk evaluation work program planned for our operated assets (including legacy assets) in FY2023.

Equitable change and transitions

There are communities around the world that rely on mining certain commodities that may therefore be disproportionately impacted by the transition to a low-carbon economy. Solutions will require a multi-stakeholder approach including the local community, investors, financiers, government at all levels and, of course, resource companies such as BHP.

We have outlined our approach to equitable change and transition, taking into account the Paris Agreement and the International Labour Organisation's (ILO's) Just Transition Guidelines, in OFR 7.1, recognising the role of BHP through changes and transitions.

The approach to equitable change and transition will inform implementation of our strategy for decarbonisation and adaptation to the potential physical impacts of climate change, as well as apply to the intended closure of NSWEC.

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1 The first seven risks in the table were selected based on the number of operated assets that identified them as material in accordance with BHP's Risk Framework and the average Maximum Foreseeable Loss severity rating assigned to each. The absence of a tick means either the risk was identified at the asset, but not rated as material under our Risk Framework, or that it was not identified for that asset. Legacy assets and non-operated joint ventures have been excluded from the analysis. Legacy assets are to be included in the risk evaluations planned for FY2023. The eighth risk in the table is a collation of material value chain risks with implications across the regions; its position in the table does not indicate its level of potential impact relative to the other risks.

Highest potential impact physical climate risks across BHP's operated assets

	Minerals Australia					Minerals Americas			
Risk description	**BMA**	**NSWEC**	**Nickel West**	**Olympic Dam**	**WAIO**	**Escondida**	**Jansen**	**Pampa Norte**	**Risk management[1]**
Geotechnical instability and erosion of tailings storage facility (TSF) landforms and structures under conditions of extreme rainfall, leading to TSF failure	✓	✓	✓	✓	✓	✓	✓		Our approach to TSF failure risk management at operated assets is multi-dimensional and includes the following key elements: maintenance of dam integrity; operation, surveillance and maintenance; emergency preparedness and response; TSF governance and standards; and Group-level oversight and assurance. The *Our Requirements for Tailings Storage Facilities* standard is aligned to the Global Industry Standard on Tailings Management (GISTM) and we contribute to efforts to improve TSF management across the mining industry, including through the ICMM Tailings Working Group. For more information on our management of TSF failure risk refer to OFR 7.18. We are working to incorporate climate risk management into the TSF life cycle and have conducted a detailed study on the potential impact of climate change on Laguna Seca TSF at Escondida.
Water shortages impacting production, associated activities (e.g. dust suppression, ore handling) and reputation due to changes in average rainfall and temperature/evaporation	✓	✓	✓	✓	✓		✓		We have a range of risk management measures for our water-related risks, including consideration of climate change projections as relevant (and where available), covered in more detail at bhp.com/water.
Flooding of mine and/or key production infrastructure (e.g. plants, conveyor belts etc.) due to extreme precipitation	✓	✓	✓			✓	✓		Per above, risk management measures for our water-related risks are covered in more detail at bhp.com/water. We have developed internal guidance on incorporating climate change projections into mine water planning, hydrologic assessment and infrastructure design. We are conducting a pilot study on quantifying the potential impact of this risk, to inform future value-at-risk assessments. While our methodology is still under development, our intent is to support more effective decision-making when prioritising capital investment in risk controls.
Disruption and/or damage to port and coastal infrastructure and operations due to higher sea levels, cyclones, storm surge and changes in marine ecosystems	✓	✓	✓		✓		✓		We maintain response plans for various scenarios that could impact our ability to access key markets, including physical disruptions of outbound supply chain logistics. Stockpile and capacity management and use of weather forecasts are some of the tools that may assist in minimising operational disruption at our ports from weather and/or climate-related events. We are undertaking more detailed evaluations of the potential climate change impacts for our port and coastal infrastructure, including at Port Hedland and Hay Point.

	Minerals Australia					Minerals Americas			
Risk description	**BMA**	**NSWEC**	**Nickel West**	**Olympic Dam**	**WAIO**	**Escondida**	**Jansen**	**Pampa Norte**	**Risk management**[1]
Workforce health and safety incidents due to extreme events (e.g. extreme temperature causing heat stress)	✓	✓	✓		✓		✓		The *Our Requirements for Health*, *Our Requirements for Safety* and *Our Requirements for Community* standards, together with BHP's Risk Framework, govern our health and safety risk management approach. At our operating sites, we have weather detection monitoring (e.g. wet bulb temperature) and associated weather preparation and response plans (including Trigger Action Response Plans (TARPs)) to enable our response to potential extreme weather events. Our sites also have Emergency Management Plans in place, and personnel trained in emergency response.
Disruption and/or damage to electrical infrastructure (e.g. motors, cooling and control systems) due to extreme temperatures	✓	✓	✓	✓					We aim to operate our critical equipment in accordance with industry best practice and ensure that critical equipment components are compliant with relevant design standards. We have extensive inspection and maintenance routines, hold inventory of critical spares, and undertake detailed contingency planning, in order to remain resilient in the face of potential equipment failure or inefficiencies. A number of our sites in FY2023 will evaluate the potential impact on electrical infrastructure of extreme temperatures under different climate scenarios.
Disruption and/or damage to water supply infrastructure due to extreme precipitation or flooding				✓		✓		✓	Regular maintenance of water infrastructure, such as treatment plants, pipelines and tanks is critical to ensure that water is adequate for our operated assets, both in quantity and quality. BHP requires our water infrastructure to be designed and constructed to meet internal and external standards.
Disruption in the supply of critical production inputs and critical infrastructure due to extreme weather events	Identified as value chain risks across the relevant regions								We assess supply categories according to commercial dependency and supplier risk, both elements that have informed our selection of key value chain inputs for further evaluation of physical climate risk. This work aims to minimise potential adverse impacts from physical climate risk in our value chain. At our Spence copper asset, we have assessed supply chain resilience in relation to the impact that swells, extreme rainfall, earthquakes and tsunamis could have on the supply of diesel, sulphuric acid and supplies for concentrates. The assessment identified specific mitigating controls for consideration by the asset.

To underpin the subsequent risk evaluation work program planned across all of our operated assets (including legacy assets) and key supply chain infrastructure, we have sourced projections of acute and chronic climate variables from a leading climate science consultancy. The risk evaluation process will be a further step toward identifying and prioritising additional adaptation measures and reporting potential financial impacts in later years, including a value-at-risk range. We have already allocated US$200 million to studies on physical climate risk prevention and mitigation measures at our Minerals Americas operated assets.

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1 The risk management measures in this column describe our current approach, which is subject to review for new or additional climate-related measures arising from the subsequent risk evaluation work program planned across all of our operated assets (including legacy assets) in FY2023.

We have also identified a number of opportunities to adapt to the potential physical impacts of climate change, primarily related to improving operational efficiency and innovation, taking collaborative action to grow the resilience of our value chain, and supporting local communities and ecosystems. In FY2023, we plan to undertake risk evaluations at our operated assets (including legacy assets) including assessment of chronic physical risks, implement any ‘quick win’ adaptation actions and initiate studies on measures expected to require significant capital investment. We also plan to further study prioritised value chain risks to understand with more specificity where risk is concentrated. These actions are intended to contribute to addressing the climate-related risks noted under the Inadequate business resilience risk factor in OFR 9.1. We also intend to continue to build an understanding of how the communities where we operate may be impacted by future climate events and embed consideration of ecosystem-based adaptation, to contribute to both climate resilience and BHP’s biodiversity commitments and goals.

Our operational decarbonisation pathway

Decarbonising electricity

Decarbonising electricity by switching to renewables at our operated assets is a priority decarbonisation lever for this decade, in addition to a focus on preparing the business for widespread diesel displacement in the 2030s. The majority of our electricity supply is delivered via electricity networks and is accounted for as Scope 2 emissions. We are currently working to reduce Scope 2 emissions via renewable energy PPAs, such as those already executed in Chile, Queensland, South Australia and grid connected sites in Western Australia. Additionally, work is underway to decarbonise remote power demands in Western Australia either through PPAs with independent power producers or via ‘behind the meter’ renewable energy installations where we self-generate electricity in the Pilbara.

Power decarbonisation progressed with key successes in FY2022 including:

- The Minerals Americas PPAs became operational in August 2021 and January 2022, with Escondida and Spence aiming to use 100 per cent renewable electricity by the mid-2020s.
- BMA’s PPA with CleanCo will deliver approximately 50 per cent of its annual electricity from renewable sources by 2025.[1]
- Nickel West signed PPAs to provide its operations with renewable power, with agreements for the Flat Rocks Wind Farm, the Merredin Solar Farm and the Northern Goldfields Solar Project.
- Olympic Dam entered into renewable energy supply arrangements for up to 50 per cent of its electricity by 2025.[2]

Decarbonising diesel

Diesel displacement represents the largest technical challenge to our decarbonisation pathway for operated assets in terms of the magnitude of GHG emissions abatement required, predominantly driven by consumption by our haul truck fleet. We are taking steps now to accelerate the essential role that original equipment manufacturers must play in the development of new equipment to address emissions from our trucks and rail fleet. This includes partnerships to trial battery-electric locomotives, to develop electrified haul trucks and collaboration such as the ‘Charge On Innovation Challenge’ aimed at developing concepts for large-scale haul truck electrification and charging systems. In addition to progressing the availability of fleet solutions for zero emission material movement, we are working on readying the business for electrification of material movement by better understanding the energy balance associated with a fully electrified operation, quantifying future electricity demand and associated infrastructure requirements (e.g. transmission lines), modelling potential changes to our concept of operations, and evaluating our reliance on supporting infrastructure such as trolley lines and fast charging capabilities.

Decarbonising fugitive emissions

Although currently relatively small in relation to other emissions sources at BHP’s operated assets, fugitive methane emissions pose considerable technical and economic challenges for our abatement ambitions. We are working closely with a range of leading organisations in technology, research and industry across the globe, to develop new approaches and address the issue collectively. This includes investigating opportunities for improving the comprehensiveness and accuracy of methane emissions measurement. Under current reporting requirements, we use a combination of direct measurement and default, production-based factors for different coal mine methane sources. While emerging satellite and aerial-based sensing technology is providing new and potentially valuable perspectives, much more work is required to understand its practical application to geographically large, diffuse sources of very dilute methane such as open cut coal mines – particularly in crowded neighbourhoods such as the Bowen Basin and Hunter Valley where numerous mines co-exist in close proximity with a range of other significant industrial and agricultural methane sources.

Project prioritisation

Through studies and our capital allocation process, we seek to optimise the risk and reward proposition for operational decarbonisation projects to allocate capital and optimise decarbonisation at a portfolio level. We have developed an internal marginal abatement cost curve designed to support the allocation of capital towards the most economically efficient and effective decarbonisation projects.

We regularly monitor our forecasted operational GHG emissions to check we are on track. As a result of actions taken in recent years, particularly securing the supply of renewable energy at some operations, we achieved our short-term target, for FY2022, and our currently projected performance in FY2030 is tracking to plan against our medium-term target. Progression of planned project studies are regularly reviewed.

1 Including the purchase of large-scale generation certificates (LGCs).

2 Including the purchase of LGCs. A portion of the LGCs are to be created from the new Port Augusta Renewable Energy Park.

Value chain GHG emissions

We recognise the importance of supporting the climate transition in our value chain. In 2020, BHP set Scope 3 emissions goals for 2030 to support decarbonisation for processing of our steelmaking products and maritime transportation of our products. In 2021, we added to these goals with a long-term goal and targets for Scope 3, supported by an action plan of working with industry, including our customers and suppliers, to achieve sectoral decarbonisation. Refer to 'BHP's climate change targets and goals' for our goals and targets for Scope 3 emissions. As a producer of materials that are essential building blocks of decarbonisation, BHP is supporting the global transition to a more sustainable development trajectory by evolving the solutions we provide to our customers and the solutions we procure from our suppliers and partners.

Progress in FY2022

Steelmaking

In FY2022, we progressed our work in supporting the steelmaking industry to accelerate decarbonisation. To support positive climate outcomes in both the near term and long term, we believe it is important to help enable our customers at whatever stage of the 'steel decarbonisation framework' they are in. This 'steel decarbonisation framework' is designed by BHP to describe the technology pathways to decarbonising the global integrated iron and steel industry.

BHP's customers in steelmaking are diverse, with some integrated steelmakers in the 'optimisation' stage, focused on energy and process efficiency, increasing scrap ratios and raw materials optimisation. Other customers are exploring 'transition' stage solutions like alternative fuels, modified blast furnace (BF) operations, and end-of-pipe solutions like Carbon Capture and Utilisation (CCU) and Carbon Capture, Utilisation and Storage (CCUS). Some companies are investigating the viability of 'green end-state' technologies, such as hydrogen-based direct reduction iron (DRI) with electric arc furnace steelmaking and direct electrolysis processes, like molten-oxide electrolysis.

Steel decarbonisation framework

Potential emissions intensity reduction	**Optimisation stage** 20% CO_2 reduction vs. BAU[1]	**Transition stage** 50-60% CO_2 reduction vs. BAU	**Green end state** 90% CO_2 reduction vs. BAU
Customer partnerships	• HBIS: Enhanced lump utilisation, slag recycling • POSCO: Coke quality optimisation • JFE: Coking coal and iron ore impact on agglomeration	• Baowu: Modified BF oxygen and hydrogen injection • Baowu & POSCO: CCUS application within integrated steelmaking • Tata: Use of biomass and CCU	• HBIS: Hydrogen DRI • JFE: DRI pathways with BHP ores
Innovation & technology	• R&D novel beneficiation technologies • R&D microalgae blending for premium coking coal quality	• R&D ultramafic sequestration • R&D with Hatch and University of Newcastle on hydrogen injection into modified BF • Supported the CCUS Knowledge Centre, as a member of the CO2CRC	• Ventures completed lab trials producing metallic iron using BHP ores with Boston Metal and Electra Steel
Product & portfolio	• Studying beneficiation at our Jimblebar iron ore operation • Studying improvements of BMA metallurgical coal quality		• Testing programs to assess performance of BHP's ores in DRI and electric furnace steel production
Advocacy & standards	• Joined the Global Low-Carbon Metallurgy Innovation Alliance, which is led by Baowu and includes World Steel Association and many steel industry stakeholders • Engage with industry decarbonisation initiatives, including our customers, Responsible Steel, and the Australia Industry Energy Transition Initiative, by sharing expertise and participating in consultation on emissions standards and accelerating decarbonisation pathways		

1 BAU means business as usual, referring to a trajectory of steelmaking emissions intensity if no changes occur.

Our strategy to support steelmaking is to partner, innovate, advocate and supply the optimal products across these stages. Access by steelmakers to higher-quality metallurgical coal and iron ore products, which enables them to be more efficient and lower-emissions intensity, is an important component of the transition to a low-carbon future. To support this, we are assessing the opportunity to implement beneficiation at our Jimblebar iron ore operation and metallurgical coal product improvements at our BMA operations.

In FY2022, BHP signed a Memorandum of Understanding (MOU) to partner with South Korean steelmaking company POSCO to study optimising coal/coke quality for low-carbon blast furnace operation and CCUS. This is in addition to our existing partnerships with Baowu, JFE and HBIS. Across the four partnerships, we are working with companies that represent approximately 12 per cent of reported global steel production capacity, covering 31 per cent of our direct sales in iron ore and 19 per cent in metallurgical coal in FY2022. BHP has committed to invest up to US$75 million in research and development of steel decarbonisation pathways through these customer partnerships. The goal of these partnerships is to support the maturation and scaling-up of fit-for-purpose solutions across the steelmaking value-chain in all stages of steel decarbonisation.

We intend to progress our customer partnerships over three phases:

1. Conduct feasibility studies or lab/bench-scale research and development in priority areas.
2. Pilot-scale trial, where we jointly test potential solutions to key technical challenges at a larger scale that is sufficient to understand the impact of raw material and operational parameters.
3. Trial at a customer plant, where we focus on optimal, high impact decarbonisation solutions for deployment on a limited basis at select sites.

In FY2023, we intend to progress a subset of existing customer partnerships on projects that in aggregate have the potential to deliver 30 per cent emissions intensity reduction if adopted at scale post-2030. We will also continue exploring other partnerships that are complementary to our geographic or technology priorities, or that can help make existing projects more effective and efficient. For instance, on 20 July 2022, we announced a new MOU with Tata Steel to collaborate on the use of biomass as a source of energy and the application of CCU in steel production.

Maritime

Our strategy for supporting the maritime industry's climate transition includes advocacy, adoption of low- and zero-emissions fuels or other efficiency technologies (like wind-assisted propulsion) and deploying real-time data analytics to optimise vessel and route selection to improve operational efficiency. For example, in FY2022:

- **Advocacy:** We signed the industry call to action with more than 150 other organisations urging governments to commit to decarbonising international shipping by 2050, surpassing the levels of ambition set out in the International Maritime Organisation's Initial GHG Strategy. This is in addition to the advocacy work we do with the Global Centre for Maritime Decarbonisation in Singapore, of which we became a founding member in FY2021.
- **Zero-emission fuels:** We joined the US Government's First Mover's Coalition, launched at COP26 in Glasgow, as a member in the shipping sector. This means we commit to 10 per cent of BHP's products shipped to our customers on our time charter vessels being on vessels using zero-emissions fuels by FY2030.[1] BHP has also formed a consortium with Rio Tinto, Oldendorff, Star Bulk and the Global Maritime Forum to analyse and support the development of an iron ore maritime green corridor, fuelled by green ammonia.
- **Transition fuels:** We progressed use of LNG as a transitional fuel. BHP has chartered the world's first LNG-fuelled Newcastlemax bulk carriers to transport iron ore from Western Australia to Asia from Eastern Pacific Shipping (EPS) for five years and awarded the LNG fuel contract to Shell. The fuel, along with improved efficiency of the vessel design, is expected to reduce GHG emissions intensity by up to 30 per cent on a per voyage basis. We have already operationalised two vessels and expect to deliver another three vessels in FY2023. BHP is also exploring biofuels as an interim GHG emission abatement option for shipping. In FY2022, we issued a Request for Proposal for procurement of sustainable-certified (REDII or ISCC)[2] biodiesel.

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1 Subject to the availability of technology, supply, safety standards and the establishment of reasonable thresholds for price premiums.

2 Renewable Energy Directive or International Sustainability and Carbon Certification.

Procurement

In FY2022, we conducted a survey and assessment of the climate positions of our top 500 direct suppliers, representing approximately 76 per cent of our spend.[1] Through this study, we found that 27 per cent of the suppliers surveyed have Scope 1 and Scope 2 targets and/or goals aligned with our own. In the coming years, we intend to systematise our tracking and engagement of suppliers in relation to their public climate strategies.

In order to engage and incentivise our suppliers, we integrated climate commitments into our sourcing document and evaluation criteria. We intend to continue to refine and integrate metrics related to incentivising positive climate outcomes from our suppliers going forward.

Natural climate solutions

Investing in natural ecosystems is a cost-effective and immediately available solution to mitigate climate change that often provides sustainability co-benefits, such as biodiversity conservation, improved water quality or support for local communities. We support the development of market mechanisms that channel private sector finance into projects that increase carbon storage or avoid GHG emissions through conservation, restoration and improved management of terrestrial landscapes, wetlands and coastal and marine ecosystems. We focus on project support, governance, knowledge and innovation, and market stimulation for carbon credits generated by these projects. For example, in FY2022 we launched a new A$3 million grants program to help drive the development of the Australian blue carbon market by providing funding and support to emerging blue carbon projects.[2]

Governance

BHP advocates for the development of efficient global carbon markets that facilitate high-quality offsetting that is both cost-effective and delivers broader sustainability co-benefits. We are an active member on several international carbon markets bodies including the International Emissions Trading Association and the Taskforce on Scaling Voluntary Carbon Markets.

Use of carbon credits or offsets

BHP prioritises emissions reduction at our operated assets to achieve our Scope 1 and 2 target and goal, with investments in external carbon offset projects considered complementary to this ‘structural abatement’. Although we prioritise internal emission reduction, we acknowledge a role for offsets in a temporary or transitional capacity while abatement options are being studied, as well as for ‘hard to abate’ emissions with limited or no current technological solutions, and where access to renewable energy is constrained.

BHP has five potential ‘use cases’ for carbon offsets, to complement the structural emissions abatement that we prioritise (refer to the ‘BHP Carbon Offset Use Cases’ table). This includes contributing to our Scope 1, 2 and 3 emission reduction targets and goals and complying with emissions regulations (e.g. under the Australian Safeguard mechanism) as we work to decarbonise our business. We use our social investment to fund research into new and emerging natural carbon offsetting methodologies, and to fund offsets projects with social value co-benefits in line with our social value framework.[3] We also explore commercial opportunities to work with organisations in our value chain to supply offsets to supplement their focus on emissions abatement, including the bundling of offsets into product transactions.[4]

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1 This percentage is calculated as a share of our total spend in FY2021, and total spend is defined as the categories of spend that are relevant to Scope 3 emissions reporting categories, which excludes intra-company payments, internal payroll, community and charitable donations, and expenses associated with regulatory compliance and taxation.

2 For more information refer to bhp.com/news/articles/2022/06/new-bhp-grants-to-support-blue-carbon-market.

3 For more information refer to bhp.com/sustainability/communities/social-investment.

4 For example, we undertook a pilot carbon neutral commodity transaction with US copper cable and wire manufacturer, Southwire. We did not retire any of the offsets tied to that transaction against our own voluntary targets or goals. For more information refer to bhp.com/news/media-centre/releases/2021/10/bhp-and-southwire-collaborate-for-first-carbon-neutral-copper-cathode-delivery.

Sourcing

We perform due diligence designed to ensure we invest in carbon offsets that adhere to the following minimum quality standards:[1]

- **Registered under an internationally recognised standard** that independently verifies and issues voluntary carbon credits and/or satisfies national carbon offset standards for compliance offsets.
- **Adheres to a robust emission reduction accounting methodology** to provide assurance of the volume of emissions reduced through a project.
- **Demonstrates that the emissions reductions are additional** to ensure that the emissions would not have been reduced in the absence of a carbon offset market.
- **Has a high likelihood of permanence** to ensure the emissions reduction are ongoing and not reversed (e.g. in the case of forestry projects, the trees are not cut down or destroyed by a natural disaster).
- **Provides robust mitigation against leakage** ensuring an offsetting project does not increase emissions elsewhere (e.g. an area is protected from deforestation through offsetting but another forest area is destroyed).
- **Demonstrates high environmental and social integrity** ensuring no broader social or environmental harm (e.g., hydropower projects that require forest clearing and community displacement).
- **Restrict early vintage years** to avoid claiming emissions reduction from activities that occurred a long time ago; typically this means not purchasing offsets with a vintage greater than five years.

BHP's carbon offsets are from a variety of sources including (but not limited to) spot markets and project origination. We see a role for offsets from solutions that remove atmospheric carbon as well as avoid emissions. While we prioritise offsets from nature-based solutions, we also consider the sourcing of offsets from engineered solutions.

BHP is committed to transparently disclosing the carbon offsets that we retire towards meeting our own climate change targets and goals. We did not retire any offsets for this purpose in FY2022.

Engagement and disclosure

Achieving the aims of the Paris Agreement will require supportive policy across jurisdictions globally. The policy-making process is complex, and change is unlikely to be smooth or linear. We believe BHP can best support policy development by ensuring we meet our own climate targets, goals and strategies, continuing to make the case for the economic opportunities arising from the energy transition, and focusing on those policy areas where we are likely to have the greatest ability to influence change.

Our Global Climate Policy Standards clarify how our policy positions on climate change should be reflected in our own advocacy and the advocacy of the associations we belong to. Over the past five years, we have introduced a range of measures to strengthen governance of our membership of industry associations and monitor their climate change advocacy.

More information on our approach to industry associations is available at bhp.com/about/operating-ethically/industry-associations.

1 For more information refer to bhp.com/sustainability/climate-change/carbon-offsets.

BHP was one of the first companies to align its climate-related disclosures with the recommendations of the Financial Stability Board's TCFD, of which our Vice President Sustainability and Climate Change, Dr Fiona Wild, has been a member since its inception in late 2015. We published our Climate Change Report in 2020, and also participate in the CA100+ Net Zero Carbon Benchmark (NZCB), which assesses the world's largest corporate GHG emitters on their progress in the transition to the net zero future.

In September 2021, we published the CTAP, which sets out the steps BHP intends to take to reduce GHG emissions to net zero within our own operations and to pursue net zero in our value chain. The CTAP received approval from 84.9 per cent of shareholders in the 'Say on Climate' advisory vote at our AGMs in 2021.

We also engage on policy matters directly with government and through our membership of industry associations and issue-specific coalitions and initiatives. Examples of these engagements are provided at bhp.com and in the 'Climate policy engagement' section of our CTAP.

Our TCFD-aligned disclosures and information in support of our NZCB assessment can be found throughout this Report, in our BHP Climate Change Report 2020 and CTAP and at bhp.com. For a navigator showing where to find relevant information in relation to the TCFD recommendations refer to 'TCFD index' in OFR 7.1.

7.9 Value chain sustainability

Our role as both a supplier and a customer means it is important we have a coordinated and integrated approach to sustainability across the value chain. We strive to work with our customers, suppliers and other stakeholders in the value chain to create social value through sustainable practices across the full life cycle of our products.

BHP takes a systems approach to value chain sustainability, designed to assess and work with others to improve the sustainability impacts of our upstream supply chains, inbound and outbound logistics, and our products as they move through extraction, processing and use.

In FY2022, BHP developed a sustainability standards strategy that defines our pathway for the implementation of responsible mining and sourcing standards. The strategy is focused on the foundations needed to enable a more efficient adoption of standards to better position BHP's participation in the sustainability standards landscape. We also established a global sustainability standards team to enhance our systems and processes, integrate planning and enable a more strategic approach to the governance and implementation of sustainability standards across BHP's operated assets. This team also has accountability for sustainability reporting and disclosure, bringing together our work on sustainability standards and further strengthening our approach to transparency and standards across the value chain.

The standards that form part of our strategy are:

- the Copper Mark
- the London Metal Exchange (LME) Policy on Responsible Sourcing of LME-Listed Brands
- the ICMM Mining Principles and associated Performance Expectations
- the Global Industry Standard on Tailings Management
- Towards Sustainable Mining (TSM)

Accreditations

Our Chilean operations Escondida and Spence, and Olympic Dam in Australia were awarded the Copper Mark during FY2022 to recognise their responsible production practices. The Copper Mark is a voluntary assurance framework that independently assesses participants in 32 critical areas, including environment, community, human rights and governance issues for mining, smelting and refining operations.

Escondida, Spence and Olympic Dam also completed independent third-party verification of self-assessments against the ICMM Mining Principles and associated Performance Expectations. The ICMM Mining Principles require member companies to conduct a prioritisation process to determine which assets will be subject to third-party validation across a three-year cycle. All BHP's operated assets have completed their self-assessments and the external validation sequence has been determined in consideration of commitments made by BHP to other standards, such as Copper Mark and the LME Policy on Responsible Sourcing of LME-Listed Brands, to enable operational efficiencies.

We recognise the importance of engaging in the sustainability standards ecosystem and we support simplification of the standards landscape and convergence of standards. Integrating multiple global and commodity-specific standards is a complex task and in FY2022 we engaged in a number of forums focused on sustainability standards – through the ICMM, the Minerals Council of Australia and the Mining Association of Canada as well as with standard-setting bodies like the Copper Mark, and the OECD and LME.

In FY2022, BHP disclosed aspects of our sustainability performance through the LMEpassport, which is the LME's new digital credentials register to enable companies that trade LME-listed brands to disclose their sustainability metrics and certifications at corporate, asset and brand levels. BHP added information related to our copper and nickel LME-registered products from Olympic Dam, Escondida, Pampa Norte and Nickel West.

Due diligence

In FY2022, a cross-functional team defined a clear scope and began developing a due diligence management system for our minerals and metals supply chain that aligns with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD Guidance). This means that, for our operated assets and our inbound supply chain of minerals and metals, BHP intends to adopt the OECD Guidance's Annex I five-step, risk-based due diligence framework in the form of a new due diligence management system. The new system will involve updating policies and procedures, and ensuring appropriate resources designed to identify, assess and manage risks in our minerals and metals supply chain where there is any origin, transport or trade association with conflict-affected and/or high-risk areas.

Alignment with the OECD Guidance is a reflection of better practice supply chain due diligence and it is also a requirement under the responsible sourcing standards of leading mining and metals industry bodies, including the LME, the Copper Mark, the ICMM and TSM. In FY2023, we aim to finalise our OECD-aligned due diligence management system and commence implementation of that system for our minerals and metals supply chain. For more information about the scope of our OECD-aligned due diligence refer to our Modern Slavery Statement 2022 at bhp.com.

Emerging sustainability initiatives

We also continue to identify sustainability-related opportunities in BHP's value chain.

We see traceability as a key enabler to lifting sustainability standards across the value chain. In FY2022, BHP and leading US copper cable and wire manufacturer, Southwire, completed their first 'carbon neutral'[1] copper transaction, involving delivery from BHP's mines in Chile to Southwire's processing activities in Georgia, United States. The pilot forms part of a collaboration for BHP that reflects our Climate Transition Action Plan commitment to support industry to develop technologies for improved traceability and the pursuit of carbon-neutral production.

Additionally, circular economy principles are an increasingly critical consideration for building sustainable supply chains in relation to our commodities that meet growing demand for our products, support goals to reduce GHG emissions and minimise the impact of mining and downstream processing on the environments and communities where we operate. Across the business, we are working to identify opportunities that leverage our capabilities to create solutions that can contribute towards a circular economy.

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1 'Carbon neutral' is not intended to imply certification under any standard or application of a particular methodology and includes all those greenhouse gas emissions as defined for BHP reporting purposes.

7.10 Community

Making a positive contribution to the social and economic wellbeing of the communities where we operate requires long-term partnerships based on respect, transparency and trust. Our approach to community and Indigenous engagement, social investment, cultural heritage and human rights are governed by the *Our Requirements for Community* standard and *Our Code of Conduct.*

Community understanding

We understand our activities have the potential to create social, cultural, environmental and human rights impacts, both positive and negative. To analyse the potential risks to communities where we operate, we conduct due diligence to better understand social and human rights contexts, work collaboratively with our community stakeholders, and look for opportunities to create social value.

As part of our due diligence processes, we conduct community perception research in local host communities for each of our operated assets every two years. In FY2022, quantitative and qualitative surveys at all operated assets provided insights into the public's general concerns and priorities as well as perceptions of mining sector and BHP performance. Globally, community perceptions of our overall performance is positive, being on par or above average when compared to others in the sector in most markets. We tend to be perceived as being safety driven, behaving in a way that promotes diversity and inclusion, having a positive relationship with the community, and providing opportunities for local employment and procurement. The areas where people perceive room for improvement include exceeding regulatory requirements, doing the right thing by the environment, being a leader in water management and taking a more active role in the global response to climate change.

Our operated assets are also required to maintain annual stakeholder engagement plans and conduct regular engagement activities, including one-on-one meetings, multi-stakeholder roundtables, issue-based consultation and written communications. These engagements provide a valuable space for more open and in-depth dialogues with stakeholders on issues such as those raised in our community perception research, exploring mutually beneficial solutions and building trust.

Community events, complaints and grievances

With no significant community events recorded as resulting from BHP operated activities in FY2022, our five-year target of no significant community events between FY2018 and FY2022 has been met.[1] There were 50 community concerns and 106 complaints (five of which were classified as grievances)[2] received globally across our operated assets through our local complaints and grievance mechanisms. This represented a total increase of 8 per cent from FY2021 figures. The increase is attributable in large part to an overall rise in the level of community reporting, which we consider to be a positive sign that provides earlier opportunities to seek to address issues and understand sentiment to avoid or reduce the adverse impact and risk of escalation.

These concerns, complaints and grievances included:

- The two most common themes across BHP operated assets were concerns regarding: (i) the continued impacts of the COVID-19 pandemic and associated recovery initiatives; and (ii) local employment.
- In Chile, community concerns focused on environmental impacts and the overall sustainability of the mining industry, the development of local communities and the impacts of automation. Complaints about contractor behaviour included claims that certain commitments were not honoured and some local Indigenous community stakeholders raised concerns about water resources in the high Andean wetlands and greater employment opportunities at Escondida.
- In Canada, community concerns and complaints related to the increase in activity at the Jansen Potash Project, including routes of haul trucks and greater community support and local procurement opportunities.
- In Australia, key community issues centred on local employment and associated skills and labour shortages, the impact on local procurement from supply chain delays, and our COVID-19 vaccination mandate with particular mental health and wellbeing concerns raised by Traditional Owners. Community complaints also related to operational impacts, largely lighting, dust, noise, odour, emissions, blasting overpressure and vibration.
- Following the announcement of the divestment of our interest in BMC, some local stakeholders focused on whether community support would continue under new ownership and the local Traditional Owners sought assurance that the Indigenous Land Use Agreement would be honoured by the new owners.
- The announcement that BHP would retain New South Wales Energy Coal and intends to proceed with a managed process to cease mining at the asset by the end of FY2030 was received in a neutral to positive manner overall, with community stakeholders generally expressing support for BHP retaining the asset to a managed closure rather than selling to new owners.

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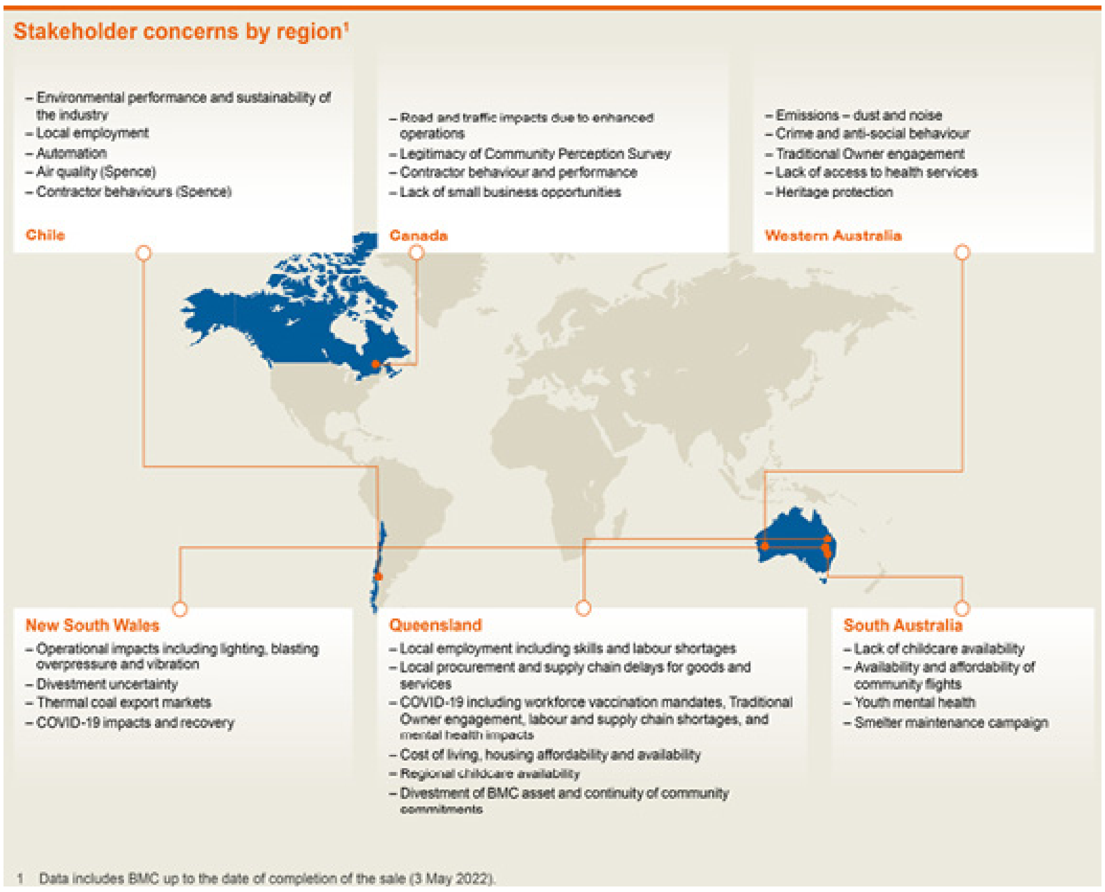
1 A significant event resulting from BHP operated activities is one with an actual severity rating of four or above, based on our internal severity rating scale (tiered from one to five by increasing severity) as defined in our mandatory minimum performance requirements for risk management.

2 An event or community complaint relating to an adverse impact/event that has escalated to the point where a third-party intervention or adjudication is required to resolve it.

While we have collected information and sought to understand community issues for some time, in FY2022 we identified opportunities to enhance the visibility and representation of community issues across BHP, including:

- broadening our community data sets to create a more integrated and multidimensional understanding of community issues, including the incorporation of inputs received via Indigenous-specific engagement channels
- greater data triangulation and the overlay of regional, national, global and industry emerging trends analysis with local insights
- implementing an enterprise-wide stakeholder management system with linkages to our local community complaint and grievance mechanisms
- enhancing internal understanding of reporting processes, systems and requirements



More information is available at bhp.com/community.

7.11 Human rights

Governance and capability

The basis for BHP's human rights approach is an ongoing commitment to operate in a manner consistent with the UN Guiding Principles on Business and Human Rights (UNGPs) and the 10 UN Global Compact Principles.

Our Human Rights Policy Statement (HRPS) details our commitment, including the additional issue-specific frameworks we adhere to as well as the standards and processes set out for our people, business partners and other relevant parties. Updates to the HRPS commenced in FY2022 to more clearly articulate how our human rights governance and due diligence approach is organised.

Our Code of Conduct (Our Code), which applies to everyone who works for us, with us, or on our behalf, includes a section on human rights. Annual training on *Our Code* is mandatory and we provide an additional introductory human rights training video on our internal learning system and our website. Teams within Corporate Affairs and Commercial who lead our operational and supply chain human rights practices completed further human rights training with an external expert to better support their capabilities to identify and manage human rights risks and potential impacts. Our Directors also participated in human rights training, led by an external expert.

Due diligence

In FY2022, we used human rights impact assessments completed in FY2021 to conduct a gap analysis of each operated assets' material risk profile (as recorded in our enterprise risk management system) and identified opportunities for improvement, including:

- better representing the human rights context and potential impacts to human rights for existing material risks, including labour conditions (such as sexual harassment and mental health) and environment (such as climate change, water and biodiversity)
- improving representation of specific human rights risks in our risk profile, such as risks in local procurement programs that operate independently of our global procurement process, the risk of violating consultation and consent frameworks that respect the rights of Indigenous peoples, the risk of lacking accessible and effective complaints and grievance mechanisms, and analysis regarding potential impacts specific to vulnerable groups (such as Indigenous peoples, women and LGBT+ community)

We are reflecting these learnings in our internal governance standards and processes, which are planned to be updated in FY2023.

In FY2023, relevant risk owners and regional teams will work with our human rights subject matter experts to progress these opportunities for improvement. We intend to also pursue opportunities to improve our overall due diligence process, such as enhancing our external human rights research, better highlighting stakeholder voices throughout our due diligence and better integrating human rights analysis into business planning cycles and our Risk Framework.

Our Modern Slavery Statement 2022, prepared under the Australian Modern Slavery Act (2018) and UK Modern Slavery Act (2015), provides additional information regarding the management of modern slavery risks for our operations and global supply network and is available at bhp.com.

Response and remedy

In FY2022, we continued to evaluate feedback from our stakeholders, external experts, and internal teams on how to make our complaints and grievance mechanisms more accessible and our internal culture and processes more effective in identifying concerns that have a human rights connection. We plan to embed this feedback in our approach by the end of FY2023.

We recognise our business activities create human rights risks and potential impacts across several different areas. In FY2023, we will continue to integrate a human rights perspective when designing, implementing and evaluating our ways of working related to these issues. The human rights signpost table highlights the priority areas identified by our human rights impact assessments and where key updates may be found in this Report.

Human rights signpost

Priority area	FY2022 update
Health and safety	Given the scope, scale and nature of our business, our workforce health and safety conditions are an important focus area for human rights considerations. **OFR 7.4 – Safety** details the ongoing work to eliminate the risk of fatalities and injuries, create workplaces safe from sexual harassment, as well as improve our workplace culture through field leadership and contractor relationships. **OFR 7.6 – Health** details the ongoing work to prevent or mitigate occupational exposures and illnesses, address COVID-19 and support mental health.
Ethics and business conduct	*Our Code* brings our values to life. It includes an emphasis on respecting human rights and is reviewed annually. **OFR 7.7 – Ethics and business conduct** describes how we apply *Our Code* and provides an update on progress related to transparency, accountability and anti-corruption. **OFR 6 – People and culture** describes our approach to inclusion and diversity, gender balance and employee relations.
Community	There are many human rights potentially relevant to the communities where we operate, including rights related to freedom of expression and self-determination as well as economic, social and cultural rights, such as health and wellbeing, work, adequate housing and water and sanitation. **OFR 7.10 – Community** details our work to build and maintain respectful, mutually beneficial relationships with the communities where we operate. **OFR 7.14 – Social investment** describes how we seek to support key community priorities across our operational footprint through our voluntary investment to social and environmental initiatives.
Indigenous peoples	We recognise our approach must be founded on a deep respect for the distinct rights, cultures, perspectives, aspirations and needs of Indigenous peoples. **OFR 7.13 – Indigenous peoples** provides an update on our Global Indigenous Peoples Framework.
Climate change	We recognise climate change is a human rights issue, with potential risks to the fundamental rights to life, health, food and an adequate standard of living. We continue to progress our climate targets, goals and strategies and implement our Adaptation Strategy, which includes a focus on building the safety, productivity and climate resilience of our operated assets, investments, portfolio, supply chain, communities and ecosystems by adapting to the physical risks of climate change. **OFR 7.8 – Climate change** details our ongoing work in this space.
Environment, water, biodiversity and land	We acknowledge the nature of our operations can have significant environmental impacts and those impacts can affect people and their human rights. **OFR 7.15 – Environment** details our overall approach to environmental management, including seeking to avoid, minimise and mitigate our adverse impacts and contribute to the resilience of the natural environment. **OFR 7.16 – Water** provides an update on our Water Stewardship Position Statement, which emphasises working with communities on shared water challenges, including water infrastructure, access, sanitation and hygiene. **OFR 7.17 – Biodiversity and land** provides an update on our work to develop a marine and terrestrial biodiversity framework for BHP and the revision and formalisation of our global-level biodiversity strategy.
Tailings storage facilities	We recognise the failure of a tailings storage facility could result in adverse health and safety outcomes and environmental damage, potentially infringing on the rights to health, property, an adequate standard of living and at worst, the right to life. **OFR 7.18 – Tailings storage facilities** provides an update on our ongoing commitment to the Global Industry Standard on Tailings Management and our aspiration to achieve zero harm from tailings.

Reporting and disclosure

During FY2023, we intend to develop a refreshed human rights reporting framework that will:

- better align to the UNGP Reporting Framework Index
- include quantitative metrics for our operations and our supply chain, as well as qualitative commentary and the voices of rights holders
- focus on mid- to long-term outcomes in addition to short-term outputs

7.12 Security services

Security risk management

Identifying, understanding and managing physical security risks is critical to the protection of BHP's people, assets and reputation.

The security risks we face are complex, constantly evolving and differ across the jurisdictions where we operate. We seek to understand the physical security threats we face, to inform the development of security programs that protect our people within a dynamic and constantly changing external environment. We use security controls and mandatory minimum performance requirements to reduce the likelihood of security risks materialising and mitigate their impact if they do. We support this with external environment monitoring, including through our enterprise emerging risk process, to identify changes in the external environment that could shift our exposure to security threats across the jurisdictions where we operate.

BHP is committed to aligning with the Voluntary Principles on Security and Human Rights and sets mandatory minimum performance requirements for our operated assets, to support implementation of these principles.

Responding to a rapidly changing external environment

We are operating in an increasingly volatile, uncertain world, where the physical security risks we face are evolving from local criminal activity and asset protection risks to more complex transnational threats, which transcend traditional asset and jurisdictional boundaries. Key emerging themes include social activism, international criminal enterprise, global terrorism and war. We are also seeing the increasingly integrated nature of physical security with other risk areas, including the physical security threats that stem from cybersecurity risks or climate-related risks. These threats are developing against a backdrop of increasing anti-government sentiment, inequality and political polarisation across the globe; challenges that have been exacerbated by COVID-19.

To respond to this shifting external landscape, in FY2022 we established a new Group Security function, to provide additional expertise and support to the business and conduct assurance over security risk management globally.

Priorities for the function include revising our security framework, to refresh BHP's mandatory minimum global security requirements and developing a consistent taxonomy for defining and categorising security threats. This is designed to support robust security risk identification across our operated assets and functions. The team will also build upon its existing network of intelligence sources in FY2023, by establishing an integrated approach to threat intelligence. This will provide decision-makers with a tailored and consolidated view of security insights and support risk-informed decisions.

We are also enhancing BHP's understanding of the key intersecting security risks that could impact us to provide an integrated view of potential vulnerabilities. This will be complemented by the implementation of a structured global assurance program.

7.13 Indigenous peoples

We respect the distinct identities and perspectives of Indigenous peoples and recognise the rights, cultures, insights, aspirations and needs that result from those identities and perspectives. We also recognise our responsibility to develop partnerships based on respect and to pursue mutually beneficial outcomes. These responsibilities are central to BHP's Global Indigenous Peoples Framework.

The Global Indigenous Peoples Framework consists of three key elements:

1 BHP Indigenous Peoples Policy Statement

2 BHP Indigenous Peoples Strategy and Good Practice Guidance

3 Regional Indigenous Peoples Plans

First adopted in FY2015, this Framework has played a key part in guiding BHP towards being an organisation that engages meaningfully and respectfully with Indigenous peoples. However, it has been several years since it was developed and during this time the external environment and BHP's own purpose, strategy and operating footprint have significantly evolved. Accordingly, BHP has undertaken a review of the Framework, informed by an extensive process of internal and external research and consultation, including extensive engagement with Traditional Owners and First Nations representative organisations, leading external experts, BHP employees and leaders, and several investors.

This review has identified a number of opportunities for BHP to further strengthen the Framework, so that it continues to be aligned with our purpose, advances across our mandatory minimum requirements for community and human rights, and our social value framework and new 2030 goals.

BHP agreement-making processes are built on the core principles of good faith negotiation aimed at achieving consent, with a focus on understanding the historical, legal, social, cultural and political contexts relevant to Indigenous peoples in the areas where we operate or seek to operate; and how our activities might impact the rights of potentially affected Indigenous peoples.

The newly established Global Indigenous Engagement and Community team continues to progress immediate opportunities for alignment and improvement initiatives across our operated assets and functions, globally. New senior Indigenous leaders have been appointed and are actively working with the regional teams to support our approach to cultural heritage management, agreement-making, procurement, employment and social investment – all of which are core components of our Global Indigenous Peoples Framework.

Minerals Australia

Indigenous cultural heritage protections are a key component of our relationships with Indigenous peoples and our ability to operate sustainably. We seek to ensure our standards are best practice and forward looking. On 18 October 2021, the Commonwealth Joint Standing Committee on Northern Australia handed down its report into the destruction of Indigenous heritage sites at Juukan Gorge. While there were no adverse findings or recommendations made specifically in relation to BHP, we are committed to understanding the lessons available from this extensive body of work.

Significantly, the finalisation of the Committee's Report has coincided with important law reform in Western Australia. The Aboriginal Cultural Heritage Act 2021 (WA) provides a revised framework for the recognition, protection, conservation and preservation of Western Australian Aboriginal cultural heritage. The new Act repeals the outdated Aboriginal Heritage Act 1972 (WA) and removes the former section 18 approvals process.

In advance of this law reform, in FY2021, BHP confirmed to Traditional Owners that we would not act on existing section 18 approvals from the Western Australian Government without further extensive consultation with the Traditional Owners. In the case of the South Flank project, BHP and the Banjima people established a Heritage Advisory Council. In the period since, the Heritage Advisory Council has met many times to consider appropriate heritage management practices in the Central Pilbara and to record this common understanding in the form of Cultural Heritage Management Plans that will guide BHP's operations at those locations.

We are committed to the making of land use agreements to formalise relationships in a manner that is responsive to the aspirations of Traditional Owners and in compliance with the law. These agreements create partnerships designed to realise mutually beneficial outcomes.

Further to the Indigenous Land Use Agreement reached between BMC and the Barada Barna people in FY2021, in April 2022, BMC and the Widi people entered into a native title project agreement for shared country where both the Barada Barna and Widi peoples hold determined native title rights in the vicinity of BMC's South Walker Creek Mine. In assuming majority ownership and operational control of BMC, Stanmore Resources will be subject to this agreement and its commitments.

With our existing Reconciliation Action Plan (RAP) having concluded in FY2022, we commenced the development of a new FY2023–FY2027 RAP. In a commitment to moving beyond consultation, BHP has been co-developing this new RAP with our stakeholders including, Traditional Owners, Aboriginal and Torres Strait Islander organisations, community partners and our employees across Australia. This process has involved nine separate RAP forums held across Australia. The new RAP will also align to and embed the principles of our Global Indigenous Peoples Framework.

BHP's spend with Indigenous businesses has steadily increased over the past four years. In FY2022, Minerals Australia saw a 75 per cent increase, to US$149.9 million, in our direct spend with Indigenous businesses across our operated assets compared to FY2021 levels. Compared to FY2021 levels, we also increased the number of Indigenous businesses we directly procure from by 53 per cent.

In May 2022, we announced that WAIO intends to more than double its spend with Indigenous vendors to more than US$300 million by the end of FY2024, as it looks to create more opportunities for Indigenous businesses. We also achieved a significant milestone in FY2022 by reaching our Australian Indigenous employment target of 8 per cent, three years ahead of schedule.

Indigenous community investment[1]

RAP target deliverable or metric[2]	Performance				
	FY2018	FY2019	FY2020	FY2021	**FY2022**
Indigenous spend[3]	US$42.8m	US$57.5m	US$67.4m	US$85.5m	**US$149.9m**
Indigenous community investment[4]	US$11.1m	US$8.2m	US$16.6m	US$12.5m	**US$29m**

1 Data includes BMC up to the date of completion of the sale (3 May 2022), operated assets in our Petroleum business up to the date of the merger with Woodside (1 June 2022) and Onshore US assets up to the date of completion of the sale (31 October 2018), as applicable.

2 These RAP targets concluded 31 December 2021.

3 RAP target – The identification of specific opportunities for business development and engagement for Aboriginal and Torres Strait Islander communities in Local Procurement Plans and associated targets.

4 RAP target – Australian operations engage and consult with Aboriginal and Torres Strait Islander Peoples in social research that is conducted to understand local and regional contexts, that then informs social investment planning and outcomes.

In FY2022, in support of efforts to ensure COVID-19 vaccination was accessible to Indigenous Australians, BHP provided A$2 million to Aboriginal Community Controlled Health Organisations (ACCHOs) across Australia. These funds enabled Queensland, Western Australian, New South Wales and South Australian ACCHOs each to receive A$500,000 to distribute to their local Aboriginal Medical Service members or to collective programs that help local medical services accommodate demand. This contribution builds on a donation of A$3.9 million in FY2021, which laid the foundation for partnerships between BHP and organisations in the Indigenous-led health sector as COVID-19 emerged.

Minerals Americas

In line with our Indigenous Peoples Plan for South America, we seek to work closely with the communities where we operate to make a positive contribution, including through reaching agreements with local communities.

In FY2022:

- We created and resourced a new Minerals Americas Indigenous Engagement team to centralise accountability for Indigenous engagement. This promotes alignment across our regions of operation and enables us to share standards and processes designed to support Indigenous communities affected by our existing operations.
- We delivered against our commitment to strengthen our cultural heritage practices within the Americas. Commencing with a particular emphasis on our operations in Chile, we:
  - established new critical controls and procedures to manage cultural heritage values within and around our operations
  - introduced new information systems and geospatial tools to track and protect cultural heritage sites
  - created a dedicated team within our HSE function to administer cultural heritage management activities at the asset level
  - reinforced the consideration of cultural heritage management dimensions within our agreement-making practices
  - engaged independent experts to analyse existing practice against the emerging Indigenous policy landscape

At Escondida, we continued to advance the implementation of the agreement concerning the environmental sustainability of the Salar de Punta Negra, signed at the end of FY2021 between Escondida, the Chilean Attorney General's Office, the Peine Atacameño Indigenous community and the Council of Atacameño Peoples. Key governance mechanisms have been established and the terms of reference for the conduct of technical studies are currently under development.

At Cerro Colorado, as part of the Indigenous consultation process for operational continuity of this asset, we reached agreement with the San Isidro de Quipisca Indigenous agricultural association. Within the framework provided by the Opportunity Agreement Development Plans, FY2022 saw BHP support the advancement of electrical infrastructure that benefits approximately 80 rural families within the Parca Aymara Indigenous community.

Across our Chilean assets, FY2022 delivered steady increases in our levels of Indigenous workforce participation – with representation reaching 8.7 per cent at year-end. In total, BHP's regional annual spend with Indigenous business for the period was US$9.2 million.

In Canada, following the approval of our Jansen Potash Project in Saskatchewan, we continued our commitment to strengthening our Indigenous relationships and engagement practices with those Indigenous communities impacted by the project. There are six primary First Nations in the vicinity of the Jansen Potash Project. BHP has entered into Opportunity Agreements with all six. Two of these agreements were targeted for refresh in FY2022. In the period, we finalised the review of our Opportunity Agreement with the Fishing Lake First Nation and reached an agreement in principle with regards to refreshing our Opportunity Agreement with the Beardy's & Okemasis' Cree Nation. The Opportunity Agreements we have entered with our Indigenous partners continue to provide a governance framework and a platform to enable economic participation.

In support of the Canadian Government Truth and Reconciliation Commission's calls to advance the process of reconciliation in Canada, we plan to develop our first RAP for Canada in FY2023. The RAP will be designed to enable BHP to address the needs and interests of Indigenous communities within our direct area of influence. The RAP is expected to be co-developed with the stakeholders we seek relationships with, using similar principles to the process undertaken in Australia.

Resolution Copper

Resolution Copper Mining is owned by Rio Tinto (55 per cent) and BHP (45 per cent) and managed by Rio Tinto.

We acknowledge the Resolution Copper project area includes areas of cultural significance for Native American Tribes and their members. Development of the project continues to be studied and remains subject to regulatory reviews by federal, state and local governments. Resolution Copper Mining continues to cooperatively engage in these regulatory processes and has publicly stated its commitment to deepening ongoing engagement with, Native American Tribes and other stakeholders to understand and seek to mitigate potential negative impacts. We are monitoring and supporting Resolution Copper Mining's engagement processes.

7.14 Social investment

Social investment is a further tool to create social value and contribute to the resilience of communities and the environment, in line with our broader business priorities. Our long-standing commitment is to invest not less than 1 per cent of pre-tax profits[1] in voluntary social and environmental initiatives. For FY2023–FY2030, our social investment will be assessed as a total over the seven-year goals period to FY2030, rather than calculated as an average of the previous three years' pre-tax profit. Our social investment performance in the last five years saw BHP fund US$681.4 million in projects with a continued focus on good governance, human capability, social inclusion and environment. For more information on our performance against these and other targets refer to OFR.7.3.

In FY2022, our voluntary social investment totalled US$186.4 million, an increase of 7 per cent compared with FY2021. This investment consisted of US$99.4 million in direct community development and environmental projects and donations, US$14.5 million equity share to non-operated joint venture social investment programs, a US$52.4 million donation to the BHP Foundation and US$1.5 million under the Matched Giving Program. Administrative costs[2] to facilitate direct social investment activities totalled US$16.1 million and US$2.5 million supported the operations of the BHP Foundation.

1 To date, our voluntary social investment has been calculated as 1 per cent of the average of the previous three years' pre-tax profit.

2 The direct costs associated with implementing social investment activities, including labour, travel, research and development, communications and costs to facilitate the operation of the BHP Foundation.

Social investment framework

Theme	Aim	FY2022
Future of work	We aim to enhance human capability and social inclusion through education and vocational training and skills development.	• Through our support, 22,401 people completed education or training courses in digital, technology, leadership and/or problem-solving initiatives. Over 10,469 of these participants were Indigenous people and 7,583 were women. • 426 education institutions aligned course content to business needs to better prepare participants for future work readiness. • 1,249 participants found paid employment following completion of their training.
Future of environment	We aim to contribute to environmental resilience through biodiversity conservation, ecosystem restoration, water stewardship and climate change mitigation and adaptation.	• We made 131 investments in nature-based solutions. • We contributed to improved management of approximately 8 million hectares. • 77 scientific or thought leadership papers or specific knowledge sharing events were supported.
Future of communities	We aim to contribute to the understanding, development and sustainable use of resources to support communities to be more adaptive and resilient.	• Through our support, 940 organisations enhanced their internal capability to be able to support and deliver solutions that contribute to building efficient and sustainable communities. • 1,168 organisations planned or delivered initiatives that increase/improve infrastructure, use of technology and/or use resources that enhance community resilience, including 171 initiatives specific to Indigenous peoples.

More information on social investment, including case studies and other initiatives to support communities where we operate is available at bhp.com.

With our most recent five-year sustainability targets completing in FY2022, BHP developed new 2030 goals to further lift our ambitions as we look to the end of the decade. They represent a shift towards partnership, listening and co-creation, and recognise that addressing challenges like community and environment resilience requires close community and stakeholder collaboration. For more information on our 2030 goals refer to OFR 2.2.

The 2030 goals are intended to be complemented by a continued commitment to social investment of at least 1 per cent of pre-tax profit[1] in addition to our direct operational decision-making and financial contributions.

We intend to continue to report annually our contribution to social value through our social investment.

The BHP Foundation

The BHP Foundation is a charitable organisation established and funded by BHP that blends ambition, transformational partnerships and business acumen to catalyse new solutions to some of the world's most complex social and environmental challenges. The BHP Foundation partners with NGOs and international institutions with the goal of driving systemic change. Globally the Foundation focuses on the governance of natural resources, environmental resilience and education equity. These global programs are complemented by the Foundation's country programs in Australia, Canada, Chile and the United States which work towards improving long-term, economic, social and environmental sustainability at a national level.

The Foundation's focus is complementary to the social investment work of BHP. Its partnerships include:

- Healthy environment: the Great Barrier Reef Foundation's Resilient Reefs Initiative has been recognised by UNESCO as a model for successful resilience-based coral reef management and will be promoted as a global model for the management of all World Heritage listed reefs.
- Safe, inclusive and future-ready workforce: UN Women's Second Chance Education project is providing more than 90,000 marginalised women access to quality learning, entrepreneurship and employment opportunities.
- Thriving, empowered communities: Open Contracting Partnership works with governments and key stakeholders to ensure money flowing from natural resource wealth is converted into better outcomes for citizens, for example, the implementation of open contracting in Chile has reduced the cost of some medicines.
- Indigenous partnerships: Reconciliation Australia's Narragunnawali: Reconciliation in Education program has resources and tools for schools and early learning services to contribute to the reconciliation movement. Approximately 10,000 Australian schools and early learning services registered to develop a Reconciliation Action Plan on the Narragunnawali platform.

1 For FY2023–FY2030, our social investment will be assessed as a total over the seven-year goal period to FY2030, rather than calculated as an average of the previous three-years' pre-tax profit.

7.15 Environment

We are committed to preventing or minimising our adverse environmental impacts and contributing to the resilience of the natural environment. Our operations and growth strategy depend on obtaining and maintaining the right to access environmental resources. However, with growing pressure on and competition for these resources, and with climate change amplifying certain sensitivities of our natural systems, our environmental performance and management of our environmental impacts on the communities where we operate is critical to creating social value. This is recognised in our social value framework where the objective under our healthy environment goal is to create nature-positive outcomes by having at least 30 per cent of the land and water we steward under conservation, restoration or regenerative practices by 2030.

At every stage in the life cycle of our operated assets, we seek to avoid, minimise and mitigate our adverse environmental impacts in line with our defined risk appetite.

We recognise our activities have an environmental footprint and commit to making voluntary contributions to support environmental resilience across the regions where we operate. Our Group-wide approach to environmental management is set out in the *Our Requirements for Environment and Climate Change* standard and our mandatory minimum performance requirements for risk management. These standards have been designed taking account of the ISO management system requirements, including ISO14001 for Environmental Management Systems and set the basis for how we manage risk, including realising opportunities, to achieve our environmental objectives.

The *Our Requirements for Environment and Climate Change* standard requires us to take an integrated, risk-based approach to managing any actual or reasonably foreseeable adverse and positive impacts (direct, indirect and cumulative) on biodiversity, land, water and air. This includes establishing and implementing environmental risk monitoring and reviewing practices throughout our business planning and project evaluation cycles. In addition to the broader environment-specific components, the standard includes climate change related requirements for our operated assets.

To support continuous improvement, each of our operated assets is required to have an Environmental Management System (EMS) that aligns with ISO14001 standards and set target environmental outcomes for biodiversity, land, air and water resources that are consistent with the assessed risks and potential impacts. Target environmental outcomes are included in the life-of-asset plan and approved by the relevant Asset President or equivalent. We verify our EMS by ISO14001 certification (for sites currently holding ISO14001 certification) or through our internal assurance processes.

In FY2022, no significant environmental events resulting from BHP operated activities were recorded, resulting in our five-year public target of no significant environmental events between FY2018 and FY2022 being met.

During FY2022, we successfully delivered the full suite of five-year environment-related sustainability targets. We also continued work to:

- develop a more integrated nature-positive approach and healthy environment goal as part of our 2030 goals
- refresh our Water Stewardship Strategy and formalise our biodiversity strategy
- invest in voluntary conservation projects as part of BHP’s contribution to environmental resilience more broadly

BHP joined the Taskforce for Nature-related Financial Disclosure (TNFD) Forum (a group of organisations that support the TNFD Member Group) in recognition of the increasing awareness and understanding needed on nature-related risk and the implications for the resilience of economies and society.

More information on our environmental approach, the *Our Requirements for Environment and Climate Change* standard and our environmental management and governance processes is available at bhp.com/sustainability.

Contributing to a resilient environment

Biodiversity is essential to maintain healthy ecosystems and the clean air, water and productive landscapes and seascapes we all need to survive and thrive. We are seeing an increasing societal focus on the urgent need to reverse current trends in biodiversity loss and protect vital ecosystems that are the foundation of the world’s economic security. As a global resources company, we acknowledge we have a role to play in contributing to environmental resilience both inside and outside our footprint. We do this through our Group-wide water stewardship and biodiversity strategies, our social investment strategy and our work with strategic partners and communities. In June 2022, we expressed our aspiration via our 2030 healthy environment goal (described above) to create nature-positive outcomes. ‘Nature positive’ is a high-level goal and a concept describing a future state of nature (e.g. biodiversity, ecosystem services and natural capital) which is greater than the current state. This definition comes from the TNFD.

Our collaborative work with strategic partners, including Conservation International, and local communities is focused on contributing to enduring environmental and social benefits through biodiversity conservation and ecosystem restoration, water stewardship and climate change mitigation and adaptation. Our preference is to invest our voluntary social investment funds in projects that contribute to cultural, economic and community benefits in addition to environmental resilience.

Since FY2011, we have invested more than US$95 million of our social investment funds in voluntary environmental resilience initiatives outside our operational area. This funding is in addition to our investment in day-to-day environmental management activities relating to our operations.

More information on the environment and our environmental projects is available at bhp.com/environment.

Our focus on environmental resilience is complementary to the work of the BHP Foundation under its Environmental Resilience Global Program.

More information is available at bhp.com/foundation.

7.16 Water

Access to safe, clean water is a basic human right and essential to maintaining healthy ecosystems. Water is also integral to what we do and we cannot operate without it. In FY2017, we adopted a Water Stewardship Strategy to improve our management of water, increase transparency and contribute to the resolution of shared water challenges. Our Water Stewardship Position Statement was developed in FY2019 and outlines our 2030 vision. In FY2022, we made minor updates to our Water Stewardship Position Statement and Strategy to align with the ambitions of our business and society, and developed our new 2030 healthy environment goal.

More information is available at bhp.com/water.

We recognise our responsibility to effectively manage our interactions with and prevent or minimise our adverse impacts on water resources. Effective water stewardship begins within our operations. We use water in many ways, including but not limited to:

- extracting it for ore processing and to access ore
- dust suppression
- processing mine tailings
- providing drinking water and sanitation facilities
- using marine water for desalination

We work to reduce stress on water resources from our operations and to collaborate with others on challenges and opportunities like water scarcity or high variability in water supply.

We have achieved our public sustainability target to reduce FY2022 freshwater withdrawal[1] by 15 per cent from FY2017 levels[2] across our operated assets. Our FY2022 result demonstrated a 29 per cent reduction on our adjusted FY2017 baseline. Achievement of the target is primarily due to the gradual replacement of groundwater sources with desalinated water for our Escondida operations. This resulted in the cessation of groundwater withdrawal for operational water consumption from the Salar de Punta Negra aquifer in 2017 and from the Monturaqui aquifers in FY2020. This cessation was 10 years ahead of schedule and involved an investment of around US$4 billion in large-scale desalination capability. For more information refer to bhp.com/news/case-studies/2020/09/breaking-the-water-energy-nexus.

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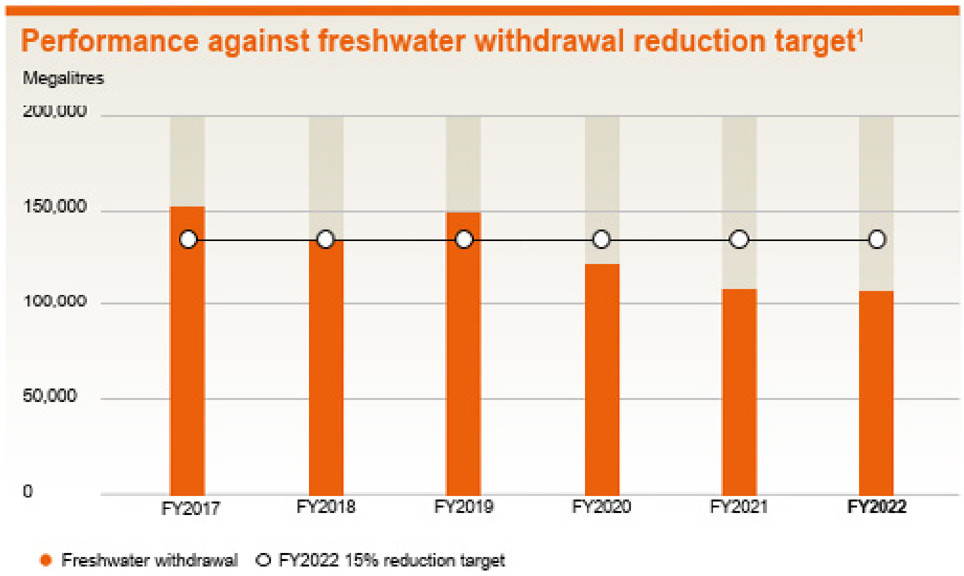
1 Where 'withdrawal' is defined as water withdrawn and intended for use (in accordance with 'Water Reporting, Good Practice Guide (2nd Ed), ICMM (2021)). 'Fresh water' is defined as waters other than seawater, wastewater from third parties and hypersaline groundwater. Freshwater withdrawal also excludes entrained water that would not be available for other uses. These exclusions have been made to align with the target's intent to reduce the use of freshwater sources of potential value to other users or the environment.

2 The FY2017 baseline data has been adjusted to account for: the materiality of the strike affecting water withdrawals at Escondida in FY2017 and improvements to water balance methodologies at WAIO and BMA, and exclusion of hypersaline, wastewater, entrainment, supplies from desalination and Discontinued operations (Onshore US assets and Petroleum) and the divestment of BMC.

Our global freshwater withdrawals from FY2017 to FY2022 are shown in the chart below.



1 The freshwater withdrawal data includes data from all operated assets under BHP ownership at the end of FY2022. In FY2022, we merged our Petroleum business with Woodside and divested our interest in BMC. Data for the Petroleum business and BMC has been excluded from the FY2017 baseline and annual performance data for our FY2018–FY2022 public sustainability targets for our withdrawal of freshwater (together with our occupational exposures and GHG emissions) to ensure ongoing comparability of performance.

While minimisation of freshwater withdrawal will remain important for us, in some of the regions where we operate it may not be the key water-related risk. In recognition of the variation of challenges and opportunities across the regions where we operate, we committed in our Water Stewardship Position Statement to developing context-based water targets (CBWTs). These CBWTs are intended to contribute more effectively to addressing the shared water challenges in our operating regions.

During FY2022, we engaged third parties to review publicly available information and engage with stakeholders to identify shared water challenges through Water Resource Situation Analyses (WRSAs). We also began development of CBWTs for each of our operated assets, which are informed by BHP's view of water-related risks in the catchments and by the shared water challenges identified in the WRSAs. The WRSAs are expected to be made publicly available to support continued collaboration between stakeholders in the shared water resources of our operating regions. More information on the WRSAs is available at bhp.com/water. During FY2023, we intend to publicly release CBWTs for our operated assets and from FY2023 we will report publicly on progress against the CBWTs.

Water accounting and reporting

We report on water metrics and on the management of water-related risks on our water webpage, in line with the ICMM's Water Reporting, Good Practice Guide (2nd Ed) (ICMM guidance) and the Minerals Council of Australia's Water Accounting Framework (WAF). Generally, these reporting frameworks align with the reporting requirements of the GRI Standards and the CEO Water Mandate.[1] More information on water accounting and reporting of metrics required by the ICMM guidance is available at bhp.com/water and in our BHP ESG Standards and Databook available at bhp.com/sustainability.

In FY2022, we continued to report on water volumes for those operated assets classed by the World Wildlife Fund Water Risk Filter as being located in areas of high or extremely high water stress. The disclosure of water data in high-stress areas is required by several reporting frameworks, including the ICMM guidance. In FY2022, freshwater withdrawal from those operating assets in high or extremely high water stress areas made up approximately 15 per cent of our total freshwater withdrawals.

1 The CEO Water Mandate is a UN Global Compact initiative that mobilizes business leaders on water, sanitation, and the Sustainable Development Goals. Endorsers of the CEO Water Mandate commit to continuous progress against six core elements of stewardship and in so doing understand and manage their own water risks. Companies that endorse the Mandate agree to continuous improvement in six core areas of their water stewardship practice: Direct Operations, Supply Chain & Watershed Management, Collective Action, Public Policy, Community Engagement and Transparency. BHP is an active signatory of the Mandate

During FY2021, BHP contributed to improving mining sector water reporting through participation in the ICMM Water Working Group to strengthen the ICMM guidance and align it with the GRI requirements. The most significant change for BHP of applying the 2021 update of the ICMM guidance was that the guidance recommends (non-mandatory) reporting of the annual change in water storage volumes. We have taken the first step to implement this recommendation by including changes in water storage volumes in our asset water accounts for those operated assets where water storage changes are considered material. In FY2022, we assessed which sites may have changes in water storage volumes that were material to their water management; our coal operated assets (where changes in water storage are the most material within BHP) were a particular focus. In line with our commitment for continuous improvement of our water accounts and data, we continued to review assumptions for accounting for water storage, and other metrics, in asset water models and water balances, recognising that water modelling and balances contains a degree of uncertainty which must be understood. We have now included reporting of material water storage changes across BHP, but note the accuracy of this metric (as for other metrics that we reported for many years) is expected to continue to improve in the forthcoming years as our knowledge and understanding grows.

We continue to seek to minimise our withdrawal of high-quality water. In FY2022, seawater continued to be our largest source of water withdrawal, representing 61 per cent of total withdrawals, predominantly for desalination at Escondida. Groundwater remained our most significant non-sea water source in FY2022, at close to one-fifth of total water withdrawals. In FY2022, approximately 75 per cent of our water withdrawals consisted of water classified as low quality. The definitions for water quality types is available in section 2.2.4 of the WAF.

Stakeholder engagement and legal matters

Beyond our operational activities, we have committed to engaging across communities, government, business and civil society with the aim of catalysing actions to improve water governance, increase recognition of water's diverse values and advance sustainable solutions. We continue to collaborate with the CEO Water Mandate to support the development of catchment-scale resilience as part of our commitment to strengthen transparency and collaboration across all sectors for improved water governance. We also continue our collaboration with the University of Notre Dame (United States of America) to develop an approach to water management that considers the human rights to access water.

As reported in our Annual Report 2021, in August 2021 an individual commenced an environmental damage action against Cerro Colorado alleging that Cerro Colorado's water extraction from the Lagunillas aquifer has damaged the aquifer and a nearby lagoon and wetlands. Following a series of injunctions in February 2022, new orders were received that permit water extraction, subject to ongoing monitoring of aquifer water levels. If the conditions are complied with, the orders permit four staged and gradual increases through to the expiry of the current environment licence in FY2024. The hearing for the environmental damage action was held in April 2022 with the outcomes still pending.

In March 2022, the Chilean Environmental Regulator (SMA) sanctioned Escondida, concluding it had breached its environmental permit from 2005 until 2019, causing irreparable environmental damage due to its water extraction from the Monturaqui aquifer. Escondida's infraction was classified as 'very serious', and the SMA imposed a fine of approximately US$8.3 million. Escondida has lodged a reconsideration motion before the SMA. A decision on the reconsideration motion before the SMA is expected in the second half of 2022. Appeal rights remain an option following the decision.

An environmental damage claim was lodged by the Attorney General's Office (AGO) against Escondida, Albemarle and Compañía Minera Zaldívar (the latter two being other companies that extract water (or previously extracted) from the Monturaqui aquifer) before the First Environmental Court of Antofagasta during FY2022. The AGO alleges the defendants' extraction of water from the Monturaqui aquifer has caused environmental damage. The Peine Community (an Indigenous community) has lodged a claim against Escondida based on the same facts. Both claims have been consolidated into a single proceeding. Escondida filed its answer to the claims on 15 June 2022.

More information on our approach to water stewardship, progress against our Water Stewardship Strategy, water performance in FY2022 and case studies on activities we are undertaking to progress towards meeting our water stewardship vision is available at bhp.com/water.

7.17 Biodiversity and land

The nature of our activities means we have a significant responsibility for biodiversity and land management. As at 30 June 2022, we owned or managed more than 8 million hectares of land and sea; however, just under 2 per cent is disturbed (physical or chemical alteration that substantially disrupts the pre-existing habitats and land cover) for our operational activities. The area we own or manage has decreased by 8 per cent from FY2021, predominantly due to the merger of our Petroleum business with Woodside.

At each of our operated assets, we look to manage threats and opportunities to achieve our environmental objectives. We apply the mitigation hierarchy (avoid, mitigate, rehabilitate and, where appropriate, apply compensatory measures) to any potential or residual adverse impacts on marine or terrestrial ecosystems.

We respect legally designated protected areas and commit to avoiding areas or activities where we consider the environmental risk is outside our risk appetite. As part of our commitments:

- We do not explore or extract resources within the boundaries of World Heritage listed properties.
- We do not explore or extract resources adjacent to World Heritage listed properties, unless the proposed activity is compatible with the outstanding universal values for which the World Heritage property is listed.
- We do not explore or extract resources within or adjacent to the boundaries of the International Union for Conservation of Nature (IUCN) Protected Areas Categories I to IV, unless a plan is implemented that meets regulatory requirements, takes into account stakeholder expectations and contributes to the values for which the protected area is listed.
- We do not operate where there is a risk of direct impacts to ecosystems that could result in the extinction of an IUCN Red List Threatened Species in the wild.
- We do not dispose of mined waste rock or tailings into a river or marine environment.

Our operated assets are required to have plans and processes that reflect local biodiversity risks and regulatory requirements. We revised and formalised a global-level biodiversity strategy in FY2022 that outlines our purpose and strategic priorities, and is designed to inform operational decision-making across the full life cycle of mining operations at our operated assets. The global-level strategy provides a clear direction that aligns asset-level biodiversity and land objectives and supports delivery of the new 2030 healthy environment goal. For more information on our 2030 goals refer to OFR 2.2 and 7.1.

In FY2022, we delivered our most recent five-year sustainability target related to biodiversity. This was to improve marine and terrestrial biodiversity outcomes by developing a framework to evaluate and verify the benefits of our actions, in collaboration with others, which has been tested at all our operated assets, and contribute to the management of areas of national or international conservation significance exceeding our disturbed land footprint, also known as the 'area conserved' target. The application of the biodiversity framework is intended to enable us to monitor the impacts of our activities and the effect of our management responses on biodiversity in a consistent way across BHP's operated assets. The biodiversity framework was developed with the support of Conservation International and Proteus, a cross-sector partnership between the UN Environment Programme World Conservation Monitoring Centre (UNEP WCMC) and business.

For our 'area conserved' target, the total land set aside for conservation on land where we operate and other land we steward was 65,870 hectares in FY2022. In addition to these conservation areas, we made several voluntary investments over the target period, including to the Terrebonne Biodiversity Resilience Project (a coastal restoration project in Louisiana) and the Martu Living Desert Project in Australia (support for management and conservation activities on Martu Country). Under the Conservation International and BHP alliance, Conservation International supported an assessment of whether these projects could contribute towards achievement of this target and found that the area that could reasonably be claimed was 4,465,260 hectares. Given BHP's FY2022 total disturbed land footprint was 149,312 hectares, our 'area conserved' target has been achieved by our operational and voluntary conservation investments over the target period.

In addition, we signed a grant agreement in FY2022 with Conservation International to pilot a framework to improve marine and coastal protections and enhance resilience (known as the 'Seascape Approach') in Fiji, with the aim of enhancing resilience of coastal Indigenous communities and Lau's marine and coastal ecosystems. This is expected to be a significant investment in marine biodiversity conservation in Fiji's eastern islands of the Lau Province and its surrounding waters. The agreement is aligned with the longer-term goal released in FY2018 of supporting actions aligned with the UN Sustainable Development Goals 14 and 15.

More information on our approach to biodiversity and land management and current performance is available at bhp.com/biodiversity.

7.18 Tailings storage facilities

Ensuring the integrity of our tailings storage facilities (TSFs) is a primary focus across our business. Our aspiration is to achieve zero harm from tailings and we will continue to work with others and share our progress in an effort to make this a reality.

In 2015, after the tragic failure of the Fundão dam at Samarco, BHP initiated a Dam Risk Review to assess the management of major TSFs. The catastrophic failure of the Brumadinho dam at Vale's operation in Brazil in January 2019 further strengthened our resolve to reduce TSF failure risk. For information about the Samarco tragedy and our progress with the response refer to OFR 8.

Governance and the Global Industry Standard on Tailings Management

We are committed to the 2020 Global Industry Standard on Tailings Management (GISTM) and are working to implement the requirements in line with the timelines outlined by the ICMM. Our Tailings Storage Facility Policy Statement has been published on our website, outlining our commitment to the safe management of TSFs, emergency preparedness and response, recovery in the event of a failure and transparency.

Delivery of the GISTM implementation plans was a priority in FY2022 and we made notable progress across our operated assets, which was tracked and reported to the Sustainability Committee. As part of our commitment to GISTM and continuous improvement in tailings management, we conducted a mid-implementation review that confirmed we are on track to achieve conformance in line with the ICMM timelines. We also implemented our Accountable Executive (AE) model, whereby AEs are direct reports of the BHP Chief Executive Officer and answerable to the Sustainability Committee as stipulated in GISTM's requirements. The AEs cover both direct operational accountability for BHP's TSFs, as well as an AE accountable for oversight of BHP's TSF governance framework. AEs are accountable for the safety, environmental and social impacts of TSFs. Front line employees are the first line (under our three lines risk management model) and manage the day-to-day operations and safety at site, while connected via regular communication to the relevant AE.

We continued to progress work on TSF failure risk management in FY2022 with a focus on the delivery of the risk remediation plans completed in FY2021. These plans are in addition to the range of ongoing governance activities we have in place to ensure effective management of TSF failure risk, including Dam Safety Reviews, Independent Tailings Review Boards and project-specific Independent Peer Reviews. Key risk indicators (KRIs) set by management help to monitor performance of our TSFs in dam integrity and design, overtopping/flood management and emergency response planning. These KRIs have been updated to align to the GISTM. For more information on BHP's approach to risk management including KRIs refer to OFR 9.

Strategy

Our short-term strategy continues to focus on improving KRI performance in line with defined targets. We are completing studies at our operated assets focused on reducing and mitigating potential downstream impacts particularly to populations at risk (PAR). The studies resulted in a diverse range of options to reduce PAR exposure at our TSFs or mitigate TSF failure risk. With this information our assets optimised the design and execution of their risk remediation plans, which collectively are intended to materially reduce PAR across the portfolio in the short to medium term.

Our medium- and long-term strategies focus on the development of technologies to improve tailings management and storage, which we believe are important in our aspiration of zero harm from tailings. Asset-specific strategies have been developed for all our operated assets (including legacy assets) and seek long-term alternative tailings solutions. In addition, while our non-operated joint ventures (NOJVs) are independently controlled and have their own operating and management standards, we encourage NOJVs to consider long-term alternative tailings solutions as an option in asset planning.

Industry collaboration

As part of our commitment to achieving zero harm from tailings, we are accelerating transformative approaches and technologies through a wide range of initiatives in collaboration with external industry partners. In FY2022, Future Tails (which is an initiative focused on training, education, research and best-practice guides in the tailings management space that is supported by BHP, Rio Tinto and the University of Western Australia) established training programs tailored to executives, operators and technical tailings engineers. These have been positively received by the industry.

A consortium of industry peers was formed in FY2022, to jointly conduct focused research on tailings innovation solutions and share results and learnings. Expansion of the program is planned for the coming years to bring in additional industry partners and represents a significant opportunity for industry knowledge and capability uplift. As part of this program, we have created partnerships with Rio Tinto and the University of Melbourne designed to both develop novel tailings dewatering technologies and mitigate the risk involved in the large-scale application of known tailings dewatering technologies. Dewatering is a sustainable approach to tailings processing that supports our public commitment to reduce water usage. The BHP Tailings Challenge received over 150 applications from 19 countries in FY2022 and following a rigorous assessment process, two finalists were selected to progress solutions for repurposing tailings into fertiliser and construction material. The program will continue through FY2023 culminating in an on-site pilot ahead of full solution development.

Transparency

We fully support the GISTM and are working towards implementation at our sites. We have prioritised and actioned a phased disclosure approach towards conformance, starting with an update to our previously published Church of England Disclosure.[1] We have contributed to improvements in tailings storage management across the mining industry, including through the ICMM Tailings Working Group. We are participants in other tailings working groups globally, including those associated with the Canadian Dam Association, Australian National Committee on Large Dams, Australasian Institute of Mining and Metallurgy, Minerals Council of Australia, Mining Association of Canada, Society for Mining, Metallurgy and Exploration, and Fundación Chile. We have continued to participate in the Investor Mining and Tailings Safety Initiative, an investor-led engagement convening institutional investors active in extractive industries, including major asset owners and asset managers.

We continued our work to fulfil our commitment to provide detailed, transparent and integrated disclosure of TSF management in FY2022. In addition to our work with industry partners to support the development of credible and meaningful disclosure standards, we have sought to enable the consistent application of these in our own business through the development and rollout of our Sustainability Standards Portal. The portal is a data platform to integrate multiple ESG standards, simplify data management for our assets and further strengthen the process, data quality and governance improvements achieved to date.

Operated and non-operated tailings portfolio

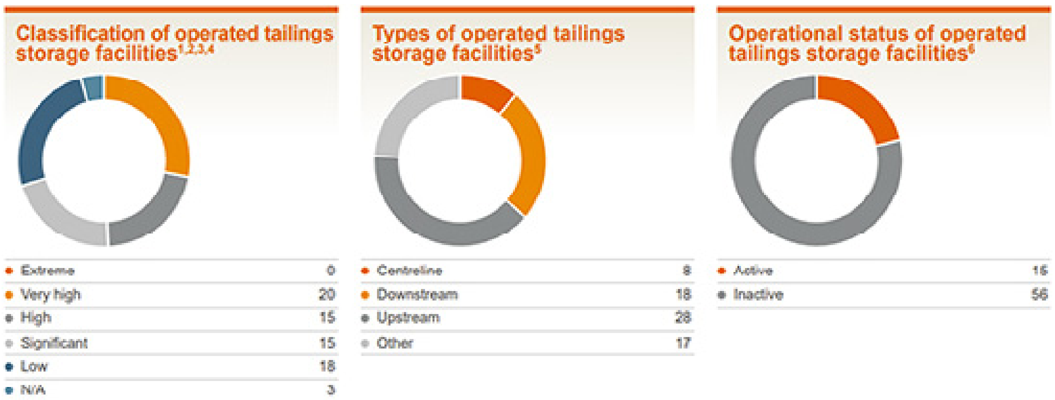
The classifications described in this Report align to the Canadian Dam Association (CDA) classification system. The TSF classification is one element of TSF risk management, but does not represent risk itself. It reflects the modelled, hypothetical most significant possible failure and consequences without controls. It does not reflect the current physical stability of the TSF and it is possible for TSF classifications to change over time, for example, following changes to the operating context of a dam. The TSF classification informs the design, surveillance and review components of risk management. Therefore, TSFs with a higher-level classification will have more rigorous requirements than TSFs that have a lower level of classification.

As at 30 June 2022, there were 71 TSFs[2] at our operated assets, 28 of which are of upstream design. Of the 71 operated facilities, none are extreme and a further 20 are classified as very high. The three facilities classified as extreme in FY2021 have been reclassified to a lower-consequence classification following the completion of risk mitigation works this year. In FY2022, two TSFs were removed from the operated TSF portfolio following the divestment of our interest in BMC and one new active TSF, a low-consequence, upstream facility, at Olympic Dam, has been added. A substantial portion of our inactive portfolio (56) at our assets is due largely to the number of historic tailings facilities associated with our North American legacy assets portfolio. More information on the risk reduction work underway for high-consequence classification facilities is provided earlier in the Governance and Strategy sections and online, including in our case studies.

There are 10 TSFs at our NOJVs, which are all located in the Americas. The three active TSFs are located at Antamina in Peru, which is of downstream construction, and two TSFs at Samarco in Brazil, Alegria Sul TSF, which is co-mingled dry stack, and Alegria Sul Pit, an in-pit TSF. In addition, there are seven inactive facilities. These include two upstream facilities at Samarco (Germano) in Brazil (that are being decommissioned following the February 2019 rulings by the Brazilian Government on upstream dams); three upstream inactive facilities and one inactive modified centreline facility at Resolution Copper in the United States; and one downstream inactive facility at Bullmoose in Canada. In FY2022, two NOJV TSFs at Cerrejón in Colombia were removed from our TSF portfolio following the sale of the asset.

1 In April 2019, the Church of England Pensions Board and the Council on Ethics Swedish National Pension Funds wrote to approximately 700 mining firms to request specific disclosures of their tailings facilities.

2 The number of tailings storage facilities (TSFs) is based on the definition agreed to by the ICMM Tailings Advisory Group at the original time of submission and expanded to align with the TSF definition established in the Global Industry Standard for Tailings Management (GISTM). We keep this definition under review. In FY2022, four TSFs were removed from the BHP TSF portfolio following the sale of our interests in two assets: two TSFs at Cerrejón (NOJV) in January 2022 and two TSFs at BMC (operated joint venture) in May 2022. One new, active TSF, TSF 6 at Olympic Dam, has been included.



1 The following classifications aligned to the CDA classification system. It is important to note that the classification is based on the modelled, hypothetical, most significant failure mode and consequences possible without controls, and not on the current physical stability of the dam.
2 For the purposes of this chart, ANCOLD and other classifications have been converted to their CDA equivalent.
3 Hamburgo TSF at Escondida is an inactive facility where tailings were deposited into a natural depression. Hamburgo TSF is not considered a dam and is, therefore, not subject to CDA classification.
4 SP1/2 and SP3 TSF at New South Wales Energy Coal are inactive facilities which have been assessed to have no credible failure modes and are therefore shown as not having a CDA classification.
5 'Other' includes dams with a raising method that combines upstream, downstream and centreline or are of in-pit design.
6 'Inactive' includes facilities not in operational use, under reclamation, reclaimed, closed and/or in post-closure care and maintenance.

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Not required for US reporting.

8 Samarco

The Fundão dam failure

On 5 November 2015, the Fundão tailings dam operated by Samarco Mineração S.A. (Samarco) failed. Samarco is a non-operated joint venture (NOJV) owned by BHP Billiton Brasil Ltda (BHP Brasil) and Vale S.A. (Vale), with each having a 50 per cent shareholding.

A significant volume of tailings (39.2 million cubic metres) resulting from the iron ore beneficiation process was released. Tragically, 19 people died – five community members and 14 people who were working on the dam. The communities of Bento Rodrigues, Paracatu de Baixo and Gesteira were flooded and other communities and the environment downstream in the Rio Doce basin were also affected.

Samarco restarted its operations at a reduced production level in December 2020. For information on Samarco's operations refer to OFR 5.2.

Our response and support for Fundação Renova

BHP Brasil has been and remains fully committed to supporting the extensive ongoing remediation and compensation efforts of Fundação Renova in Brasil.

The Framework Agreement entered into between Samarco, Vale and BHP Brasil and the relevant Brazillian authorities in March 2016 established Fundação Renova, a not-for-profit, private foundation that is implementing 42 remediation and compensatory programs. BHP Brasil provides support to Fundação Renova, including through representation on the foundation's governance structures.

To 30 June 2022, BHP Brasil has provided US$1.8 billion to fund Framework Agreement programs when Samarco has been unable to do so.

Fundação Renova

Compensation and financial assistance

Fundação Renova continues to provide fair compensation to people impacted by the dam failure.

Compensation and financial assistance of approximately R$11.2 billion (approximately US$2.3 billion)[1] has been paid to support approximately 388,000 people affected by the dam failure up until 30 June 2022. This includes:

- More than 22,000 general damages claims (including loss of life, injury, property damage, business impacts, loss of income and moral damages) have been resolved, and more than 290,000 people have been paid a total of approximately R$305 million (approximately US$69 million)[1] for temporary water interruption as at 30 June 2022.
- Approximately R$7.1 billion (approximately US$1.4 billion)[1] has been paid to more than 66,000 people under the court-mandated simplified indemnity system (known as the 'Novel' system) as at 30 June 2022. The Novel system is designed to provide compensation for informal workers who have had difficulty proving the damages they suffered, such as cart drivers, sand miners, artisanal miners and street vendors. More than 166,000 people have applied to join the Novel system to 30 June 2022.

Updates on the progress of Fundação Renova's compensation program are available at fundacaorenova.org/en/repair-data/indemnities-and-productive-resumption.

Resettlement

One of Fundação Renova's priorities is the resettlement of the communities of Bento Rodrigues, Paracatu de Baixo and Gesteira. This involves ongoing engagement and consultation with a large number of stakeholders, including the affected community members, their technical advisers, state prosecutors, municipal leaders, regulators and other interested parties.

The resettlement process for Bento Rodrigues and Paracatu de Baixo involves designing new towns on land chosen by the communities, to be as close as possible to the previous layout, attending to the wishes and needs of the families and communities, while also meeting permitting requirements.

Mandated COVID-19 workforce restrictions and suspensions of works on-site, increases to the technical scope for resettlement of the communities and permitting delays have impacted the timeline for completion. Ongoing efforts to accelerate completions continued throughout FY2022.

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1 USD amount is calculated based on actual transactional (historical) exchange rates related to Renova funding.

A total of 48 houses have been completed and 158 are under construction and mobilisation at Bento Rodrigues and Paracatu de Baixo as at 30 June 2022. Plans for families to move into their completed houses are progressing.

Infrastructure at Bento Rodrigues is complete, including roads, power, water and sewer networks. Public services are also complete, including the health and services centres, a municipal school and sewage treatment station. Infrastructure at Paracatu de Baixo is complete, including roads, power, treated water pipeline, storm water and sewer networks. Public services are under construction, including an elementary school, kindergarten, health centre, water treatment station and sewage treatment station.

At Gesteira, Fundação Renova offered the families a payment solution in which they would be able to purchase property through a 'letter of credit'. Most families of Gesteira have chosen this option and the 12th Federal Court has ratified their agreements.

Some families have chosen not to join the resettlement of their previous community and instead resettle elsewhere. For these families, 88 houses and plots have been purchased, built and/or renovated, and 13 are under construction or renovation as at 30 June 2022. Other families have opted for a cash payment in lieu of any of the other resettlement solutions offered by Fundação Renova.

Updates on the progress of Fundação Renova's resettlement program are available at fundacaorenova.org/en/repair-data/resettlement-and-infrastructure.

Other socio-economic programs

Fundação Renova continues to implement a wide range of socio-economic programs in addition to the compensation and resettlement programs. These programs cover health and infrastructure projects in the Rio Doce basin, promotion of economic development in the impacted communities and sewage treatment facilities to improve the water quality in the Rio Doce.

Environmental remediation

Since December 2019, the riverbanks and floodplains have been vegetated, river margins stabilised and in general, water quality and sediment qualities have returned to historic levels. Long-term remediation work is continuing to re-establish agriculture and native vegetation.

A ban on fishing activities along the coast of Espírito Santo and a precautionary conservation restriction preventing fishing for native fish species in the Rio Doce in Minas Gerais remain in place. Fundação Renova continues to support the recovery of habitats and aquatic ecology and engage with the authorities with the goal of lifting the restrictions.

Updates on the progress of Fundação Renova's environmental remediation programs are available at fundacaorenova.org/en/repair-data/socio-environmental-repairs.

Legal proceedings

BHP Group Limited, BHP Group (UK) Ltd (formerly BHP Group Plc) and BHP Brasil are involved in legal proceedings relating to the Samarco dam failure. For more information on the significant legal proceedings involving BHP refer to Additional information 8.

9 How we manage risk

Risk management helps us to protect and create value, and is central to achieving our purpose and strategic objectives. Our Risk Framework has four pillars: risk strategy, risk governance, risk process and risk intelligence.

Risk strategy

Risk classification

We classify all risks to which BHP is exposed using our Group Risk Architecture. This is a tool designed to identify, analyse, monitor and report risk, which provides a platform to understand and manage risks. Similar risks are considered together in groups and categories. This gives the Board and management visibility over the aggregate exposure to risks on a Group-wide basis and supports performance monitoring and reporting against BHP's risk appetite.

Risk appetite

BHP's Risk Appetite Statement is approved by the Board and is a foundational element of our Risk Framework. It provides guidance to management on the amount and type of risk we seek to take in pursuing our objectives.

Key risk indicators

Key risk indicators (KRIs) are set by management to help monitor performance against our risk appetite. They also support decision-making by providing management with information about financial and non-financial risk exposure at a Group level. Each KRI has a target, or optimal level of risk we seek to take, as well as upper and lower limits. Where either limit is exceeded, management will review potential causes to understand if BHP may be taking too little or too much risk and to identify whether further action is required.

Risk culture

Our risk management approach is underpinned by a risk culture that supports decision-making in accordance with BHP's values, objectives and risk appetite. We use a common foundation across BHP to build the tools and capabilities required to enable us to understand, monitor and manage our risk culture. These include tailored second-line cultural reviews, Group-wide risk culture dashboards and the inclusion of risk culture assessments as part of our internal audit plan.

Strategic business decisions

Strategic business decisions and the pursuit of our strategic objectives can inform, create or affect risks to which BHP is exposed. These risks may represent opportunities as well as threats. Our Risk Appetite Statement and KRIs assist in determining whether a proposed course of action is within BHP's risk appetite.

Our focus when managing risks associated with strategic business decisions is to enable the pursuit of high-reward strategies. Therefore, as well as having controls designed to protect BHP from threats, we seek to implement controls to enable and/or enhance opportunities.

Risk governance

Three lines model

BHP uses the 'three lines model' to define the role of different teams across the organisation in managing risk. This approach sets clear accountabilities for risk management and provides appropriate 'checks and balances' to support us in protecting and growing value.

The first line is provided by our frontline staff, operational management and people in functional roles – anyone who makes decisions, deploys resources or contributes to an outcome is responsible for identifying and managing the associated risks.

The Risk team and other second-line teams are responsible for providing expertise, support, monitoring and challenge on risk-related matters, including by defining Group-wide minimum standards.

The third line, our Internal Audit team, is responsible for providing independent and objective assurance over the control environment (governance, risk management and internal controls) to the Board and Executive Leadership Team. Additional assurance may also be provided by external providers, such as our External Auditor.

As of 1 August 2022, the Risk team and Internal Audit team were combined to form a Risk and Internal Audit sub-function, led by a Chief Risk and Audit Officer. This reflects the maturity of our Risk Framework and risk management capability across the first and second lines. The integration of these areas in one sub-function is designed to improve overall effectiveness of both teams, including through further alignment of second and third line assurance activities across BHP. The Risk team and Internal Audit team will continue to operate in the second and third lines respectively.

BHP Board and Committees

The Board reviews and monitors the effectiveness of the Group's systems of financial and non-financial risk management and internal control. The broad range of skills, experience and knowledge of the Board assists in providing a diverse view on risk management. The Risk and Audit Committee (RAC) and Sustainability Committee assist the Board by reviewing and considering BHP's material risk profile (covering operational, strategic and emerging risks) on a biannual basis.

Performance against risk appetite is monitored and reported to the RAC, as well as the Sustainability Committee for HSEC matters, supporting the Board to challenge and hold management to account.

Second line risk-based reviews are undertaken to provide greater oversight and enhance our understanding and management of the Group's most significant risks, with outcomes reported to management, the RAC and the Sustainability Committee. These outcomes may be used to develop remediation plans, adjust BHP's Risk Appetite Statement or KRIs, enhance our Risk Framework or inform strategic decisions.

For information on other Board Committee activities that support risk governance at BHP refer to Corporate Governance Statement 5.

Risk process

Our Risk Framework requires identification and management of risks (both threats and opportunities) to be embedded in business activities through the following process:

- Risk identification – threats and opportunities are identified and each is assigned an owner, or accountable individual.
- Risk assessments – risks are assessed using appropriate and internationally recognised techniques to determine their potential impacts and likelihood, prioritise them and inform risk treatment options.
- Risk treatment – controls are implemented to prevent, minimise and/or mitigate threats, and enable and/or enhance opportunities.
- Monitoring and review – risks and controls are reviewed periodically and on an ad hoc basis (including where there are high-potential events or changes in the external environment) to evaluate performance.
- Communication – relevant information is recorded in our enterprise risk management system to support continuous improvement and share risk intelligence across the Group.

Our Risk Framework includes requirements and guidance on the tools and process to manage current and emerging risks.

Current risks

Current risks are risks that could impact BHP today or in the near future and comprise current operational risks (risks that have their origin inside BHP or occur as a result of our activities) and current strategic risks (risks that may enhance or impede the achievement of our strategic objectives).

Current risks include material and non-material risks (as defined by our Risk Framework). The materiality of a current risk is determined by estimating the maximum foreseeable loss (MFL) if that risk was to materialise. The MFL is the estimated impact to BHP in a worst-case scenario without regard to probability and assuming all risk controls, including insurance and hedging contracts, are ineffective.

For a description of our risk factors refer to OFR 9.1.

Our focus for current risks is to prevent their occurrence or minimise their impact should they occur, but we also consider how to maximise possible benefits that might be associated with strategic risks (as described in the 'Risk strategy' section). Current material risks are required to be evaluated once a year at a minimum to determine whether our exposure to the risk is within our risk appetite.

Emerging risks

Emerging risks are newly developing or changing risks that are highly uncertain and difficult to quantify. They are generally driven by external influences and often cannot be prevented.

BHP maintains a 'watch list' of emerging themes and monitors associated signals to interpret external events and trends, providing an evolving view of the changing external environment and how it might impact our business. We use the watch list and signal monitoring to support the identification and management of emerging risks, as well as to inform and test our corporate strategy.

Once identified, our focus for emerging risks is on structured monitoring of the external environment, advocacy efforts to reduce the likelihood of the threats manifesting and identifying options to increase our resilience to these threats.

Risk intelligence

The Risk team provides the RAC, Sustainability Committee and senior management with insights on risk management across BHP. Risk reports may include trends and aggregate exposure for our most significant risks, performance against risk appetite, updates on the Risk Framework and risk management priorities, an overview of (and material changes in) BHP's material risk profile and updates on emerging risk themes and signals, and risk culture. In FY2022, risk reports were supported by an opinion from the Chief Risk Officer.

We maintain a risk insights dashboard designed to provide current, data-driven and actionable risk intelligence to our people at all levels of the business to support decision-making. This tool empowers the business to manage risks more effectively, with increased accuracy and transparency.

The Board, RAC and Sustainability Committee also receive reports from other teams to support the Board to review and monitor the effectiveness of BHP's systems of financial and non-financial risk management. These include internal audit reports, ethics and investigations reports, compliance reports and the Chief Executive Officer's report.

For information on our risk factors refer to OFR 9.1.

9.1 Risk factors

Our risk factors are described below and may occur as a result of our activities globally, including in connection with our operated and non-operated assets, third parties engaged by BHP or through our value chain. These risks, individually or collectively, could threaten our viability, strategy, business model, future performance, solvency or liquidity and reputation. They could also materially and adversely affect the health and safety of our people or members of the public, the environment, the communities where we or our third-party partners operate, or the interests of our stakeholders, which could in each case lead to litigation, regulatory investigation or enforcement action (including class actions or actions arising from contractual, legacy or other liabilities associated with divested assets), or a loss of stakeholder and/or investor confidence. References to 'financial performance' include our financial condition and liquidity, including due to decreased profitability or increased operating costs, capital spend, remediation costs or contingent liabilities. BHP is also exposed to other risks that are not described in this section.

OPERATIONAL EVENTS

Risks associated with operational events in connection with our activities globally, resulting in significant adverse impacts on our people, communities, the environment or our business.

Why is this important to BHP?

We engage in activities that have the potential to cause harm to our people and assets, communities, other stakeholders and/or the environment, including serious injuries, illness and fatalities, loss of infrastructure, amenities and livelihood, and damage to sites of cultural significance. An operational event at our operated or non-operated assets or through our value chain could also cause damage or disruptions to our assets and operations, impact our financial performance, result in litigation or class actions and cause long-term damage to our licence to operate and reputation. The potential physical impacts of climate change could increase the likelihood and/or severity of risks associated with operational events. Impacts of operational events may also be amplified if we fail to respond in a way that is consistent with our corporate values and stakeholder expectations.

Examples of potential threats

- Failure of a water or tailings storage facility, such as the tragic failure of the Fundão dam at Samarco in 2015 or a failure at one of our facilities in Australia, Chile, Peru, the United States, Canada or Brazil.
- Unplanned fire events or explosions (on the surface and underground).
- Geotechnical instability events (such as failure of underground excavations, unexpected large wall instabilities in our open pit mines, or potential interaction between our mining activities and community infrastructure or natural systems), including at our underground or open pit mines in Australia, Chile, Peru, the United States, Canada or Brazil.
- Air, land (road and rail) and marine transportation events (such as aircraft crashes or vessel collisions, groundings or hydrocarbon release) that occur while transporting people, supplies or products to exploration, operation or customer locations, which include remote and environmentally sensitive areas in Australia, South America, Asia, the United States and Canada.
- Critical infrastructure or hazardous materials containment failures, other occupational or process safety events or workplace exposures.
- Operational events experienced by third parties, which may also result in unavailability of shared critical infrastructure (such as railway lines or ports) or transportation routes (such as the Port Hedland channel in Western Australia).

ACCESSING KEY MARKETS

Risks associated with market concentration and our ability to sell and deliver products into existing and future key markets, impacting our economic efficiency.

Why is this important to BHP?

We rely on the sale and delivery of the commodities we produce to customers around the world. Changes to laws, international trade arrangements, contractual terms or other requirements and/or geopolitical developments could result in physical, logistical or other disruptions to our operations in, or the sale or delivery of our commodities to, key markets. These disruptions could affect sales volumes or prices obtained for our products, adversely impacting our financial performance, results of operations and growth prospects.

Examples of potential threats

- Government actions, including economic sanctions, tariffs or other trade restrictions, imposed by or on countries where we operate or into which we sell or deliver our products may prevent BHP from trading or make it more difficult for BHP to trade in key markets. For example, the Ukraine conflict and corresponding implementation of economic sanctions, export controls and other restrictive measures by the United States, United Kingdom, European Union and other jurisdictions against Russia contributed to increased volatility for some of the commodities we sell and some of the key supplies we buy (including diesel and ammonia).
- Physical disruptions to the delivery of our products to customers in key markets, including due to the disruption of shipping routes, closure or blockage of ports or land logistics (road or rail) or military conflict. In some cases, physical disruptions may be driven or intensified by weather, climate variability or other manifestations of climate change.
- Legal or regulatory changes (such as royalties or taxes, port or import restrictions or customs requirements, shipping/maritime regulatory changes, restrictions on movements or imposition of quarantines, or changing environmental restrictions or regulations, including measures with respect to carbon-intensive industries or imports) and commercial changes (such as changes to the standards and requirements of customers) may adversely impact our ability to sell, deliver or realise full market value for our products.
- Failure to maintain strong relationships with customers or changes to customer demands for our products may reduce our market share or adversely impact our financial performance.
- Increasing geopolitical tensions (such as the escalation of events relating to the Ukraine conflict) may adversely affect our strategic and business planning decisions and/or increase the time it takes us to manage our access to key markets, particularly if we fail to detect or anticipate deviations in the geopolitical environment in a timely manner.

OPTIMISING GROWTH AND PORTFOLIO RETURNS

Risks associated with our ability to position our asset portfolio to generate returns and value for shareholders, including through acquisitions, mergers and divestments.

Why is this important to BHP?

We make decisions and take actions in pursuit of our strategy to optimise our asset portfolio and to secure and create growth options in future facing commodities (such as copper, nickel and potash). These may include active portfolio changes (such as divestment of our interests in BMC and Cerrejón, and merger of our Petroleum business with Woodside), as well as maturing organic growth options across our existing portfolio. A strategy that does not support BHP's objectives and/or ill-timed execution of our strategy (including as a result of not having sector-leading talent and capabilities) or other circumstances may lead to a loss of value that impacts our ability to deliver returns to shareholders and fund our investment and expansion opportunities. It may also result in our asset portfolio being less resilient to movements in commodity prices, which are determined by or linked to prices in world markets. In the short term, this may reduce our cash flow, ability to access capital and our dividends. A failure to optimise our asset portfolio for structural movements in commodity prices over the long term may result in asset impairments and could adversely affect the results of our operations, financial performance and returns to investors.

Examples of potential threats

- Failure to optimise our portfolio through effective and efficient acquisitions, exploration, large project delivery, mergers, divestments or expansion of existing assets (including due to sub-optimal capital prioritisation) may adversely impact returns to investors. For example, a scarcity of growth options that align with our strategy could require us to mine deeper, lower-grade deposits, which may lead to higher operating and capital costs.
- Failure to identify potential changes in commodity attractiveness and missed entry or commodity exit opportunities may result in decreased return on capital spend for, or overpayment to acquire or invest in, new assets or projects, stranded assets or reduced divestment proceeds.
- Failure to achieve expected commercial objectives from assets or investments, such as cost savings, sales revenues or operational performance (including as a result of inaccurate commodity price assumptions or resources and reserves estimates), may result in returns that are lower than anticipated and loss of value. Impacts could be exacerbated by effects of the COVID-19 pandemic and Ukraine conflict, including supply chain disruptions (for example, disruption in the energy sector impacting our end-user markets), labour shortages, inflationary pressures on raw materials and unfavourable exchange rates, creating operational headwinds and challenging on-time and on-budget project delivery.

- Renegotiation or nullification of permits, inability to secure new permits or approvals, increased royalties, expropriation or nationalisation of our assets, or other legal, regulatory, political, judicial or fiscal or monetary policy instability or changes (for example, legislation, regulations or government policies implemented in Australia by the new federal government, which may include new rules governing the pay of contractors) may increase our costs or adversely impact our ability to achieve expected commercial objectives from assets or investments, access reserves, develop, maintain or operate our assets, enter new jurisdictions, or otherwise optimise our portfolio.
- Inability to predict long-term trends in the supply, demand and price of commodities and optimise our asset portfolio accordingly may restrict our ability to generate long-term returns from the portfolio. For example, slowing economic growth in China due to factors such as the COVID-19 pandemic, political and trade tensions or the market volatility and uncertainty resulting from the Ukraine conflict may result in lower demand and prices for our products, which would adversely impact our portfolio returns.
- Commodity prices have historically been and may continue to be subject to significant volatility, including due to global economic and geopolitical factors, industrial activity, commodity supply and demand (including inventory levels), technological change, product substitution, tariffs, interest rate movements and exchange rate fluctuations. Our usual policy and practice is to sell our products at prevailing market prices and, as such, movements in commodity prices may affect our financial performance. Long-term price volatility or sustained low prices may adversely impact our financial performance as we do not generally have the ability to offset costs through price increases.

SIGNIFICANT SOCIAL OR ENVIRONMENTAL IMPACTS

Risks associated with significant impacts of our operations on and contributions to communities and environments throughout the life cycle of our assets and across our value chain.

Why is this important to BHP?

The long-term viability of our business is closely connected to the wellbeing of the communities and environments where we have a presence. At any stage of the asset life cycle, our activities and operations may have or be seen to have significant adverse impacts on communities and environments. In these circumstances, we may fail to meet the evolving expectations of our stakeholders (including investors, governments, employees, suppliers, customers and Indigenous peoples and other community members) whose support is needed to realise our strategy and purpose. This could lead to loss of stakeholder support or regulatory approvals, increased taxes and regulation, enforcement action, litigation or class actions, or otherwise impact our licence to operate and adversely affect our reputation, ability to attract and retain talent, ability to access capital, operational continuity and financial performance.

Examples of potential threats

- Engaging in or being associated with activities (including through non-operated joint ventures and our value chain) that have or are perceived to have individual or cumulative adverse impacts on the environment, biodiversity and land management, water access and management, human rights or cultural heritage.
- Failing to meet stakeholder expectations in connection with our legal and regulatory obligations, relationships with Indigenous peoples, community wellbeing and the way we invest in communities or our approach to environment, climate change, biodiversity and land management, water access and management, human rights or cultural heritage priorities.
- Political, regulatory and judicial developments (such as constitutional reform in Chile that could lead to adjustments to water and other resource rights) could increase uncertainty in relation to our operating environment, requiring us to adjust our business plans or strategy. For example, changes to regulations may require us to modify mine plans, limit our access to reserves and resources, delay the timing or increase costs associated with closure and rehabilitation of assets, or expose BHP to unanticipated environmental or other legacy liabilities.
- Failing to identify and manage potential physical climate change risks to communities, biodiversity and ecosystems. For example, changes to species habitat or distribution as a result of sustained higher temperatures could result in land access restrictions or litigation, or limit our access to new opportunities.

INADEQUATE BUSINESS RESILIENCE

Risks associated with unanticipated or unforeseeable adverse events and a failure of planning and preparedness to respond to, manage and recover from adverse events (including potential physical impacts of climate change).

Why is this important to BHP?

In addition to the threats described in our other risk factors, our business could experience unanticipated, unforeseeable or other adverse events (internal or external) that could harm our people, disrupt our operations or value chain, or damage our assets or corporate offices, including our non-operated assets in which BHP has a non-controlling interest. A failure to identify or understand exposure, adequately prepare for these events (including maintaining business continuity plans) or build wider organisational resilience may inhibit our (or our third-party partners') ability to respond and recover in an effective and efficient manner. This could cause material adverse impacts on our business, such as reduced ability to access resources, markets and the operational or other inputs required by our business, reduced production or sales of commodities, or increased regulation, which could adversely impact our financial performance, share price or reputation and could lead to litigation (including class actions).

Examples of potential threats

- Geopolitical, global economic, regional or local developments or adverse events, such as social unrest, strikes, work stoppages, labour disruptions, social activism, terrorism, bomb threats, economic slowdown, acts of war or other significant disruptions in areas where we operate or have interests. For example, production at Escondida in FY2022 was impacted by public road blockades associated with social unrest.
- Natural events, including earthquakes, tsunamis, hurricanes, cyclones, fires, solar flares and pandemics. For example, continued COVID-19 related absences contributed to a fall in production volumes in the March 2022 quarter for copper, iron ore, nickel and energy coal.
- Potential physical impacts of climate change, such as acute risks that are event driven (including increased frequency and severity of extreme weather events) and chronic risks resulting from longer-term changes in climate patterns. Hazards and impacts may include changes in precipitation patterns, water shortages, rising sea levels, increased storm intensity, prolonged extreme temperatures and increased drought, fire and tidal flooding.
- Failure by suppliers, contractors or joint venture partners to perform existing contracts or obligations (including due to insolvency), such as construction of large projects or supply of key inputs to our business (for example, consumables for our mining equipment).
- Failure of our risk management or other processes (including controls) to prepare for or manage any of the risks discussed in this 'Risk factors' section may inhibit our (or our third-party partners') ability to manage any resulting adverse events and may disrupt our operations or adversely impact our financial performance or reputation.

LOW-CARBON TRANSITION

Risks associated with the transition to a low-carbon economy.

Why is this important to BHP?

Transition risks arise from policy, regulatory, legal, technological, market and other societal responses to the challenges posed by climate change and the transition to a low-carbon economy. As a world-leading resources company, BHP is exposed to a range of transition risks that could affect the execution of our strategy or our operational efficiency, asset values and growth options, resulting in a material adverse impact on our financial performance, share price or reputation, including litigation. The complex and pervasive nature of climate change means transition risks are interconnected with and may amplify our other risk factors. Additionally, the inherent uncertainty of potential societal responses to climate change may create a systemic risk to the global economy.

Examples of potential threats

- Introduction or improvement of low-carbon technologies or changes in customer preference for products that support the transition to a low-carbon economy may decrease demand for some of our products (which may be abrupt or unanticipated), increase our costs or decrease the availability of key inputs to production. For example:
  - 'Green steel' technologies may reduce demand for our metallurgical coal or iron ore.
  - Increased scrap-based steel production may reduce demand for our metallurgical coal and iron ore by limiting production that is required globally.
  - New battery technologies that use less nickel could enter the market and reduce demand for our nickel products.
- Failure to address investor concerns on the potential impact of climate change on and from BHP's portfolio and operations may result in reduced investor confidence.
- Social concerns around climate change may result in investors divesting our securities or pressure on financial institutions not to provide financing for our fossil fuel assets, which could limit our ability to access capital markets and potentially result in reduced access to financing or increased financing costs, or otherwise adversely impact our ability to optimise our portfolio.
- Perceived or actual misalignment of BHP's climate actions (goals, targets and performance) with societal and investor expectations, or a failure to deliver our climate actions, may result in damage to our reputation, climate-related litigation (including class actions) or give rise to other adverse regulatory, legal or market responses.
- Sub-optimal selection, implementation or effectiveness of technology that is intended to contribute towards the delivery of our climate targets, goals and strategies, or unavailability of that technology (including due to a failure of external equipment manufacturers to deliver on schedule or competition for limited supply) could delay or increase costs in achieving our plans for operational decarbonisation.
- Changes in laws, regulations, policies, obligations, government actions and our ability to anticipate and respond to such changes, including GHG emission targets, restrictive licencing, carbon taxes, carbon offset regulations, border adjustments or the addition or removal of subsidies, may give rise to adverse regulatory, legal or market responses. For example, the implementation of regulations intended to reduce GHG emissions in the steel industry in China could adversely impact demand for our metallurgical coal and/or iron ore.

ADOPTING TECHNOLOGIES AND MAINTAINING DIGITAL SECURITY

Risks associated with adopting and implementing new technologies, and maintaining the effectiveness of our existing digital landscape (including cyber defences) across our value chain.

Why is this important to BHP?

Our business and operational processes across our value chain are increasingly dependent on the effective application and adoption of technology, which we use as a lever to deliver on our current and future operational, financial and social objectives. This exposes BHP to risks originating from adopting or implementing new technologies, or failing to take appropriate action to position BHP for the digital future, which may impact the capabilities we require, the effectiveness and efficiency of our operations and our ability to compete effectively. We may also fail to maintain the effectiveness of our existing and future digital landscape, including cyber defences, exposing us to technology availability, reliability and cybersecurity risks. These could lead to operational events, commercial disruption (such as an inability to process or ship our products), corruption or loss of system data, misappropriation or loss of funds, unintended loss or disclosure of commercial or personal information, enforcement action or litigation. An inability to adequately maintain existing technology or implement critical new technology, or any sustained disruption to our existing technology, may also adversely affect our licence to operate, reputation, results of operations and financial performance.

Examples of potential threats

- Failure to invest in appropriate technologies or to keep pace with advancements in technology that support the pursuit of our objectives may adversely impact the effectiveness or efficiency of our business and erode our competitive advantage. For example, a failure to implement appropriate technologies that support our assets to produce higher-grade commodities or less waste from existing resources could limit our ability to sell our commodities or reduce costs.
- Failing to identify, access and secure necessary infrastructure and key inputs (including electricity, internet bandwidth, data, software, licences or other rights in intellectual property, hardware and talent) to support new technology innovations and advanced technologies may adversely affect our ability to adopt, operate or retain access to those technologies. This includes artificial intelligence and machine learning, process automation, robotics, data analytics, cloud computing, smart devices and remote working solutions. For example, adopting new technology to reduce GHG emissions through the use of alternative energy sources may require new infrastructure, while effective implementation of new digital technologies may be heavily dependent on access to relevant data.
- Failure or outage of our information or operational technology systems.
- Cyber events or attacks on our information or operational technology systems, including on third-party partners and suppliers (such as our cloud service providers). For example, a cyber attack could result in a failure of business-critical technology systems at one or more of our assets, which may reduce operational productivity and/or adversely impact safety.

ETHICAL MISCONDUCT *Risks associated with actual or alleged deviation from societal or business expectations of ethical behaviour (including breaches of laws or regulations) and wider or cumulative organisational cultural failings, resulting in significant reputational impacts.*
Why is this important to BHP? Actual or alleged conduct of BHP or our people or third-party partners that deviates from the standard of ethical behaviour expected of us could result in reputational damage or a breach of law or regulations. Such conduct includes fraud, corruption, anti-competitive behaviour, money laundering, breaching trade or financial sanctions, market manipulation, privacy breaches, ethical misconduct and wider organisational cultural failings. A failure to act ethically or legally may result in negative publicity, investigations, public inquiries, regulatory enforcement action, litigation or other civil or criminal proceedings, or increased regulation. It could also threaten the validity of our tenements or permits, or adversely impact our reputation, results of operations, financial performance or share price. Impacts may be amplified if our senior leaders fail to uphold BHP's values or address actual or alleged misconduct in a way that is consistent with societal and stakeholder expectations. Our workplace culture may also be eroded, adversely affecting our ability to attract and retain talent. Risks and impacts are also heightened by the complex and continuously evolving legal and regulatory frameworks that apply to the jurisdictions where we operate and potentially conflicting obligations under different national laws.
Examples of potential threats
• Failing to prevent breaches of international standards, laws, regulations or other legal, regulatory, ethical, environmental, governance or compliance obligations, such as external misstatements, inaccurate financial or operational reporting or a breach of our continuous disclosure obligations. • Corruption (for example, due to the acquisition of early-stage options in non-OECD countries), market conduct or anti-competitive behaviour, including in relation to our joint venture operations. • Failing to comply with trade or financial sanctions (which are complex and subject to rapid change and may potentially result in conflicting obligations), health, safety and environmental laws and regulations, native title and other land right or tax or royalty obligations. • Failing to protect our people from harm (including to mental and physical health) due to misconduct that takes place in connection with their work, such as discrimination or sexual harassment.

9.2 Management of risks

Each risk factor may present opportunities as well as threats. We take certain risks for strategic reward in the pursuit of our strategy and purpose, including to grow our asset portfolio and develop the right capabilities for the future of our business. Potential threats and opportunities associated with each of our risk factors are described below, along with the key controls to manage them. These controls are not exhaustive and many Group-wide controls (such as *Our Code of Conduct*, Risk Framework, mandatory minimum performance requirements for risk management, health, safety and other matters, dedicated non-operated joint venture teams and our Contractor Management Framework) help to support effective and efficient management of all risks in line with our risk appetite. While we implement preventative and/or mitigating controls designed to reduce the likelihood of a threat from occurring and minimise the impacts if it does, these may not be effective.

Operational events

Examples of potential opportunities

- Our focus on safety and the wellbeing of our people, communities and the environment may increase operational resilience and stakeholder confidence, enhancing our ability to attract and retain talent and access (or lower the cost of) capital.
- Collaborating with industry peers and relevant organisations on minimum standards (such as the internationally recognised Flight Safety Foundation's Basic Aviation Risk Standard, Global Industry Standard on Tailings Management, Large Open Pit Project guidelines on open-pit mining design and management, and the Cave Mining 2040 Consortium on deep mining design and management) supports improvements to wider industry management of operational risks and may also identify opportunities to improve our own practices.

Key management actions

- Planning, designing, constructing, operating, maintaining and monitoring surface and underground mines, water and tailings storage facilities, and other infrastructure and equipment in a manner designed to maintain structural integrity, prevent incidents and protect our people, assets, communities, the environment and other stakeholders.
- Specifying minimum requirements and technical specifications, such as for transportation (including high-occupancy vehicles, aircraft and their operators) and geotechnical (including characterisation, design, ground control and monitoring), and compliance with operating specifications, industry codes and other relevant standards, including BHP's mandatory minimum performance requirements.
- Defining key governance roles, such as a dam owner (an internal BHP individual who is accountable for maintaining effective governance and integrity of each tailings storage facility) and providing training and qualifications for our people.
- Inspections, technical reviews, audits and other assurance activities, such as independent dam safety reviews and geotechnical review boards.
- Maintaining evacuation routes, supporting equipment, crisis and emergency response plans and business continuity plans.
- Incorporating future climate projections into risks associated with operational events through ongoing assessment of potential physical climate change risks.

FY2022 insights

Our exposure to risks associated with operational events decreased in FY2022 as the divestment of our interests in Cerrejón and BMC, and the merger of our Petroleum business with Woodside, removed associated risks (including the risk of an offshore well blow out) from BHP's risk profile. Otherwise, our exposure to risks associated with operational events remained relatively unchanged.

Further information

- OFR 7.4 – Safety
- OFR 7.18 – Tailings storage facilities
- OFR 8 – Samarco
- bhp.com/sustainability

Accessing key markets

Examples of potential opportunities

- Monitoring macroeconomic, societal, geopolitical and policy developments and trends may reveal new markets or commodities, or identify opportunities to strengthen secondary markets for existing products.
- Developing strategic partnerships and strong, mutually beneficial relationships with our customers may enable us to create value.
- Building a deep understanding of geopolitical threats and opportunities and their potential impacts on global trade flows and our business could enhance our strategy, business planning and response, providing a potential competitive advantage.
- Identifying the potential for weather, climate variability or climate change to disrupt delivery of products and implementing management measures may increase the resilience of our operations and value chain.
- Signal monitoring and building relationships with and understanding the perspectives of influential stakeholders may improve our ability to understand and provide input to policy development, and to respond to and manage any impacts from policy changes (such as trade policies).

Key management actions

- Monitoring and assessing our ability to access key markets, and maintaining sales plans, product placement and business resilience strategies and relationships with relevant stakeholders.
- Maintaining response plans for various scenarios (including physical disruptions of logistics) to mitigate disruptions to our ability to access key markets.
- Monitoring geopolitical and macroeconomic developments and trends, including through signal monitoring and our enterprise-level watch list of emerging themes, to provide an early indication of events that could impact our ability to access key markets.
- Identifying weather and/or climate-related vulnerabilities and implementing controls to mitigate disruptions to our ability to physically access key markets.
- Diversifying our asset and commodity portfolio, such as our ongoing investment in potash through the Jansen Potash Project, to reduce exposure to market concentration risks.

FY2022 insights

Exposure to risks associated with our access to key markets increased in FY2022 due to changes in our external environment, over which we have limited influence. The Ukraine conflict and the corresponding international response has significantly increased volatility and uncertainty in the international trading, business and financial environment. Escalation or expansion of the conflict or the international response could cause greater disruption of global supply chains and affect macroeconomic conditions and our ability to sell to particular customers or markets. In addition, strategic competition between the United States and China continued.

Optimising growth and portfolio returns

Examples of potential opportunities

- Acquisition of new resources or acceleration of organic growth options in future facing commodities may strengthen and diversify our portfolio and protect and grow value over the long term.
- Ability to predict long-term commodity demand, supply and price trends may lead to BHP being able to identify and acquire new future facing commodities and assets ahead of our competitors or exit from declining commodities in a timely manner, strengthening our portfolio and leading to long-term, higher portfolio returns.
- BHP may be perceived as a welcome and valued or preferred partner for the development of new resource opportunities, enabling us to secure new assets or exploration opportunities to create long-term optionality in the portfolio.

Key management actions

- Strategies, processes and frameworks to grow and protect our portfolio and to assist in delivering ongoing returns to shareholders include:
  - our exploration and business development programs, which focus on replenishing our resource base and enhancing our portfolio (including creating and securing more options in future facing commodities)
  - our long-term strategic outlook and ongoing strategic processes to assess our competitive advantage and enable the identification of threats to, or opportunities for, our portfolio through forecasting and scenario modelling
  - monitoring signals to interpret external events and trends, and designing commodity strategies and price protocols that are reviewed by management and the Board
  - our Capital Allocation Framework, corporate planning processes, investment approval processes and annual reviews (including resilience testing) of portfolio valuations
  - our balance sheet and liquidity framework, which is designed to maintain a robust balance sheet with sufficient liquidity and access to diverse sources of funding
- Pursuing a considered approach to new country entry, including development of capability to operate in higher-risk jurisdictions, in order to support portfolio opportunities.
- Further developing BHP's social value proposition to position BHP as a preferred partner for the development of resource opportunities in line with the expectations of local communities, host governments and other global stakeholders.
- Managing commodity price exposure through the diversity of commodities, markets, geographies and currencies provided by our portfolio, as well as our financial risk management practices in relation to our commercial activities.

FY2022 insights

Our exposure to risks associated with optimising growth and portfolio returns increased in FY2022 as a result of volatility and uncertainty across global economies, fiscal regimes and industrial relations, licencing-regulatory uncertainty and escalating social value expectations. The ongoing conflict in Ukraine has contributed to inflationary pressures for key inputs across our value chain (such as diesel, acid, ammonia and explosives). In FY2022, we completed the divestment of our interests in BMC and Cerrejón, and the merger of our Petroleum business with Woodside, which are intended to optimise and consolidate our portfolio to align with BHP's long-term strategy.

Further information

- OFR 3 – Positioning for the future
- OFR 10 – Performance by commodity
- Financial Statements note 23 'Financial risk management'

Significant social or environmental impacts

Examples of potential opportunities

- Our support for responsible stewardship of natural resources may enhance the resilience of environments and communities to potential threats (including the potential physical impacts of climate change). For example, BHP has commenced a pilot study on developing a Natural Capital Account at a restored mine site to understand how we can better incorporate nature-related threats and opportunities into our strategic planning, risk management and asset allocation decisions.
- Strong social performance, including sustainable mining and a focus on the wellbeing of communities, could generate competitive advantage in the jurisdictions where we operate. For example, BHP was recognised for our contribution to the development of female leaders in the Chilean mining sector (Inspirational Women in Mining Awards), which may enhance our attractiveness as a place to work and support talent retention.
- Our global social value strategy may improve stakeholder relations, enhance community trust and increase investor confidence and demand for our commodities.
- Greater clarity, transparency and standards associated with regulatory regimes that support and protect communities and the environment may increase requirements across our sector, generating competitive advantage for companies that have already invested in social and environmental performance.
- Building our reputation for sustainable and responsible operating practices (such as through the Copper Mark, which was awarded to three of our copper assets in FY2022) may increase demand for some of our commodities and improve our access to talent and capital.

Key management actions

- The *Our Requirements for Community* and *Our Requirements for Environment and Climate Change* standards provide requirements and practices that are designed to strengthen our social, human rights and environmental performance. Our Human Rights Policy Statement, Water Stewardship Position Statement, Climate Transition Action Plan 2021 and Indigenous Peoples Policy Statement set out our targets, goals, commitments and/or approach to these matters.
- Engaging in regular, open and transparent dialogue with stakeholders to better understand their expectations, concerns and interests, and undertaking research to better understand stakeholder perceptions.
- Building social value into our decision-making process, along with financial considerations, including through our new social value framework and 2030 People, Planet and Prosperity goals.
- Building stakeholder trust and contributing to environmental and community resilience, including through collaborating on shared challenges (such as climate change and water stewardship), enhanced external reporting of our operated assets' potential impacts on biodiversity and maximising the value of social investments through our social investment strategy.
- Conducting regular research and impact assessments for operated assets to better understand the social, environmental, human rights and economic context. This supports us to identify and analyse stakeholder, community and human rights impacts, including modern slavery risks and emerging issues. We also complete due diligence screening on suppliers through our Ethical Supply Chain and Transparency program.
- Integrating closure into our planning, decision-making and other activities through the life cycle of our operated assets, as set out in our mandatory minimum performance requirements for closure.

FY2022 insights

Our exposure to risks with potentially significant social or environmental impacts increased in FY2022 due to environmental, political and regulatory developments, and increasing societal expectations, including of regulators and other stakeholders on Indigenous peoples' rights, climate change and the potential impacts of our operations throughout the asset life cycle. We have continued to focus on improving engagement with Indigenous peoples, including the protection of cultural heritage. The economic importance of biodiversity is increasingly at the forefront of investor considerations (particularly following the Dasgupta Review in the United Kingdom in FY2021) and is expected to be strengthened through the development of institutional frameworks, including the Taskforce on Nature-related Financial Disclosures. The opportunity for BHP in measuring and ascribing value to natural assets is to gain a better understanding of the value of environmental impacts and dependencies, and the risks they may pose to delivery of our strategy, purpose and public targets, goals and commitments.

Further information

- OFR 6 – People and culture
- OFR 7.8 – Climate change
- OFR 7.10 – Community
- OFR 7.11 – Human rights
- OFR 7.13 – Indigenous peoples
- OFR 7.14 – Social investment
- OFR 7.15 – Environment
- OFR 7.16 – Water
- OFR 7.17 –Biodiversity and land
- bhp.com/sustainability

Inadequate business resilience

Examples of potential opportunities

- Risk identification and management supports proactive, focused and prioritised deployment of resources to reduce exposure to adverse events. It may be used to inform priorities and strategies across BHP, supporting a proportionate and cost-effective response, which could provide a competitive advantage at a regional or global level.
- Building wider organisational resilience may enable us to maintain dividends to shareholders amid adverse external events and make growth-generating, counter-cyclical investments, as well as to help us mitigate the impacts of unforeseeable adverse events. For example, we have developed new agile and remote ways of working in response to the COVID-19 pandemic, which may also increase our resilience to other adverse events.
- Adapting to climate change across our operations and value chain could enhance the safety, productivity and climate resilience of our operated assets, position BHP as a supplier of choice and provide competitive advantage (for example, by fulfilling our commitment to security of supply). Support for climate vulnerable communities and ecosystems may also improve our social value proposition.

Key management actions

- Implementing Group-wide controls to enhance business resilience, including BHP's mandatory minimum performance requirements for security, crisis and emergency management and business continuity plans, and seeking to maintain an investment grade credit rating.
- Monitoring our current state of readiness (preparedness, redundancy and resilience), including through scenario analysis and business resilience exercises, supporting organisational capability in our operations, functions and senior management to effectively and efficiently respond to and recover from adverse events should they materialise.
- Monitoring the external environment, including political and economic factors, through signal monitoring, our geopolitical monitoring and public policy frameworks and our enterprise-level watch list of emerging themes, to support early identification of policy changes or adverse events for which we may need to increase preparedness.
- Identifying security threats that could directly or indirectly impact our operations and people in countries of interest to BHP.
- Implementing our Adaptation Strategy with respect to the physical risks of climate change, including requiring operated assets and functions to identify and progressively assess potential physical climate change risks (including to our value chain) and build climate change adaptation into their plans, activities and investments.
- Sourcing quality, centralised climate data covering each of our operating locations so that our operated assets and functions have access to appropriate data to support climate studies that will inform investment decisions around enhancing our operational resilience.

FY2022 insights

Our exposure to risks associated with inadequate business resilience continued to grow in FY2022, with the external environment becoming increasingly volatile. Key emerging themes (including social activism, international criminal enterprise, global terrorism, cyber threats and war) signal heightened levels of global uncertainty and an increased likelihood of unexpected shocks or disruptions. At the same time, crisis events are increasing in frequency and scale. Some of these events directly impacted our business during FY2022, including the emergence of new COVID-19 variants and flooding in eastern and southern Australia (which flooded the road to Olympic Dam and impacted inbound critical consumables). In addition to continuing to build organisational resilience to such threats, adaptation of our business to the potential physical impacts of climate change continues to be at the forefront of our thinking, with the Intergovernmental Panel on Climate Change 6th Assessment Report noting the increased frequency and magnitude of climatic events.

Further information

- BHP Climate Change Report 2020
- BHP Climate Transition Action Plan 2021
- OFR 7.8 – Climate change
- OFR 7.12 – Security services
- bhp.com/sustainability

Low-carbon transition

Examples of potential opportunities

- Our copper, nickel, iron ore and metallurgical coal provide essential building blocks for renewable power generation and electric vehicles, and can play an important part in the transition to a low-carbon economy.
- Our potash fertiliser options can promote more efficient and profitable agriculture and alleviate the increased competition for arable land.
- Increased collaboration with customers, suppliers and original equipment manufacturers, such as BHP's partnerships with HBIS Group, China Baowu, JFE, POSCO and Tata Steel to explore technologies to reduce GHG emissions across the steel value chain, can provide opportunities for the development of new products and markets.

Key management actions

- Establishing public positions on, and mandatory minimum performance requirements for managing, climate change threats and opportunities, which are set out in our Climate Change Report 2020, our Climate Transition Action Plan 2021 and the *Our Requirements for Environment and Climate Change* standard.
- Using climate-related scenarios (including our Paris-aligned 1.5°C scenario), themes and signposts (such as monitoring policy, regulatory, legal, technological, market and other societal developments) to evaluate the resilience of our portfolio and inform our strategy.
- Considering transition risks (including carbon prices) when making capital expenditure decisions or allocating capital through our Capital Allocation Framework, supporting the prioritisation of capital and investment approval processes.
- Seeking to mitigate our exposure to risks arising from policy and regulation in our operating jurisdictions and markets by reducing our operational GHG emissions and taking a product stewardship approach to GHG emissions in our value chain.
- Advocating for the introduction of an effective, long-term policy framework that can deliver a measured transition to a low-carbon economy.

FY2022 insights

Our exposure to transition risks decreased in FY2022 due to portfolio changes involving the merger of our Petroleum business with Woodside and divestment of our interests in BMC and Cerrejón. However, societal pressure for change continued to increase with many governments and organisations making commitments to achieve GHG emissions targets within specified timeframes, including commitments at the United Nations Climate Change Conference (COP 26) in November 2021. Investor and other stakeholder interest in understanding how climate change might impact our strategy and portfolio continued to grow in FY2022, and stakeholder expectations of BHP regarding disclosure of climate-related information have increased accordingly.

Further information

- BHP Climate Change Report 2020
- BHP Climate Transition Action Plan 2021
- OFR 3 – Positioning for the future
- OFR 7.8 – Climate change
- bhp.com/sustainability/climate-change

Adopting technologies and maintaining digital security

Examples of potential opportunities

- Applying digital solutions across our operations and value chain may unlock greater productivity and safety performance. For example, using predictive analytics to enable operations to identify asset condition and efficiencies may improve safety, production and equipment availability, and reduce maintenance and other costs.
- Technology solutions to reduce GHG emissions may support BHP, our suppliers and customers in achieving climate action targets. For example, BHP has become a founding partner of Komatsu's GHG Alliance in the ongoing development of zero GHG emissions haul trucks.
- Developing and applying artificial intelligence in mine planning, remote operation and advanced robotic technologies may identify or provide access to previously unknown or inaccessible deposits and development of end-to-end autonomous mining systems.
- Using digital simulations and predictive trend modelling may enable us to optimise the deployment of new technologies, such as automation and electrification, support early identification of process variances and faults, and support the marketing of our products to customers.

Key management actions

- Our assets, functions and projects are responsible for managing localised or project-specific exposure to technology and cyber risks, including risks associated with business- critical technology systems. Enterprise-level risks that are specific to technology, such as those that pose a greater threat to our wider business and strategic opportunities, are generally managed by our global Technology team and other relevant stakeholders to support delivery of our technology strategy.
- We collaborate with industry and research partners to develop technological solutions.
- Our Technology Risk Committee oversees the management and improvement of technology risks and controls, and supports the embedment of a sustainable risk culture in our Technology team.
- We employ a number of measures designed to protect against, detect and respond to cyber events or attacks, including BHP's mandatory minimum performance requirements for technology and cybersecurity, cybersecurity performance requirements for suppliers, cybersecurity resilience programs, an enterprise security framework and cybersecurity standards, cybersecurity risk and control guidance, security awareness programs and training to build capability, security assessments and continuous monitoring, restricted physical access to hardware and crisis management plans.

FY2022 insights

As we continued to leverage technology and enable digital transformation in FY2022, our exposure to associated risks increased. In particular, a continued increase in the frequency and sophistication of cyber attacks against companies, as well as on supply chains and critical infrastructure (for example, cyber attacks affecting South Africa Transfer Port Terminals and the Toronto Transit Commission) highlighted the importance of our ongoing focus to strengthen management of cybersecurity risk across the Group. We continued to adopt digital technologies where appropriate, including through the use of greater automation at our operations.

Further information

- OFR 2.2

Ethical misconduct

Examples of potential opportunities

- Our capability to manage ethical misconduct risks may expand portfolio growth options by providing greater assurance that we can operate legally and ethically in high-risk jurisdictions.
- Managing ethical misconduct risks in line with societal and stakeholder expectations may distinguish BHP from competitors and enhance our ability to raise capital, attract and retain talent, engage with governments and communities in new jurisdictions, obtain permits, partner with external organisations or suppliers, or market our products to customers.
- Playing a leading role in the management of ethical misconduct risks, such as sexual harassment risks, may help BHP to increase ethical and behavioural standards across the resources industry.

Key management actions

- Setting the 'tone from the top' through Our Charter, which is central to our business and describes our purpose, values and how we measure success.
- Implementing internal policies, standards, systems and processes for governance and compliance to support an appropriate culture and prioritise respectful behaviours at BHP, including:
  - Our Code of Conduct and BHP's mandatory minimum performance requirements for business conduct, market disclosure and other matters
  - training on Our Code of Conduct and in relation to anti-corruption, market conduct and competition
  - ring fencing protocols to separate potentially competing businesses within BHP
  - governance and compliance processes, including classification of sensitive transactions, as well as accounting, procurement and other internal controls, and tailored monitoring of control effectiveness
  - oversight and engagement with high-risk areas by our Ethics and Investigations, Compliance and Internal Audit teams, and the Disclosure Committee
  - review and endorsement by our Compliance team of the highest-risk transactions, such as gifts and hospitality, engagement of third parties, community donations and sponsorships above defined thresholds
  - automated counterparty and transaction screening against lists of entities subject to trade sanctions
  - our EthicsPoint anonymous reporting service, supported by an ethics and investigations framework and central investigations team
  - our 'Together we can stop sexual harassment' campaign, launched across all our offices and sites in Australia, and 'Stop for Safety' sessions held globally by our leaders to set expectations around racism, sexual harassment and other disrespectful behaviours
- Continuing to enforce Our Code of Conduct via appropriate investigations and responses including disciplinary action, in addition to deployment of appropriate safety controls to prevent harm.
- Requiring anti-corruption and human rights risks to be considered as part of our new country entry approval process.

FY2022 insights

Our exposure to ethical misconduct risks increased in FY2022, including due to continued exploration of, and investment in, potential growth options in high-risk or less economically developed jurisdictions. Societal expectations regarding respectful behaviours in the workplace continued to grow. We continued to implement and improve controls designed to create a safe and respectful workplace and prevent sexual harassment from occurring. The ongoing conflict in Ukraine triggered the introduction of trade and financial sanctions by the United States, United Kingdom, European Union and other jurisdictions against Russia, underscoring the importance of continued management of associated risks across our global operations.

Further information

- Our Charter and Our Code of Conduct
- OFR 7.5 – Sexual harassment
- OFR 7.7 – Ethics and business conduct
- Corporate Governance Statement

10 Performance by commodity

Management believes the following information presented by commodity provides a meaningful indication of the underlying financial and operating performance of the assets, including equity accounted investments, of each reportable segment. Information relating to assets that are accounted for as equity accounted investments is shown to reflect BHP's share, unless otherwise noted, to provide insight into the drivers of these assets.

For more information as to the statutory determination of our reportable segments, refer to Financial Statements note 1 'Segment reporting'.

Unit costs is one of our non-IFRS financial measures used to monitor the performance of our individual assets and is included in the analysis of each reportable segment. For the definition and method of calculation of our non-IFRS financial measures, including Underlying EBITDA and Unit costs, refer to OFR 11.

10.1 Copper

Detailed below is financial and operating information for our Copper assets comparing FY2022 to FY2021.

Year ended 30 June **US$M**	**2022**	2021
Revenue	**16,849**	15,726
Underlying EBITDA	**8,565**	8,489
Net operating assets	**27,420**	26,928
Capital expenditure	**2,528**	2,180
Total copper production (kt)	**1,574**	1,636
Average realised prices		
Copper (US$/lb)	**4.16**	3.81

Key drivers of Copper's financial results

Price overview

Our average realised sales price for FY2022 was US$4.16 per pound (FY2021: US$3.81 per pound). Copper prices spent much of FY2022 trading around historic highs, buoyed by robust demand, low visible inventories, delays to new copper projects and Russian supply risks. However, prices fell in two stages in the June quarter. The first decline was due to the demand impact of China's COVID-19 lockdowns. The second was due to recession speculation in advanced economies. We believe mine supply and scrap collection will grow in the coming few years, covering near-term demand growth. Longer term, traditional end-use demand is expected to be solid, while broad exposure to the electrification megatrend offers attractive upside.

Production

Total Copper production for FY2022 decreased by 4 per cent to 1,574 kt.

Escondida copper production decreased by 6 per cent to 1,004 kt primarily due to concentrator feed grade decline of 4 per cent, public road blockades affecting access to site for both workers and supplies, and the impact of a reduced operational workforce from COVID-19. Despite these challenges, Escondida achieved record material mined for FY2022 and near record concentrator throughput of 367 ktpd.

Pampa Norte copper production increased by 29 per cent to 281 kt reflecting the ramp up of the Spence Growth Option (SGO), partially offset by the impact of lower cathode production as a result of a 14 per cent decline in Pampa Norte stacking feed grade.

Olympic Dam copper production decreased by 33 per cent to 138 kt as a result of the major smelter maintenance campaign (SCM21) completed in January 2022 which was delayed due to COVID-19 impacts on the availability of the workforce. Near record production in the June 2022 quarter followed the successful ramp up of the smelter to full capacity in April 2022. Average copper grade of 2.14 per cent was achieved in FY2022 as the majority of material mined is from the Southern Mine Area.

Antamina copper production increased by 4 per cent to 150 kt, reflecting higher copper head grades. Zinc production decreased by 15 per cent to 123 kt reflecting lower zinc head grades.

Financial results

Copper revenue increased by US$1.1 billion to US$16.8 billion in FY2022 due to higher average realised Copper prices offset by lower production.

Underlying EBITDA for Copper increased by US$76 million to US$8.6 billion. Price impacts, net of price-linked costs, increased Underlying EBITDA by US$1.0 billion. Lower volumes decreased Underlying EBITDA by US$652 million.

Controllable cash costs increased by US$107 million, due to higher costs at Escondida in line with record material mined and workforce bonus payments for renewal of a collective bargaining agreement, and also at Spence from a ramp up of concentrate volumes. In addition, controllable costs increased at both Escondida and Pampa Norte due to costs associated with the implementation of COVID-19 preventative measures (reported as an exceptional item in the prior year). This was partially offset by favourable inventory movements at Escondida and Spence as well as lower costs at Olympic Dam reflecting favourable inventory movements due to reduced operational activity during the major smelter maintenance campaign. In the prior year, costs benefited from a one-off gain from cancelled power contracts at Escondida and Spence.

Inflation and higher input prices for diesel, acid and consumables negatively impacted Underlying EBITDA by US$408 million and US$295 million respectively, partially offset by favourable foreign exchange rate movements of US$497 million. Equity accounted investment profits attributable to Antamina increased by US$97 million due to higher realised prices for both copper and zinc.

Escondida unit costs increased by 20 per cent to US$1.20 per pound at realised exchange rates. This reflected strong cost discipline despite higher prices for consumables, workforce bonus payments following renewal of a new collective bargaining agreement and a one-off gain recorded in the prior year due to cancelled power contracts as part of Escondida's transition to renewable electricity. Costs associated with a planned material mined increase of approximately 20 per cent, incremental costs associated with COVID-19 preventative measures and lower by-product credits also contributed to higher unit costs. These increases were partially offset by lower power prices achieved by Escondida's transition towards 100 per cent renewable electricity.

The calculation of Escondida unit costs is set out in the table below.

Escondida unit costs (US$M)	**FY2022**	FY2021
Revenue	**9,500**	9,470
Underlying EBITDA	**6,198**	6,483
Gross costs	**3,302**	2,987
Less: by-product credits	**430**	478
Less: freight	**230**	162
Net costs	**2,642**	2,347
Sales (kt)	**1,001**	1,066
Sales (Mlb)	**2,206**	2,350
Cost per pound (US$)[1,2,3]	**1.20**	1.00

1 FY2022 based on average exchange rates of USD/CLP 811.

2 FY2022 includes COVID-19 related costs of US$0.02 per pound, which was reported as an exceptional item in FY2021 (FY2021: US$0.03 per pound).

3 FY2021 includes a one off gain from the optimised outcome from renegotiation of cancelled power contracts of US$0.04 per pound.

Outlook

Total Copper production of between 1,635 and 1,825 kt is expected in FY2023. Escondida production of between 1,080 and 1,180 kt is expected in FY2023, reflecting an expected increase in concentrator feed grade compared to FY2022. Production at Pampa Norte is expected to be between 240 and 290 kt in FY2023, reflecting a forecast decline in stacking feed grade at Pampa Norte, the commencement of plant design modifications at SGO and the continued transition towards the planned closure of Cerro Colorado at the end of CY2023. At Olympic Dam, production is expected to be between 195 and 215 kt in FY2023.

Antamina Copper production is expected between 120 and 140 kt in FY2023.

Escondida unit costs in FY2023 are expected to be between US$1.25 and US$1.45 per pound (based on an exchange rate of USD/CLP 830). This largely reflects inflationary pressures, including expected further price increases for consumables, and planned higher costs to study the potential to increase optionality at Escondida longer term. In the medium term, unit cost guidance for Escondida has been revised to less than US$1.15 per pound from less than US$1.10 per pound (based on an exchange rate of USD/CLP 830), reflecting inflation, the impact of higher power consumption and increased water costs. Medium-term production guidance for Escondida of 1.2 Mtpa on average over the next five years remains unchanged.

The comparison for the year ended 30 June 2021 to 30 June 2020 has been omitted from this Annual Report on Form 20-F and can be found in our Annual Report on Form 20-F for the fiscal year ended 30 June 2021, filed on 21 September 2021.

10.2 Iron Ore

Detailed below is financial and operating information for our Iron Ore assets comparing FY2022 to FY2021.

Year ended 30 June **US$M**	**2022**	2021
Revenue	**30,767**	34,475
Underlying EBITDA	**21,707**	26,278
Net operating assets	**16,823**	18,663
Capital expenditure	**1,848**	2,188
Total iron ore production (Mt)	**253**	254
Average realised prices		
Iron ore (US$/wmt, FOB)	**113.10**	130.56

Key drivers of Iron Ore's financial results

Price overview

Iron Ore's average realised sales price for FY2022 was US$113.10 per wet metric tonne (wmt) (FY2021: US$130.56 per wmt). The iron ore market was firm for much of the second half of FY2022, supported by resilient demand, constrained supply of competing scrap in China, and lower than expected seaborne supply from some low-cost and swing suppliers. As a result, Chinese port stocks declined steadily for much of the period. Near the close of the year, weakening sentiment within the steel value chain fed back into lower prices for iron ore. Looking ahead, the key near-term uncertainties are the pace of steel end-use sector recovery in China, how the Chinese authorities will administer steel production cuts in the remainder of CY2022, and the performance of seaborne supply. In the medium term, China's demand for iron ore is expected to be lower than it is today as crude steel production plateaus and the scrap-to-steel ratio rises. In the long term, prices are expected to be determined by high-cost production, on a value-in-use adjusted basis, from Australia or Brazil. It is imperative that we continue to compete on both quality and operational effectiveness.

Production

Total Iron Ore production was in line with the prior period.

WAIO production of 249 Mt (283 Mt on a 100 per cent basis) was in line with the prior period, reflecting continued strong supply chain performance and favourable weather compared to the prior period, offset by the impacts of temporary labour constraints relating to COVID-19, planned major maintenance including the Jimblebar train load out and car dumper one. Our preventative maintenance programs continue to underpin the strength of the WAIO supply chain, delivering increased car dumper, reclaimer and ship loader availability year on year and enabling record sales volumes of 284 Mt (100 per cent basis).

South Flank ramp up to full production capacity of 80 Mtpa (100 per cent basis) is ahead of schedule with an average rate of 67Mtpa achieved in the June 2022 quarter contributing to record production from the Mining Area C hub and record lump sales.

Samarco production of 4.1 Mt (BHP share) reflected the ramp up of production to capacity, following the recommencement of iron ore pellet production at one concentrator in December 2020.

Financial results

Total Iron Ore revenue decreased by US$3.7 billion to US$30.8 billion in FY2022 reflecting lower average realised prices.

Underlying EBITDA for Iron Ore decreased by US$4.6 billion to US$21.7 billion primarily due to lower average realised prices, net of price linked costs, of US$4.0 billion and higher operating cash costs of US$431 million. The higher cash costs are primarily a result of South Flank operational ramp up spend, increased rail maintenance, incremental costs associated with COVID-19 (mainly higher demurrage costs due to delays, reported as an exceptional item in the prior year) and inventory movements to support the supply chain. Other items such as inflation and higher fuel and energy costs negatively impacted Underlying EBITDA by US$392 million. This was partially offset by favourable foreign exchange rate impacts of US$332 million.

WAIO unit costs increased by 13 per cent to US$16.81 per tonne at realised exchange rates. The increase in unit cost was mainly due to higher diesel prices, costs associated with the ramp up of South Flank, higher rail track maintenance costs, and costs associated with COVID-19 of approximately US$0.50 per tonne, which has been taken to unit costs in this period but reported as an exceptional item in the prior period. The cost increase was partially offset by the impact of favourable exchange rate movements.

The calculation of WAIO unit costs is set out in the table below.

WAIO unit costs (US$M)	FY2022	FY2021
Revenue	**30,632**	34,337
Underlying EBITDA	**21,788**	26,270
Gross costs	**8,844**	8,067
Less: freight[1]	**2,497**	1,755
Less: royalties	**2,134**	2,577
Net costs	**4,213**	3,735
Sales (kt, equity share)	**250,688**	252,052
Cost per tonne (US$)[2,3]	**16.81**	14.82

1 Year on year increase of freight costs driven by higher diesel prices and vessel demand increases from global supply chain pressures relating to COVID-19.

2 FY2022 based on an average realised exchange rate of AUD/USD 0.73.

3 FY2022 includes COVID-19 related costs of US$0.50 per tonne (including US$0.22 per tonne relating to operations and US$0.28 per tonne relating to demurrage). FY2021 excluded COVID-19 related costs of US$0.51 per tonne (including US$0.25 per tonne relating to operations and US$0.26 per tonne relating to demurrage) that was reported as an exceptional item. In FY2021 an additional US$0.12 per tonne relating to capital projects was also reported as an exceptional item.

Outlook

WAIO production for FY2023 is expected to increase to between 246 and 256 Mt (278 and 290 Mt on a 100 per cent basis) reflecting the tie-in of the port debottlenecking project (PDP1) and the continued ramp up of South Flank.

Samarco production of between 3 and 4 Mt (BHP share) is expected in FY2023.

Unit costs in FY2023 are expected to be between US$18 and US$19 per tonne (based on an exchange rate of AUD/USD 0.72). In the medium term, unit costs have been revised to less than US$17 per tonne reflecting updated guidance exchange rates (based on an exchange rate of AUD/USD 0.72) and inflationary pressures, and our plan to creep production to greater than 300 Mtpa.

The comparison for the year ended 30 June 2021 to 30 June 2020 has been omitted from this Annual Report on Form 20-F and can be found in our Annual Report on Form 20-F for the fiscal year ended 30 June 2021, filed on 21 September 2021.

10.3 Coal

Detailed below is financial and operating information for our Coal assets comparing FY2022 to FY2021.

Year ended 30 June US$M	**2022**	2021
Revenue	**15,549**	5,154
Underlying EBITDA	**9,504**	288
Net operating assets	**7,650**	7,512
Capital expenditure	**621**	579
Total metallurgical coal production (Mt)	**37**	41
Total energy coal production (Mt)	**18**	19
Average realised prices		
Metallurgical coal (US$/t)	**347.10**	106.64
Hard coking coal (HCC) (US$/t)	**366.82**	112.72
Weak coking coal (WCC) (US$/t)	**296.51**	89.62
Thermal coal (US$/t)	**216.78**	58.42

Key drivers of Coal's financial results

Price overview

Metallurgical coal

Our average realised sales price for FY2022 was US$366.82 per tonne for hard coking coal (HCC) (FY2021: US$112.72 per tonne) and US$296.51 per tonne for weak coking coal (WCC) (FY2021: US$89.62 per tonne). Metallurgical coal prices surged to record highs in the second half of FY2022 on firm rest of world demand, uncertainty over Russia and multi-regional, multi-causal supply disruptions. The deterioration in rest of world steelmaking profitability late in the June quarter saw prices descend from their extreme highs. The industry faces a difficult and uncertain period ahead. Natural trade flows are impaired, including uncertainty around China's import policy and Russian coal supply. The regulatory environment has also become less conducive to long-life capital investment. Long term, we believe that a wholesale shift away from blast furnace steelmaking is still decades in the future. That assessment is based on our bottom-up analysis of likely regional steel decarbonisation pathways, as discussed in our Climate Transition Action Plan. Demand for seaborne Hard Coking Coals (HCC) is expected to expand alongside the growth of the steel industry in hard coking coal importing countries such as India.

Energy coal

Our average realised sales price for FY2022 was US$216.78 per tonne (FY2021: US$58.42 per tonne). The Newcastle 6,000 kcal/kg price reached a record high in May 2022 due to very strong demand and constrained supply. Trade flow redirection from Asia to Europe due to the Russian invasion of Ukraine, gas-to-coal switching as LNG prices spiked upwards, and hot weather in major importing regions, all contributed to the swift run-up in pricing. Longer term, total primary energy derived from coal (power and non-power) is expected to be challenged, particularly under deep decarbonisation scenarios, where demand is expected to decline in absolute terms.

Production

Metallurgical coal

Metallurgical coal production consisted of BMA production and BMC production up to 3 May 2022 when the divestment of our interest in BMC completed.

BMA production decreased by 9 per cent to 29 Mt (58 Mt on a 100 per cent basis). Record production at the Broadmeadow mine was more than offset by significant wet weather impacts across most BMA operations and labour constraints, including COVID-19 related absenteeism which impacted stripping and mine productivity.

BMC production decreased by 9 per cent to 8 Mt due to the divestment of our 80 per cent interest in BMC to Stanmore Resources Limited on 3 May 2022.

Energy coal

Energy coal production consisted of NSWEC production and Cerrejón production up to 11 January 2022 when the divestment of our interest in Cerrejón completed.

NSWEC production decreased by 4 per cent to 14 Mt, reflecting lower volumes due to an increased proportion of washed coal to capitalise on higher margins for higher-quality coals, COVID-19 related labour constraints which impacted stripping performance and mine productivity, and wet weather. Higher-quality coals made up almost 90 per cent of sales compared to approximately 60 per cent of sales in the prior year.

Cerrejón production decreased by 15 per cent to 4 Mt due to the divestment of our interest on 11 January 2022.

Financial results

Coal revenue increased by US$10.4 billion to US$15.5 billion in FY2022 mainly due to higher average realised prices.

Underlying EBITDA for Coal increased by US$9.2 billion to US$9.5 billion. Price impacts, net of price-linked costs, increased Underlying EBITDA by US$8.1 billion combined with the higher contribution of BMC of US$1.4 billion, mainly due to higher realised prices, prior to the divestment of our 80 per cent interest. Lower volumes decreased Underlying EBITDA by US$341 million and other items such as inflation and fuel and energy costs also negatively impacted Underlying EBITDA by US$279 million. This was partially offset by favourable foreign exchange rate impacts of US$268 million.

BMA unit costs[1] increased by 8 per cent to US$89 per tonne primarily due to lower volumes following significant wet weather impacts across most BMA operations and labour constraints, including COVID-19 related absenteeism which impacted stripping and mine productivity, and higher diesel and electricity prices. This was partially offset by cost reduction initiatives and favourable exchange rate movements.

NSWEC unit costs increased by 10 per cent to US$71 per tonne reflecting lower volumes due to an increased proportion of washed coal to capitalise on higher margins for higher-quality coals and COVID-19 related labour constraints which impacted stripping performance and mine productivity combined with higher diesel and electricity prices. This was partially offset by cost reduction initiatives and favourable exchange rate movements.

The calculation of BMA and NSWEC unit costs is set out in the table below:

	BMA unit costs[1]		NSWEC unit costs	
US$M	**FY2022**	FY2021	**FY2022**	FY2021
Revenue	**10,254**	3,537	**3,034**	839
Underlying EBITDA	**6,335**	567	**1,807**	(169)
Gross costs	**3,919**	2,970	**1,227**	1,008
Less: freight	**50**	54	**–**	–
Less: royalties	**1,282**	275	**227**	66
Net costs	**2,587**	2,641	**1,000**	942
Sales (kt, equity share)	**29,049**	31,958	**14,124**	14,626
Cost per tonne (US$)[2,3]	**89.06**	82.64	**70.80**	64.41

1 Queensland Coal unit costs no longer reported as the divestment of BHP's 80 per cent interest in BMC to Stanmore Resources Limited was completed on 3 May 2022.

2 FY2022 based on an average realised exchange rate of AUD/USD 0.73.

3 FY2022 includes COVID-19 related costs of US$0.24 per tonne and US$0.57 per tonne, which was reported as an exceptional item in FY2021 (FY2021: US$0.98 and US$0.40 per tonne) relating to BMA and NSWEC respectively.

Outlook

BMA coal production for FY2023 is expected to be between 29 and 32 Mt (58 and 64 Mt on a 100 per cent basis).

NSWEC production for FY2023 is expected to be between 13 and 15 Mt reflecting a continued focus on higher-quality coals.

BMA unit costs in FY2023 are expected to be between US$90 and US$100 per tonne (based on an exchange rate of AUD/USD 0.72) as a result of continued higher diesel and electricity prices. We remain focused on cost reduction and productivity initiatives, however given the ongoing uncertainty regarding restrictions on coal imports into China and the announcement of the change to the Queensland royalty regime, we are unable to provide medium-term volume and unit cost guidance. We are seeking to preserve low-cost incremental growth optionality in our portfolio with a focus on higher-quality coking coals.

NSWEC unit costs in FY2023 are expected to be between US$76 and US$86 per tonne (based on an exchange rate of AUD/USD 0.72) reflecting inflationary pressures, higher port toll charges at the NCIG coal export terminal and a continued focus on higher-quality coals, offset by mine plan optimisation, productivity improvements and cost reduction initiatives.

The comparison for the year ended 30 June 2021 to 30 June 2020 has been omitted from this Annual Report on Form 20-F and can be found in our Annual Report on Form 20-F for the fiscal year ended 30 June 2021, filed on 21 September 2021.

10.4 Other assets

Detailed below is an analysis of Other assets' financial and operating performance comparing FY2022 to FY2021.

Nickel West

Key drivers of Nickel West's financial results

Price overview

Our average realised sales price for FY2022 was US$23,275 per tonne (FY2021: US$16,250 per tonne). The nickel market was in deficit across the 2021 calendar year and early 2022. Visible inventories were drawn down steeply, putting upward pressure on prices. These tight fundamentals emerged due to a combination of strong demand from conventional end-use sectors, rapid growth in the electric vehicle value chain, uncertainty over the actual and potential loss of supply from Russia, and constrained Class-1 supply in the 2021 calendar year. These forces culminated in a dramatic spike in LME prices in March 2022. Prices have since fallen back to levels before the Russian invasion of Ukraine due to recession fears, alongside other exchange-traded metals. Longer term, we believe nickel will be a core beneficiary of the electrification mega-trend and that nickel sulphides will be particularly attractive.

Production

Nickel West production in FY2022 decreased by 14 per cent to 77 kt due to the significant impacts of COVID-19 related labour absenteeism and workforce shortages, and unplanned downtime at the oxygen plant leading to a 15-day smelter outage in the June 2022 quarter.

Financial results

Higher average realised sales prices resulted in revenue increasing by US$381 million to US$1.9 billion in FY2022.

Nickel West's Underlying EBITDA increased from US$259 million in FY2021 to US$420 million in FY2022, reflecting higher average realised prices and favourable exchange rate movements. This was partially offset by lower volumes mainly due to the significant impacts of COVID-19 related labour absenteeism and workforce shortages, unplanned downtime at the oxygen plant leading to a 15-day smelter outage in the June 2022 quarter, and the adverse impacts of the stronger nickel price on third-party concentrate purchase costs.

Outlook

Nickel West production for FY2023 is expected to be between 80 and 90 kt, weighted to the second half of the year due to planned smelter maintenance in the first half.

Potash

Potash recorded an Underlying EBITDA loss of US$147 million in FY2022, and a loss of US$167 million in FY2021.

The comparison for the year ended 30 June 2021 to 30 June 2020 has been omitted from this Annual Report on Form 20-F and can be found in our Annual Report on Form 20-F for the fiscal year ended 30 June 2021, filed on 21 September 2021.

10.5 Impact of changes to commodity prices

The prices we obtain for our products are a key driver of value for BHP. Fluctuations in these commodity prices affect our results, including cash flows and asset values. The estimated impact of changes in commodity prices in FY2022 on our key financial measures is set out below.

	Impact on profit after taxation from Continuing operations (US$M)	Impact on Underlying EBITDA (US$M)
US¢1/lb on copper price	22	31
US$1/t on iron ore price	160	228
US$1/t on metallurgical coal price	16	23
US$1/t on energy coal price	9	13
US¢1/lb on nickel price	1	1

11 Non-IFRS financial information

We use various non-IFRS financial information to reflect our underlying financial performance.

Non-IFRS financial information is not defined or specified under the requirements of IFRS, but is derived from the Group's Consolidated Financial Statements prepared in accordance with IFRS. The non-IFRS financial information and the below reconciliations included in this document are unaudited. The non-IFRS financial information presented is consistent with how management review financial performance of the Group with the Board and the investment community.

Sections 1.1 and 1.2 outline why we believe non-IFRS financial information is useful and the calculation methodology. We believe non-IFRS financial information provides useful information, however should not be considered as an indication of, or as a substitute for, statutory measures as an indicator of actual operating performance (such as profit or net operating cash flow) or any other measure of financial performance or position presented in accordance with IFRS, or as a measure of a company's profitability, liquidity or financial position.

Comparative periods have been adjusted for the effects of applying IFRS 5 'Non-current Assets Held for Sale and Discontinued Operations' and discloses them on the same basis as the current period figures.

The following tables provide reconciliations between non-IFRS financial information and their nearest respective IFRS measure.

Exceptional items

To improve the comparability of underlying financial performance between reporting periods, some of our non-IFRS financial information adjusts the relevant IFRS measures for exceptional items. For more information on exceptional items refer to Financial Statements note 3 'Exceptional items'.

Exceptional items are those gains or losses where their nature, including the expected frequency of the events giving rise to them, and impact is considered material to the Group's Consolidated Financial Statements. The exceptional items included within the Group's profit from Continuing and Discontinued operations for the financial years are detailed below.

Year ended 30 June	**2022 US$M**	2021 US$M Restated	2020 US$M Restated
Continuing operations			
Revenue	**–**	–	–
Other income	**840**	34	489
Expenses excluding net finance costs, depreciation, amortisation and impairments	**(494)**	(545)	(1,019)
Depreciation and amortisation	**–**	–	–
Net impairments	–	(2,371)	(409)
Loss from equity accounted investments, related impairments and expenses	**(676)**	(1,456)	(508)
Profit/(loss) from operations	**(330)**	(4,338)	(1,447)
Financial expenses	**(290)**	(85)	(93)
Financial income	**–**	–	–
Net finance costs	**(290)**	(85)	(93)
Profit/(loss) before taxation	**(620)**	(4,423)	(1,540)
Income tax (expense)/benefit	**(454)**	(1,057)	239
Royalty-related taxation (net of income tax benefit)	**–**	–	–
Total taxation (expense)/benefit	**(454)**	(1,057)	239
Profit/(loss) after taxation from Continuing operations	**(1,074)**	(5,480)	(1,301)
Discontinued operations			
Profit/(loss) after taxation from Discontinued operations	**8,159**	(317)	(4)
Profit/(loss) after taxation from Continuing and Discontinued operations	**7,085**	(5,797)	(1,305)
Total exceptional items attributable to non-controlling interests	–	(24)	(201)
Total exceptional items attributable to BHP shareholders	**7,085**	(5,773)	(1,104)
Exceptional items attributable to BHP shareholders per share (US cents)	**140.0**	(114.2)	(21.9)
Weighted basic average number of shares (Million)	**5,061**	5,057	5,057

Non-IFRS financial information derived from Consolidated Income Statement

Underlying attributable profit

Year ended 30 June	**2022 US$M**	2021 US$M	2020 US$M
Profit after taxation from Continuing and Discontinued operations attributable to BHP shareholders	**30,900**	11,304	7,956
Total exceptional items attributable to BHP shareholders[1]	**(7,085)**	5,773	1,104
Underlying attributable profit	**23,815**	17,077	9,060

1 For more information refer to Financial Statements note 3 'Exceptional items'.

Underlying basic earnings per share

Year ended 30 June	**2022 US cents**	2021 US cents	2020 US cents
Basic earnings per ordinary share	**610.6**	223.5	157.3
Exceptional items attributable to BHP shareholders per share[1]	**(140.0)**	114.2	21.9
Underlying basic earnings per ordinary share	**470.6**	337.7	179.2

1 For more information refer to Financial Statements note 3 'Exceptional items'.

Underlying attributable profit – Continuing operations

Year ended 30 June	**2022 US$M**	2021 US$M Restated	2020 US$M Restated
Profit after taxation from Continuing and Discontinued operations attributable to BHP shareholders	**30,900**	11,304	7,956
(Profit)/loss after taxation from Discontinued operations attributable to members of BHP	**(10,655)**	225	(108)
Total exceptional items attributable to BHP shareholders[1]	**(7,085)**	5,773	1,104
Total exceptional items attributable to BHP shareholders for Discontinued operations[2]	**8,159**	(317)	(4)
Underlying attributable profit – Continuing operations	**21,319**	16,985	8,948

1 For more information refer to Financial Statements note 3 'Exceptional items'.

2 For more information refer to Financial Statements note 27 'Discontinued operations'.

Underlying basic earnings per share – Continuing operations

Year ended 30 June	**2022 US$M**	2021 US$M Restated	2020 US$M Restated
Underlying attributable profit – Continuing operations	**21,319**	16,985	8,948
Weighted basic average number of shares (Million)	**5,061**	5,057	5,057
Underlying attributable earnings per ordinary share – Continuing operations (US cents)	**421.2**	335.9	176.9

Underlying EBITDA

Year ended 30 June	**2022 US$M**	2021 US$M Restated	2020 US$M Restated
Profit from operations	**34,106**	25,515	13,683
Exceptional items included in profit from operations[1]	**330**	4,338	1,447
Underlying EBIT	**34,436**	29,853	15,130
Depreciation and amortisation expense	**5,683**	5,084	4,667
Net impairments	**515**	2,507	482
Exceptional item included in Depreciation, amortisation and impairments[1]	**–**	(2,371)	(409)
Underlying EBITDA	**40,634**	35,073	19,870

1 For more information refer to Financial Statements note 3 'Exceptional items'.

Underlying EBITDA – Segment

Year ended 30 June 2022 **US$M**	**Copper**	**Iron Ore**	**Coal**	**Group and unallocated items/ eliminations[2]**	**Total Group**
Profit from operations	**6,249**	**18,823**	**9,582**	**(548)**	**34,106**
Exceptional items included in profit from operations[1]	**81**	**648**	**(849)**	**450**	**330**
Depreciation and amortisation expense	**1,765**	**2,203**	**762**	**953**	**5,683**
Net impairments	**470**	**33**	**9**	**3**	**515**
Underlying EBITDA	**8,565**	**21,707**	**9,504**	**858**	**40,634**

Year ended 30 June 2021 US$M Restated	Copper	Iron Ore	Coal	Group and unallocated items/ eliminations[2]	Total Group
Profit from operations	6,665	22,975	(2,144)	(1,981)	25,515
Exceptional items included in profit from operations[1]	144	1,319	1,567	1,308	4,338
Depreciation and amortisation expense	1,608	1,971	845	660	5,084
Net impairments	72	13	1,077	1,345	2,507
Exceptional item included in Depreciation, amortisation and impairments[1]	–	–	(1,057)	(1,314)	(2,371)
Underlying EBITDA	8,489	26,278	288	18	35,073

Year ended 30 June 2020 US$M Restated	Copper	Iron Ore	Coal	Group and unallocated items/ eliminations[2]	Total Group
Profit from operations	1,362	12,310	793	(782)	13,683
Exceptional items included in profit from operations[1]	1,228	614	18	(413)	1,447
Depreciation and amortisation expense	1,740	1,608	807	512	4,667
Net impairments	426	22	14	20	482
Exceptional item included in Depreciation, amortisation and impairments[1]	(409)	–	–	–	(409)
Underlying EBITDA	4,347	14,554	1,632	(663)	19,870

1 For more information refer to Financial Statements note 3 ‘Exceptional items’.

2 Group and unallocated items includes functions, other unallocated operations, including Potash, Nickel West, legacy assets, and consolidation adjustments.

Year ended 30 June 2022 US$M	**Profit from operations**	**Exceptional items included in profit from operations[1]**	**Depreciation and amortisation**	**Net impairments**	**Exceptional items included in Depreciation, amortisation and impairments[1]**	**Underlying EBITDA**
Potash	**(149)**	**–**	**2**	**–**	**–**	**(147)**
Nickel West	**327**	**–**	**91**	**2**	**–**	**420**
Corporate, legacy assets and eliminations	**(726)**	**450**	**860**	**1**	**–**	**585**
Total	**(548)**	**450**	**953**	**3**	**–**	**858**

Year ended 30 June 2021 US$M Restated	Profit from operations	Exceptional items included in profit from operations[1]	Depreciation and amortisation	Net impairments	Exceptional items included in Depreciation, amortisation and impairments[1]	Underlying EBITDA
Potash	(1,489)	1,320	2	1,314	(1,314)	(167)
Nickel West	146	3	79	31	–	259
Corporate, legacy assets and eliminations	(638)	(15)	579	–	–	(74)
Total	(1,981)	1,308	660	1,345	(1,314)	18

Year ended 30 June 2020 US$M Restated	Profit from operations	Exceptional items included in profit from operations[1]	Depreciation and amortisation	Net impairments	Exceptional items included in Depreciation, amortisation and impairments[1]	Underlying EBITDA
Potash	(130)	–	3	–	–	(127)
Nickel West	(113)	5	68	3	–	(37)
Corporate, legacy assets and eliminations	(539)	(418)	441	17	–	(499)
Total	(782)	(413)	512	20	–	(663)

1 For more information refer to Financial Statements note 3 ‘Exceptional items’.

Underlying EBITDA margin

Year ended 30 June 2022 US$M	**Copper**	**Iron Ore**	**Coal**	**Group and unallocated items/ eliminations[1]**	**Total Group**
Revenue – Group production	**13,946**	**30,748**	**15,549**	**1,860**	**62,103**
Revenue – Third-party products	**2,903**	**19**	**–**	**73**	**2,995**
Revenue	**16,849**	**30,767**	**15,549**	**1,933**	**65,098**
Underlying EBITDA – Group production	**8,529**	**21,707**	**9,504**	**858**	**40,598**
Underlying EBITDA – Third-party products	**36**	**–**	**–**	**–**	**36**
Underlying EBITDA[2]	**8,565**	**21,707**	**9,504**	**858**	**40,634**
Segment contribution to the Group's Underlying EBITDA[3]	**22%**	**54%**	**24%**		**100%**
Underlying EBITDA margin[4]	**61%**	**71%**	**61%**		**65%**

Year ended 30 June 2021 US$M Restated	Copper	Iron Ore	Coal	Group and unallocated items/ eliminations[1]	Total Group
Revenue – Group production	13,482	34,457	5,154	1,543	54,636
Revenue – Third-party products	2,244	18	–	23	2,285
Revenue	15,726	34,475	5,154	1,566	56,921
Underlying EBITDA – Group production	8,425	26,277	288	18	35,008
Underlying EBITDA – Third-party products	64	1	–	–	65
Underlying EBITDA[2]	8,489	26,278	288	18	35,073
Segment contribution to the Group's Underlying EBITDA[3]	24%	75%	1%		100%
Underlying EBITDA margin[4]	62%	76%	6%		64%

Year ended 30 June 2020 US$M Restated	Copper	Iron Ore	Coal	Group and unallocated items/ eliminations[1]	Total Group
Revenue – Group production	9,577	20,782	6,242	1,191	37,792
Revenue – Third-party products	1,089	15	–	28	1,132
Revenue	10,666	20,797	6,242	1,219	38,924
Underlying EBITDA – Group production	4,306	14,561	1,632	(663)	19,836
Underlying EBITDA – Third-party products	41	(7)	–	–	34
Underlying EBITDA[2]	4,347	14,554	1,632	(663)	19,870
Segment contribution to the Group's Underlying EBITDA[3]	21%	71%	8%		100%
Underlying EBITDA margin[4]	45%	70%	26%		52%

1 Group and unallocated items includes functions, other unallocated operations, including Potash, Nickel West, legacy assets, and consolidation adjustments. Revenue not attributable to reportable segments comprises the sale of freight and fuel to third parties. Exploration and technology activities are recognised within relevant segments.

2 We differentiate sales of our production from sales of third-party products to better measure the operational profitability of our operations as a percentage of revenue. These tables show the breakdown between our production and third-party products, which is necessary for the calculation of the Underlying EBITDA margin and margin on third-party products.

We engage in third-party trading for the following reasons:

- Production variability and occasional shortfalls from our assets means that we sometimes source third-party materials to ensure a steady supply of product to our customers.
- To optimise our supply chain outcomes, we may buy physical product from third parties.
- To support the development of liquid markets, we will sometimes source third-party physical products and manage risk through both the physical and financial markets.

3 Percentage contribution to Group Underlying EBITDA, excluding Group and unallocated items.

4 Underlying EBITDA margin excludes third-party products.

Effective tax rate

Year ended 30 June	2022 Profit before taxation US$M	2022 Income tax expense US$M	2022 %	2021 (Restated) Profit before taxation US$M	2021 (Restated) Income tax expense US$M	2021 (Restated) %	2020 (Restated) Profit before taxation US$M	2020 (Restated) Income tax expense US$M	2020 (Restated) %
Statutory effective tax rate	**33,137**	**(10,737)**	**32.4**	24,292	(10,616)	43.7	12,825	(4,197)	32.7
Adjusted for:									
Exchange rate movements	**–**	**(233)**		–	(33)		–	41	
Exceptional items[1]	**620**	**454**		4,423	1,057		1,540	(239)	
Adjusted effective tax rate	**33,757**	**(10,516)**	**31.2**	28,715	(9,592)	33.4	14,365	(4,395)	30.6

1 For more information refer to Financial Statements note 3 'Exceptional items'.

Non-IFRS financial information derived from Consolidated Cash Flow Statement

Capital and exploration expenditure

Year ended 30 June	2022 US$M	2021 US$M Restated	2020 US$M Restated
Capital expenditure (purchases of property, plant and equipment)	**5,855**	5,612	5,991
Add: Exploration expenditure	**256**	192	176
Capital and exploration expenditure (cash basis) – Continuing operations	**6,111**	5,804	6,167
Capital expenditure (purchases of property, plant and equipment) – Discontinued operations	**1,050**	994	909
Add: Exploration expenditure – Discontinued operations	**384**	322	564
Capital and exploration expenditure (cash basis) – Discontinued operations	**1,434**	1,316	1,473
Capital and exploration expenditure (cash basis) – Total operations	**7,545**	7,120	7,640

Free cash flow

Year ended 30 June	2022 US$M	2021 US$M Restated	2020 US$M Restated
Net operating cash flows from Continuing operations	**29,285**	25,883	14,685
Net investing cash flows from Continuing operations	**(4,973)**	(6,325)	(6,583)
Free cash flow – Continuing operations	**24,312**	19,558	8,102
Net operating cash flows from Discontinued operations	**2,889**	1,351	1,021
Net investing cash flows from Discontinued operations	**(904)**	(1,520)	(1,033)
Net cash completion payment on merger of Petroleum with Woodside	**(683)**	–	–
Cash and cash equivalents disposed on merger of Petroleum with Woodside	**(399)**	–	–
Free cash flow – Discontinued operations	**903**	(169)	(12)
Free cash flow – Total operations	**25,215**	19,389	8,090

Non-IFRS financial information derived from Consolidated Balance Sheet

Net debt and gearing ratio

Year ended 30 June	**2022 US$M**	2021 US$M	2020 US$M
Interest bearing liabilities – Current	**2,622**	2,628	5,012
Interest bearing liabilities – Non current	**13,806**	18,355	22,036
Total interest bearing liabilities	**16,428**	20,983	27,048
Comprising:			
Borrowing	**13,852**	17,087	23,605
Lease liabilities	**2,576**	3,896	3,443
Less: Lease liability associated with index-linked freight contracts	**274**	1,025	1,160
Less: Cash and cash equivalents	**17,236**	15,246	13,426
Less: Net debt management related instruments[1]	**(1,688)**	557	433
Less: Net cash management related instruments[2]	**273**	34	(15)
Less: Total derivatives included in net debt	**(1,415)**	591	418
Net debt	**333**	4,121	12,044
Net assets	**48,766**	55,605	52,175
Gearing	**0.7%**	6.9%	18.8%

1 Represents the net cross currency and interest rate swaps included within current and non-current other financial assets and liabilities.

2 Represents the net forward exchange contracts related to cash management included within current and non-current other financial assets and liabilities.

Net debt waterfall

Year ended 30 June	**2022 US$M**	2021 US$M
Net debt at the beginning of the period	**(4,121)**	(12,044)
Net operating cash flows	**32,174**	27,234
Net investing cash flows	**(6,959)**	(7,845)
Net financing cash flows	**(22,767)**	(17,922)
Net increase in cash and cash equivalents from Continuing and Discontinued operations	**2,448**	1,467
Carrying value of interest bearing liability net repayments	**2,227**	7,433
Carrying value of debt related instruments settlements/(proceeds)	**–**	(167)
Carrying value of cash management related instruments (proceeds)/settlements	**(247)**	403
Fair value adjustment on debt (including debt related instruments)	**5**	58
Foreign exchange impacts on cash (including cash management related instruments)	**27**	(1)
Lease additions	**(736)**	(1,079)
Divestment and demerger of subsidiaries and operations	**492**	–
Other	**(428)**	(191)
Non-cash movements	**(640)**	(1,213)
Net debt at the end of the period	**(333)**	(4,121)

Net operating assets

The following table reconciles Net operating assets for the Group to Net assets on the Consolidated Balance Sheet.

Year ended 30 June	2022 US$M	2021 US$M Restated
Net assets	**48,766**	55,605
Less: Non-operating assets		
Cash and cash equivalents	**(17,236)**	(15,246)
Trade and other receivables[1]	**(72)**	(280)
Other financial assets[2]	**(1,363)**	(1,516)
Current tax assets	**(263)**	(279)
Deferred tax assets	**(56)**	(1,912)
Assets held for sale	–	(324)
Petroleum Discontinued operations operating assets[3]	–	(13,757)
Add: Non-operating liabilities		
Trade and other payables[4]	**201**	227
Interest bearing liabilities	**16,428**	20,983
Other financial liabilities[5]	**1,851**	588
Current tax payable	**3,032**	2,800
Non-current tax payable	**87**	120
Deferred tax liabilities	**3,063**	3,314
Liabilities directly associated with the assets held for sale	–	17
Petroleum Discontinued operations operating liabilities[3]	–	5,684
Net operating assets	**54,438**	56,024
Net operating assets		
Copper	**27,420**	26,928
Iron Ore	**16,823**	18,663
Coal	**7,650**	7,512
Group and unallocated items[6]	**2,545**	2,921
Total	**54,438**	56,024

1 Represents loans to associates, external finance receivable and accrued interest receivable included within other receivables.

2 Represents cross currency and interest rate swaps, forward exchange contracts related to cash management and investment in shares, other investments and receivables contingent on outcome of future events relating to mining and regulatory approvals.

3 Represents the Petroleum operating assets and operating liabilities as at 30 June 2021 that were merged with Woodside on 1 June 2022.

4 Represents accrued interest payable included within other payables.

5 Represents cross currency and interest rate swaps and forward exchange contracts related to cash management.

6 Group and unallocated items include functions, other unallocated operations including Potash, Nickel West, legacy assets, and consolidation adjustments.

Other non-IFRS financial information

Principal factors that affect Revenue, Profit from operations and Underlying EBITDA

The following table describes the impact of the principal factors that affected Revenue, Profit from operations and Underlying EBITDA for FY2022 and relates them back to our Consolidated Income Statement. For information on the method of calculation of the principal factors that affect Revenue, Profit from operations and Underlying EBITDA refer to OFR 11.2.

	Revenue US$M	Total expenses, Other income and Loss from equity accounted investments US$M	Profit from operations US$M	Depreciation, amortisation and impairments and Exceptional Items US$M	Underlying EBITDA US$M
Year ended 30 June 2021 (Restated)					
Revenue	**56,921**				
Other income		**380**			
Expenses excluding net finance costs		**(30,871)**			
Loss from equity accounted investments, related impairments and expenses		**(915)**			
Total other income, expenses excluding net finance costs and Loss from equity accounted investments, related impairments and expenses		**(31,406)**			
Profit from operations			**25,515**		
Depreciation, amortisation and impairments[1]				**7,591**	
Exceptional item included in Depreciation, amortisation and impairments				**(2,371)**	
Exceptional items				**4,338**	
Underlying EBITDA					**35,073**
Change in sales prices	7,267	(673)	**6,594**	–	**6,594**
Price-linked costs	–	(1,047)	**(1,047)**	–	**(1,047)**
Net price impact	7,267	(1,720)	**5,547**	–	**5,547**
Change in volumes	(1,235)	23	**(1,212)**	–	**(1,212)**
Operating cash costs	–	(473)	**(473)**	–	**(473)**
Exploration and business development	–	(67)	**(67)**	–	**(67)**
Change in controllable cash costs[2]	–	(540)	**(540)**	–	**(540)**
Exchange rates	(3)	1,183	**1,180**	–	**1,180**
Inflation on costs	–	(867)	**(867)**	–	**(867)**
Fuel, energy, and consumable price movements	–	(660)	**(660)**	–	**(660)**
Non-cash	–	(3)	**(3)**	–	**(3)**
One-off items	–	–	**–**	–	**–**
Change in other costs	(3)	(347)	**(350)**	–	**(350)**
Asset sales	–	2	**2**	–	**2**
Ceased and sold operations	1,482	186	**1,668**	–	**1,668**
Other	666	(220)	**446**	–	**446**
Depreciation, amortisation and impairments	–	(978)	**(978)**	978	**–**
Exceptional items	–	4,008	**4,008**	(4,008)	**–**
Year ended 30 June 2022					
Revenue	**65,098**				
Other income		**1,398**			
Expenses excluding net finance costs		**(32,371)**			
Loss from equity accounted investments, related impairments and expenses		**(19)**			
Total other income, expenses excluding net finance costs and Loss from equity accounted investments, related impairments and expenses		**(30,992)**			
Profit from operations			**34,106**		
Depreciation, amortisation and impairments[1]				**6,198**	
Exceptional item included in Depreciation, amortisation and impairments				**–**	
Exceptional items				**330**	
Underlying EBITDA					**40,634**

1 Depreciation and impairments that we classify as exceptional items are excluded from depreciation, amortisation and impairments. Depreciation, amortisation and impairments includes non-exceptional impairments of US$515 million (FY2021: US$136 million).

2 Collectively, we refer to the change in operating cash costs and change in exploration and business development as Change in controllable cash costs. Operating cash costs by definition do not include non-cash costs. The change in operating cash costs also excludes the impact of exchange rates and inflation, changes in fuel, energy costs and consumable costs, changes in exploration and business development costs and one-off items. These items are excluded so as to provide a consistent measurement of changes in costs across all segments, based on the factors that are within the control and responsibility of the segment.

Underlying return on capital employed (ROCE)

Year ended 30 June	**2022 US$M**	2021 US$M	2020 US$M
Profit after taxation from Continuing and Discontinued operations	**33,055**	13,451	8,736
Exceptional items[1]	**(7,085)**	5,797	1,305
Subtotal	**25,970**	19,248	10,041
Adjusted for:			
Net finance costs	**1,128**	1,305	911
Exceptional items included within net finance costs[1]	**(290)**	(85)	(93)
Income tax expense on net finance costs	**(287)**	(337)	(267)
Profit after taxation excluding net finance costs and exceptional items	**26,521**	20,131	10,592
Net assets at the beginning of the period	**55,605**	52,175	51,753
Net debt at the beginning of the period	**4,121**	12,044	9,446
Capital employed at the beginning of the period	**59,726**	64,219	61,199
Net assets at the end of the period	**48,766**	55,605	52,175
Net debt at the end of the period	**333**	4,121	12,044
Capital employed at the end of the period	**49,099**	59,726	64,219
Average capital employed	**54,413**	61,973	62,709
Underlying return on capital employed	**48.7%**	32.5%	16.9%

1 For more information refer to Financial Statements note 3 'Exceptional items'.

Underlying return on capital employed (ROCE) by segment

Year ended 30 June 2022 US$M	**Copper**	**Iron Ore**	**Coal**	**Group and unallocated items/ eliminations[1]**	**Total Continuing**	**Petroleum Discontinued operations**	**Total Group**
Profit after taxation excluding net finance costs and exceptional items	**3,981**	**13,896**	**6,293**	**(256)**	**23,914**	**2,607**	**26,521**
Average capital employed	**24,310**	**15,275**	**6,893**	**3,196**	**49,674**	**4,739**	**54,413**
Underlying return on capital employed	**16%**	**91%**	**91%**	**–**	**48.1%**	**–**	**48.7%**

Year ended 30 June 2021 US$M Restated	Copper	Iron Ore	Coal	Group and unallocated items/ eliminations[1]	Total Continuing	Petroleum Discontinued operations	Total Group
Profit after taxation excluding net finance costs and exceptional items	4,191	16,640	(454)	(395)	19,982	149	20,131
Average capital employed	23,710	16,042	8,262	4,470	52,484	9,489	61,973
Underlying return on capital employed	18%	104%	(5%)	–	38.1%	1.6%	32.5%

1 Group and unallocated items includes functions, other unallocated operations including Potash, Nickel West, legacy assets and consolidation adjustments.

Underlying return on capital employed (ROCE) by asset

Year ended 30 June 2022 US$M	**Western Australia Iron Ore**	**BHP Mitsubishi Alliance**	**Antamina**	**Nickel West**	**Escondida**	**Pampa Norte**	**Olympic Dam**	**Potash**	**New South Wales Energy Coal[1]**	**Other**	**Total Continuing**	**Petroleum Discontinued operations**	**Total Group**
Profit after taxation excluding net finance costs and exceptional items	**14,051**	**4,153**	**684**	**250**	**3,346**	**81**	**(9)**	**(123)**	**1,309**	**172**	**23,914**	**2,607**	**26,521**
Average capital employed	**18,783**	**6,725**	**1,284**	**650**	**9,891**	**4,380**	**8,660**	**3,321**	**(413)**	**(3,607)**	**49,674**	**4,739**	**54,413**
Underlying return on capital employed	**75%**	**62%**	**53%**	**38%**	**34%**	**2%**	**(0)%**	**(4)%**	**–**	**–**	**48.1%**	**–**	**48.7%**

Year ended 30 June 2021 US$M Restated	Western Australia Iron Ore	BHP Mitsubishi Alliance	Antamina	Nickel West	Escondida	Pampa Norte	Olympic Dam	Potash	New South Wales Energy Coal	Other	Total Continuing	Petroleum Discontinued operations	Total Group
Profit after taxation excluding net finance costs and exceptional items	16,665	(13)	593	136	3,281	302	214	5	(203)	(998)	19,982	149	20,131
Average capital employed	18,661	6,796	1,353	295	10,353	3,760	8,021	3,710	269	(734)	52,484	9,489	61,973
Underlying return on capital employed	89%	(0%)	44%	46%	32%	8%	3%	0%	(75%)	–	38.1%	1.6%	32.5%

1 NSWEC has not been shown as ROCE is distorted by negative capital employed due to the rehabilitation provision being the primary balance remaining on Balance Sheet following previous impairments.

11.1 Definition and calculation of non-IFRS financial information

Non-IFRS financial information	Reasons why we believe the non-IFRS financial information are useful	Calculation methodology
Underlying attributable profit	Allows the comparability of underlying financial performance by excluding the impacts of exceptional items.	Profit after taxation from Continuing and Discontinued operations attributable to BHP shareholders excluding any exceptional items attributable to BHP shareholders.
Underlying attributable profit – Continuing operations	Allows the comparability of underlying financial performance by excluding the impacts of exceptional items and the contribution of Discontinued operations and is also the basis on which our dividend payout ratio policy is applied.	Underlying attributable profit from Continuing operations also excludes the contribution of Discontinued operations from the above metrics.
Underlying basic earnings per share	On a per share basis, allows the comparability of underlying financial performance by excluding the impacts of exceptional items.	Underlying attributable profit divided by the weighted basic average number of shares.
Underlying basic earnings per share – Continuing operations	On a per share basis, allows the comparability of underlying financial performance by excluding the impacts of exceptional items and the contribution of Discontinued operations.	Underlying attributable profit – Continuing operations divided by the weighted basic average number of shares.
Underlying EBITDA	Used to help assess current operational profitability excluding the impacts of sunk costs (i.e. depreciation from initial investment). Each is a measure that management uses internally to assess the performance of the Group's segments and make decisions on the allocation of resources.	Earnings before net finance costs, depreciation, amortisation and impairments, taxation expense, Discontinued operations and exceptional items. Underlying EBITDA includes BHP's share of profit/(loss) from investments accounted for using the equity method including net finance costs, depreciation, amortisation and impairments and taxation expense/(benefit).
Underlying EBITDA margin		Underlying EBITDA excluding third-party product EBITDA, divided by revenue excluding third-party product revenue.
Underlying EBIT	Used to help assess current operational profitability excluding net finance costs and taxation expense (each of which are managed at the Group level) as well as Discontinued operations and any exceptional items.	Earnings before net finance costs, taxation expense, Discontinued operations and any exceptional items. Underlying EBIT includes BHP's share of profit/(loss) from investments accounted for using the equity method including net finance costs and taxation expense/(benefit).
Profit from operations		Earnings before net finance costs, taxation expense and Discontinued operations. Profit from operations includes Revenue, Other income, Expenses excluding net finance costs and BHP's share of profit/(loss) from investments accounted for using the equity method including net finance costs and taxation expense/(benefit).

Non-IFRS financial information	Reasons why we believe the non-IFRS financial information are useful	Calculation methodology
Capital and exploration expenditure	Used as part of our Capital Allocation Framework to assess efficient deployment of capital. Represents the total outflows of our operational investing expenditure.	Purchases of property, plant and equipment and exploration expenditure including the contribution of Discontinued operations
Capital and exploration expenditure – Continuing operations	Represents the total outflows of our operational investing expenditure excluding the contribution of Discontinued operations.	Purchases of property, plant and equipment and exploration expenditure.
Free cash flow	It is a key measure used as part of our Capital Allocation Framework. Reflects our operational cash performance inclusive of investment expenditure, which helps to highlight how much cash was generated in the period to be available for the servicing of debt and distribution to shareholders.	Net operating cash flows less net investing cash flows.
Free cash flow – Continuing operations	Reflects our operational cash performance inclusive of investment expenditure, but excluding the contribution of Discontinued operations.	Net operating cash flows from Continuing operations less net investing cash flows from Continuing operations.
Net debt	Net debt shows the position of gross debt less index-linked freight contracts offset by cash immediately available to pay debt if required and any associated derivative financial instruments. Liability associated with index-linked freight contracts, which are required to be remeasured to the prevailing freight index at each reporting date, are excluded from the net debt calculation due to the short-term volatility of the index they relate to not aligning with how the Group uses net debt for decision making in relation to the Capital Allocation Framework. Net debt includes the fair value of derivative financial instruments used to hedge cash and borrowings to reflect the Group's risk management strategy of reducing the volatility of net debt caused by fluctuations in foreign exchange and interest rates.	Interest bearing liabilities less liability associated with index-linked freight contracts less cash and cash equivalents less net cross currency and interest rate swaps less net cash management related instruments for the Group at the reporting date.
Gearing ratio	Net debt, along with the gearing ratio, is used to monitor the Group's capital management by relating net debt relative to equity from shareholders.	Ratio of Net debt to Net debt plus Net assets.
Net operating assets	Enables a clearer view of the assets deployed to generate earnings by highlighting the net operating assets of the business separate from the financing and tax balances. This measure helps provide an indicator of the underlying performance of our assets and enhances comparability between them.	Operating assets net of operating liabilities, including the carrying value of equity accounted investments and predominantly excludes cash balances, loans to associates, interest bearing liabilities, derivatives hedging our net debt, assets held for sale, liabilities directly associated with assets held for sale and tax balances.

Non-IFRS financial information	Reasons why we believe the non-IFRS financial information are useful	Calculation methodology
Underlying return on capital employed (ROCE)	Indicator of the Group's capital efficiency and is provided on an underlying basis to allow comparability of underlying financial performance by excluding the impacts of exceptional items.	Profit after taxation excluding exceptional items and net finance costs (after taxation) divided by average capital employed. Profit after taxation excluding exceptional items and net finance costs (after taxation) is profit after taxation from Continuing and Discontinued operations excluding exceptional items, net finance costs and the estimated taxation impact of net finance costs. These are annualised for a half year end reporting period. The estimated tax impact is calculated using a prima facie taxation rate on net finance costs (excluding any foreign exchange impact). Average capital employed is calculated as the average of net assets less net debt for the last two reporting periods.
Adjusted effective tax rate	Provides an underlying tax basis to allow comparability of underlying financial performance by excluding the impacts of exceptional items.	Total taxation expense/(benefit) excluding exceptional items and exchange rate movements included in taxation expense/(benefit) divided by Profit before taxation from Continuing operations excluding exceptional items.
Unit cost	Used to assess the controllable financial performance of the Group's assets for each unit of production. Unit costs are adjusted for site specific non controllable factors to enhance comparability between the Group's assets.	Ratio of net costs of the assets to the equity share of sales tonnage. Net costs is defined as revenue less Underlying EBITDA and excludes freight and other costs, depending on the nature of each asset. Freight is excluded as the Group believes it provides a similar basis of comparison to our peer group. Escondida unit costs exclude: • by-product credits being the favourable impact of by-products (such as gold or silver) to determine the directly attributable costs of copper production. WAIO, BMA and NSWEC unit costs exclude: • royalties as these are costs that are not deemed to be under the Group's control, and the Group believes exclusion provides a similar basis of comparison to our peer group.

11.2 Definition and calculation of principal factors

The method of calculation of the principal factors that affect the period on period movements of Revenue, Profit from operations and Underlying EBITDA are as follows:

Principal factor	Method of calculation
Change in sales prices	Change in average realised price for each operation from the prior period to the current period, multiplied by current period sales volumes.
Price-linked costs	Change in price-linked costs (mainly royalties) for each operation from the prior period to the current period, multiplied by current period sales volumes.
Change in volumes	Change in sales volumes for each operation multiplied by the prior year average realised price less variable unit cost.
Controllable cash costs	Total of operating cash costs and exploration and business development costs.
Operating cash costs	Change in total costs, other than price-linked costs, exchange rates, inflation on costs, fuel, energy, and consumable price movements, non-cash costs and one-off items as defined below for each operation from the prior period to the current period.
Exploration and business development	Exploration and business development expense in the current period minus exploration and business development expense in the prior period.
Exchange rates	Change in exchange rate multiplied by current period local currency revenue and expenses.
Inflation on costs	Change in inflation rate applied to expenses with contractual links to inflation indexes, other than depreciation and amortisation, price-linked costs, exploration and business development expenses, expenses in ceased and sold operations and expenses in new and acquired operations.
Fuel, energy, and consumable price movements	Fuel and energy expense and price differences above inflation on consumables in the current period minus fuel and energy expense in the prior period.
Non-cash	Change in net impact of capitalisation and depletion of deferred stripping from the prior period to the current period.
One-off items	Change in costs exceeding a pre-determined threshold associated with an unexpected event that had not occurred in the last two years and is not reasonably likely to occur within the next two years.
Asset sales	Profit/(loss) on the sale of assets or operations in the current period minus profit/(loss) on sale of assets or operations in the prior period.
Ceased and sold operations	Underlying EBITDA for operations that ceased or were sold in the current period minus Underlying EBITDA for operations that ceased or were sold in the prior period.
Share of profit/(loss) from equity accounted investments	Share of profit/(loss) from equity accounted investments for the current period minus share of profit/(loss) from equity accounted investments in the prior period.
Other	Variances not explained by the above factors.

12 Other information

12.1 Company details

Refer to page i for further information.

12.2 Forward Looking statements

Refer to page i for further information.

This Report is made in accordance with a resolution of the Board.

Ken MacKenzie

Chair

Dated: 16 August 2022

Governance

1 Corporate governance at BHP

Good corporate governance underpins the way we conduct business.

We are committed to the highest level of governance and strive to foster a culture that values and rewards exemplary ethical standards, personal and corporate integrity and respect for others.

This Corporate Governance Statement sets out the corporate governance framework currently in place for the Group, including the key policies and practices. These arrangements are consistent with:

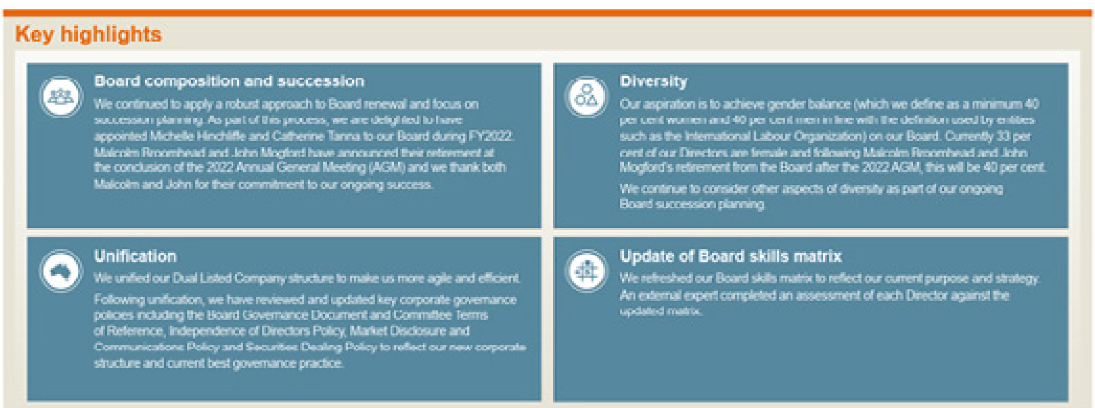
- the fourth edition of the ASX Corporate Governance Council's Corporate Governance Principles and Recommendations (ASX Fourth Edition); and
- the governance requirements that apply to us as a result of our London Stock Exchange and New York Stock Exchange (NYSE) listings and our registration with the Securities Exchange Commission (SEC) in the United States.

The ASX Fourth Edition (available at asx.com.au) requires the Board to consider the application of the relevant corporate governance principles, while recognising departures from those principles are appropriate in some circumstances. The Board considers that during FY2022, it complied with the ASX Fourth Edition, with no exceptions.

This Corporate Governance Statement is current as at 2 September 2022 and has been approved by the Board.

More information about our corporate governance framework and practices can be found on our website at bhp.com/governance, which includes links to our Appendix 4G and each of the publicly available documents referenced in this Corporate Governance Statement.

2 FY2022 corporate governance highlights



3 BHP’s governance structure

The Board has ultimate responsibility for overseeing BHP’s governance. The role of the Board, as set out in the *Board Governance Document,* is to represent shareholders and promote and protect the interests of BHP in the short and long term. The Board considers the interests of the Group’s shareholders as a whole and the interests of other relevant stakeholders where appropriate.

The Chair is responsible for leading the Board and ensuring it operates to high governance standards. In particular, the Chair facilitates constructive Board relations and the effective contribution of all Non-executive Directors.

The Group Company Secretary is accountable to the Board and advises the Chair and the Board and individual Directors on all matters of governance process.

The Board has established Committees to assist it in exercising its authority, including monitoring the performance of BHP to gain assurance that progress is being made towards our purpose within the limits imposed by the Board. These Committees include the Nomination and Governance Committee, Risk and Audit Committee, Sustainability Committee and the Remuneration Committee. Each of these permanent Committees has a Terms of Reference under which authority is delegated by the Board. These are available at bhp.com/governance.

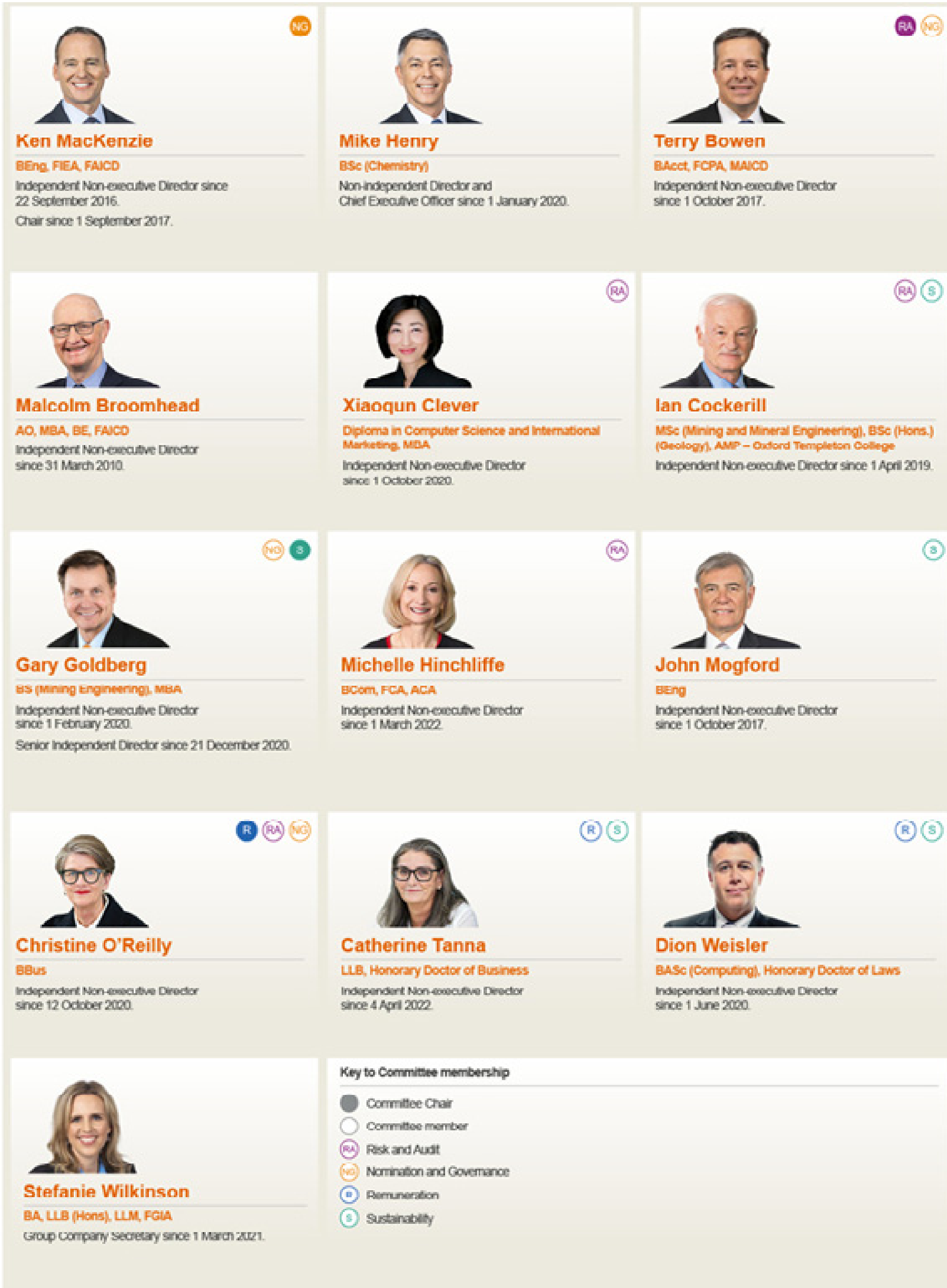
The Board has extensive access to members of senior management who frequently attend Board and Committee meetings. Management make presentations and engage in discussions with Directors, answer questions and provide input and perspective on their areas of responsibility. The Chief Executive Officer (CEO) is accountable to the Board for the authority that is delegated to the CEO and for the performance of the Group. The CEO works in a constructive partnership with the Board and is required to report regularly to the Board on progress.

The Board also holds discussions in the absence of management at each Board meeting.

The diagram below illustrates BHP’s governance structure.

4 Board of Directors

4.1 Overview of the Board



The Board currently has 12 members. At the end of BHP's 2022 Annual General Meeting (AGM), Malcolm Broomhead and John Mogford will be stepping down from the Board.

The Directors' qualifications, experience and special responsibilities are listed in Directors' Report 2.1.

The *Board Governance Document* outlines the processes relating to the Board's tasks and activities, the matters specifically reserved for Board decision making, the authority delegated to the CEO and the accountability of the CEO for that authority, guidance on the management of the relationship between the Board and the CEO, and the boundaries on CEO action.

The matters reserved for the Board include:

- CEO appointment and determination of the terms of the appointment
- approval of the appointment of Executive Leadership Team (ELT) members, and material changes to the organisational structure involving direct reports to the CEO
- strategy, annual budgets, balance sheet management and funding strategy
- determination of commitments, capital and non-capital items, acquisitions and divestments above specified limits
- performance assessment of the CEO and the Group
- approving the Group's values, *Our Code of Conduct*, purpose and risk appetite
- management of Board composition, processes and performance
- determination and adoption of documents (including the publication of reports and statements to shareholders) that are required by the Group's constitutional documents, statute or by other external regulation

The *Board Governance Document* is available at bhp.com/governance.

4.2 Director independence

The Board is committed to ensuring that a majority of Directors are independent.

The Board has adopted a policy that it uses to determine the independence of its Directors. During FY2022, as part of the unification of our Dual Listed Company structure, the Board amended the policy for changes arising from unification that were in line with the ASX Fourth Edition and current best governance practice.

The *Independence of Directors Policy* is available at bhp.com/governance.

Determination of Director independence

The Board confirms that it considers all of the current Non-executive Directors, including the Chair, to be independent of management and any business, interest or other relationship that could or could be perceived to materially interfere with the exercise of objective, unfettered or independent judgement by the Director or the Director's ability to act in the best interests of the BHP Group rather than an individual shareholder or other group.

A determination of independence is carried out upon a Director's appointment, annually and at any other time where the change in circumstances of a Director warrant reconsideration. Some Directors hold, or have previously held, positions in companies with which BHP has commercial relationships. The Board has assessed the relationships between BHP and the companies in which Directors hold or held positions and has concluded that the relationships do not interfere with the Directors' exercise of objective, unfettered or independent judgement, or their ability to act in the best interests of BHP.

For example, the Chair, Mr Ken MacKenzie, is a Strategic Advisor at Barrenjoey Capital Partners. Barrenjoey was established as a financial services firm in September 2020 and provides strategic advisory and corporate finance services.

In 2020, the Board considered Mr MacKenzie's proposed appointment and it was approved on the basis that Barrenjoey would not advise BHP and that Mr MacKenzie himself would not advise on transactions or advise BHP competitors or our significant customers or suppliers.

During FY2022, at the request of the CEO, the Board reconsidered these conditions without Mr MacKenzie present. The Board considered that there may be circumstances where it would be in the best interests of shareholders to permit Barrenjoey to advise the Group. For example, where other advisers were conflicted or where Barrenjoey had specifically relevant expertise. The Board approved, without Mr MacKenzie present, the removal of the restriction on Barrenjoey advising BHP, subject to the requirement that the CEO and the Senior Independent Director consult on any engagement on a case by case basis and where appropriate they will seek approval from the independent directors of the engagement and the arrangements to manage conflicts of interest. The other condition will continue and Mr MacKenzie himself will not advise on transactions or advise BHP competitors or our significant customers or suppliers.

Accordingly, the Board is satisfied that Mr MacKenzie is able to continue to apply objective, unfettered and independent judgement and to act in the best interests of BHP. The Board does not consider that Mr MacKenzie's involvement with Barrenjoey to adversely impact his role or commitment to BHP. In particular, Mr MacKenzie has committed to the Board that BHP would remain his priority.

Mr Broomhead is and was throughout FY2022, a Director and the Chair of Orica Limited (a company BHP has commercial dealings with). The BHP Board assessed the relationship between BHP and Orica and remains satisfied that Mr Broomhead was and remained during FY2022 able to apply objective, unfettered and independent judgement and to act in the best interests of BHP.

Conflicts of interest

In accordance with Australian law, if a situation arises for consideration where a Director has a material personal interest, the affected Director takes no part in decision making unless approval is provided by the non-interested Directors. Provisions for Directors' interests are set out in the Constitution of BHP Group Limited.

4.3 Board appointments and succession planning

BHP adopts a structured and rigorous approach to Board succession planning to guard against unforeseen departures and facilitate the orderly replacement of current Directors, and oversees the development of a diverse pipeline. This process is continuous, allowing the Board to ensure there is a right balance on the Board between experience and fresh perspectives, and the Board continues to be fit for purpose.

As part of this process, we are delighted to have appointed Michelle Hinchliffe and Catherine Tanna to our Board during FY2022. Malcolm Broomhead and John Mogford will retire at the conclusion of the 2022 AGM, and we thank both Malcolm and John for their commitment to our ongoing success.

Before the Board formally appoints a person or puts a person forward for election, the Board, with the assistance of external consultants, will conduct appropriate background and reference checks as to that person's character, experience, education, criminal and bankruptcy history.

The Board has adopted a letter of appointment that contains the terms on which Non-executive Directors will be appointed, including the basis upon which they will be indemnified by the Group. The letter of appointment defines the role of Directors, including the expectations in terms of independence, participation, time commitment and continuous improvement. Written agreements are in place for all Non-executive Directors.

4.4 Director induction, training and development

Upon appointment, each new Non-executive Director undertakes an induction program tailored to their needs.

Following the induction program, Non-executive Directors participate in continuous improvement activities through a training and development program, which is overseen by the Nomination and Governance Committee to help ensure that Directors, individually and collectively develop and maintain the skills and knowledge to assist them in performing their role effectively. The training and development program is periodically reviewed to maximise effectiveness and to ensure it is tailored to Directors' needs and the Board's areas of focus.

Throughout the year, the Chair discusses development areas with each Director. Board Committees review and agree their needs for more briefings. The benefit of this approach is that induction and learning opportunities can be tailored to Directors' Committee memberships, as well as the Board's specific areas of focus. This approach is also intended to ensure a coordinated process on succession planning, Board renewal, training and development and Committee composition. In turn, these processes are relevant to the Nomination and Governance Committee's role in identifying appropriate Non-executive Director candidates.

Examples of activities in the training and development program include:

- briefings and development sessions to provide each Director with a deeper understanding of the activities, environment, key issues and direction of the assets, along with broader sustainability and geopolitical considerations
- site visits to provide insights into key issues at the site and to provide an opportunity for direct engagement with stakeholders
- engagement with the Forum on Corporate Responsibility (FCR), which comprises civil society leaders in various fields of sustainability, to discuss FCR members' views on current and emerging trends and risks

4.5 Director skills, experience and attributes

Overarching statement of Board requirements

At BHP, we know that inclusive and diverse teams are safer and more productive. This is because people in these teams feel safe to speak up, share their ideas and different points of view, and work together to solve problems and make better decisions.

The BHP Board is no different and believes that its membership should comprise Directors with a broad range of skills and diversity in order for the Board to:

- provide the breadth and depth of understanding necessary to effectively create long-term shareholder value
- protect and promote the interests of BHP and the creation of social value
- ensure the talent, capability and culture of BHP to support the long-term delivery of our strategy

Attributes and commitment to role

All Directors are expected to comply with *Our Code of Conduct,* act with integrity, lead by example and promote the desired culture.

The Board believes each Non-executive Director has demonstrated the attributes of sufficient time to undertake the responsibilities of the role, honesty and integrity, and a preparedness to question, challenge and critique throughout the year through their participation in Board meetings, and the other activities that they have undertaken in their roles.

Skills matrix

The Board, supported by the Nomination and Governance Committee, reviews the skills and diversity represented by the Directors on the Board and determines whether the composition and mix of those skills remains appropriate to achieve BHP's purpose and strategy.

The Board maintains a skills matrix which identifies the skills and experience the Board needs for the next period of BHP's development, considering BHP's circumstances and the changing external environment.

The Board has redesigned its Board skills matrix to identify the future facing skills that the Board intends to build, acquire and retain over the medium term in anticipation of its needs as it pursues its strategy of securing growth options in future facing commodities. The new Board skills matrix not only indicates the skills that the Board currently possesses, but also provides an illustration of the new skills that the Board intends to acquire, and indicates the preferred manner in which it intends to acquire them.

The Board collectively possesses all the skills and experience set out in the skills matrix, and each Director satisfies the Board requirements and attributes discussed above.

Skills and attributes	Number of Directors
Mining Senior executive who has deep operating or technical mining experience with a large company operating in multiple countries; successfully optimised and led a suite of large, global, complex operating assets that have delivered consistent and sustaining levels of high performance (related to cost, returns and throughput); successfully led exploration projects with proven results and performance; delivered large capital projects that have been successful in terms of performance and returns; and a proven record in terms of health, safety and environmental performance and results.	4
Global experience Global experience gained from working, managing business units and residing in multiple geographies over an extended period of time, including a deep understanding of and experience with global markets, and macro-political and economic environments.	10
Strategy Senior executive who has had accountability for enterprise-wide strategy development and implementation in industries with long cycles, and developing and leading business transformation strategies.	12
Commodity value chain and customers End-to-end value or commodity chain experience – understanding of consumers and customers, marketing demand drivers (including specific geographic markets) and other aspects of commodity chain development.	10
Financial acumen Extensive experience and the capability to evaluate financial statements and understand key financial drivers of the business, bringing a deep understanding of corporate finance and internal financial controls.	12
Operating risk Extensive experience with the development and oversight of complex frameworks focused on the identification, assessment and assurance of operational workplace, health, safety and environmental risks.	11
Technology Recent experience and expertise with the development, selection and implementation of leading and business transforming technology and innovation, and responding to digital disruption.	6
Capital allocation and cost efficiency Extensive direct experience gained through a senior executive role in capital allocation discipline, cost efficiency and cash flow, with proven long-term performance.	10
Social value, community and stakeholder engagement Extensive track record of positive external stakeholder engagement including in relation to community issues and social responsibility. In-depth understanding of public policy, government relations and the intersection between value generation and corporate reputation.	8

4.6 Board evaluation

The Board has adopted a policy under which all Non-executive Directors seek re-election annually.

The Board is committed to transparency in assessing the performance of Directors. The Board conducts regular evaluations of its performance, the performance of its Committees, the Group Chair, Directors and the governance processes that support the Board's work.

The evaluation considers the balance of skills, experience, independence and knowledge of the Group and the Board, its diversity, including gender diversity, and how the Board works together as a unit.

Internal evaluations of the Board, its Committees and Directors were conducted in FY2022. An external board review is conducted approximately every three years and was not conducted in FY2022 and is scheduled for CY2023.

Review of individual Director performance

In FY2022, an assessment was conducted of each Director's performance with the assistance of external service provider, Lintstock. Lintstock does not have any other connection with the Group or individual Directors.

The assessment of Directors focused on the contribution of each Director to the work of the Board and its Committees, and the expectations of Directors as set out in BHP's governance framework. In addition, the assessment focused on how each Director contributes to Board cohesion and effective relationships with fellow Directors, commits the time required to fulfil their role and effectively performs their responsibilities. Directors were asked to comment on areas where their fellow Directors contribute the greatest value and on potential areas for development.

Lintstock provided feedback received to the Chair, which was then discussed with Directors. Feedback relating to the Chair was discussed with the Chair by the Senior Independent Director. As a result of these outcomes, the review supported the Board's decision to endorse those Directors standing for re-election.

Committee assessments

Following an assessment of its work, each Committee concluded that it had met the requirements under its Terms of Reference in FY2022.

5 Board Committees

For Committee attendance and members during FY2022 refer to Directors' Report 2.2.

5.1 Nomination and Governance Committee

Members

Ken MacKenzie (Chair), Terry Bowen, Gary Goldberg, Christine O'Reilly

Role and focus

The Nomination and Governance Committee oversees and monitors renewal and succession planning, Board and Director performance evaluation, Director training and development, and advises and makes recommendations on the Group's governance practices.

More information on the role and responsibilities of the Nomination and Governance Committee can be found in its Terms of Reference, which is available at bhp.com/governance.

Committee activities in FY2022 included:

Succession planning processes

- Review of skills and experience matrix
- Identification of suitable Non-executive Director candidates
- Board and Committee succession
- Partnering with search firms regarding candidate searches

Evaluation and training

- Board evaluation and Director development
- 2022 training and development program
- Director induction

Corporate governance practices

- Independence of Non-executive Directors
- Authorisation of situations of actual or potential conflict
- Crisis management

5.2 Risk and Audit Committee

Members

Terry Bowen (Chair), Xiaoqun Clever, Ian Cockerill, Michelle Hinchliffe, Christine O'Reilly

Role and focus

The Risk and Audit Committee (RAC) oversees and monitors financial reporting, other periodic reporting, external and internal audit, capital management, and risk (including effectiveness of the systems of risk management and internal control).

More information on the role and responsibilities of the RAC can be found in its Terms of Reference, which is available at bhp.com/governance.

US committee membership requirements

The Board is satisfied that Terry Bowen meets the audit committee financial expert requirements under the US Securities and Exchange Commission (SEC) Rules. In addition, he is the Board's nominated 'audit committee financial expert' for the purposes of the SEC Rules.

The Board is also satisfied that the Committee meets the independence criteria under Rule 10A-3 of the Exchange Act.

Committee activities in FY2022 included:

Integrity of Financial Statements and funding matters

- Accounting matters for consideration, materiality limits, half-year and full-year results
- Sarbanes-Oxley Act of 2002 (SOX) compliance
- Financial governance procedures
- Funding loan and guarantee updates
- Samarco dam failure provision, including related provisions and contingent liabilities
- Carrying value of other long-term assets
- Climate change in financial reporting
- Closure and rehabilitation provisions
- Disputes and litigation updates

External Auditor and integrity of the audit process

- Status and results of the external audit
- Management and External Auditor closed sessions
- Audit plan and review of the External Auditor's performance
- External Auditor independence and non-audit services

Effectiveness of systems of internal control and risk management

- Material risk reports including updates on BHP's Risk Framework, our most significant risks, performance against risk appetite, emerging risks and signals, and risk culture
- Internal audit reports, annual internal audit plan and review of performance of the Internal Audit team
- Compliance, Ethics and Investigations reports including on sexual harassment, regulatory compliance reports, and grievance and investigation processes
- Reserves and resources updates

The RAC assists the Remuneration Committee with reviewing the audited parts of the Remuneration Report.

5.3 Sustainability Committee

Members

Gary Goldberg (Chair), Ian Cockerill, John Mogford, Catherine Tanna, Dion Weisler

Role and focus

The Sustainability Committee oversees and monitors material health, safety, environment and community (HSEC) matters, including the adequacy of the Group's HSEC Framework and HSEC Management Systems, and the Group's HSEC reporting and performance. This includes consideration of existing HSEC issues, such as climate, safety and Indigenous and human rights, as well as emerging areas of HSEC risk for the Group.

More information on the role and responsibilities of the Sustainability Committee can be found in its Terms of Reference, which is available at bhp.com/governance.

Committee activities in FY2022 included:

Assurance and adequacy of the HSEC Framework and HSEC Management Systems

- Review of key HSEC risks
- Site visits and asset deep dives that include updates on key HSEC matters and HSEC performance and an opportunity to engage directly with the workforce
- Review of internal audit reports and approval of the HSEC components of the internal audit plan
- Review of the HSE function and Group HSE Officer

Compliance and reporting

- Review of sustainability reporting, including consideration of processes for preparation and assurance provided by EY
- Review of BHP's Modern Slavery Statement

Performance

- Review of BHP's performance on HSEC matters, including cultural heritage, community relations, greenhouse gas emissions targets and goals, closure and rehabilitation, biodiversity and human rights
- Monitoring against the FY2018–FY2022 HSEC targets
- Approving and recommending to the Board, the Group's 2030 goals which form part of the new social value framework
- Review of performance outcomes under the FY2022 HSEC performance metrics and considering HSEC performance metrics for FY2023

For information on sustainability matters refer to OFR 7.

5.4 Remuneration Committee

Members

Christine O'Reilly (Chair), Catherine Tanna, Dion Weisler

Role and focus

The Remuneration Committee oversees and monitors the remuneration framework and practices (including the adoption of incentive plans and levels of reward for the CEO and other ELT members), compliance with applicable requirements associated with remuneration matters and the review, at least annually, of remuneration by gender.

More information on the role and responsibilities of the Remuneration Committee can be found in its Terms of Reference, which is available at bhp.com/governance.

Committee activities in FY2022 included:

Remuneration of the ELT and the Board

- Remuneration of the CEO, other ELT members and the Group Company Secretary
- Remuneration arrangements for ELT members upon appointment
- The impact of the COVID-19 pandemic on remuneration
- Considering remuneration implications of unification and the merger of Petroleum and Woodside Energy Group Limited
- Performance measures, performance levels and incentive award outcomes
- Long-Term Incentive Plan sector peer group review
- Chair fees

Other remuneration matters

- Remuneration by gender
- Annual Remuneration Report
- Shareholder engagement
- Shareplus enrolment update

Other

- Induction, training and development program
- Board Committee procedures, including closed sessions

The Sustainability Committee and the RAC assist the Remuneration Committee in determining appropriate HSEC and financial metrics, respectively, to be included in senior executive scorecards and in assessing performance against those measures.

For more information on the Remuneration Committee's work refer to the 2022 Remuneration Report.

6 Management

Below the level of the Board, key management decisions are made by the CEO, the ELT, management committees and members of management in accordance with their delegated authority.

6.1 Executive Leadership Team

6.1. Executive Leadership Team

Edgar Basto

President Minerals Australia

BSc, Metallurgy

Mr Basto joined BHP in 1989. He has been the President Minerals Australia since July 2020, and has been appointed Chief Operating Officer effective 1 October 2022. In his new role as Chief Operating Officer, Edgar will be responsible for the BHP Operating System (BOS), Performance and Improvement and global Health, Safety and Environment teams. Edgar has previously held senior roles including Asset President of Western Australia Iron Ore and Asset President Escondida (Chile).

Caroline Cox

Chief Legal, Governance and External Affairs Officer

BA (Hons), MA, LLB, BCL

Ms Cox joined BHP in 2014 and was appointed Chief Legal, Governance and External Affairs Officer in November 2020. Caroline is responsible for Legal, Governance, Ethics and Investigations, Compliance, Communications, Corporate and Government Affairs and Sustainability and Climate Change. Caroline has previously held senior roles at BHP, including as Vice President Legal, Group General Counsel, and Group General Counsel & Company Secretary. Prior to joining BHP, Caroline was a Partner at Herbert Smith Freehills, a firm she was with for 11 years, specialising in cross-border transactions, disputes and regulatory investigations.

David Lamont

Chief Financial Officer

BComm, CA

Mr Lamont re-joined BHP and was appointed Chief Financial Officer in December 2020. David is responsible for overseeing the Group's Reporting, Tax, Treasury, Investor Relations, Risk and Internal Audit teams. David had previously held senior roles at BHP between 2001 and 2006, including as Chief Financial Officer of its Carbon Steel Materials and Energy Coal businesses. Prior to re-joining BHP, David was the Chief Financial Officer of ASX-listed global biotech company CSL Limited, and had also served in similar roles at Minerals and Metals Group, OZ Minerals Limited, PaperlinX Limited and Incitec Pivot Limited.

Vandita Pant

Chief Commercial Officer

BCom (Hons), MBA, Business Administration

Ms Pant joined BHP in 2016 and was appointed Chief Commercial Officer in July 2019. Vandita is responsible for Sales and Marketing, Procurement, Maritime and for developing BHP's views on global commodities markets and macro trends. Vandita has previously held senior roles at BHP, including as Group Treasurer and Head of Europe. Prior to joining BHP, Vandita held a wide range of executive roles with ABN Amro and Royal Bank of Scotland.

Geraldine Slattery

Senior Executive Officer

BSc, Physics, MSc, International Management (Oil & Gas).

Ms Slattery joined BHP in 1994 and was appointed President Petroleum from March 2019 to 31 May 2022. Following the merger of BHP's Petroleum business with Woodside on 1 June 2022, Geraldine was appointed Senior Executive Officer. From 1 October 2022, Geraldine has been appointed President Australia. In her new role as President Australia Geraldine will be responsible for BHP's Australian operations. Geraldine has more than 25 years' of experience with BHP, including as Asset President Conventional and prior to that in several senior operational and business leadership roles across the Petroleum business in the United Kingdom, Australia and the United States.

Laura Tyler

Chief Technical Officer

BSc (Geology (Hons)), MSc (Mining Engineering)

Ms Tyler joined BHP in 2004 and was appointed Chief Technical Officer in September 2020. Laura is responsible for Minerals Exploration, Health, Safety and Environment, Centres of Excellence, Technology and Performance and Improvement portfolios. From 1 October 2022, Laura will also be responsible for Innovation, and Health, Safety, Environment and Performance and Improvement will move to the Chief Operating Officer role. Laura has previously held senior roles at BHP, including as Chief Geoscientist and Asset President of Olympic Dam. Prior to joining BHP, Laura worked for Western Mining Corporation, Newcrest Mining and Mount Isa Mines in various technical and operational roles.

Ragnar Udd

President Americas

BAppSc (Mining Engineering), MEng, MBA

Mr Udd joined BHP in 1997 and was appointed President Americas in November 2020. Ragnar is responsible for BHP's copper operations in Chile and potash operations in Canada. Ragnar has previously held senior roles at BHP in operations, logistics, projects and technology, including most recently as Acting Chief Technology Officer and Asset President of BHP Mitsubishi Alliance.

Johan van Jaarsveld

Chief Development Officer

BEng (Chem), MCom, Applied Finance, PhD (Eng), Extractive Metallurgy

Mr van Jaarsveld joined BHP in 2016 and was appointed Chief Development Officer in September 2020. Johan is responsible for strategy, acquisitions and divestments, securing early-stage growth options in future facing commodities, ventures and innovation. Innovation will move into the Chief Technical Officer's portfolio from 1 October 2022. Prior to joining BHP, Johan held executive positions in resources and finance, including at Barrick Gold Corporation, Goldman Sachs and The Blackstone Group.

Jad Vodopija

Chief People Officer

BA, PGDip (Industrial Relations and Human Resource Management), MComm

Ms Vodopija re-joined BHP in 2019 and was appointed Chief People Officer in July 2022. Jad is responsible for organisational strategy, talent and resource management, leadership development and workforce performance. Jad has previously held senior roles at BHP including as Vice President, Human Resources. Prior to re-joining BHP, Jad was Vice President Human Resources at Orica from 2016, before which she had built her career at BHP and earlier on at Ford Motor Company.

6.2 Senior management succession

A senior management succession process is conducted to support pipeline stability for critical roles. A talent deep dive is conducted by the Board at least once a year to evaluate these pipelines, including the diversity of the pipeline.

Senior management succession is viewed from a five-year perspective that considers the readiness of successors across time horizons, contexts and future capability demands. Select Board members are involved in the interview process for executive-level appointments one level below the CEO and occasionally for roles two levels below the CEO. Appropriate checks are undertaken before appointing a member of the ELT. BHP has a written agreement with each ELT member setting out the terms of their appointment.

In May 2022, the Board approved the appointment of Jad Vodopija as the Chief People Officer, effective 1 July 2022 and replacing Athalie Williams.

6.3 Performance evaluation of executives

The performance of executives and other senior employees is reviewed on an annual basis. The annual performance review process considers the performance of executives against criteria designed to capture 'what' is achieved and 'how' it is achieved. All performance assessments of executives include how effective they have been in undertaking their role and what they have achieved against their specified key performance indicators.

A performance evaluation was conducted for all members of the ELT during FY2022. For the CEO, the performance evaluation was led by the Chair of the Board on behalf of all the Non-executive Directors and was discussed with the Remuneration Committee.

7 Risk management and assurance

7.1 Risk management governance structure

Risk governance

The RAC assists the Board with the oversight of risk management and the Board retains accountability for BHP's risk profile. The Board requires the CEO to implement a system of control for identifying and managing risk. The Risk team is accountable for this system, known as BHP's Risk Framework, and also supports, challenges and verifies risk management activities to give assurance to management and the Board. The Directors, through the RAC, monitor our Risk Framework and review it at least annually to satisfy themselves that the Risk Framework continues to be sound and that BHP is operating with regard to the risk appetite set by the Board. For more information refer to OFR 9.

Internal Audit

The Internal Audit team provides assurance to the Board, CEO and Executive Leadership Team on whether risk management, internal control and governance processes are adequate and functioning. The Internal Audit team is independent of the External Auditor. The RAC evaluates and, if thought fit, approves the Terms of Reference of the Internal Audit team and the annual internal audit plan and monitors the effectiveness of the internal audit activities.

As of 1 August 2022, the Risk team and Internal Audit team were combined to form a Risk and Internal Audit sub-function, led by a Chief Risk and Audit Officer. The Risk team and Internal Audit team will continue to operate in the second and third lines respectively. Refer to OFR 9 for more information.

The RAC approves the appointment and dismissal of the Chief Audit Officer and assesses their performance, independence and objectivity. During FY2022, the Group Audit Officer reported directly to the RAC and functional oversight of the Internal Audit team was provided by the Chief Legal, Governance and External Affairs Officer. As of 1 August 2022, functional oversight of the Risk and Internal Audit sub-function is provided by the Chief Financial Officer.

Effectiveness of systems of internal control and risk management

In delegating authority to the CEO, the Board has established CEO limits, outlined in the *Board Governance Document* and these require the CEO to ensure there is a system of control in place for identifying and managing risk in BHP. Through the RAC, the Directors regularly review these systems for their effectiveness. These reviews include assessing whether processes continue to meet evolving external governance requirements.

The RAC oversees and reviews the internal controls and risk management systems (including procedures, processes and systems for, among other things, budgeting and forecasting, provisions, financial controls, financial reporting and reporting of reserves and resources, compliance, preventing fraud and serious breaches of business conduct, speak-up procedures, and protecting information and data systems). Any material breaches of *Our Code of Conduct*, including breaches of our anti-bribery and corruption requirements and any material incidents reported under our speak-up procedures are reported quarterly to the RAC by the Chief Compliance Officer. These reports are then communicated to the Board through the report-out process.

During FY2022, management presented an assessment of the material risks facing BHP and the effectiveness of the Group's systems of risk management. The reviews were overseen by the RAC, with findings and recommendations reported to the Board. In addition to considering key risks facing BHP, the Board assessed the effectiveness of internal controls over key risks identified through the work of the Board Committees.

Having carried out a review during FY2022, the Board is satisfied with the effectiveness of BHP's risk management and internal control systems.

Environmental and social risks

BHP's risk factors (including material exposure to environmental and social risks) and how we manage these risks are described in OFR 9 and 9.1.

7.2 External audit and financial reporting

Integrity of Financial Statements

The RAC assists the Board in assuring the integrity of the Financial Statements. The RAC evaluates and makes recommendations to the Board about the appropriateness of accounting policies and practices, areas of judgement, compliance with accounting standards, stock exchange and legal requirements and the results of the external audit.

CEO and CFO assurance

For the FY2022 full year and half year, the CEO and CFO have certified that in their opinion, BHP's financial records have been properly maintained and the FY2022 Financial Statements present a true and fair view of our financial condition and operating results and are in accordance with accounting standards and applicable regulatory requirements.

The CEO and CFO have also certified to the Board that this opinion was formed on the basis of a sound system of risk management and internal control and the system is operating efficiently and effectively. The RAC considered these certifications when recommending the Financial Statements to the Board for approval.

External Auditor

The RAC manages the relationship with the External Auditor on behalf of the Board. It considers the independence and reappointment of the External Auditor each year, as well as remuneration and other terms of engagement and makes a recommendation to the Board.

Evaluation of External Auditor and external audit process

The RAC evaluates the objectivity and independence of the External Auditor and the quality and effectiveness of the external audit arrangements, including through:

- reviewing the terms of engagement of the External Auditor
- considering the external audit plan, in particular to gain assurance that it is tailored to reflect changes in circumstances from the prior year
- meeting with the audit partners, particularly the lead audit engagement partners, throughout the year and without management present
- discussing with the audit engagement partners the skills and experience of the broader audit team
- considering the quality of the External Auditor's performance following the completion of the audit

In addition, the RAC reviews the integrity, independence and objectivity of the External Auditor and assesses whether there is any element of the relationship that impairs or appears to impair the External Auditor's judgement or independence. The External Auditor also certifies its independence to the RAC.

Non-audit services

Although the External Auditor provides some non-audit services to the Group, the objectivity and independence of the External Auditor are safeguarded through restrictions on the provision of these services with some services prohibited from being undertaken.

Pre-approved services

The RAC has adopted a policy entitled Provision of Audit and Other Services by the External Auditor covering the RAC's pre-approval policies and procedures to maintain the independence of the External Auditor.

The categories of 'pre-approved' services are:

- Audit services – work that constitutes the agreed scope of the statutory audit and includes the statutory audits of BHP and its entities (including interim reviews).The RAC monitors the audit services engagements and if necessary, approves any changes in terms and conditions resulting from changes in audit scope, Group structure or other relevant events.
- Audit-related and other assurance services – work that is outside the scope of the statutory audit but is consistent with the role of the external statutory auditor. This category includes work that is reasonably related to the performance of an audit or review and is a logical extension of the audit or review scope, is of an assurance or compliance nature and is work that the external auditors must or are best placed to undertake and is permissible under the relevant applicable standard.

Activities outside the scope of the categories above are not ‘pre-approved’ and must be approved by the RAC prior to engagement, regardless of the dollar value involved. In addition, any engagement for other services with a value over US$250,000, even if listed as a ‘pre-approved’ service, requires the approval of the RAC.

All engagements for non-audit services, whether ‘pre-approved’ or not and regardless of the dollar value involved, are reported quarterly to the RAC. While not prohibited by BHP’s policy, any proposed engagement of the External Auditor that contains an internal control element requires specific prior approval from the RAC. In addition, while the categories of ‘pre-approved’ services include a list of certain pre-approved services, the use of the External Auditor to perform these services will always be subject to our overriding governance practices as articulated in the policy.

In addition, the RAC did not approve any services during the year ended 30 June 2022 pursuant to paragraph (c)(7)(i)(C) of Rule 2-01 of SEC Regulation S-X (provision of services other than audit).

Fees paid to BHP’s External Auditor during FY2022 for audit and other services were US$20.3 million, of which 51 per cent comprised audit fees (including in relation to SOX matters), 10 per cent for audit-related fees and 39 per cent for all other fees. No fees were paid in relation to tax services. Details of the fees paid are set out in Financial Statements note 34 ‘Auditor’s remuneration’.

Our policy on Provision of Audit and Other Services by the External Auditor is available at bhp.com/governance.

Management’s assessment of internal control over financial reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) and Rule 15d-15(f) under the Exchange Act).

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements and, even when determined to be effective, can only provide reasonable assurance with respect to financial statement preparation and presentation. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or the degree of compliance with the policies or procedures may deteriorate.

Under the supervision and with the participation of our management, including our CEO and CFO, the effectiveness of BHP’s internal control over financial reporting was evaluated based on the framework and criteria established in Internal Controls – Integrated Framework (2013), issued by the Committee of the Sponsoring Organizations of the Treadway Commission. Based on this evaluation, management concluded that internal control over financial reporting was effective as at 30 June 2022. There were no material weaknesses in BHP’s internal controls over financial reporting identified by management as at 30 June 2022.

BHP has engaged our independent registered public accounting firm, EY, to issue an audit report on our internal control over financial reporting for inclusion in the Financial Statements of the Annual Report and the Annual Report on Form 20-F as filed with the SEC.

There were no changes in our internal control over financial reporting during FY2022 that materially affected or were reasonably likely to materially affect our internal control over financial reporting.

During FY2022, the RAC reviewed our compliance with the obligations imposed by SOX, including evaluating and documenting internal controls as required by section 404 of SOX.

Management’s assessment of disclosure controls and procedures

Management, with the participation of our CEO and CFO, performed an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures as at 30 June 2022. Disclosure controls and procedures are designed to provide reasonable assurance that the material financial and non-financial information required to be disclosed by BHP, including in the reports it files or submits under the Exchange Act, is recorded, processed, summarised and reported on a timely basis. This information is accumulated and communicated to BHP’s management, including our CEO and CFO, as appropriate, to allow timely decisions regarding required disclosure. Based on the evaluation, management (including the CEO and CFO) concluded that, as at 30 June 2022, our disclosure controls and procedures are effective in providing that reasonable assurance.

There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, including the possibility of human error and the circumvention or overriding of the controls and procedures. Even effective disclosure controls and procedures can only provide reasonable assurance of achieving their control objectives.

In the design and evaluation of our disclosure controls and procedures, management was required to apply its judgement in evaluating the cost-benefit relationship of possible controls and procedures.

8 Culture and conduct

Successful delivery of our strategy relies on workforce capability and a strong culture, and the Board, together with management plays a critical role in setting the culture of the Group. Supporting our people's wellbeing, creating and promoting an inclusive and diverse environment for our people to work, and keeping them safe in the workplace are critically important and core to our values.

8.1 Our Code of Conduct and Our Charter

Our Code of Conduct (Our Code) is approved by the Board and is based on *Our Charter* values. *Our Code* includes our policies on speaking up and anti-bribery and corruption, sets out standards of behaviour for our people and is an important statement of the culture at BHP.

During FY2022, we began work to refresh *Our Code* to align it with global best practice and to provide an effective basis for standard setting and enforcement. We expect to launch the refreshed version of *Our Code* in FY2023.

Our Code and *Our Charter* are accessible at bhp.com.

8.2 Culture

The Board, supported by the Committees, considers a range of qualitative and quantitative information in relation to culture at BHP and monitors and assesses culture on an ongoing basis for alignment with our strategy, purpose and values. Board and Committee papers include workforce planning in the context of COVID-19, Employee Perception Survey results, updates on sexual harassment controls, inclusion and diversity updates, RAC report-outs on *Our Code* investigations, the culture and capability required to execute our strategy, and culture as a part of asset reviews. Recognising our culture cannot be measured using a single number or index, a culture dashboard is used to provide the Board with a tool to monitor our culture. The dashboard includes simple measures to provide key signposts on the health of our culture. This data, combined with the Employee Perception Survey results, provides the Board with insight on safety, engagement and enablement.

Directors also gain insights into culture through direct engagement with a cross-section of the workforce where they can gain direct feedback on a range of issues, including sexual harassment, ongoing COVID-19 impacts, diversity, HSEC topics and social value.

8.3 BHP's EthicsPoint

We have mechanisms in place for anyone to raise a query about *Our Code* or make a report if they feel *Our Code* has been breached.

EthicsPoint is our 24-hour confidential reporting tool for reporting misconduct and can be used by employees, contractors and external stakeholders, including members of the public to raise concerns about misconduct that has either happened to them or they have witnessed.

All reports received in EthicsPoint are reviewed and categorised by the Ethics team. Once categorised, reports are assigned in accordance with internal policy and processes to an investigator, line leader or appropriate team for resolution.

All significant *Our Code* matters and key trends from investigations are reported to the RAC. These are then reported to the Board as part of its report-out process.

8.4 Diversity

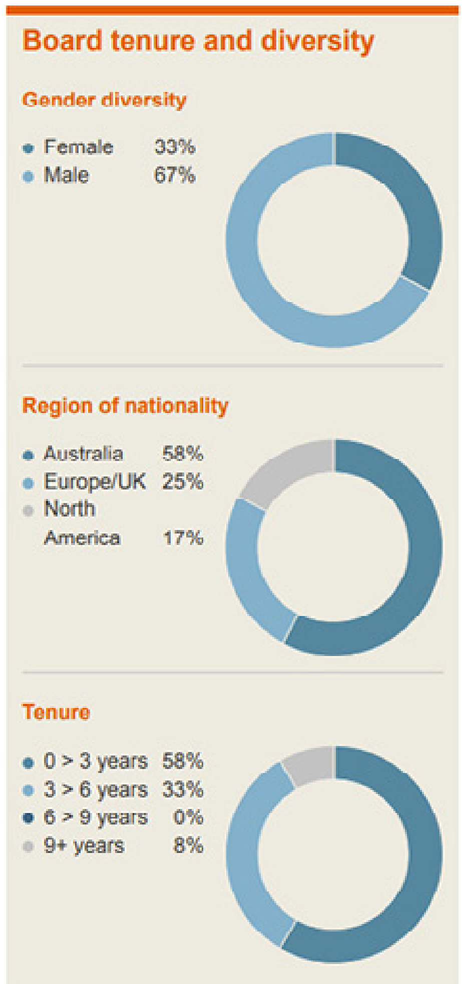
The Board and management believe diversity is required to meet our purpose and strategy. Diversity is key to supporting the Board and its Committees to have the right blend of perspectives so that the Board oversees BHP effectively for shareholders.

We have adopted an Inclusion and Diversity Position Statement, which sets out our diversity policy in relation to the Board, senior management and our workforce, and our priorities to accelerate the development of a more inclusive work environment and enhanced overall workplace diversity. BHP's Inclusion and Diversity Position Statement is available at bhp.com/careers/inclusion-diversity and is summarised in OFR 6. As described in our Inclusion and Diversity Position Statement, our aspiration is to achieve gender balance (which we define as a minimum 40 per cent women and 40 per cent men, in line with the definition used by entities such as the International Labour Organization) on our Board, among our senior executives and across our workforce by FY2025.

Currently 33 per cent of Directors are female and we therefore satisfy the guidance of having at least 30 per cent of Directors of each gender in accordance with the ASX Fourth Edition. When Mr Broomhead and Mr Mogford retire from the Board at the conclusion of the 2022 AGM, 40 per cent of Directors will be female. We also continue to seek additional ethnic diversity on our Board and throughout BHP.

Part of the Board's role continues to be to consider and approve BHP's measurable objectives for diversity on its Board, among its senior executives and general workforce each financial year and to oversee our progress in achieving those objectives. For more information, including our progress against our FY2022 measurable objectives and our employee profile more generally, refer to OFR 6.

The diagram below illustrates the diversity that is currently represented on the Board.



9 Shareholder and stakeholder engagement

Shareholder engagement

Part of the Board's commitment to high-quality governance is expressed through the approach BHP takes to engaging and communicating with our shareholders. As part of our investor relations program to facilitate effective two-way communication with investors, the Board uses formal and informal communication channels to understand and take into account the views of shareholders. BHP provides information about itself and its governance to investors via its website at bhp.com.

We encourage shareholders to make their views known to us. Shareholders can contact us at any time through our Investor Relations team, with contact details available at bhp.com. In addition, shareholders can communicate with us and our registrar electronically.

We facilitate and encourage shareholder participation at our AGM. The AGM provides an update for shareholders on our performance and offers an opportunity for shareholders to ask questions and vote. The External Auditor will also be available to answer questions at the AGM.

Information on our AGM is available at bhp.com/meetings.

Before the AGM, shareholders are provided with all material information in BHP's possession relevant to their decision on whether or not to elect or re-elect a Director. Copies of the speeches delivered by the Chair and CEO at the AGM are released to the relevant stock exchanges and posted on our website.

Proceedings at shareholder meetings are webcast live from our website. Substantive resolutions at general meetings are decided by a poll rather than by a show of hands.

A summary of proceedings and the outcome of voting on the items of business are released to the relevant stock exchanges and posted on our website as soon as they are available.

During FY2022, key shareholder engagement initiatives included:

- discussions with major institutional investors and proxy advisers in relation to the Climate Transition Action Plan 2021, and obtaining shareholder approval at the 2021 AGMs
- presentations and briefings provided to investors about the merger of BHP's Petroleum business with Woodside
- communications to investors about the unification of our Dual Listed Company structure, including General Meetings in Australia and London for investors to directly engage with the Board on this topic
- live webcasts and Q&A sessions with senior leaders for shareholders to directly ask questions of management
- an investor briefing on social value which included the launch of our 2030 social value goals

Stakeholder engagement

The Board considers effective stakeholder engagement a key element of its governance and oversight role.

There are multiple ways the views of stakeholders, beyond shareholders, are brought to the Board and its Committees. For example, site visits (physical and virtual where necessary) involving engagement with the workforce, community members and government, Employee Perception Survey findings, gender pay gap reports, updates from the CEO and Chief People Officer and engagement with the Forum on Corporate Responsibility. In addition, the RAC and Sustainability Committee receive reports on engagement with regulators. They also receive reports on material litigation and disputes with third parties and complaints raised through the speak-up hotline, EthicsPoint, which allows our workforce to raise concerns in confidence.

The strategic framework, focus on social value, our purpose and Risk Appetite Statement reflect the significance of external stakeholders in decision making.

10 Market disclosure

We have disclosure controls in place for periodic disclosures, including the Operational Review, our results announcements, debt investor documents (such as the prospectus for the Euro or Australian Medium Term Notes) and Annual Report documents, which must comply with relevant regulatory requirements.

More information about these verification processes can be found in the Periodic Disclosure – Disclosure Controls document available at bhp.com/governance.

To safeguard the effective dissemination of information, we have developed mandatory minimum performance requirements for market disclosure, which outline how we identify and distribute information to shareholders and market participants and sets out the role of the Disclosure Committee in managing compliance with market disclosure obligations. In addition, where an announcement is determined to be material by the Disclosure Committee, the Board receives a copy promptly after it has been made. Where BHP gives a new and substantive investor or analyst presentation, it releases a copy of the presentation materials on the ASX Market Announcements Platform ahead of the presentation.

A copy of the Market Disclosure and Communications Policy is available at bhp.com/governance.

Copies of announcements to the stock exchanges on which BHP is listed, investor briefings, Financial Statements, the Annual Report and other relevant information can be found at bhp.com. To receive email alerts of news releases, subscribe at bhp.com.

11 US requirements

BHP Group Limited is a registrant with the SEC in the United States. It is classified as a foreign private issuer and has American Depositary Shares listed on the NYSE.

We have reviewed the governance requirements applicable to foreign private issuers under SOX, including the rules promulgated by the SEC and the rules of the NYSE, and are satisfied that we comply with those requirements.

Under NYSE rules, foreign private issuers such as BHP are required to disclose any significant ways our corporate governance practices differ from those followed by US companies under the NYSE corporate governance standards. After a comparison of our corporate governance practices with the requirements of Section 303A of the NYSE-Listed Company Manual followed by US companies, a significant difference was identified:

> Rule 10A-3 of the Exchange Act requires NYSE-listed companies to ensure their audit committees are directly responsible for the appointment, compensation, retention and oversight of the work of the External Auditor unless the company's governing law or documents or other home country legal requirements require or permit shareholders to ultimately vote on or approve these matters. Prior to unification, the ultimate responsibility for the appointment and retention of the External Auditor rested with our shareholders in accordance with UK law (and our constitutional documents reflected this legal requirement). The RAC was then directly responsible for the compensation and oversight of the work of the External Auditor throughout the year. Following the unification of our corporate structure, BHP is no longer subject to the UK requirement to re-appoint the External Auditor by shareholder vote annually and our constitution has been amended to remove this requirement. From January 2022 our shareholders remain ultimately responsible for the appointment and retention of the External Auditor and are required to vote on the appointment of the External Auditor from time to time (as required under Australian law), and the RAC remains directly responsible for the compensation and oversight of the work of the External Auditor.

Directors' Report

The information presented by the Directors in this Directors' Report relates to BHP Group Limited and its subsidiaries. The Operating and Financial Review (OFR), the Remuneration Report, and the 'Lead Auditor's Independence Declaration' are incorporated by reference into, and form part of, this Directors' Report.

1 Review of operations, principal activities and state of affairs

A review of the operations of BHP during FY2022, the results of those operations during FY2022 and the expected results of those operations in future financial years are set out in the OFR. Information on the development of BHP and likely developments in future years also appears in this section.

Our principal activities, including significant changes in the nature of BHP's principal activities during FY2022 are disclosed in the OFR.

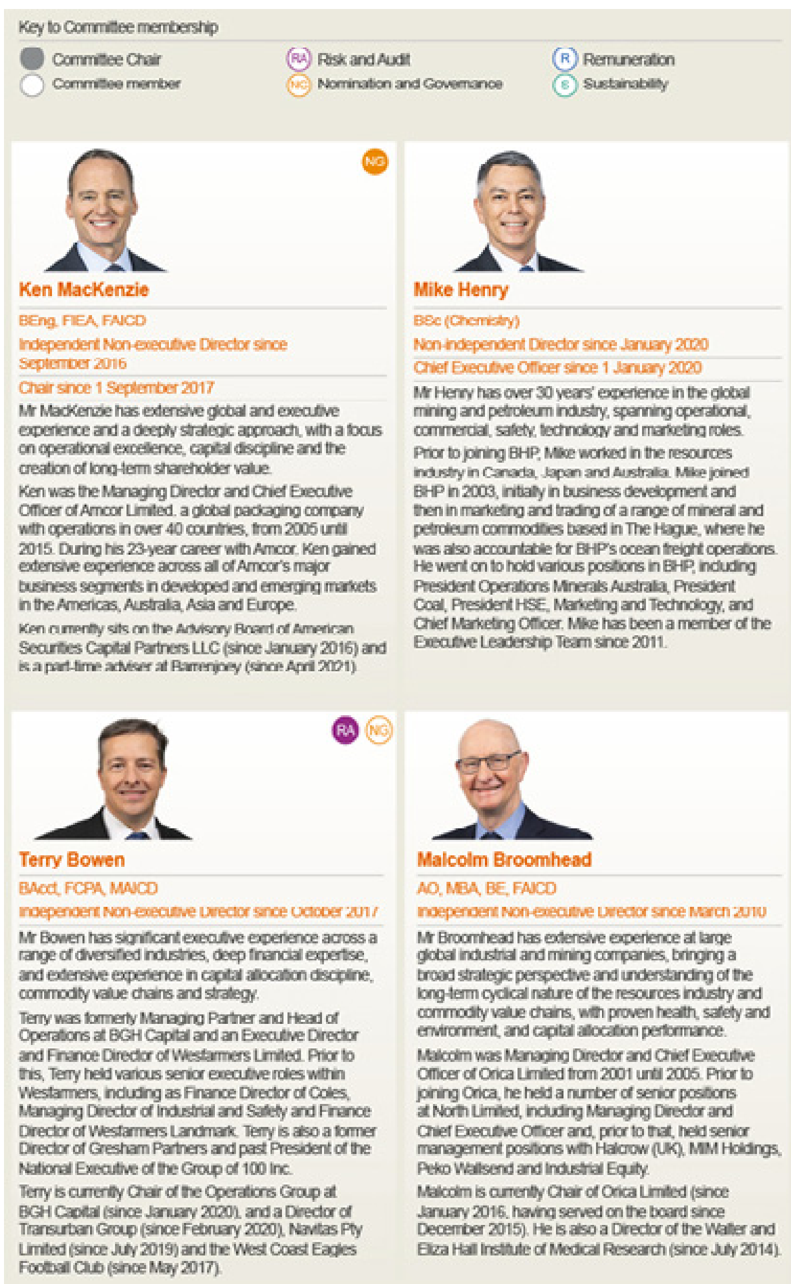
There were no significant changes in BHP's state of affairs that occurred during FY2022 and no significant post balance date events other than as disclosed in the OFR and Financial Statements note 33 'Subsequent events'.

No other matter or circumstance has arisen since the end of FY2022 that has significantly affected or is expected to significantly affect the operations, the results of operations or state of affairs of BHP in future years.

2 Directors

The Directors who served at any time during FY2022 or up until the date of this Directors' Report are listed in the Board and Board Committee attendance table in Directors' Report 2.2. Information on the current Directors is set out in Directors' Report 2.1.

2.1 Biographical details



Key to Committee membership

Committee Chair
Committee member
RA Risk and Audit
NG Nomination and Governance
R Remuneration
S Sustainability

Ken MacKenzie

BEng, FIEA, FAICD

Independent Non-executive Director since September 2016

Chair since 1 September 2017

Mr MacKenzie has extensive global and executive experience and a deeply strategic approach, with a focus on operational excellence, capital discipline and the creation of long-term shareholder value.

Ken was the Managing Director and Chief Executive Officer of Amcor Limited, a global packaging company with operations in over 40 countries, from 2005 until 2015. During his 23-year career with Amcor, Ken gained extensive experience across all of Amcor's major business segments in developed and emerging markets in the Americas, Australia, Asia and Europe.

Ken currently sits on the Advisory Board of American Securities Capital Partners LLC (since January 2016) and is a part-time adviser at Barrenjoey (since April 2021).

Mike Henry

BSc (Chemistry)

Non-independent Director since January 2020

Chief Executive Officer since 1 January 2020

Mr Henry has over 30 years' experience in the global mining and petroleum industry, spanning operational, commercial, safety, technology and marketing roles.

Prior to joining BHP, Mike worked in the resources industry in Canada, Japan and Australia. Mike joined BHP in 2003, initially in business development and then in marketing and trading of a range of mineral and petroleum commodities based in The Hague, where he was also accountable for BHP's ocean freight operations. He went on to hold various positions in BHP, including President Operations Minerals Australia, President Coal, President HSE, Marketing and Technology, and Chief Marketing Officer. Mike has been a member of the Executive Leadership Team since 2011.

Terry Bowen

BAcct, FCPA, MAICD

Independent Non-executive Director since October 2017

Mr Bowen has significant executive experience across a range of diversified industries, deep financial expertise, and extensive experience in capital allocation discipline, commodity value chains and strategy.

Terry was formerly Managing Partner and Head of Operations at BGH Capital and an Executive Director and Finance Director of Wesfarmers Limited. Prior to this, Terry held various senior executive roles within Wesfarmers, including as Finance Director of Coles, Managing Director of Industrial and Safety and Finance Director of Wesfarmers Landmark. Terry is also a former Director of Gresham Partners and past President of the National Executive of the Group of 100 Inc.

Terry is currently Chair of the Operations Group at BGH Capital (since January 2020), and a Director of Transurban Group (since February 2020), Navitas Pty Limited (since July 2019) and the West Coast Eagles Football Club (since May 2017).

Malcolm Broomhead

AO, MBA, BE, FAICD

Independent Non-executive Director since March 2010

Mr Broomhead has extensive experience at large global industrial and mining companies, bringing a broad strategic perspective and understanding of the long-term cyclical nature of the resources industry and commodity value chains, with proven health, safety and environment, and capital allocation performance.

Malcolm was Managing Director and Chief Executive Officer of Orica Limited from 2001 until 2005. Prior to joining Orica, he held a number of senior positions at North Limited, including Managing Director and Chief Executive Officer and, prior to that, held senior management positions with Halcrow (UK), MIM Holdings, Peko Wallsend and Industrial Equity.

Malcolm is currently Chair of Orica Limited (since January 2016, having served on the board since December 2015). He is also a Director of the Walter and Eliza Hall Institute of Medical Research (since July 2014).

Xiaoqun Clever

Diploma in Computer Science and International Marketing, MBA

Independent Non-executive Director since October 2020

Ms Clever has over 20 years' experience in technology with a focus on software engineering, data and analytics, cybersecurity and digitalisation.

Xiaoqun was formerly Chief Technology Officer of Ringier AG and ProSiebenSat.1 Media SE. Xiaoqun previously held various roles with SAP SE from 1997 to 2013, including Chief Operating Officer of Technology and Innovation. Xiaoqun was formerly a member of the Supervisory Board of Allianz Elementar Versicherungs and Lebensversicherungs AG (from 2015 to 2020).

Xiaoqun is currently a Non executive Director of Capgemini SE (since May 2019) and Amadeus IT Group SA (since June 2020) and on the Supervisory Board of Infineon Technologies AG (since February 2020). Xiaoqun is also the Co-Founder and Chief Executive Officer of LuxNova Suisse GmbH (since April 2018).

Ian Cockerill

MSc (Mining and Mineral Engineering), BSc (Hons.) (Geology), AMP – Oxford Templeton College

Independent Non-executive Director since April 2019

Mr Cockerill has extensive global mining operational, project and executive experience, having initially trained as a geologist.

Ian previously served as Chair of both Polymetal International plc and BlackRock World Mining Trust plc, Lead Independent Director of Ivanhoe Mines Ltd, and a Non-executive Director of Orica Limited (from July 2010 to August 2019) and Endeavour Mining Corporation (from September 2013 to March 2019). Ian also formerly held chief executive roles at Anglo American Coal and Gold Fields Limited, and senior executive roles at AngloGold Ashanti and Anglo American Group.

Ian is currently Senior Independent Director of Endeavour Mining Corporation (since May 2022), the Chair of Cornish Lithium Ltd (since April 2022) and a Non-executive Director of I-Pulse Inc (since September 2010). Ian is also a Director of the Leadership for Conservation in Africa.

Gary Goldberg

BS (Mining Engineering), MBA

Independent Non-executive Director since February 2020.

Senior Independent Director since 21 December 2020

Mr Goldberg has over 35 years' of global executive experience. including deep experience in mining, strategy, risk, commodity value chain, capital allocation discipline and public policy.

Gary served as the Chief Executive Officer of Newmont Corporation from 2013 to 2019, and prior to that, had been President and Chief Executive Officer of Rio Tinto Minerals. Gary has also previously been a non-executive director of Port Waratah Coal Services Limited and Rio Tinto Zimbabwe, and served as Vice Chair of the World Gold Council, Treasurer of the International Council on Mining and Metals, and Chair of the National Mining Association in the United States.

Michelle Hinchliffe

BCom, FCA, ACA

Independent Non-executive Director since March 2022

Ms Hinchliffe has over 20 years' experience as a partner in KPMG's financial services division.

Michelle served as a member of KPMG's UK Board and as the UK Chair of Audit between 2019 and 2022. Prior to this, she was a member of the KPMG UK Executive Committee in her role as Head of Audit from 2017 to 2019. Michelle led KPMG's financial services practice in Australia between 2008 and 2013 and was a member of the KPMG Australia Board.

Michelle is currently a Non-executive Director of Macquarie Group Limited and Macquarie Bank Limited (since March 2022).

John Mogford

BEng

Independent Non-executive Director since October 2017

Mr Mogford has significant global executive experience, including in oil and gas, capital allocation discipline, commodity value chains and health, safety and environment.

John has held various leadership, technical and operational roles at BP Plc. He was the Managing Director and an Operating Partner of First Reserve, a global energy-focused private equity firm, from 2009 until 2015, during which he served on the boards of its investee companies. He also served as a Non-executive Director of ERM Worldwide Group Limited (from 2015 to 2021), Weir Group Plc (from 2008 to 2018), Network Rail Limited (from 2016 to 2018), and one of First Reserve's portfolio companies, DOF Subsea AS (from 2009 to 2018).

Christine O'Reilly

BBus

Independent Non-executive Director since October 2020

Ms O'Reilly has over 30 years' experience in the financial and infrastructure sectors, with deep financial and public policy expertise and experience in large-scale capital projects and transformational strategy.

Christine served as Chief Executive Officer of the GasNet Australia Group and Co-Head of Unlisted Infrastructure Investments at Colonial First State Global Asset Management. Christine has also served as a Non-executive Director of Medibank Private Limited (from March 2014 to November 2021), Transurban Group (from April 2012 to October 2020), CSL Limited (from February 2011 to October 2020) and Energy Australia Holdings Limited (from September 2012 to August 2018).

Christine is currently a Non-executive Director of Australia and New Zealand Banking Group (since November 2021), Stockland Limited (since August 2018), and the Baker Heart and Diabetes Institute (since June 2013).

Catherine Tanna

LLB, Honorary Doctor of Business

Independent Non-executive Director since April 2022

Ms Tanna has more than 30 years' experience in the resources, oil and gas, power generation and retailing sectors.

Catherine served as Managing Director of Energy Australia between 2014 and 2021. Prior to this, she held senior executive roles with Shell and BG Group with responsibility for international operations. Catherine was also a member of the Board of the Reserve Bank of Australia from 2011 to 2021 and a Director of the Business Council of Australia from 2016 to 2021.

Catherine is currently a Senior Advisor at McKinsey & Company Inc (since April 2022) and a member of the Advisory Board of Fujitsu Australia (since February 2022).

Dion Weisler

BASc (Computing), Honorary Doctor of Laws

Independent Non-executive Director since June 2020

Mr Weisler has extensive global executive experience, including transformation and commercial experience in the global information technology sector, with a focus on capital discipline, as well as perspectives on current and emerging ESG issues.

Dion served as a Director and the President and Chief Executive Officer of HP Inc. from 2015 to 2019, and continued as a Director and Senior Executive Adviser until May 2020. Dion previously held a number of senior executive roles at Lenovo Group Limited. Prior to this, Dion was General Manager Conferencing and Collaboration at Telstra Corporation, and held various positions at Acer Inc., including as Managing Director, Acer UK.

Dion is currently a Non-executive Director of Intel Corporation (since June 2020), a Non-executive Director of Thermo Fisher Scientific Inc. (since March 2017) and a Non-executive Director of Sapia & Co Ltd (since January 2022).

Stefanie Wilkinson

BA, LLB (Hons), LLM, FGIA

Group Company Secretary since March 2021

Ms Wilkinson was appointed Group Company Secretary effective March 2021. Prior to joining BHP, Stefanie was a Partner at Herbert Smith Freehills, a firm she was with for 15 years, specialising in corporate law and governance for listed companies. Earlier in her career, Stefanie was a solicitor at Allen & Overy in the Middle East. Stefanie is a fellow of the Governance Institute of Australia.

2.2 Director attendances at meetings

The Board meets as often as required. During FY2022, the Board met 15 times.

Members of the Executive Leadership Team and other members of senior management attend meetings of the Board by invitation.

Each Board Committee provides a standing invitation for any Non-executive Director to attend Committee meetings (rather than just limiting attendance to Committee members). Committee agendas and papers are provided to all Directors to ensure they are aware of matters to be considered.

Board and Board Committee attendance in FY2022

	Board	Risk and Audit Committee	Nomination and Governance Committee	Remuneration Committee	Sustainability Committee
Terry Bowen	15/15	11/11	5/5	–	–
Malcolm Broomhead	15/15	–	2/2[1]	–	2/2[1]
Xiaoqun Clever	15/15	11/11	–	–	–
Ian Cockerill	15/15	11/11	–	–	5/5
Anita Frew[2]	7/7	5/5	–	2/2	–
Gary Goldberg[3]	15/15	–	5/5	5/5	5/5
Mike Henry	15/15	–	–	–	–
Michelle Hinchliffe[4]	4/4	2/2	–	–	–
Susan Kilsby[5]	7/7	–	–	2/2[5]	–
Ken MacKenzie	15/15	–	5/5	–	–
John Mogford[6]	15/15	–	5/5	–	5/5
Christine O'Reilly	15/15	11/11	5/5	5/5	–
Catherine Tanna[7]	3/3	–	–	2/2	2/2
Dion Weisler	15/15	–	–	5/5	3/3[8]

1 Malcolm Broomhead ceased being a member of the Nomination and Governance Committee and Sustainability Committee on 11 November 2021

2 Anita Frew served as a Non-executive Director from 15 September 2015 until her retirement as a member of the Board, Risk and Audit Committee and Remuneration Committee on 11 November 2021

3 Gary Goldberg ceased being a member of the Remuneration Committee on 17 June 2022. He became Chair of the Sustainability Committee on 18 June 2022

4 Michelle Hinchliffe became a member of the Board and the Risk and Audit Committee on 1 March 2022

5 Susan Kilsby served as a Non-executive Director from 1 April 2019 until her retirement as a member of the Board and the Remuneration Committee on 11 November 2021

6 John Mogford ceased being a member of the Nomination and Governance Committee on 17 June 2022. He ceased being the Chair of the Sustainability Committee on 17 June 2022, but remains a member of this Committee

7 Catherine Tanna became a member of the Board, Remuneration Committee and Sustainability Committee on 4 April 2022

8 Dion Weisler became a member of the Sustainability Committee on 12 November 2021

3 Share capital and buy-back programs

At the Annual General Meetings held in 2019, 2020 and 2021, shareholders authorised BHP Group Plc to make on-market purchases of up to 211,207,180 of its ordinary shares, representing 10 per cent of BHP Group Plc's issued share capital at that time. During FY2022, we did not make any on-market or off-market purchases of BHP Group Limited or BHP Group Plc ordinary shares under any share buy-back program. As at the date of this Directors' Report, there were no current on-market buy-backs.
BHP Group Plc (now BHP Group (UK) Limited) is no longer able to make on-market purchases of its ordinary shares as a result of its delisting in connection with the unification transaction with BHP Group Limited and as such it can no longer utilise the shareholder authorisation in relation to on-market purchases obtained at the Annual General Meeting in 2021.

Some of our executives receive rights over BHP shares as part of their remuneration arrangements. Entitlements may be satisfied by the transfer of existing shares, which are acquired on-market by the Employee Share Ownership Plan (ESOP) Trusts or, in respect of some entitlements, by the issue of shares.

The number of shares referred to in column A below were purchased to satisfy awards made under the various BHP Group employee share schemes during FY2022.

Period	A Total number of shares purchased and transferred to employees to satisfy employee awards	B Average price paid per share[1] US$	C Total number of shares purchased as part of publicly announced plans or programs	D Maximum number of shares that may yet be purchased under the plans or programs	
				BHP Group Limited[2]	BHP Group Plc (now BHP Group (UK) Limited)
1 Jul 2021 to 31 Jul 2021	–	–	–	–	211,207,180[3]
1 Aug 2021 to 31 Aug 2021	63,567	32.08	–	–	211,207,180[3]
1 Sep 2021 to 30 Sep 2021	–	–	–	–	211,207,180[3]
1 Oct 2021 to 31 Oct 2021	–	–	–	–	211,207,180[3]
1 Nov 2021 to 30 Nov 2021	–	–	–	–	211,207,180[3]
1 Dec 2021 to 31 Dec 2021	–	–	–	–	211,207,180[3]
1 Jan 2022 to 31 Jan 2022	–	–	–	–	211,207,180[3,4]
1 Feb 2022 to 28 Feb 2022	–	–	–	–	–
1 Mar 2022 to 31 Mar 2022	3,354,850	35.95	–	–	–
1 Apr 2022 to 30 Apr 2022	–	–	–	–	–
1 May 2022 to 31 May 2022	–	–	–	–	–
1 Jun 2022 to 30 Jun 2022	949,819	28.37	–	–	–
Total	4,368,236	34.24	–	–	–

1 The shares were purchased in the currency of the stock exchange on which the purchase took place and the sale price has been converted into US dollars using the average weekly exchange rate of the week that such purchases took place for purchases on the ASX, and the average monthly exchange rate of the month that such purchases took place for purchases on the LSE

2 BHP Group Limited is able to buy-back and cancel BHP Group Limited shares within the '10/12 limit' without shareholder approval in accordance with section 257B of the Australian Corporations Act 2001. Any future on-market share buy-back program would be conducted in accordance with the Australian Corporations Act 2001 and with the ASX Listing Rules

3 At the Annual General Meetings held during 2019, 2020 and 2021, shareholders authorised BHP Group Plc to make on-market purchases of up to 211,207,180 of its ordinary shares, representing 10 per cent of BHP Group Plc's issued capital at the time

4 BHP Group Plc (now BHP Group (UK) Limited) is no longer able to make on-market purchases of its ordinary shares as a result of its delisting in connection with the unification transaction with BHP Group Limited and as such it can no longer utilise the shareholder authorisation in relation to on-market purchases obtained at the Annual General Meeting in 2021

As at the date of this Directors' Report, there were 15,846,572 unvested equity awards outstanding in relation to BHP Group Limited ordinary shares held by 20,790 holders. The expiry dates of these unvested equity awards range between August 2022 and August 2026 and there is no exercise price. 4,400,000 fully paid ordinary shares in BHP Group Limited were issued as a result of the exercise of rights over unissued shares during or since the end of FY2022. No options over unissued shares or unissued interests in BHP have been granted during or since the end of FY2022 and no shares or interests were issued as a result of the exercise of an option over unissued shares or interests during or since the end of FY2022. For more information refer to Financial Statements note 25 'Employee share ownership plans'. For information on movements in share capital during and since the end of FY2022 refer to Financial Statements note 16 'Share capital'.

4 Share interests

Directors

'Ordinary shareholdings and transactions' in the Remuneration Report 5.4 sets out the relevant interests in shares in BHP Group Limited of the Directors who held office during FY2022, at the beginning and end of FY2022. No rights or options over shares in BHP Group Limited are held by any of the Non-executive Directors. Interests held by the Executive Director under employee equity plans as at 30 June 2022 are set out in the tables showing interests in incentive plans contained in 'Equity awards' in the Remuneration Report 5.2. Except for Mike Henry, as at the date of this Directors' Report, the information pertaining to shares in BHP Group Limited and held directly, indirectly or beneficially by Directors is the same as set out in the table in 'Ordinary shareholdings and transactions' in the Remuneration Report 5.4. Where applicable, the information includes shares held in the name of a spouse, superannuation fund, nominee and/or other controlled entities.

All Directors have met the minimum shareholding requirement under their Terms of Appointment.

As at the date of this Directors' Report, Mike Henry held:

- (either directly, indirectly or beneficially) 521,592 shares in BHP Group Limited
- rights and options over 978,790 shares in BHP Group Limited

Where applicable, the above information includes shares held in the name of a spouse, superannuation fund, nominee and/or other controlled entities.

We have not made available to any Directors any interest in a registered scheme.

Executive Key Management Personnel

Interests held by members of the Executive KMP under employee equity plans as at 30 June 2022 are set out in the tables contained in the 'Equity awards' section in the Remuneration Report 5.2.

The table below sets out the relevant interests in shares in BHP Group Limited held directly, indirectly or beneficially, as at the date of this Directors' Report by those senior executives who were Executive Key Management Personnel (KMP) (other than the Executive Director) on that date. Where applicable, the information also includes shares held in the name of a spouse, superannuation fund, nominee and/or other controlled entities.

Executive KMP member	As at date of Directors' Report
Edgar Basto	130,038
David Lamont	6,345
Geraldine Slattery	127,232
Ragnar Udd	118,955

5 Secretaries

Stefanie Wilkinson is the Group Company Secretary. For details of her qualifications and experience refer to the Biographical details in Directors' Report 2.1. The following people also acted during FY2022 as Company Secretaries of BHP Group Limited: Geof Stapledon, BEc, LLB (Hons), DPhil, FCIS, until 7 July 2021, Prakash Kakkad, LLB, LPC, from 7 July 2021, John-Paul Santamaria, BEng (Civil) (Hons), LLB, from 7 July 2021.

Each individual has experience in a company secretariat role or other relevant fields arising from time spent in roles within BHP, other large listed companies or other relevant entities.

6 Indemnities and insurance

Rule 146 of the BHP Group Limited Constitution requires the company to indemnify, to the extent permitted by law, each Officer of BHP Group Limited against liability incurred in, or arising out of, the conduct of the business of BHP or the discharge of the duties of the Officer. The Directors named in 2.1 of the Directors' Report, the Company Secretaries and other Officers of BHP Group Limited have the benefit of this requirement, as do individuals who formerly held one of those positions.

In accordance with this requirement, BHP Group Limited has entered into Deeds of Indemnity, Access and Insurance (Deeds of Indemnity) with its Directors.

We have a policy that BHP will, as a general rule, support and hold harmless an employee, including an employee appointed as a Director of a subsidiary who, while acting in good faith, incurs personal liability to others as a result of working for BHP.

In addition, as part of the arrangements to effect the demerger of South32, we agreed to indemnify certain former Officers of BHP who transitioned to South32 from certain claims and liabilities incurred in their capacity as Directors or Officers of South32.

The terms of engagement for certain services include that we must compensate and reimburse EY for, and protect EY against, any loss, damage, expense, or liability incurred by EY in respect of third-party claims arising from a breach by BHP of any obligation under the engagement terms.

We have insured against amounts that we may be liable to pay to Directors, Company Secretaries or certain employees (including former Officers) pursuant to Rule 146 of the Constitution of BHP Group Limited or that we otherwise agree to pay by way of indemnity. The insurance policy also insures Directors, Company Secretaries and some employees (including former Officers) against certain liabilities (including legal costs) they may incur in carrying out their duties. For this Directors' and Officers' insurance, we paid premiums of US$21,772,900 excluding taxes during FY2022.

No indemnity in favour of a current or former officer of BHP Group Limited, or in favour of the External Auditor, was called on during FY2022.

7 Dividends

A final dividend of 175 US cents per share will be paid on 22 September 2022, resulting in total cash dividends determined in respect of FY2022 of 325 US cents per share.

The merger of BHP's oil and gas portfolio with Woodside Energy was completed on 1 June 2022 and BHP paid a fully franked in specie dividend of US$3.86 per share or US$19.6 billion.

For information on the dividends paid refer to Financial Statements note 16 'Share capital' and note 18 'Dividends'.

8 Auditors

No current officer of BHP has held the role of director or partner of the Group's current external auditor.

9 Non-audit services

For information on the non-audit services undertaken by BHP's External Auditor, including the amounts paid for non-audit services, refer to Financial Statements note 34 'Auditor's remuneration'. All non-audit services were approved in accordance with the process set out in the Policy on Provision of Audit and Other Services by the External Auditor. No non-audit services were carried out that were specifically excluded by the Policy on Provision of Audit and Other Services by the External Auditor. Based on advice provided by the Risk and Audit Committee, the Directors have formed the view that the provision of non-audit services is compatible with the general standard of independence for auditors, and that the nature of non-audit services means that auditor independence was not compromised. The reason for this view is that the objectivity and independence of the External Auditor are safeguarded through restrictions on the provision of these services with some services prohibited from being undertaken.

For a more information about our policy in relation to the provision of non-audit services by the external auditor refer to 7.2 'External audit and financial reporting' of our Corporate Governance Statement.

10 Exploration, research and development

Companies within the Group carry out exploration and research and development necessary to support their activities. Details are provided in OFR 5 'Our assets', OFR 10 'Performance by commodity' and Resources and Reserves in the Annual Report.

11 ASIC Instrument 2016/191

BHP Group Limited is an entity to which Australian Securities and Investments Commission (ASIC) Corporations (Rounding in Financial/Directors' Reports) Instrument 2016/191 dated 24 March 2016 applies. Amounts in this Directors' Report and the Financial Statements, except estimates of future expenditure or where otherwise indicated, have been rounded to the nearest million dollars in accordance with ASIC Instrument 2016/191.

12 Proceedings on behalf of BHP Group Limited

No proceedings have been brought on behalf of BHP Group Limited, nor has any application been made, under section 237 of the Australian Corporations Act 2001.

13 Performance in relation to environmental regulation

BHP seeks to be compliant with all applicable environmental laws and regulations relevant to its operations. We monitor compliance on a regular basis, including through external and internal means, to minimise the risk of non-compliance. For more information on BHP's performance in relation to health, safety and the environment refer to OFR 7.4, 7.6 and 7.15.

For the purposes of section 299 (1)(f) of the Australian Corporations Act 2001, in FY2022 BHP was levied four fines in relation to environmental laws and regulations at our operated assets, the total amount payable being US$22,514.

14 Additional information

BHP Group Limited has a branch registered in the United Kingdom. The Group, through various subsidiaries, has also established branches in a number of other countries.

The Directors' Report is approved in accordance with a resolution of the Board.

Ken MacKenzie
Chair
Dated: 16 August 2022

Mike Henry
Chief Executive Officer

Remuneration Report

Abbreviation	Item
AGM	Annual General Meeting
CDP	Cash and Deferred Plan
CEO	Chief Executive Officer
DEP	Dividend Equivalent Payment
ELT	Executive Leadership Team
GHG	Greenhouse gas
HSEC	Health, safety, environment and community
IFRS	International Financial Reporting Standards
KMP	Key Management Personnel
LTIP	Long-Term Incentive Plan
MAP	Management Award Plan
MSR	Minimum shareholding requirement
ROCE	Return on Capital Employed
STIP	Short-Term Incentive Plan
TSR	Total Shareholder Return

Remuneration Committee Chair Letter to Shareholders

Dear Shareholders,

I am pleased to introduce BHP's Remuneration Report for the financial year to 30 June 2022. During FY2022, the Remuneration Committee (**Committee**) continued its focus on achieving remuneration outcomes that fairly reflect the performance of BHP and the contribution of our employees, and which are aligned to the interests of shareholders and other key stakeholders.

Our approach and framework

Our Charter sets out our values upon which the Committee places great weight in the determination of performance-based remuneration outcomes for BHP executives. *Our Charter* places health and safety at the forefront of our values while setting out our purpose, our strategy and how we measure success. The Committee aims to support our executives to take a long-term approach to decision-making in order to build a sustainable and value-adding business.

The Committee is focused on a remuneration framework and approach that supports the Group's strategy and enables us to attract, retain and motivate our executives located in different geographies. This is critical to delivering the best outcomes for all BHP stakeholders. As BHP is a global organisation, the Committee is also mindful of navigating the priorities and expectations of multiple jurisdictions.

At the 2021 AGMs, we received strong support for our remuneration framework and outcomes, with over 97 per cent voting in favour of the Remuneration Report. This means that over the past five years we have received an average of approximately 96 per cent support. The Committee and the Board continue to incorporate shareholder feedback into their approach to remuneration.

FY2022 represents the third year of operation of our revised remuneration framework and we believe the framework is continuing to serve stakeholders well. The key changes to variable remuneration that took effect from 1 July 2019 for the CEO were to significantly reduce the LTIP grant size from 400 per cent of base salary (on a face value basis) to 200 per cent, and a rebalancing to a CDP award with a long term focus. The CDP outcome is delivered one-third as a cash award, with two-thirds delivered in equity that is deferred equally for two-year and five-year periods. This structure aligns participants' incentive remuneration with performance over the short, medium and long term.

We continue to benchmark the CEO and other executives' remuneration against CEO and executive roles in other global companies of similar complexity, size, reach and industry. This detailed benchmarking ensures BHP's executive remuneration framework remains competitive to attract, motivate and retain key talented executives and is consistent with the global market.

The majority of the CEO's remuneration package continues to be delivered in BHP equity, not in cash, and the CEO's remuneration is deliberately tied to the performance of the business. In addition, the CEO is required to meet a MSR of five times pre-tax base salary and this applies for two years post-retirement. This ensures that the CEO's remuneration is aligned to the experience of BHP's shareholders. As at the date of this Report, the CEO's BHP shareholding is in excess of his MSR.

Business performance

I am pleased to say BHP's performance for FY2022 has been underpinned by safe, reliable operations and firm demand for our commodities. We completed another year fatality free and we are unwavering in our effort to improve safety, including the elimination of sexual harassment, racism and bullying.

We delivered reliable operational performance at Western Australia Iron Ore, with record sales for a third consecutive year and the South Flank project ramp up ahead of schedule. In copper, Escondida in Chile achieved record material mined and near-record concentrator throughput, while Olympic Dam in South Australia performed strongly in the fourth quarter after planned smelter maintenance. Queensland metallurgical coal ended the year with strong underlying performance in the face of significant wet weather.

We have made strong progress on actions required to meet our commitments to reduce operational GHG emissions, which are down by 15 per cent since FY2017. We have further progressed our emission reduction partnerships with three major steelmakers in China and Japan and we also entered a new partnership with a fourth steelmaker in South Korea. The combined output of these four steelmakers equates to around 12 per cent of global steel production.

Our US$5.7 billion Jansen potash project in Canada is tracking to plan and opportunities to bring forward first potash production at Jansen continue to be assessed. In addition, during FY2022, we merged our Petroleum business with Woodside, completed the sales of our interests in BMC and Cerrejón, and following a strategic review decided to retain New South Wales Energy Coal. As a consequence, we will seek approvals to continue mining until 2030. We also unified our corporate structure, and added to our global options in copper and nickel.

COVID-19 continued to impact in FY2022, particularly in the areas of labour and supply chain constraints. We remain vigilant with continued social distancing and hygiene practices, and other additional protocols as appropriate to protect our workforce and communities. Despite the challenges that the COVID-19 pandemic continues to present, in FY2022 BHP continued its approach to not furlough any employees, did not seek any government assistance, and did not raise additional equity. In addition, BHP's safe and reliable operational performance through this year, together with strong profitability, enabled the Board to announce record dividends for FY2022. This continues the delivery of strong and consistent returns to shareholders.

FY2022 CDP

The CDP scorecard used to assess Mike Henry's annual performance comprises stretching performance measures, including HSEC, financial and individual performance elements. For FY2022, the Committee has assessed the CEO's performance and determined a CDP outcome of 96 per cent against a target of 100 per cent (and 64 per cent of the maximum).

For the HSEC element, the outcome took into account BHP's strong HSEC performance during the year, with no fatalities recorded, the strong progress against our Fatality Elimination Program and delivery of our cultural heritage commitments. This year we have also made progress on the implementation of controls for sexual harassment, although there remains more to be done. We also saw strong progress against our climate change targets, and our progress in the management of priority tailings storage facilities was pleasing. The CDP outcome for the HSEC measures was 31 per cent out of a target of 25 per cent.

Our financial performance was strong, and during FY2022 shareholders have again benefitted through record dividends. However, after fully eliminating the positive impacts of commodity prices during the year, operating performance at our assets was below the challenging internal targets set at the commencement of the year. This is in part due to higher than expected unplanned costs and other impacts of the COVID-19 pandemic, which flowed through into CDP outcomes without moderation for FY2022. This is a similar approach that was applied in FY2021 and FY2020 and has the effect of reducing the remuneration outcomes for executives. The CDP outcome for the financial measure was 40 per cent out of a target of 50 per cent.

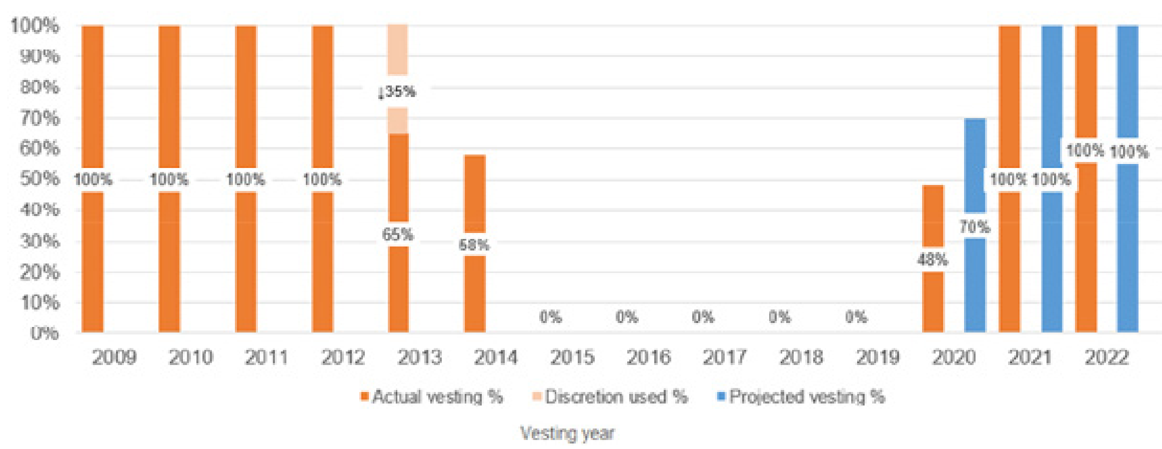
Finally, from a personal performance perspective, the Committee considered Mike Henry's performance against his individual measures. These included projects and initiatives in respect of social value (long term growth in value and returns for all stakeholders), people (right people, right skills, coming together in the right way to support exceptional performance), performance (material improvement in the system that supports exceptional performance) and portfolio (material progress on our strategic objectives to create a portfolio that will set BHP up for the next 20 years). The Committee considered Mike's performance against his individual objectives met expectations and warranted an outcome aligned with the target of 25 per cent.

The CDP scorecard outcomes for other Executive KMP and the short-term incentive pool applicable to the majority of BHP employees below the ELT level, were, like the CEO, slightly below the 100 per cent target.

2017 LTIP award

The vesting outcome for the 2017 LTIP award was 100 per cent. The LTIP performance condition is relative TSR and BHP outperformed both the sector peer group and the MSCI World Index. This level of vesting is aligned with the projected vesting outcome that was communicated to shareholders in the Remuneration Report at the time the changes to our remuneration framework were approved by shareholders at the 2019 AGMs. The table below outlines the level of vesting each year from 2009 to 2022, together with the vesting outcomes projected in 2019.

LTIP vesting



As shareholders will recall, one of the key elements of our revised remuneration framework was to reduce the weighting of future LTIP grants in the overall CEO remuneration package from FY2020. Pre-existing grants remained on foot and their vesting would be determined on the basis of existing service and performance conditions.

The value of the vested 2017 LTIP award is higher than the value of the award at the time it was granted due to the increase in share price during the five-year vesting period and strong dividends. In terms of value realised, 44 per cent is due to the value at the time the awards were granted and 56 per cent is due to share price appreciation and dividends. This reflects the experience of shareholders over the period.

Consistent with its normal practice, in considering vesting, the Board and Committee have also conducted a holistic review of business performance over the five years since the award was granted to ensure this level of vesting was appropriate. More information on the 2017 LTIP vesting outcome, including the five-year holistic business review covering HSEC performance, profitability, cash flow, balance sheet health, returns to shareholders, corporate governance and conduct, is included in 3.3 LTIP performance outcomes and 3.4 Overarching discretion and vesting underpin.

More information on the overall remuneration outcomes for the CEO for the year, and how the outcomes are aligned to performance during FY2022, is provided in 3.1 FY2022 Remuneration received by the CEO. Having considered the overall remuneration outcomes for the CEO carefully, as set out above and in 3.1, the Committee concluded it was a fair reflection of performance and the experience of shareholders, and the application of any downwards discretion was not warranted.

FY2023 remuneration

For FY2023, the Committee determined that the CEO's base salary would increase by 3 per cent, effective 1 September 2022. This was assessed as appropriate having conducted updated benchmarking and considered the external market demand for senior executive talent. The Committee considers the increase modest in this context, as well as being below the median salary increase applied for other BHP employees of approximately 4 per cent. Other components of the CEO's total target remuneration (pension contributions, benefits, CDP and LTIP) remain unchanged and, where relevant, as percentages of base salary. A summary of the CEO's arrangements for FY2023 is set out below.

Fixed remuneration	CDP	LTIP

• Base salary US$1.750 million per annum, an increase of 3% from 1 September 2022.
• Pension contribution 10% of base salary.
	• Target cash award of 80% of base salary (maximum 120%).
	• Plus two awards of deferred shares each of equivalent value to the cash award, vesting in two and five years, respectively.
	• Three performance categories:
	  • HSEC – 25%
	  • Financial – 50%
	  • Individual – 25%
		• The LTIP grant is based on a face value of 200% of base salary.
		• Our LTIP awards have rigorous relative TSR performance hurdles measured over five years.

The Committee has also reviewed the base salaries and total target remuneration packages for other Executive KMP. The Committee determined they would also increase by 3 per cent, effective 1 September 2022. An additional increase has been determined for Ragnar Udd reflecting his performance and development in role (for more information regarding base salaries for FY2023 refer to 3.7 FY2023 remuneration for the CEO and other Executive KMP). Other aspects of other Executive KMP remuneration arrangements remain unchanged.

Remuneration outcomes for the Chair and Non-executive Directors

Fees for the Chair and Non-executive Directors are reviewed annually and are benchmarked against peer companies. No changes to the Chair's fee will be made for FY2023. The Chair fee has remained unchanged since 1 July 2017. In 2017, a decision was made to reduce the Chair's annual fee by approximately 8 per cent from US$0.960 million to US$0.880 million with effect from 1 July 2017. This followed an earlier reduction on 1 July 2015 of approximately 13 per cent from US$1.100 million to US$0.960 million.

Base fee levels for Non-executive Directors will also remain unchanged. The fees of Non-executive Directors were also reduced on 1 July 2015 by approximately 6 per cent, from US$0.170 million to US$0.160 million per annum.

In FY2022, BHP undertook a series of major transactions. As a consequence, modest fees were paid to certain Non-executive Directors for additional or extra services performed in FY2022 in connection with major transactions undertaken by the Group.

Summary

This year the COVID-19 pandemic continued to impact not only BHP, but our customers, suppliers, governments, employees, families and communities across the world. On behalf of the Committee, I would like to recognise the continued hard work, dedication and sacrifices of our employees. Through their steadfast commitment, they have enabled BHP to generate strong results for all stakeholders and continued to support their communities.

We deliberately align our executive remuneration with performance, with a significant component of possible remuneration structured as variable pay. We are confident that the outcomes this year are consistent with our long held approach of remuneration outcomes reflecting the performance of BHP and the experience of our shareholders. Given our critical need to attract, motivate and retain our executives in order to progress our strategic objectives and deliver the best outcomes for all BHP stakeholders, this is a pleasing result for all concerned.

We look forward to ongoing dialogue with and the support of BHP's shareholders. As always, we welcome your feedback and comments on any aspect of this Report.

Christine O'Reilly

Chair, Remuneration Committee

16 August 2022

1 Remuneration governance

Board oversight

The Board is responsible for ensuring the Group's remuneration arrangements are equitable and aligned with the long-term interests of BHP and its shareholders. In performing this function, it is critical the Board is independent of management when making decisions affecting remuneration of the CEO, other Executive KMP and the Group's employees.

The Board has established the Committee to assist it in making such decisions. The Committee is comprised solely of Non-executive Directors, all of whom are independent. The Committee has extensive access to members of senior management and regularly invites them to attend meetings to provide reports and updates. However, members of management are not present when decisions are considered or taken concerning their own remuneration. The Committee can also draw on services from a range of external sources, including independent remuneration advisers.

Remuneration Committee

The activities of the Committee are governed by its Terms of Reference which is available at bhp.com. The current members of the Committee are: Christine O'Reilly (Chair), Catherine Tanna (member from 4 April 2022) and Dion Weisler. The following present and former Non-executive Directors served as members of the Committee during the year: Gary Goldberg (member to 17 June 2022), Anita Frew (member to 11 November 2021) and Susan Kilsby (member to 11 November 2021). The role and focus of the Committee and details of meeting attendances can be found in 2.2 Directors' Report.

Key decisions and activities of the Committee during FY2022 included:

- considering and approving remuneration for members of the ELT
- setting targets for and reviewing outcomes against performance measures and conditions of relevant incentive plans, including the Committee considering its discretion over FY2022 plan outcomes
- reviewing the fee for the BHP Chair, which remains unchanged
- considering remuneration and remuneration reporting implications of unification and the merger of the Petroleum business and Woodside
- reviewing and adopting changes and improvements flowing from regulatory requirements and guidance, which in turn helps us improve our processes and approaches
- engaging with shareholders and other key stakeholders
- undertaking reviews of remuneration by gender and the annual Shareplus enrolment

Engagement of independent remuneration advisers

The Committee seeks and considers advice from independent remuneration advisers where appropriate. Remuneration consultants are engaged by and report directly to the Committee. Potential conflicts of interest are taken into account when remuneration consultants are selected and their terms of engagement regulate their level of access to, and require their independence from, BHP's management.

PwC has been appointed to act as an independent remuneration adviser and is currently the only remuneration adviser appointed by the Committee. In that capacity, they may provide remuneration recommendations in relation to KMP, however, they did not provide any remuneration recommendations in FY2022.

KMP for FY2022

This Remuneration Report describes the remuneration policies, practices, outcomes and governance for the KMP of BHP. At BHP, KMP consists of our Board (including the CEO), as well as certain members of our ELT who have authority and responsibility for planning, directing and controlling the activities of the Group directly or indirectly. After due consideration, the Committee determined the KMP for FY2022 comprised all Non-executive Directors and the following Executive KMP: the CEO, the Chief Financial Officer, the President Minerals Australia, the President Minerals Americas and the Senior Executive Officer (i.e. President Petroleum until 31 May 2022).

The following individuals have held their positions and were KMP for the whole of FY2022, unless stated otherwise:

- Mike Henry, CEO and Executive Director
- Edgar Basto, President Minerals Australia
- David Lamont, Chief Financial Officer
- Geraldine Slattery, President Petroleum from 1 July 2021 to 31 May 2022 and Senior Executive Officer from 1 June to 30 June 2022
- Ragnar Udd, President Minerals Americas
- Non-executive Directors – for details of Non-executive Directors, including dates of appointment or cessation (where relevant), refer to 2.2 Directors' Report.

2 Remuneration framework

BHP has an overarching remuneration framework that guides the Committee's decisions and is designed to support our strategy and reinforce our culture and values.

2.1 How the remuneration framework is set

The Committee sets the remuneration framework for the Executive KMP, including the CEO. The Committee is briefed on and considers prevailing market conditions, the competitive environment and the positioning and relativities of pay and employment conditions across the wider BHP workforce. The Committee takes into account the annual base salary increases for our employee population when determining any change in the Executive KMP's base salary. The salary increases in locations where our Executive KMP are based are particularly relevant when reviewing their remuneration to ensure that their remuneration also reflects the local economic conditions.

The principles that underpin the remuneration framework for Executives are the same as those that apply to other employees, however Executive KMP arrangements have a greater emphasis on and a higher proportion of remuneration that is at risk as performance-related variable pay. The performance measures used to determine variable pay outcomes for the Executive KMP and all other employees are linked to the delivery of our strategy and behaviours that are aligned to *Our Charter* values.

As part of the Board's commitment to good governance, the Committee considers shareholder views and those of the wider community when setting the remuneration framework for the Executive KMP. We are committed to engaging and communicating with shareholders regularly and, as our shareholders are spread across the globe, we are proactive with our engagement on remuneration and governance matters with institutional shareholders and investor representative organisations. Feedback from shareholders and investors is used as input into decision-making by the Board and the Committee in relation to our remuneration framework and its application. The Committee considers that this approach provides a robust mechanism to ensure Directors are aware of matters raised, have a deep understanding of current shareholder views and can formulate frameworks and make decisions as appropriate. We encourage shareholders to make their views known to us by directly contacting our Investor Relations team (contact details available at bhp.com).

2.2 Remuneration framework operation

Our approved remuneration policy was adopted by shareholders in 2019 for a three-year period in accordance with UK requirements and following the unification of our corporate structure in early 2022 BHP is no longer required to have our policy approved by shareholders every three years. However, the following table shows the current components of our remuneration framework, which is consistent with the prior approved remuneration policy.

	Fixed remuneration	CDP	LTIP
Purpose and link to strategy	Market competitive fixed remuneration is paid in order to attract, motivate and retain high-quality and experienced executives, and provide appropriate remuneration for these important roles in the Group.	The CDP encourages and focuses executives' efforts for the relevant financial year on the delivery of the Group's strategic priorities, balancing financial and non-financial performance, to deliver short, medium and long-term success aligned to our purpose and *Our Charter*, and to motivate executives to strive to achieve stretch performance objectives.	The purpose of the LTIP is to focus executive's efforts on the achievement of sustainable long-term value creation and success of the Group (including appropriate management of business risks).
Remuneration components and link to performance	Fixed remuneration comprises base salary, pension contributions and benefits. Competitive fixed remuneration is aligned to global complexity, size, reach and industry, and reflects executives' responsibilities, location, skills, performance, qualifications and experience.	Annual variable pay opportunity linked to execution of business strategy. A balanced scorecard of short, medium and long-term elements including HSEC (25% weighting), financial (50% weighting) and individual performance measures (25% weighting) are chosen on the basis that they are expected to have a significant short, medium and long-term impact on the success of the Group, with appropriate targets for each measure which will appropriately motivate Executive KMP to achieve outperformance that contributes to the long-term sustainability of the Group and shareholder wealth creation.	Annual long-term variable pay opportunity based on grants of five-year performance rights designed to align executives' reward with sustained shareholder wealth creation in excess of relevant comparator group(s), through the relative TSR performance condition. Relative TSR has been chosen as an appropriate measure as it enables an objective external assessment over a sustained period on a basis that is familiar to shareholders.

	CDP	LTIP
Assessment of performance	Achievement against each scorecard measure is assessed by the Committee and the Board, with guidance provided by other relevant Board Committees in respect of HSEC, financial and other measures, and a CDP award determined. If performance is below the threshold level for any measure, no CDP award will be provided in respect of that portion of the CDP award opportunity. In the event the Committee does not consider the outcomes that would otherwise apply to be a true reflection of the performance of the Group or should it consider that individual performance or other circumstances makes this an inappropriate outcome, it retains the discretion to not provide all or a part of any CDP award. This is an important mitigation against the risk of unintended award outcomes.	Vesting of the LTIP award is dependent on BHP's TSR relative to the TSR of relevant comparator group(s) over a five-year performance period. 25% of the award will vest where BHP's TSR is equal to the median TSR of the relevant comparator group(s), as measured over the performance period. Where TSR is below the median, awards will not vest. Vesting occurs on a sliding scale between the median TSR of the relevant comparator group(s) up to a nominated level of TSR outperformance over the relevant comparator group(s), as determined by the Committee, above which 100% of the award will vest. Where the TSR performance condition is not met, there is no retesting and awards will lapse. The Committee also retains discretion to lapse any portion or all of the award where it considers the vesting outcome is not appropriate given Group or individual performance. This is an important mitigation against the risk of unintended outcomes.
Delivery and vesting	CDP awards are provided as cash and two awards of deferred shares, each of equivalent value to the cash award, vesting in two and five years respectively. Awards of deferred shares comprise rights to receive ordinary BHP shares in the future at the end of the deferral periods. Before the awards vest (or are exercised), these rights are not ordinary shares and do not carry entitlements to ordinary dividends or other shareholder rights; however, a DEP is provided on vested awards. The Committee has a discretion to settle CDP awards in cash. Vesting of five-year deferred shares under the CDP is underpinned by a holistic review of performance at the end of the five-year vesting period, including a review of HSEC performance, profitability, cash flow, balance sheet health, returns to shareholders, corporate governance and conduct over the five-year period.	LTIP awards consist of rights to receive ordinary BHP shares in the future if the performance and service conditions are met. Before vesting (or exercise), these rights are not ordinary shares and do not carry entitlements to ordinary dividends or other shareholder rights; however, a DEP is provided on vested awards. The Committee has a discretion to settle LTIP awards in cash. Vesting of five-year performance rights under the LTIP is underpinned by a holistic review of performance at the end of the five-year performance period, including a review of HSEC performance, profitability, cash flow, balance sheet health, returns to shareholders, corporate governance and conduct over the five-year period.
Cessation of employment	On cessation of employment, a 'good leaver'[1] may receive a pro-rated cash award based on performance for that year. For a 'good leaver', their unvested CDP deferred awards generally remain on foot (wholly or in part) unless the Committee determine otherwise. If the executive is not a 'good leaver', all unvested CDP deferred awards will lapse.	On cessation of employment, for a 'good leaver'[1] their unvested LTIP awards generally remain on foot on termination and are pro-rated for the portion of the vesting period served. These awards are eligible for vesting in the ordinary course, subject to any applicable performance conditions. If the executive is not a 'good leaver', all unvested LTIP awards will lapse.
Malus and clawback	CDP awards (including cash and deferred share awards) and LTIP awards are subject to the Group's malus and clawback policy (see below).	

1 'Good leaver' treatment may apply where the reason for the cessation of employment with BHP is due to forced early retirement, retrenchment or redundancy, termination by mutual agreement or retirement with the agreement of the Group, or such other circumstances that do not constitute resignation or termination for cause.

Malus and clawback

As has been set out in prior Remuneration Reports, for many years we have had malus and clawback provisions in place. During FY2022, we enhanced our malus and clawback policy covering awards made from 2021 under the CDP and LTIP. This enhanced policy further clarified the circumstances in which the Committee is able to reduce or clawback awards, which include:

- an error in the Group's Financial Statements that requires a material downward restatement
- performance of a participant, or of the business or of the Group does not justify vesting or where the participant's conduct or performance has been in breach of their employment contract, any laws, rules, codes of conduct or policies applicable to them or the standards reasonably expected of a person in their position
- misstatement or misrepresentation of the performance of the company
- where any team, business area, member of the Group or profit centre in which the participant works or worked has been found guilty in connection with any regulatory investigation or has been in breach of any laws, rules, codes of conduct or policies applicable to it or the standards reasonably expected of it

- an event that has had, or may have a material adverse effect on the value or reputation of any member of the Group
- where the Committee determines there has been material damage to the Group's social licence to operate
- a catastrophic health, safety, environment or community event or events occurring in any part of the Group
- an act, omission or event occurs which constitutes a material failure of risk management or of other operational systems and controls
- a participant is found to have contributed to circumstances that give rise to a material loss for any Group Company

These malus and clawback provisions apply whether or not awards are made in the form of cash or equity, whether or not the equity has vested, and whether or not employment is ongoing.

Service contracts

The terms of employment for the CEO and Executive KMP are formalised in their employment contracts. The current contracts of the CEO and Executive KMP are not fixed term. BHP may choose to terminate a contract on up to 12 months' notice. BHP can require an executive to work through the notice period or may terminate the individual's contract immediately by paying base salary plus pension contributions in lieu of the notice period. The CEO and Executive KMP must provide up to 12 months' notice for voluntary resignation.

Approach to recruitment and promotion

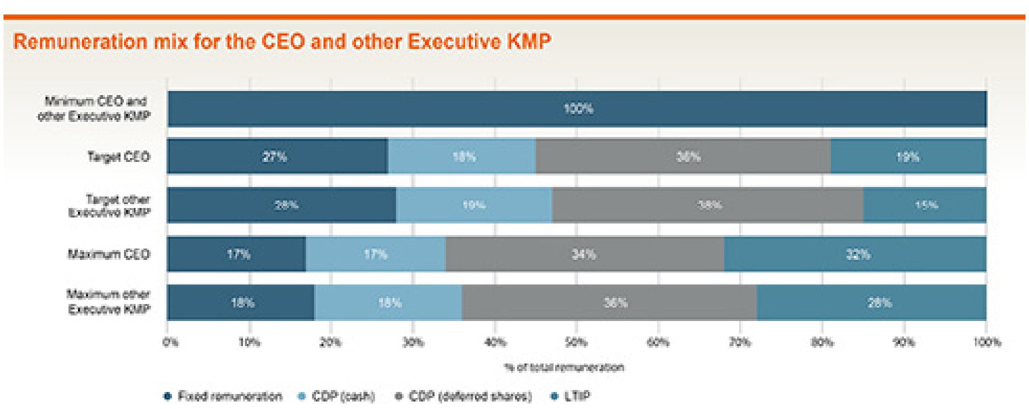
For external candidates that are appointed Executive KMP, the Committee may determine that it is appropriate to provide additional cash and/or equity components to replace any remuneration forfeited or not received from a former employer. It is anticipated any foregone equity awards would be replaced by equity. The value of the replacement remuneration would not be any greater than the fair value of the awards foregone or not received (as determined by the Committee's independent adviser). The Committee would determine appropriate service conditions and performance conditions within BHP's remuneration framework, taking into account the conditions attached to the foregone awards. The Committee is mindful of limiting such payments and not providing any more compensation than is necessary. For any internal Executive KMP appointment, any entitlements provided under former arrangements will be honoured and remain on foot according to their existing terms.

2.3 Potential remuneration outcomes

The Committee recognises market forces influence remuneration practices and it strongly believes the fundamental driver of remuneration outcomes should be performance. It also believes that overall remuneration should be fair to the individual, and remuneration levels should accurately reflect the CEO's and other Executive KMP's responsibilities and contributions, while aligning with the expectations of our shareholders and considering the positioning and relativities of pay and employment conditions across the wider BHP workforce.

The amount of remuneration actually received each year depends on the achievement of business and individual performance that generate sustained shareholder value. Before deciding on the final incentive outcomes for the CEO and other Executive KMP, the Committee first considers the achievement of pre-determined performance conditions. The Committee then applies its overarching discretion to determine what it considers to be a fair and commensurate remuneration level in order to decide if the outcome should be reduced. In this way, the Committee believes it can set a remuneration level for the CEO and other Executive KMP that is sufficient to incentivise and is also fair and commensurate with shareholder expectations and prevailing market conditions.

The diagram below provides the scenarios for the potential total remuneration of the CEO and other Executive KMP at different levels of performance.



Minimum: consists of fixed remuneration, which comprises base salary, pension contributions (10 per cent of base salary) and other benefits (notional 10 per cent of base salary), details of which are set out in 5.1 KMP remuneration table.

Target: consists of fixed remuneration, target CDP (a cash award of 80 per cent of base salary plus two awards of deferred shares each of equivalent value to the cash award, vesting in two and five years, respectively) and target LTIP. The LTIP target value in the chart above is based on the fair value of the award, which is 41 per cent of the face value of 200 per cent of base salary for the CEO and 175 per cent for other Executive KMP. The potential impact of future share price movements is not included in the value of deferred CDP awards or LTIP awards.

Maximum: consists of fixed remuneration, maximum CDP (a cash award of 120 per cent of base salary plus two awards of deferred shares each of equivalent value to the cash award, vesting in two and five years respectively), and maximum LTIP (in the chart above based on the face value of 200 per cent of base salary for the CEO and 175 per cent for other Executive KMP). The potential impact of future share price movements is not included in the value of deferred CDP awards or LTIP awards.

The maximum opportunity represented above is the most that could potentially be paid for each remuneration component. It does not reflect any intention by the Group to award that amount. In determining the maximum remuneration opportunity, the Committee reviews relevant benchmarking data and industry practices and believes the maximum remuneration opportunity is appropriate.

3 Remuneration for the CEO and other Executive KMP

3.1 FY2022 remuneration received by the CEO

The table below is a voluntary non-statutory disclosure of the remuneration received by the CEO during FY2022 and FY2021. This table is unaudited and differs from the audited remuneration calculated in accordance with the Australian Accounting Standards (refer to 5.1 KMP remuneration table and in Financial Statements note 25 Employee share ownership plans).

The difference between the disclosure in the table below and remuneration calculated in accordance with Australian Accounting Standards relates to the CDP and LTIP. The remuneration calculated in accordance with Australian Accounting Standards require the fair value of the CDP and LTIP to be calculated at the time of grant and to be amortised over the relevant vesting periods regardless of the performance outcome. This may not reflect what the executive receives. In the table below, the CDP and LTIP values relate to the performance outcomes and actual amount received each year under the CDP (i.e. against the CDP scorecard) and the LTIP (i.e. the LTIP vesting outcome).

This table is designed to provide greater transparency for shareholders on the remuneration for the CEO during FY2022 and FY2021 as it has a stronger link to performance, with the CDP and LTIP included below representing those amounts that have been received as a consequence of satisfying performance conditions in the relevant financial year.

Details of the components of remuneration are contained in 2.2 Remuneration framework operation and the values in the table are explained further in the notes below.

US$('000)		Base salary	Benefits[1]	Pension[2]	CDP[3]	LTIP[4]	Total
Mike Henry	**FY2022**	**1,700**	**168**	**170**	**3,917**	**8,712**	**14,667**
	FY2021	1,700	120	170	4,692	7,939	14,621

1 Benefits are non-pensionable and include net movements in leave balances, private family health insurance, spouse business-related travel, car parking, fringe benefits tax and personal tax return preparation in required countries.

2 Mike Henry's FY2022 and FY2021 pension contributions were provided based on 10 per cent of base salary.

3 The values shown are the full CDP value (cash and deferred equity) earned as a consequence of performance during FY2022 and FY2021. The FY2022 CDP award will be provided one-third in cash in September 2022 and two-thirds in deferred equity, with one-third due to vest in FY2025 and one-third due to vest in FY2027 (on the terms of the CDP). The FY2021 CDP award was provided one-third in cash in September 2021 and two-thirds in deferred equity, with one-third due to vest in FY2024 and one-third due to vest in FY2026 (on the terms of the CDP).

4 Mike Henry's LTIP award values for FY2022 and FY2021 (refer below) are based on the full awards he received in 2017 and 2016 respectively when he was President Operations, Minerals Australia (prior to becoming and with no proration applied for time as CEO), and 100 per cent of the awards vesting. For FY2022 the LTIP award value is calculated on the average share price for the month of July 2022 (which will be updated for the actual share price on the vesting date in the 2023 Remuneration Report); whereas the LTIP award value for FY2021 was calculated on the actual share price on the vesting date.

A revised remuneration framework took effect from 1 July 2019 and significantly reduced the LTIP grant size for the CEO from 400 per cent of base salary (on a face value basis) to 200 per cent and a rebalancing to a CDP award with a long-term focus. As a result, the remuneration for Mike Henry reported above reflects the transition to this structure and includes the full amounts of the CDP award earned during FY2022 and FY2021 (i.e. irrespective that some elements of the CDP award are deferred) together with the full amounts of the pre-existing LTIP awards vesting at the end of FY2022 and FY2021 which were granted in 2017 and 2016, respectively (i.e. when the LTIP award size was double the current grant size).

Had the current remuneration framework been in place when Mike's 2017 and 2016 LTIP awards were granted and a reduced size awarded, the reported LTIP values would have been US$4.356 million for FY2022 and US$3.970 million for FY2021 (instead of US$8.712 million and US$7.939 million in the table above). The reported total remuneration would have therefore been US$10.311 million for FY2022 and US$10.652 million for FY2021 (instead of US$14.667 million and US$14.621 million in the table above).

CEO pay ratio

The FY2022 CEO pay ratio, calculated using the reported total fixed and variable remuneration above for the CEO, and compared to the median remuneration for all of our employees worldwide was 123:1 (FY2021 – 130:1). The remuneration calculation for all employees is based on actual earnings for the 12 months to 31 March 2022, including annual incentive payments for employees calculated using the Group performance outcome, and vested equity received if applicable. Pension contributions are calculated as the total cost of contributions made by the Group over the 12-month period. Employees on international assignments have been excluded from the analysis as their remuneration structures are generally not consistent with the remuneration received by the CEO as noted in the table above.

The FY2022 ratio of 123:1 at the median compared to the FY2021 ratio of 130:1 reflects the proportion of the CEO's pay being more heavily weighted to variable pay, including share-based long-term incentives, than for other employees. The change from FY2021 to FY2022 is driven by a lower FY2022 CDP outcome of 96 per cent (FY2021: 115 per cent) for the CEO, a higher value of the CEO's vested LTIP award in FY2022 compared to FY2021 and an increase in the median remuneration for all of our employees worldwide.

The Group believes the median pay ratio reflects the diversity of our global business footprint and employee population. BHP's remuneration policies and practices are based on a high degree of alignment and consistency, with total remuneration at all levels providing a competitive package that enables the attraction and retention of talent while also providing at-risk remuneration based on performance.

3.2 FY2022 CDP performance outcomes

The Board and the Committee assessed the Executive KMP's CDP outcomes in light of the Group's performance in FY2022 and took into account performance against the measures in each Executive KMP's CDP scorecard. For the CEO, the Board and the Committee determined a CDP outcome for FY2022 at 96 per cent against the target of 100 per cent (which represents an outcome of 64 per cent against maximum). The Board and Committee believe this outcome is appropriately aligned with the shareholder experience and the interests of the Group's other stakeholders.

The CEO's CDP scorecard outcome for FY2022 is summarised in the following tables, including a narrative description of each performance measure and the CEO's level of achievement, as determined by the Committee and approved by the Board. The level of performance for each measure is determined based on a range of threshold (the minimum necessary to qualify for any reward outcome), target (where the performance requirements are met), and maximum (where the performance requirements are significantly exceeded).

Summary of outcomes for the CEO

					Percentage outcome
Performance measure	Weighting for FY2022	Threshold	Target	Maximum	Mike Henry
HSEC	25%				31%
Financial	50%				40%
Individual	25%				25%
Total	**100%**				**96%**

HSEC

The HSEC targets for the CEO are aligned to the Group's 2030 public sustainability goals. As it has done for several years, when assessing HSEC performance against the scorecard targets, the Committee seeks guidance from the Sustainability Committee. The Committee has taken a holistic view of Group performance in critical areas, including considering any additional matters outside the scorecard targets that the Sustainability Committee has provided and considers relevant.

The performance commentary below is provided against the HSEC scorecard targets, which were set on the basis of operated assets only.

HSEC measures	Scorecard targets	Performance against scorecard targets	Measure outcome
Significant events	No significant (actual level 4) health, safety (including fatalities), environment or community events during the year.	• There were no fatalities or other significant HSEC events during FY2022 at operated assets. • In addition, for a maximum outcome to be awarded, strong progress was required on the development and implementation of controls in relation to the Fatality Elimination Program, sexual harassment and cultural heritage, and this was achieved in relation to the Fatality Elimination Program and cultural heritage for FY2022. While we continued to make progress on the implementation of our actions to eliminate sexual harassment during FY2022, we have more to do in FY2023.	Between target and maximum.
Climate change	Reported GHG emissions in FY2022 are below the FY2017 level. A majority of planned decarbonisation projects are presented for tollgates and all asset adaptation plans are updated. Work undertaken as planned under partnerships with strategic customers in the steel sector established in FY2021, one more partnership formalised, and a review of Scope 3 goals and estimation methodologies completed.	• For FY2022, we improved on our operational GHG emissions target of 14.6Mt, with an outcome of 12.5Mt[1], which was greater than 10% below the target (i.e. required for maximum). • Each region presented 90% of GHG reduction projects schedules and adaptation plans, updated for material changes, which were incorporated in the planning process. The completion of early stage development studies that contributed to the Group's medium term target and financial and economic evaluation of physical climate change risks and adaptation measures (i.e. both required for maximum) was largely completed, with work continuing into FY2023. • During the year, we commenced Phase 1 work for each of the three strategic Memorandum of Understandings (MOUs) signed with steel customers in FY2021 (China Baowu (China), JFE Steel Corporation (Japan) and HBIS Limited (China)), including the commencement and delivery of work plans for each partnership. An additional steelmaking partnership MOU was signed with POSCO (South Korea) in October 2021, a new customer partnership was signed focussed on plant trials with Zenith Steel (China), and a review of BHP Scope 3 goals and methodology was completed. An industrial scale sinter plant emission reduction trial (i.e. required for maximum) was commenced with Zenith Steel in May 2022 relating to the optimisation stage of steel decarbonisation.	Between target and maximum.
Management of priority tailings storage facilities (TSFs)	All priority TSFs are assessed based on key risk indicator data, and are either within appetite or continued operation outside appetite is approved with remediation progressing to plan.	• All priority TSFs are within appetite based on key risk indicator data or continued operation outside appetite is approved with remediation progressing to plan. • We have continued improving our key risk indicator performance with 85% of all key risk indicators for priority TSFs rated either on target or less risk being taken than target, against a target of 85% and 90% required for maximum.	Target.

The outcome against the HSEC measure for FY2022 was 31 per cent out of the target of 25 per cent.

[1] As reported to the Sustainability Committee and Remuneration Committee meetings in early August 2022 and considered for the purposes of determining FY2022 CDP outcomes. The GHG emissions for FY2022 are subject to third-party verification.

Financial

ROCE is underlying profit after taxation (excluding after-taxation finance costs and exceptional items) divided by average capital employed. ROCE is the key financial measure against which CDP outcomes for our senior executives are measured and is, in our view, a relevant measure to assess the financial performance of the Group for this purpose. While ROCE excludes exceptional items, the Committee reviews each exceptional item to assess if it should be included in the result when determining the ROCE CDP outcome.

When we are assessing management's performance, we make adjustments to the ROCE result to allow for changes in commodity prices, foreign exchange movements and other material items (from the levels assumed in setting the targets) to ensure the assessment appropriately measures outcomes that are within the control and influence of the Group and its executives. Of these, changes in commodity prices have historically been the most material due to volatility in prices and the impact on Group revenue and ROCE. As it has done for several years, the Committee seeks guidance each year from the Risk and Audit Committee when assessing financial performance against scorecard targets.

Financial measure	Scorecard targets	Performance against scorecard targets	Measure outcome
ROCE	For FY2022, the target for ROCE was 38.1%, with a threshold of 33.5% and a maximum of 42.0%. Achievement of the ROCE target will result in a target CDP outcome. The ROCE target considers the upside opportunities and downside risks inherent in BHP's businesses, and is an outcome that the Committee believes would be a level of performance that shareholders would view positively. The maximum and threshold are an appropriate range of ROCE outcomes, given the upside opportunities and downside risks, that represent an upper limit of stretch outperformance that would represent the maximum CDP award, and a lower limit of underperformance below which no CDP award should be made. The performance range around target is subject to a greater level of downside risk than there is upside opportunity, mainly due to physical and regulatory asset constraints. Accordingly, the range between threshold and target is somewhat greater than that between target and maximum. For maximum, the Committee takes care not to create leveraged incentives that encourage executives to push for short-term performance that goes beyond our risk appetite and current operational capacity. The Committee retains, and has a track record of applying, downward discretion (but not upwards discretion) to ensure the CDP outcome is appropriately aligned with the overall performance of the Group for the year, and is fair and equitable to management and shareholders.	ROCE of 48.7% was reported by BHP for FY2022. Adjusted for the factors outlined below, ROCE is 36.3%, which is below target. The following adjustments were made to ensure the outcomes appropriately reflect the performance of management for the year: • The full elimination of the impacts of positive movements in commodities prices and exchange rates decreased ROCE by 6.9 percentage points. • Adjustments for other material items made to ensure the outcomes reflect the performance of management for the year decreased ROCE by 5.5 percentage points. This was mainly due to the elimination of the positive effect on reported ROCE outcomes of lower depreciation and lower asset values in the closing balance sheet due to the merger of the Petroleum business with Woodside and the sale of our interest in BMC. This downwards adjustment was necessary to ensure the basis of the ROCE outcome for CDP purposes was the same as the basis upon which Petroleum and our interest in BMC were included in the ROCE target for FY2022. • Having reviewed the FY2022 exceptional items (as described in Financial Statements note 3 Exceptional items), the Committee determined these should not be considered for the purposes of determining the FY2022 ROCE CDP outcome and that no further action was required in respect of exceptional items. The key drivers of the FY2022 ROCE outcome of 36.3% being below the target for FY2022 of 38.1% set at the commencement of the year were: • In Minerals Australia, production volumes were lower than expected mainly driven by labour and supply constraints across most assets associated with COVID-19, delays in the ramp up of South Flank at Western Australian Iron Ore, labour availability issues and interrupted autonomous haulage rollout at BMA, and the longer than planned duration of the smelter maintenance campaign at Olympic Dam. In addition, input prices were higher across all assets. • In Minerals Americas, in addition to unplanned maintenance and higher input prices at all assets, production volumes were impacted by lower than expected recoveries at Pampa Norte due to plant design issues related to the Spence Growth Option and higher clay content, and lower than expected copper concentrator feed grade at Escondida. • In Petroleum, despite achieving planned production, sales volumes were lower than expected due to unfavourable timing, partly offset by better than expected cost performance.	Below target.

The outcome against the ROCE measure for FY2022 was 40 per cent out of the target of 50 per cent.

Individual measures for the CEO

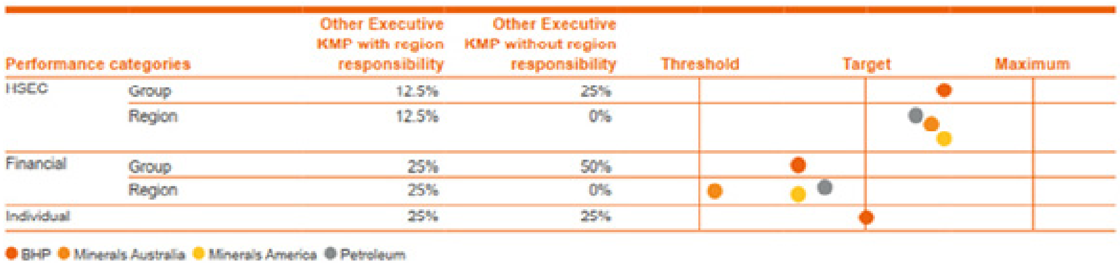
Individual measures for the CEO are determined at the commencement of the financial year. The application of personal measures remains an important element of effective performance management. These measures seek to provide a balance between the financial and non-financial performance requirements that maintain our position as a leader in our industry. The CEO's individual measures for FY2022 included contribution to BHP's overall performance and the management team, and the delivery of projects and initiatives within the scope of the CEO role as specified by the Board, as set out in the table below.

Individual measures	Individual scorecard targets	Performance against scorecard targets	Measure outcome
Social value	Deliver a successful Say on Climate outcome at the 2021 AGMs.	• The Climate Transition Action Plan/Say on Climate was successfully approved at the 2021 AGMs with 85% of votes in favour.	Target.
	Deliver an external update on BHP's embedment and measurement of Social Value.	• A Social Value Framework (SVF) was developed and approved by the Board in October 2021 and subsequently deployed across BHP. In June 2022, the SVF was presented to our workforce as well as externally via an investor roundtable, and both internal and external engagements were received positively.	
People	Increase in female participation by three percentage points.	• Female participation increased in FY2022 by 2.5 percentage points to 32.3% at 30 June 2022, compared to 29.8% at 30 June 2021.	Below target.
	Engagement and Perception Survey (EPS) improvement survey on survey over the year and substantively improve lower performing teams.	• While most of our people continue to feel safe, engaged and enabled, our EPS results declined marginally in FY2022. The EPS results of lower performing teams were, on average, similar in FY2022 compared to the prior year, even though a number of lower performing teams did show improvement.	
Performance	>90% of BHP Operating System (BOS) deployments on track, Operational Excellence Indicator (OEI) > 40 at 75% of sites at end of deployment, and > 75% improving OEI improving assessment-on-assessment for other sites.	• 94% of BOS deployments are on track according to plan. 88% of BOS sites at the end of deployment achieved an OEI score above the target of 40 (with an average OEI score of 43). 91% of sites already in deployment recorded an assessment-on-assessment improvement over FY2022.	Slightly above target.
	Enable the data strategy and associated value creation through transforming data accuracy, consistency and access.	• The data strategy has been reinforced to enable value creation through transformation of data accuracy, consistency and cloud-native access. We have also established a data analytics operating model which retains capabilities in the assets and functions whilst enabling standards and tool replication across the Group to remove duplication, and migrated 1SAP and an additional 78 applications to the cloud to unlock enhanced performance and enhance cybersecurity.	
Portfolio	Progress the strategic review activities with respect to Petroleum, our interest in BMC and New South Wales Energy Coal as approved by the Board.	• We made strong progress on strategic review activities as approved by the Board, including the merger of our Petroleum business with Woodside (completed in June 2022), and the divestments of our interests in Cerrejón (completed in January 2022) and BMC (completed in May 2022). In June 2022, we announced that we will retain New South Wales Energy Coal and will seek approval to continue mining through to cessation of operations in FY2030.	Slightly above target.
	Additional nickel and copper search spaces captured.	• While we secured additional investments in nickel and copper projects, the public offer made for Noront Resources (nickel) was unsuccessful.	
	Continued maturation of the innovation and venture business units.	• Our pursuit of innovation has progressed, with 60 innovation concepts generated for evaluation in FY2022. Strong progress also continues across ventures, with 9 investments executed during FY2022, while ventures also supported market intelligence in our strategic evaluations of new products and processes.	

Overall, it was considered the performance of the CEO against the individual measures for FY2022 had met expectations and warranted an outcome aligned to the target of 25 per cent.

The CDP performance measures for other Executive KMP for FY2022 are similar to those of the CEO outlined above. However, for the other Executive KMP, the weighting of each performance measure will vary to reflect the focus required from each Executive KMP role. As with the CEO, individual performance measures are determined at the start of the financial year. These include the other Executive KMP's contribution to the delivery of projects and initiatives within the scope of their role and the overall performance of the Group. Individual performance of other Executive KMP was reviewed against these measures by the Committee and, on average, were considered to have met expectations and warranted an outcome aligned with target.

The diagram below represents the FY2022 CDP weightings and outcomes against the original scorecard for other Executive KMP.



3.3 FY2022 LTIP performance outcomes

The five-year performance period for the 2017 LTIP award for relevant Executive KMP ended on 30 June 2022. Vesting is subject to achievement of the relative TSR performance conditions and any discretion applied by the Committee (refer to 3.4 Overarching discretion and vesting underpin).

For the 2017 LTIP award to vest in full, BHP's TSR over the performance period from 1 July 2017 to 30 June 2022 must be at or exceed the 80th percentile of the Sector Group TSR and the World TSR. TSR includes returns to BHP shareholders in the form of share price movements along with dividends paid and reinvested in BHP (including cash and in-specie dividends).

BHP's TSR performance was positive 181.7 per cent over the five-year period from 1 July 2017 to 30 June 2022. This is above the 80th percentile of the Sector Group TSR of positive 168.7 per cent and above the 80th percentile of the World TSR of positive 128.8 per cent over the same period. This level of performance results in 100 per cent vesting for the 2017 LTIP award. The value of the CEO's vested 2017 LTIP award has been reported in 3.1 FY2022 remuneration received by the CEO.

The graph below shows BHP's performance relative to comparator groups.

The value of the vested 2017 LTIP award is higher than the value of the award at the time it was granted. With the share price having risen appreciably during the five-year period and strong dividends, 44 per cent of the value realised is due to the value at the time the awards were granted and 56 per cent is due to share price appreciation and dividends. This value increment due to share price appreciation and dividends is consistent with the experience of shareholders over the period.

3.4 Overarching discretion and vesting underpin

The rules of the CDP and LTIP and the terms and conditions of the awards provide the Committee with an overarching discretion to reduce the number of awards that will vest, notwithstanding that the performance condition or the relevant service conditions have been met.

This overarching discretion is a holistic, qualitative judgement and is applied as an underpin test before final vesting is confirmed. It is an important risk management tool to ensure vesting is not simply driven by a formula or the passage of time that may give unexpected or unintended remuneration outcomes.

The Committee considers its discretion carefully each year ahead of the scheduled vesting of CDP and LTIP equity awards in August. It considers performance holistically over the five-year period, including a five-year 'look back' on HSEC performance, profitability, cash flow, balance sheet health, returns to shareholders, corporate governance and conduct. For the five years from FY2018 to FY2022, the Committee noted BHP's continued improvement in HSEC outcomes, strong operational performance with improving production and cost performance, and significant returns to shareholders, together with no governance or conduct issues of note.

Firstly, in respect of the vesting of CDP two-year deferred shares (granted in November 2020 in respect of performance in FY2020), the Committee chose not to exercise its discretion and allowed the CDP awards to vest in full.

Secondly, in respect of the vesting of the 2017 LTIP five-year performance shares, the formulaic outcome of the 2017 LTIP was 100 per cent vesting. Having undertaken the 'look back' review described above, the Committee concluded the vesting outcome was appropriate given Group and individual performance, and chose not to exercise its discretion and allowed 100 per cent of the LTIP awards to vest. There is no upwards discretion available to the Committee in respect of the LTIP and the overarching discretion may only reduce the number of awards that may vest.

3.5 Sign-on performance shares

David Lamont joined BHP as Chief Financial Officer on 1 December 2020. David left his former employer, CSL Limited (CSL), a major Australian company listed on the Australian Stock Exchange, on 30 October 2020. As a consequence of his resignation, certain CSL incentive awards, which were expected to have been paid or vested in 2021 and beyond, were foregone. Replacement BHP awards were provided in accordance with BHP's remuneration framework. In accordance with that policy, remuneration that David forfeited or did not receive as a consequence of leaving CSL to join BHP was partly replaced with 86,279 performance shares (i.e. 77,000 awards granted plus 9,279 additional uplift awards allocated as part of the merger of the Petroleum business with Woodside) and the Committee determined appropriate service and performance conditions.

The performance conditions were a holistic assessment of underlying financial performance of BHP and personal performance of David during the vesting period. At the time of grant, the target was 80 per cent vesting of awards, with a maximum of 100 per cent and a minimum of zero.

The service condition was satisfied and the Committee assessed the performance condition over the relevant performance period (1 December 2020 to 30 June 2022). The Committee considered BHP's TSR, the CDP finance measure outcomes and David's personal performance (with guidance on this assessment from the CEO).

In particular, the Committee considered the following information over the relevant period:

- BHP's relative TSR performance was slightly above the weighted median of BHP's sector peers
- BHP's financial performance, as measured by the CDP finance measure outcomes, was slightly below target
- the CEO's view that David had performed in line with expectations in his role

The Committee exercised its discretion and determined to vest 80 per cent or 69,023 of the performance shares. The awards which will not vest will instead lapse. A holding lock will apply to the vested shares until August 2023, at which time they will be released to David. Should David voluntarily resign or retire during the holding lock period, or be terminated for cause, the shares subject to the holding lock will be forfeited.

3.6 LTIP allocated during FY2022

Following shareholder approval at the 2021 AGMs, 107,183 LTIP awards (in the form of performance rights) were granted to the CEO on 23 November 2021. The face value of the CEO's award was 200 per cent of his base salary of US$1.700 million at the time of grant. The fair value of the awards is ordinarily calculated by multiplying the face value of the award by the fair value factor of 41 per cent (for the current plan design, as determined by the independent adviser to the Committee). The 107,183 LTIP awards for the CEO was determined based on the US$ face value of the LTIP awards of US$3.400 million and calculated using the average share price and US$/A$ exchange rate over the 12 months up to and including 30 June 2021. LTIP awards granted to other Executive KMP during FY2022 were calculated on the same basis as described above for the CEO, except that awards for other Executive KMP had a face value of 175 per cent of base salary.

In addition to the LTIP terms set out in 2.2 Remuneration framework operation, the Committee has determined the following terms for the 2021 LTIP:

Performance period	• 1 July 2021 to 30 June 2026
Performance conditions	• An averaging period of six months will be used in the TSR calculations. • BHP's TSR relative to the weighted median TSR of sector peer companies selected by the Committee (Sector Group TSR) and the MSCI World Index (World TSR) will determine the vesting of 67% and 33% of the award, respectively. • Each company in the sector peer group is weighted by market capitalisation. The maximum weighting for any one company is 25% and the minimum is set at 0.4% to reduce sensitivity to any single sector peer company. • For the whole of either portion of the award to vest, BHP's TSR must be at or exceed the weighted 80th percentile of the Sector Group TSR or the World TSR (as applicable). Threshold vesting (25% of each portion of the award) occurs where BHP's TSR equals the weighted 50th percentile (i.e. the median) of the Sector Group TSR or the World TSR (as applicable). Vesting occurs on a sliding scale between the weighted 50th and 80th percentiles.
Sector peer group companies(1)	• Resources (85%): Anglo American, Fortescue Metals, Freeport-McMoRan, Glencore, Rio Tinto, Southern Copper, Teck Resources, Vale. • Oil and gas (15%): Apache, BP, Canadian Natural Res., Chevron, ConocoPhillips, Devon Energy, EOG Resources, ExxonMobil, Occidental Petroleum, Shell, Woodside.

1 From November 2018, CONSOL Energy was removed from the sector comparator group, as due to its internal restructuring it had become a less comparable peer.

3.7 FY2023 remuneration for the CEO and other Executive KMP

The remuneration for the CEO and other Executive KMP in FY2023 will be in accordance with 2.2 Remuneration framework operation.

Base salary review

Base salaries are reviewed annually and increases are applicable from 1 September. The CEO commenced in the role on 1 January 2020 and did not receive a base salary increase in FY2021 or FY2022. The Board and the Committee have assessed the CEO and other Executive KMP's performance and determined that, as of 1 September 2022:

- The CEO's and other Executive KMP's base salaries will increase by 3 per cent following a review by the Committee of the external market demand for senior executive talent and updated benchmarking. The Committee considers the increases modest in this context, as well as being below the median salary increase applied for other BHP employees of approximately 4 per cent.
- In addition, having reviewed Ragnar Udd's performance and development in role since appointment in November 2020, including the dynamic context and growing importance of the Americas region to the Group, the Committee provided an additional increase of 6 per cent increase in base salary (i.e. 9 per cent in total).

The CEO's and other Executive KMP's base salaries will be kept under review in future years to ensure they remain competitive.

FY2023 CDP performance measures

For FY2023, the Board and the Committee have set the following CDP scorecard performance measures for the CEO. The weighting of each performance measure and specific individual performance measures will vary for other Executive KMP to reflect the focus required from each of them in their role:

Performance categories	Weighting	Target measures
Safety and Sustainability	25%	The following Safety and Sustainability (previously HSEC) performance measures are designed to incentivise achievement of the Group's public goals. Significant events (10%): No significant (actual level 4) health, safety (including fatalities), environment or community events during the year. Achievement of sexual harassment and Fatality Implementation Program FY2023 deliverables. Climate change (10%): FY2023 GHG emissions targets met, aligned with progress towards the 2030 medium term target. A majority of planned decarbonisation projects are presented for tollgates or milestones as scheduled. Progress Memorandum of Understanding commitments with steel customers. Indigenous partnerships (5%): Achieve uplift in Indigenous, Traditional Owner and First Nations vendor procurement. Planned progress on Indigenous employment/participation targets. Release revised Global Indigenous Peoples Strategy.
Financial	50%	ROCE is underlying profit after taxation (excluding after-taxation finance costs and exceptional items) divided by average capital employed. When assessing management's performance, adjustments are made to the ROCE result to allow for changes in commodity prices, foreign exchange movements and other material items to ensure the assessment appropriately measures outcomes that are within the control and influence of the Group and its executives. For reasons of commercial sensitivity, the target for ROCE is not disclosed in advance.
Individual	25%	The CEO's individual measures for FY2023 comprise the contribution to BHP's overall performance and the management team and the delivery of projects and initiatives within the scope of the CEO role as set out by the Board. These include projects and initiatives in respect of social value, people, performance and portfolio. These performance measures are aligned with medium and long-term strategy aspirations that are intended to drive long-term value for shareholders and other stakeholders, and the Board considers a 25% weighting in the CDP to be appropriate for these important elements. Individual performance measures for other Executive KMP similarly contribute to the delivery of projects and initiatives within the scope of their role and BHP's overall performance.

FY2023 LTIP award

The maximum face value of the CEO's FY2023 LTIP award under the remuneration framework is US$3.500 million, being 200 per cent of the CEO's base salary at the time of grant. The number of LTIP awards in FY2023 has been determined using the share price and US$/A$ exchange rate over the 12 months up to and including 30 June 2022 (adjusted to eliminate the value of the in-specie dividend distributed in connection with the merger of BHP's Petroleum business with Woodside from the daily BHP Group Limited share prices between 1 July 2021 to 31 May 2022). Based on this, a FY2023 grant of 118,853 LTIP awards is proposed and approval for this LTIP grant will be sought from shareholders at the 2022 AGM. If approved, the award will be granted following the AGM (i.e. in or around November 2022, subject to securities dealing considerations). The FY2023 LTIP award will use the same performance and service conditions as the FY2022 LTIP award, except that the MSCI World Metals and Mining Index will replace the sector group companies comparator group, due to the merger of the Petroleum business with Woodside. Accordingly, the FY2023 LTIP award will use the following comparator groups: the new MSCI World Metals and Mining Index and the existing MSCI World Index, which will determine the vesting of 67 per cent and 33 per cent of the award, respectively.

LTIP awards granted to other Executive KMP during FY2023 will be calculated on the same basis as described above for the CEO, except that awards for other Executive KMP will have a maximum face value of 175 per cent of base salary.

4 Remuneration for Non-executive Directors

Our remuneration framework for Non-executive Directors aligns with the Australian Securities Exchange Corporate Governance Council's Principles and Recommendations (4th Edition).

4.1 Remuneration framework

The following table shows the components for Non-executive Directors' remuneration. Non-executive Directors are not eligible to participate in any CDP or LTIP awards.

	Fees	Benefits
Purpose and link to strategy	Competitive fees are paid in order to attract and retain high-quality individuals, and to provide appropriate remuneration for the role undertaken. Fees are set at a competitive level based on benchmarks and advice provided by external advisers.	Competitive benefits are paid in order to attract and retain high-quality individuals and adequately remunerate them for the role undertaken, including the considerable travel burden.
Remuneration components	The Chair is paid a single fee for all responsibilities. Non-executive Directors are paid a base fee and relevant committee membership fees. Committee Chairs and the Senior Independent Director are paid an additional fee to reflect their extra responsibilities. All fee levels are reviewed annually and any changes are ordinarily effective from 1 July. Fee levels reflect the size and complexity of the Group and the geographies in which the Group operates. The economic environment and the financial performance of the Group are taken into account. Consideration is also given to salary reviews across the rest of the Group. Where the payment of pension contributions is required by law, these contributions are deducted from the Director's overall fee entitlements.	Travel allowances are paid on a per-trip basis reflecting the considerable travel burden imposed on members of the Board as a consequence of the global nature of the organisation and apply when a Director needs to travel internationally to attend a Board meeting or site visits at our multiple geographic locations. As a consequence of our prior dual listed company structure, Non-executive Directors are required to prepare personal tax returns in Australia and the UK, regardless of whether they reside in one or neither of those countries. They are accordingly reimbursed for the costs of personal tax return preparation in whichever of the UK and/or Australia is not their place of residence (including payment of the tax cost associated with the provision of the benefit).

Letters of appointment

The Board has adopted a letter of appointment that contains the terms on which Non-executive Directors will be appointed, including the basis upon which they will be indemnified by the Group. The Board has adopted a policy under which all Non-executive Directors must seek re-election at the AGM each year. As a result of requiring re-election each year, Non-executive Directors do not have a fixed term in their letter of appointment.

The maximum aggregate fees payable to Non-executive Directors (including the Chair) were approved by shareholders at the 2008 AGMs at US$3.800 million per annum. This sum includes base fees, Committee fees and pension contributions. Travel allowances and non-monetary benefits are not included in this limit.

Payments on early termination or loss of office

There are no provisions in any of the Non-executive Directors' appointment arrangements for compensation payable on early termination of their directorship. A Non-executive Director may resign on reasonable notice. No payments are made to Non-executive Directors on loss of office.

4.2 Non-executive Directors' remuneration in FY2023

In FY2023, the remuneration for the Non-executive Directors will be paid in accordance with the remuneration framework set out above. Fee levels for the Non-executive Directors and the Chair are reviewed annually. The review includes benchmarking against peer companies, with the assistance of external advisers.

From 1 July 2017, the Chair's annual fee was reduced by approximately 8 per cent from US$0.960 million to US$0.880 million and will remain at that level for FY2023. This fee reduction was in addition to the reduction of approximately 13 per cent from US$1.100 million to US$0.960 million effective 1 July 2015. Base fee levels for Non-executive Directors will remain at the reduced levels that took effect from 1 July 2015, at which time they were reduced by approximately 6 per cent from US$0.170 million to US$0.160 million per annum.

The below table sets out the annualised total remuneration and total fixed fees for FY2023, which remain unchanged from FY2022.

Levels of fees and travel allowances for Non-executive Directors (in US$)	From 1 July 2022
Base annual fee	160,000
Plus additional fees for:	
Senior Independent Director	48,000
Committee Chair:	
Risk and Audit	60,000
Remuneration	45,000
Sustainability	45,000
Nomination and Governance	No additional fee
Committee membership:	
Risk and Audit	32,500
Remuneration	27,500
Sustainability	27,500
Nomination and Governance	18,000
Travel allowance:[1]	
Greater than 3 but less than 10 hours	7,000
10 hours or more	15,000
Chair's fee	880,000

1 In relation to travel for Board business, the time thresholds relate to the flight time to travel to the meeting location (i.e. one way flight time). Only one travel allowance is paid per round trip.

5 Statutory KMP remuneration and other disclosures

5.1 KMP remuneration table

The table below has been prepared in accordance with relevant accounting standards. Remuneration data for KMP are for the periods of FY2021 and FY2022 that they were KMP. More information on the framework and operation of each element of remuneration is provided earlier in this Report.

Share-based payments

The figures included in the shaded columns of the statutory table below for share-based payments were not actually provided to the Executive KMP including the CEO during FY2022 or FY2021. These amounts are calculated in accordance with accounting standards and are the amortised IFRS fair values at grant date of equity and equity-related instruments that have been granted to the executives. For information on awards that were allocated and vested during FY2022 and FY2021, refer to 5.2 Equity awards.

			Short-term benefits			Post-employment benefits	Share-based payments		
US$('000)	Financial year	Base salary / Fees[1]	Annual cash incentive[2]	Non-monetary benefits[3]	Other benefits[4]	Retirement benefits[5]	Value of CDP/STIP awards[2, 6]	Value of LTIP awards[6]	Total
Executive Director									
Mike Henry	**FY2022**	**1,700**	**1,306**	**168**	**–**	**170**	**1,890**	**2,297**	**7,531**
	FY2021	1,700	1,564	120	–	170	1,487	2,315	7,356
Other Executive KMP									
Edgar Basto	**FY2022**	**950**	**646**	**45**	**–**	**95**	**698**	**786**	**3,220**
	FY2021	950	866	60	–	95	432	839	3,242
Peter Beaven[7]	**FY2021**	**417**	**400**	**39**	**–**	**83**	**876**	**787**	**2,602**
David Lamont	**FY2022**	**950**	**730**	**37**	**300**	**95**	**615**	**1,754**	**4,481**
	FY2021	554	510	42	–	55	167	935	2,263
Daniel Malchuk[7]	**FY2021**	**333**	**307**	**23**	**–**	**67**	**765**	**620**	**2,115**
Geraldine Slattery	**FY2022**	**850**	**700**	**–**	**695**	**128**	**1,019**	**856**	**4,248**
	FY2021	800	800	25	–	160	777	930	3,492
Ragnar Udd	**FY2022**	**850**	**653**	**32**	**–**	**85**	**576**	**676**	**2,872**
	FY2021	567	521	49	420	57	190	483	2,287
Non-Executive Directors									
Terry Bowen	**FY2022**	**248**	**–**	**–**	**32**	**15**	**–**	**–**	**295**
	FY2021	219	–	–	4	12	–	–	235
Malcolm Broomhead	**FY2022**	**165**	**–**	**–**	**31**	**12**	**–**	**–**	**208**
	FY2021	195	–	–	3	10	–	–	208
Ian Cockerill	**FY2022**	**233**	**–**	**–**	**61**	**–**	**–**	**–**	**294**
	FY2021	220	–	–	–	–	–	–	220
Xiaoqun Clever[8]	**FY2022**	**193**	**–**	**–**	**18**	**–**	**–**	**–**	**211**
	FY2021	144	–	–	–	–	–	–	144
Anita Frew[9]	**FY2022**	**81**	**–**	**–**	**2**	**–**	**–**	**–**	**83**
	FY2021	220	–	–	2	–	–	–	222
Gary Goldberg[3]	**FY2022**	**301**	**–**	**–**	**71**	**–**	**–**	**–**	**372**
	FY2021	246	–	–	2	–	–	–	248
Michelle Hinchliffe[8]	**FY2022**	**64**	**–**	**–**	**30**	**–**	**–**	**–**	**94**
Susan Kilsby[9]	**FY2022**	**69**	**–**	**–**	**16**	**–**	**–**	**–**	**85**
	FY2021	220	–	–	1	–	–	–	221
Ken MacKenzie	**FY2022**	**863**	**–**	**–**	**32**	**17**	**–**	**–**	**912**
	FY2021	864	–	–	4	16	–	–	884
Lindsay Maxsted[9]	**FY2021**	**33**	**–**	**–**	**3**	**2**	**–**	**–**	**38**
John Mogford	**FY2022**	**234**	**–**	**–**	**17**	**–**	**–**	**–**	**251**
	FY2021	215	–	–	2	–	–	–	217
Christine O'Reilly[8]	**FY2022**	**276**	**–**	**–**	**32**	**–**	**–**	**–**	**308**
	FY2021	162	–	–	–	9	–	–	171
Catherine Tanna[8]	**FY2022**	**49**	**–**	**–**	**30**	**4**	**–**	**–**	**83**
Shriti Vadera[9]	**FY2021**	**74**	**–**	**–**	**1**	**–**	**–**	**–**	**75**
Dion Weisler[3]	**FY2022**	**191**	**–**	**–**	**32**	**14**	**–**	**–**	**237**
	FY2021	178	–	–	1	9	–	–	188

1 Base salaries and fees shown in this table reflect the amounts paid over the 12-month period from 1 July 2021 to 30 June 2022 for each Executive KMP and Non-Executive Director. There were no changes to Executive KMP base salaries during FY2022. The following Non-Executive Directors have received special exertion fees for additional or extra services they performed in FY2022 in connection with major transactions undertaken by the Group: in connection with the unification of BHP's dual listed structure – Gary Goldberg received an additional fee of US$20,000 as Chair of the Transaction Committee and Ian Cockerill and Terry Bowen received US$12,500 each as members of the Transaction Committee; and in connection with the merger of the Petroleum business with Woodside – Christine O'Reilly received an additional fee of US$20,000 as Chair of the Transaction Committee and Terry Bowen and John Mogford received US$12,500 each as members of the Transaction Committee.

2 Annual cash incentive in this table is the cash portion of CDP awards earned in respect of performance during each financial year for each executive. CDP is provided one-third in cash and two-thirds in deferred equity (which are included in the Share-based payments columns of the table). The cash portion of CDP awards is paid to Executive KMP in September of the year following the relevant financial year. The minimum possible value awarded to each individual is nil and the maximum is 360 per cent of base salary (120 per cent in cash and 240 per cent in deferred equity). For FY2022, Executive KMP earned the following CDP awards as a percentage of the maximum (the remaining portion has been forfeited): Mike Henry 64 per cent, Edgar Basto 57 per cent, David Lamont 64 per cent, Geraldine Slattery 69 per cent, and Ragnar Udd 64 per cent. Peter Beaven's and Daniel Malchuk's FY2021 CDP was paid in cash and prorated to reflect the period served until they ceased to be KMP on 30 November 2020 and 31 October 2020 respectively.

3 Non-monetary benefits are non-pensionable and include items such as net leave accruals, private family health insurance, spouse business-related travel, car parking, fringe benefits tax and personal tax return preparation in required countries.

4 Other benefits are non-pensionable and for FY2022 include a sign-on cash award on commencement of employment for David Lamont representing compensation for remuneration that David forfeited or did not receive as a consequence of leaving CSL to join BHP in 2020; an encashment of annual leave entitlements under the US Annual Leave policy for Geraldine Slattery, together with a retention award for Geraldine to ensure her services were retained by BHP after the August 2021 announcement of the merger of the Petroleum business with Woodside; and in FY2021, a one-off relocation allowance (with no trailing entitlements) provided to Ragnar Udd relating to his international relocation from Australia to Chile. The majority of the amounts disclosed for benefits for Non-executive Directors are usually travel allowances (amounts of between US$ nil and US$70,000 for FY2022) however, the COVID-19 pandemic restricted Non-executive Director travel during FY2021 and FY2022. For FY2022, amounts of between US$ nil and US$4,000 are included in respect of tax return preparation; and amounts of between US$ nil and US$1,500 are included in respect of the reimbursement of the tax cost associated with the provision of taxable benefits.

5 Retirement benefits for each Executive KMP in FY2021 and FY2022 were 10 per cent of base salary as per the remuneration framework, with the exception of the retirement benefits reported for Geraldine Slattery of 15 per cent of base salary for FY2022 and the retirement benefits reported for Peter Beaven, Daniel Malchuk and Geraldine Slattery of 20 per cent of base salary for FY2021 in accordance with prior remuneration framework. Non-Executive Director fees are inclusive of minimum superannuation contributions of up to 10 per cent of remuneration for FY2022 in accordance with Australian superannuation legislation. No other pension contributions were paid.

6 The IFRS fair value of CDP and LTIP awards is estimated at grant date. Refer to Financial Statements note 25 Employee share ownership plans.

7 The remuneration reported for Peter Beaven and Daniel Malchuk reflects service as Executive KMP up to 30 November 2020 and 31 October 2020, respectively.

8 The FY2021 remuneration for Xiaoqun Clever and Christine O'Reilly relates to part of the year only, as they joined the Board on 1 October 2020 and 12 October 2020 respectively. The FY2022 remuneration for Michelle Hinchliffe and Catherine Tanna relates to part of the year only, as they joined the Board on 1 March 2022 and 4 April 2022 respectively.

9 The FY2022 remuneration for Anita Frew and Susan Kilsby relates to part of the year only, as they retired from the Board on 11 November 2021. The FY2021 remuneration for Lindsay Maxsted and Shriti Vadera relates to part of the year only, as they retired from the Board on 4 September 2020 and 15 October 2020 respectively.

5.2 Equity awards

The interests held by Executive KMP under the Group's employee equity plans are set out in the table below. Each equity award is a right to acquire one ordinary share in BHP Group Limited upon satisfaction of the vesting conditions. Our mandatory minimum performance requirements for securities dealing governs and restricts dealing arrangements and the provision of shares on vesting or exercise of awards. No interests under the Group's employee equity plans are held by related parties of Executive KMP.

Approval from BHP's shareholders for the issue of equity awards to the CEO under the CDP and LTIP was obtained under ASX Listing Rule 10.14 at the 2021 AGM.

DEP applies to awards provided to Executive KMP under the CDP and LTIP as detailed in 2.2 Remuneration framework operation. No DEP is payable on MAP awards previously provided to Executive KMP.

Executive KMP received or will receive awards under the CDP, STIP and LTIP. The terms and conditions of CDP and LTIP awards, including the performance conditions, are described in 2.2 Remuneration framework operation.

BHP senior management who are not KMP receive awards under the MAP. While no MAP awards were granted to Executive KMP after becoming KMP, Edgar Basto, Geraldine Slattery and Ragnar Udd still hold MAP awards that were allocated to them prior to commencing their Executive KMP service.

Award type	Date of grant	At 1 July 2021	Granted	Uplift[1]	Vested	Lapsed	At 30 June 2022	Award vesting date[2]	Market price on date of:		Gain on awards ('000)[5]	DEP on awards ('000)
									Grant[3]	Vesting[4]		
Mike Henry												
CDP	23-Nov-21	–	49,304	–	–	–	49,304	Aug 26	A$38.05	–	–	–
CDP	23-Nov-21	–	49,304	–	–	–	49,304	Aug 23	A$38.05	–	–	–
CDP	20-Oct-20	44,348	–	–	–	–	44,348	Aug 25	A$35.90	–	–	–
CDP	20-Oct-20	44,348	–	–	–	–	44,348	Aug 22	A$35.90	–	–	–
STIP	20-Nov-19	17,420	–	–	17,420	–	–	18 Aug 21	A$37.24	A$47.70	A$831	A$66
LTIP	23-Nov-21	–	107,183	–	–	–	107,183	Aug 26	A$38.05	–	–	–
LTIP	20-Oct-20	140,239	–	–	–	–	140,239	Aug 25	A$35.90	–	–	–
LTIP	20-Nov-19	153,631	–	–	–	–	153,631	Aug 24	A$37.24	–	–	–
LTIP	18-Dec-18	172,413	–	–	–	–	172,413	Aug 23	A$33.50	–	–	–
LTIP	24-Nov-17	218,020	–	–	–	–	218,020	Aug 22	A$27.97	–	–	–
LTIP	9-Dec-16	192,360	–	–	192,360	–	–	18 Aug 21	A$25.98	A$47.70	A$9,176	A$1,634
Edgar Basto												
CDP	23-Nov-21	–	27,312	3,292	–	–	30,604	Aug 26	A$38.05	–	–	–
CDP	23-Nov-21	–	27,312	3,292	–	–	30,604	Aug 23	A$38.05	–	–	–
LTIP	23-Nov-21	–	52,409	6,316	–	–	58,725	Aug 26	A$38.05	–	–	–
LTIP	20-Oct-20	68,572	–	8,263	–	–	76,835	Aug 25	A$35.90	–	–	–
MAP	19-May-20	28,245	–	3,404	–	–	31,649	Aug 24	A$35.05	–	–	–
MAP	19-May-20	28,245	–	3,404	–	–	31,649	Aug 23	A$35.05	–	–	–
MAP	25-Sep-19	28,245	–	3,404	–	–	31,649	Aug 22	A$36.53	–	–	–
MAP	24-Sep-18	27,651	–	–	27,651	–	–	18 Aug 21	A$33.83	A$47.70	A$1,319	–
David Lamont												
Performance shares	1-Dec-20	77,000	–	9,279	–	–	86,279	Aug 22	A$38.56	–	–	–
CDP	23-Nov-21	–	16,072	1,937	–	–	18,009	Aug 26	A$38.05	–	–	–
CDP	23-Nov-21	–	16,072	1,937	–	–	18,009	Aug 23	A$38.05	–	–	–
LTIP	23-Nov-21	–	52,409	6,316	–	–	58,725	Aug 26	A$38.05	–	–	–
LTIP	1-Dec-20	68,572	–	8,263	–	–	76,835	Aug 25	A$38.56	–	–	–
Geraldine Slattery												
CDP	23-Nov-21	–	25,219	3,039	–	–	28,258	Aug 26	A$38.05	–	–	–
CDP	23-Nov-21	–	25,219	3,039	–	–	28,258	Aug 23	A$38.05	–	–	–
CDP	20-Oct-20	25,490	–	3,072	–	–	28,562	Aug 25	A$35.90	–	–	–
CDP	20-Oct-20	25,490	–	3,072	–	–	28,562	Aug 22	A$35.90	–	–	–
STIP	20-Nov-19	6,628	–	–	6,628	–	–	18 Aug 21	A$37.24	A$47.70	A$316	A$25
LTIP	23-Nov-21	–	46,892	5,651	–	–	52,543	Aug 26	A$38.05	–	–	–
LTIP	20-Oct-20	54,136	–	6,524	–	–	60,660	Aug 25	A$35.90	–	–	–
LTIP	20-Nov-19	104,748	–	12,623	–	–	117,371	Aug 24	A$37.24	–	–	–
MAP	21-Feb-19	28,527	–	3,438	–	–	31,965	Aug 23	A$34.83	–	–	–
MAP	21-Feb-19	28,527	–	3,438	–	–	31,965	Aug 22	A$34.83	–	–	–
MAP	24-Sep-18	28,527	–		28,527	–	–	18 Aug 21	A$33.83	A$47.70	A$1,361	–
Ragnar Udd												
CDP	23-Nov-21	–	16,434	1,981	–	–	18,415	Aug 26	A$38.05	–	–	–
CDP	23-Nov-21	–	16,434	1,981	–	–	18,415	Aug 23	A$38.05	–	–	–
LTIP	23-Nov-21	–	46,892	5,651	–	–	52,543	Aug 26	A$38.05	–	–	–
LTIP	2-Nov-20	61,354	–	7,394	–	–	68,748	Aug 25	A$33.81	–	–	–
MAP	21-Aug-20	21,231	–	2,559	–	–	23,790	Aug 24	A$38.36	–	–	–
MAP	21-Aug-20	21,231	–	2,559	–	–	23,790	Aug 23	A$38.36	–	–	–
MAP	25-Sep-19	21,231	–	2,559	–	–	23,790	Aug 22	A$36.53	–	–	–
MAP	24-Sep-18	25,565	–		25,565	–	–	18 Aug 21	A$33.83	A$47.70	A$1,219	–

1 Uplift awards granted as a consequence of the merger of the Petroleum business with Woodside. For the CEO shareholder approval for these awards will be sought at the 2022 AGM and following approval these would be granted in or around November 2022. Uplift awards for other Executive KMP were granted on 17 June 2022.

2 Where the vesting date is not yet known, the estimated vesting month is shown. Where awards lapse, the lapse date is shown. If the vesting conditions are met, awards will vest on or as soon as practicable after the first non-prohibited period date occurring after 30 June of the preceding year of vest. The year of vesting is the second (STIP and CDP two-year awards), third (MAP), fourth (MAP) or fifth (MAP, CDP five-year awards and LTIP) financial year after grant. All awards are conditional awards and have no exercise period, exercise price or expiry date; instead ordinary fully paid shares are automatically delivered upon the vesting conditions being met. Where vesting conditions are not met, the conditional awards will immediately lapse.

3 The market price shown is the closing price of BHP shares on the relevant date of grant. No price is payable by the individual to receive a grant of awards. The IFRS fair value of the CDP and LTIP awards granted in FY2022 at the grant date of 23 November 2021 are as follows: CDP – A$38.05 and LTIP – A$18.92.

4 The market price shown is the closing price of BHP shares on the relevant date of vest.

5 The gain on awards is calculated using the market price on date of vesting or exercise (as applicable) less any exercise price payable. The amounts that vested and were lapsed for the awards during FY2022 are as follows: CDP – 100 per cent vested; LTIP – 100 per cent vested; MAP – 100 per cent vested.

5.3 Estimated value range of equity awards

The current face value (and estimate of the maximum possible total value) of equity awards allocated during FY2022 and yet to vest are the awards as set out in the previous table multiplied by the current share price of BHP Group Limited. The minimum possible total value of the awards is nil. The actual value that may be received by participants in the future cannot be determined as it is dependent on and therefore fluctuates with the share prices of BHP Group Limited at the date that any particular award vests or is exercised.

Five-year share price, dividend and earnings history

The table below provides the five-year share price history for BHP Group Limited, history of dividends paid and the Group's earnings.

BHP Group Limited	FY2022	FY2021	FY2020	FY2019	FY2018
Share price at beginning of year	**A$48.22**	A$35.82	A$41.68	A$33.60	A$23.23
Share price at end of year	**A$41.25**	A$48.57	A$35.82	A$41.16	A$33.91
Dividends paid	**A$10.18**[1]	A$2.07	A$2.13	A$3.08[2]	A$1.24
Attributable profit (US$ million, as reported)	**30,900**	11,304	7,956	8,306	3,705

1. The FY2022 dividends paid includes A$5.38 in respect of the in-specie dividend associated with the merger of the Petroleum business with Woodside.

2 The FY2019 dividends paid includes A$1.41 in respect of the special dividend associated with the divestment of Onshore US.

The highest and lowest closing share price during FY2022 were A$54.06 and A$35.56 respectively.

5.4 Ordinary share holdings and transactions

The number of ordinary shares in BHP Group Limited held directly, indirectly or beneficially, by each individual (including shares held in the name of all close members of the Director's or Executive KMP's family and entities over which either the Director or Executive KMP or the family member has, directly or indirectly, control, joint control or significant influence) are shown below. No shares are held nominally by any KMP or their related parties. These are ordinary shares held without performance conditions or restrictions and are included in MSR calculations for each individual.

	Held at 1 July 2021[1]	Purchased	Received as remuneration[2]	Sold	Held at 30 June 2022
Mike Henry	395,241	–	245,423	119,072	521,592
Edgar Basto	134,889	–	27,651	32,502	130,038
David Lamont	6,345	–	–	–	6,345
Geraldine Slattery[3, 4]	100,917	–	35,681	9,366	127,232
Ragnar Udd[3]	105,816	–	25,565	12,426	118,955
Terry Bowen	11,000	–	–	–	11,000
Malcolm Broomhead	19,000	–	–	–	19,000
Xiaoqun Clever	7,000	1,000	–	–	8,000
Ian Cockerill[3]	13,188	1,111	–	–	14,299
Anita Frew[6]	15,000	–	–	–	15,000
Gary Goldberg[4]	10,000	2,000	–	–	12,000
Michelle Hinchliffe[5]	–	8,508	–	–	8,508
Susan Kilsby[6]	6,900	–	–	–	6,900
Ken MacKenzie	52,351	–	–	–	52,351
John Mogford	13,938	–	–	–	13,938
Christine O'Reilly[3]	7,420	2,000	–	–	9,420
Catherine Tanna[5]	10,400	–	–	–	10,400
Dion Weisler	1,544	6,000	–	–	7,544

1 Includes shares in BHP Group Plc held directly, indirectly or beneficially, by each individual (including shares held in the name of all close members of the Director's or Executive KMP's family and entities over which either the Director or Executive KMP or the family member has, directly or indirectly, control, joint control or significant influence) prior to unification.

2 Includes DEP in the form of shares on equity awards vesting, where applicable, as disclosed in 5.2 Equity awards.

3 The opening balances for Ian Cockerill, Christine O'Reilly, Geraldine Slattery and Ragnar Udd have been adjusted to include an additional 929 shares, 420 shares, 3,592 shares and 398 shares, respectively.

4 The following BHP Group Limited shares were held in the form of American Depositary Shares: 1,892 for Geraldine Slattery and 6,000 for Gary Goldberg.

5 The opening balances for Michelle Hinchliffe and Catherine Tanna reflect their shareholdings on the date that each became Non-executive Directors being 1 March 2022 and 4 April 2022, respectively.

6 Shares shown as held by Anita Frew and Susan Kilsby at 30 June 2022 are their balances at the date of their retirement from the Board on 11 November 2021.

5.5 Prohibition on hedging of BHP shares and equity instruments

The Executive KMP may not use unvested BHP equity awards as collateral or protect the value of any unvested BHP equity awards or the value of shares and securities held as part of meeting the MSR.

Any securities that have vested and are no longer subject to restrictions, or not held as part of meeting the MSR, may be subject to hedging arrangements or used as collateral, provided that prior consent is obtained.

5.6 Share ownership guidelines and the MSR

The share ownership guidelines and the MSR help to ensure the interests of Directors, executives and shareholders remain aligned.

The CEO and other Executive KMP are expected to grow their holdings to the MSR from the scheduled vesting of their employee awards over time. The MSR is tested at the time that shares are to be sold. Shares may be sold to satisfy tax obligations arising from the granting, holding, vesting, exercise or sale of the employee awards or the underlying shares whether the MSR is satisfied at that time or not.

For FY2022:

- The MSR for the CEO was five times annual pre-tax base salary. At the end of FY2022, the CEO met the MSR.
- The MSR for other Executive KMP was three times annual pre-tax base salary. At the end of FY2022, the other Executive KMP met the MSR, except for David Lamont, as he was appointed as Executive KMP on 1 December 2020.
- No Executive KMP sold or purchased shares during FY2022, other than sales to satisfy taxation obligations, apart from Edgar Basto, who sold shares in order to fund the purchase of a residential dwelling.

Effective 1 July 2020, a two-year post-retirement shareholding requirement for the CEO applies from the date of retirement, which will be the lower of the CEO's MSR or the CEO's actual shareholding at the date of retirement.

Subject to securities dealing constraints, Non-executive Directors have agreed to apply at least 25 per cent of their remuneration (base fees plus Committee fees) to the purchase of BHP shares until they achieve an MSR equivalent in value to one year of remuneration (base fees plus Committee fees). Thereafter, they must maintain at least that level of shareholding throughout their tenure. At the end of FY2022, each Non-executive Director met the MSR.

5.7 Transactions with KMP

During the financial year, there were no transactions between the Group and its subsidiaries and KMP (including their related parties) (2021: US$ nil; 2020: US$ nil). There were no amounts payable by or loans with KMP (including their related parties) at 30 June 2022 (2021: US$ nil).

A number of KMP hold or have held positions in other companies (i.e. personally related entities) where it is considered they control or significantly influence the financial or operating policies of those entities. There have been no transactions with those entities and no amounts were owed by the Group to personally related entities or any other related parties (2021: US$ nil; 2020: US$ nil).

This Remuneration Report was approved by the Board on 16 August 2022 and signed on its behalf by:

Christine O'Reilly
Chair, Remuneration Committee
16 August 2022

Financial Statements

Refer to the pages beginning on page F-1 in this Annual Report.

Additional information

1 Financial information summary

We prepare our Consolidated Financial Statements in accordance with International Financial Reporting Standards (IFRS), as issued by the International Accounting Standards Board. We publish our Consolidated Financial Statements in US dollars. All Consolidated Income Statement, Consolidated Balance Sheet and Consolidated Cash Flow Statement information below has been derived from audited Financial Statements. For more information refer to the Financial Statements.

Some information in this section has been presented on a Continuing operations basis to exclude the contribution from Discontinued operations. Details of the contribution of Discontinued operations to the Group's results are disclosed in Financial Statements note 27 'Discontinued operations'.

Year ended 30 June US$M	2022	2021	2020	2019	2018
Consolidated Income Statement (Financial Statements 1.1)					
Revenue[1]	**65,098**	56,921	38,924	38,446	37,817
Profit from operations[1]	**34,106**	25,515	13,683	13,629	14,437
Profit after taxation from Continuing operations[1]	**22,400**	13,676	8,628	8,528	8,559
Profit/(loss) after taxation from Discontinued operations[1]	**10,655**	(225)	108	657	(3,736)
Profit after taxation from Continuing and Discontinued operations attributable to BHP shareholders (Attributable profit)	**30,900**	11,304	7,956	8,306	3,705
Profit after taxation from Continuing operations attributable to BHP shareholders[1]	**20,245**	11,529	7,848	7,656	7,467
Dividends per ordinary share – paid during the period (US cents)	**350.0**	156.0	143.0	220.0	98.0
Dividends per ordinary share – determined in respect of the period (US cents)	**325.0**	301.0	120.0	235.0	118.0
In specie dividend on merger of Petroleum with Woodside (US cents)	**386.4**	–	–	–	–
Basic earnings per ordinary share (US cents)[2]	**610.6**	223.5	157.3	160.3	69.6
Diluted earnings per ordinary share (US cents)[2]	**609.3**	223.0	157.0	159.9	69.4
Basic earnings from Continuing operations per ordinary share (US cents)[1,2]	**400.0**	228.0	155.2	147.8	140.3
Diluted earnings from Continuing operations per ordinary share (US cents)[1,2]	**399.2**	227.5	154.8	147.4	139.9
Number of ordinary shares (million)[2]					
– At period end	**5,062**	5,058	5,058	5,058	5,324
– Weighted average	**5,061**	5,057	5,057	5,180	5,323
– Diluted	**5,071**	5,068	5,069	5,193	5,337
Consolidated Balance Sheet (Financial Statements 1.3)[3]					
Total assets	**95,166**	108,927	105,733	101,811	112,943
Net assets	**48,766**	55,605	52,175	51,753	60,599
Share capital (including share premium)	**4,638**	2,686	2,686	2,686	2,761
Total equity attributable to BHP shareholders	**44,957**	51,264	47,865	47,169	55,521
Consolidated Cash Flow Statement (Financial Statements 1.4)					
Net operating cash flows[4]	**32,174**	27,234	15,706	17,871	18,461
Capital and exploration expenditure[5]	**7,545**	7,120	7,640	7,566	6,753
Other financial information (OFR 11)					
Net debt[6]	**333**	4,121	12,044	9,446	11,605
Underlying attributable profit[6]	**23,815**	17,077	9,060	9,124	8,933
Underlying attributable profit - Continuing operations[1,6]	**21,319**	16,985	8,948	8,431	10,393
Underlying EBITDA[1,6]	**40,634**	35,073	19,870	19,093	19,829
Underlying EBIT[1,6]	**34,436**	29,853	15,130	14,581	15,003
Underlying basic earnings per share (US cents)[6]	**470.6**	337.7	179.2	176.1	167.8
Underlying basic earnings per share - Continuing operations (US cents)[1,6]	**421.2**	335.9	176.9	162.8	195.2
Underlying return on capital employed (per cent)[6]	**48.7**	32.5	16.9	16.0	14.2

1 Comparative periods have been adjusted for the effects of applying IFRS 5 'Non-current Assets Held for Sale and Discontinued Operations' and discloses them on the same basis as the current period figures. For more information refer to Financial Statements note 27 'Discontinued operations'.

2 For more information on earnings per share refer to Financial Statements note 7 'Earnings per share'.

3 The Consolidated Balance Sheet for comparative periods includes the associated assets and liabilities in relation to Petroleum (merger with Woodside in FY2022), BMC and Cerrejón (both disposed in FY2022) and Onshore US (disposed in FY2019) as IFRS 5 'Non-current Assets Held for Sale and Discontinued Operations' does not require the Consolidated Balance Sheet to be restated for comparative periods.

4 Net operating cash flows are after dividends received, net interest paid, proceeds and settlements of cash management related instruments, net taxation paid and includes Net operating cash flows from Discontinued operations.

5 Capital and exploration expenditure is presented on a cash basis and represents purchases of property, plant and equipment plus exploration expenditure from the Consolidated Cash Flow Statement and includes purchases of property, plant and equipment plus exploration expenditure from Discontinued operations. For more information refer to Financial Statements note 27 'Discontinued operations'. Exploration expenditure is capitalised in accordance with our accounting policies, as set out in Financial Statements note 11 'Property, plant and equipment'.

6 We use non-IFRS financial information to reflect the underlying performance of the Group. Underlying attributable profit, Underlying basic earnings per share and Underlying return on capital employed includes Continuing and Discontinued operations. Refer to OFR 11 for a reconciliation of non-IFRS financial information to their respective IFRS measure. Refer to OFR 11.1 for the definition and method of calculation of non-IFRS financial information. Refer to Financial Statements note 20 'Net debt' for the composition of Net debt.

2 Information on mining operations

Minerals Australia

Copper mining operations

The following table contains additional details of our mining operations. This table should be read in conjunction with OFR 5.1 and the production table and reserves and resources tables in Additional information 4 and 5.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
Olympic Dam 560 km northwest of Adelaide, South Australia	Public road Copper cathode trucked to ports Uranium oxide transported by road to ports Gold bullion transported by road and plane	BHP 100%	BHP	Mining lease granted by South Australian Government expires in 2036. Approximately 17,788 hectares Right of extension for 50 years (subject to remaining mine life)	Production stage Acquired in 2005 as part of Western Mining Corporation (WMC) acquisition Copper production began in 1988 Nominal milling capacity raised to 9 Mtpa in 1999 Optimisation project completed in 2002 New copper solvent extraction plant commissioned in 2004 Major smelter maintenance campaigns completed in 2017 and 2022	Underground Large poly-metallic deposit of iron oxide-copper-uranium-gold mineralisation	Electricity transmitted via (i) BHP's 275 kV power line from Port Augusta and (ii) ElectraNet's system upstream of Port Augusta Energy purchased via Retail Agreement	Underground automated train and trucking network feeding crushing, storage and ore hoisting facilities 2 grinding circuits Nominal milling capacity: 10.3 Mtpa Flash furnace produces copper anodes, which are then refined to produce copper cathodes Electrowon copper cathode and uranium oxide concentrate produced by leaching and solvent extracting flotation tailings Gold cyanide leach circuit and gold room producing gold bullion
Key permit conditions	The Roxby Downs (Indenture Ratification) Act 1982 (Indenture Act) applies to Olympic Dam's operations. It contains conditions from the South Australian Government, including relating to the protection and management of the environment; water; closure and rehabilitation considerations; local procurement and community plans/initiatives/project commitments; and payment of royalties. Olympic Dam also holds other relevant approvals and tenements granted by the South Australian Government, including under the SA Mining Act.							

Iron ore mining operations

The following table contains additional details of our iron ore mining operations. This table should be read in conjunction with OFR 5.1 and the production table and reserves and resources tables in Additional information 4 and 5.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
WAIO								
Mt Newman joint venture								
Pilbara region, Western Australia Newman West (Mt Whaleback, Orebodies 29, 30, 31, 32 and 35) Newman East (Orebodies 24, 25)	Private road Ore transported by Mt Newman JV-owned rail to Port Hedland (427 km)	BHP Minerals 85% Mitsui-ITOCHU Iron 10% ITOCHU Minerals and Energy of Australia 5%	BHP	Mineral lease granted and held under the Iron Ore (Mount Newman) Agreement Act 1964 expires in 2030 with right to successive renewals of 21 years each. ML244SA - approximately 78,934 hectares	Production stage Production began at Mt Whaleback in 1969 Production from Orebodies 24, 25, 29, 30, 31, 32 and 35 complements production from Mt Whaleback Production from Orebodies 31 and 32 started in 2015 and 2017 respectively Mining at Orebody 18 ceased in 2020 after depletion	Open-cut Bedded ore types classified as per host Archaean or Proterozoic iron formation, which are Brockman and Marra Mamba; also present is iron-rich detrital material	Power for all mine operations in the Central and Eastern Pilbara is supplied by BHP's natural gas-fired Yarnima power station Power consumed in port operations is supplied via a contract with Alinta	Newman Hub: primary crusher, ore handling plant, heavy media beneficiation plant, stockyard blending facility, single cell rotary car dumper, train load out (nominal capacity 75 Mtpa) Orebody 25 Ore processing plant (nominal capacity 12 Mtpa) ceased operation mid FY2022

Key permit conditions	State Agreement contains conditions set by the Western Australian Government, including requirements for future development proposals; environmental compliance and reporting obligations; closure and rehabilitation considerations; local procurement and community plans/initiatives/investment requirements; payment of rent, taxes and government royalties. Tenements granted by the Western Australian Government under the Mining Act. Key permit conditions include resource reporting, environmental compliance and reporting, rehabilitation considerations and offset payments and payment of lease rentals, and royalties. Registered Indigenous Land Use Agreements with conditions, including appropriate native title compensation and opportunity sharing; enshrine heritage protections and land access rights; and guarantee certain heritage, environment and consultation processes.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
WAIO								
Yandi joint venture								
Pilbara region, Western Australia	Private road Ore transported by Mt Newman JV-owned rail to Port Hedland (316 km) Yandi JV's railway spur links Yandi hub to Mt Newman JV main line	BHP Minerals 85% ITOCHU Minerals and Energy of Australia 8% Mitsui Iron Ore Corporation 7%	BHP	Mining lease granted pursuant to the Iron Ore (Marillana Creek) Agreement Act 1991 expires in 2033 with 1 renewal right to a further 21 years to 2054 M270SA - approximately 30,344 hectares	Production stage Production began at the Yandi mine in 1992 Capacity of Yandi hub expanded between 1994 and 2013 Yandi has commenced production ramp down activity in FY2022	Open-cut Channel Iron Deposits are Cainozoic fluvial sediments	Power for all mine operations in the Central and Eastern Pilbara is supplied by BHP's natural gas-fired Yarnima power station Power consumed in port operations is supplied via a contract with Alinta	4 primary crushers, 3 ore handling plants, stockyard blending facility and 2 train load outs (nominal capacity 80 Mtpa) Decommissioning has commenced on 2 ore handling plants, as part of planned ramp down activities

Key permit conditions	State Agreement contains conditions set by the Western Australian Government, including requirements for future development proposals; environmental compliance and reporting obligations; closure and rehabilitation considerations; local procurement and community plans/initiatives/investment requirements; payment of rent, taxes and government royalties. Tenements granted by the Western Australian Government under the Mining Act. Key permit conditions include resource reporting, environmental compliance and reporting, rehabilitation considerations and offset payments and payment of lease rentals, and royalties. Registered Indigenous Land Use Agreements with conditions, including appropriate native title compensation and opportunity sharing; enshrine heritage protections and land access rights; and guarantee certain heritage, environment and consultation processes.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
WAIO								
Jimblebar operation*								
Pilbara region, Western Australia Jimblebar Bill's Hill, Eastern Syncline and Mt Helen (jointly called Western Ridge deposits)	Private road Jimblebar ore is transported via overland conveyor (12.4 km) and by Mt Newman JV-owned rail to Port Hedland (428 km) The Western Ridge deposits are located close to Newman Operations and all production will be trucked and/or transported via overland conveyor	BHP Minerals 85% ITOCHU Minerals and Energy of Australia 8% Mitsui & Co. Iron Ore Exploration & Mining 7% *Jimblebar is an 'incorporated' venture, with the above companies holding A Class Shares with rights to certain parts of mining lease 266SA held by BHP Iron Ore (Jimblebar) Pty Ltd (BHPIOJ) BHPIOJ holds 100% of the B Class Shares, which has rights to all other Jimblebar assets	BHP	Mining lease granted pursuant to the Iron Ore (McCamey's Monster) Agreement Authorisation Act 1972 expires in 2030 with rights to successive renewals of 21 years each M266SA – approximately 51,756 hectares	Production stage Production began in March 1989 From 2004, production was transferred to Wheelarra JV as part of the Wheelarra sublease agreement This sublease agreement expired in March 2018 Ore was first produced from the newly commissioned Jimblebar hub in late 2013 Jimblebar sells ore to the Newman JV proximate to the Jimblebar hub Production at Western Ridge commenced in FY2022	Open-cut Bedded ore types classified as per host Archaean or Proterozoic banded iron formation, which are Brockman and Marra Mamba; also present is iron-rich detrital material	Power for all mine operations in the Central and Eastern Pilbara is supplied by BHP's natural gas-fired Yarnima power station Power consumed in port operations is supplied via a contract with Alinta	3 primary crushers, ore handling plant, train loadout, stockyard blending facility and supporting mining hub infrastructure (nominal capacity 71 Mtpa) Production from the Western Ridge deposits will be processed through existing processing facility for Newman Operations

Key permit conditions	State Agreement contains conditions set by the Western Australian Government, including requirements for future development proposals; environmental compliance and reporting obligations; closure and rehabilitation considerations; local procurement and community plans/initiatives/investment requirements; payment of rent, taxes and government royalties. Tenements granted by the Western Australian Government under the Mining Act. Key permit conditions include resource reporting, environmental compliance and reporting, rehabilitation considerations and offset payments and payment of lease rentals, and royalties. Registered Indigenous Land Use Agreement with conditions, including appropriate native title compensation and opportunity sharing; enshrine heritage protections and land access rights; and guarantee certain heritage, environment and consultation processes.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
WAIO								
Mt Goldsworthy joint venture								
Pilbara region, Western Australia Yarrie Nimingarra Mining Area C (includes South Flank)	Private road Yarrie and Nimingarra iron ore transported by Mt Goldsworthy JV-owned rail to Port Hedland (218 km) Mining Area C iron ore transported by Mt Newman JV-owned rail to Port Hedland (360 km) South Flank iron ore transported by overland conveyors (8–16 km) to the Mining Area C processing hub Mt Goldsworthy JV railway spur links Mining Area C and South Flank to Yandi railway spur	BHP Minerals 85% Mitsui Iron Ore Corporation 7% ITOCHU Minerals and Energy of Australia 8%	BHP	1 mineral lease and 1 mining lease both granted pursuant to the Iron Ore (Goldsworthy – Nimingarra) Agreement Act 1972, expire 2035, with rights to successive renewals of 21 years each. ML251SA and M263SA – approximately 15,623 hectares A number of smaller mining leases granted under the Mining Act 1978 expire in 2026 with rights to successive renewals of 21 years. 5 leases – approximately 2,999 hectares 3 mineral leases granted under the Iron Ore (Mount Goldsworthy) Agreement Act 1964, which expire 2028, with rights to successive renewals of 21 years each. ML235SA, ML249SA and ML281SA – approximately 91,124 hectares	Production stage Operations commenced at Mt Goldsworthy in 1966 and at Shay Gap in 1973 Original Goldsworthy mine closed in 1982 Associated Shay Gap mine closed in 1993 Mining at Nimingarra mine ceased in 2007, then continued from adjacent Yarrie area Production commenced at Mining Area C mine in 2003 Yarrie mine operations were suspended in February 2014 First ore at South Flank commenced in May 2021	Mining Area C, South Flank, Yarrie and Nimingarra are open-cut Bedded ore types classified as per host Archaean or Proterozoic iron formation, which are Brockman, Marra Mamba and Nimingarra; also present is iron-rich detrital material	Power for all remaining mine operations in the Central and Eastern Pilbara is supplied by BHP's natural gas-fired Yarnima power station Power consumed in port operations is supplied via a contract with Alinta	Mining Area C: 2 primary crushers, 2 ore handling plants, stockyard blending facility and train load out (nominal capacity 60 Mtpa) South Flank: 2 primary crushers, 1 ore handling plant, stockyard and blending facility and train load out (nominal capacity 80 Mtpa)
Key permit conditions	State Agreements contain conditions set by the Western Australian Government, including requirements for future development proposals; environmental compliance and reporting obligations; closure and rehabilitation considerations; local procurement and community plans/initiatives/investment requirements; payment of rent, taxes and government royalties. Tenements granted by the Western Australian Government under the Mining Act. Key permit conditions include resource reporting, environmental compliance and reporting, rehabilitation considerations and offset payments and payment of lease rentals, and royalties. Registered Indigenous Land Use Agreements with conditions, including appropriate native title compensation and opportunity sharing; enshrine heritage protections and land access rights; and guarantee certain heritage, environment and consultation processes.							

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
WAIO								
POSMAC joint venture								
Pilbara region, Western Australia	Private road POSMAC JV sells ore to Mt Goldsworthy JV at Mining Area C Ore is transported via Mt Goldsworthy JV-owned rail and Mt Newman JV-owned rail to Port Hedland	BHP Minerals 65% ITOCHU Minerals and Energy of Australia 8% Mitsui Iron Ore Corporation 7% POS-Ore 20%	BHP	Sublease over part of Mt Goldsworthy Mining Area C mineral lease that expires on the earlier of termination of the mineral lease or the end of the POSMAC JV. ML281SA – approximately 56,335 hectares	Production stage Production commenced in October 2003 POSMAC JV sells all ore to Mt Goldsworthy JV at Mining Area C	Open-cut Bedded ore types classified as per host Archaean or Proterozoic iron formation, which is Marra Mamba	Power for all mine operations in the Central and Eastern Pilbara is supplied by BHP's natural gas-fired Yarnima power station Power consumed in port operations is supplied via a contract with Alinta	POSMAC sells all ore to Mt Goldsworthy JV, which is then processed at Mining Area C
Key permit conditions	Key permit conditions of POSMAC joint venture are captured within the Mount Goldsworthy joint venture key permit conditions outlined above.							

Coal mining operations

The following table contains additional details of our mining operations. This table should be read in conjunction with OFR 5.1 and the production table and reserves and resources tables in Additional information 4 and 5.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
BHP Mitsubishi Alliance								
Central Queensland Coal Associates joint venture								
Bowen Basin, Queensland, Australia Goonyella Riverside Broadmeadow Daunia Caval Ridge Peak Downs Saraji Blackwater Saraji South	Public road Coal transported by rail to Hay Point, Gladstone, Dalrymple Bay and Abbot Point ports Distances between the mines and port are between 160 km and 315 km	BHP 50% Mitsubishi Development 50%	BMA	Mining leases, including undeveloped tenements, have expiry dates ranging up to 2043, renewable for further periods as Queensland Government legislation allows. Approximately 125,100 hectares Mining is permitted to continue under the legislation during the renewal application period All required renewal applications were lodged and pending a decision from the Minister	Production stage Goonyella mine commenced in 1971, merged with adjoining Riverside mine in 1989 Operates as Goonyella Riverside Production commenced at: Peak Downs in 1972 Saraji in 1974 Norwich Park in 1979 Blackwater in 1967 Broadmeadow (longwall operations) in 2005 Daunia in 2013 and Caval Ridge in 2014 Production at Saraji South (formerly Norwich Park) ceased in May 2012; limited product is due to be sourced from Saraji South for processing at Saraji scheduled from the December 2022 quarter and will be included under the Saraji mine	All open-cut except Broadmeadow (longwall underground) Bituminous coal is mined from the Permian Moranbah and Rangal Coal measures Products range from premium quality, low volatile, high vitrinite, hard coking coal to medium volatile hard coking coal, to weak coking coal, some pulverised coal injection (PCI) coal and medium ash thermal coal as a secondary product	Queensland electricity grid connection is under long-term contracts and energy purchased via Retail Agreements	On-site beneficiation processing facilities Combined nominal capacity: in excess of 67 Mtpa

Key permit conditions	Key permit conditions are contained in the various legislation set by the Queensland Government and include conditions relating to carrying out works in accordance with the environmental authority and approved development plans, payment of rents, reporting and payment of royalties. Mining leases granted under the Central Queensland Coal Associates Agreement Act 1968 place an extraction cap of 1,860 Mt.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
New South Wales Energy Coal								
Mt Arthur Coal								
Approximately 126 km northwest of Newcastle, New South Wales, Australia	Public road Export coal transported by third-party rail to Newcastle port	BHP 100%	BHP	Current Development Consent expires in 2026 Mt Arthur Coal Mine (MAC) continues to work on obtaining new State and Commonwealth approvals to continue open-cut mining at MAC beyond 30 June 2026 MAC holds 10 mining leases, 2 sub leases and 3 exploration licences MAC's primary mining lease (ML 1487) was granted for a further 21-year term from June 2022 Total mining leases approximately 8,750 hectares	Production stage Production commenced in 2002 Approval to expand mining granted in 2010 with an additional area also granted by an approval modification in 2014 Domestic sales ceased during FY2020 with conveyor to Bayswater and Liddell Power Stations decommissioned On 16 June 2022, BHP announced the decision to cease mining at the asset by the end of FY2030	Open-cut Produces a medium rank bituminous thermal coal	NSW electricity grid connection under a deemed long-term contract and energy purchased via a Retail Agreement	Beneficiation facilities: coal handling, preparation, washing plants Nominal capacity: in excess of 23 Mtpa

Key permit conditions	The project approval contains key conditions: (i) it requires MAC to be operated generally in accordance with the environmental assessment; and (ii) permits extraction of up to 36 Mtpa of run of mine coal from underground and open-cut operations, with open-cut extraction limited to 32 Mtpa.

Nickel mining operations

The following table contains additional details of our mining operations. This table should be read in conjunction with OFR 5.1 and the production table and reserves and resources tables in Additional information 4 and 5.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
Nickel West								
Mt Keith mine and concentrator								
450 km north of Kalgoorlie, Western Australia Mt Keith Mine Mt Keith Satellite Mine (Yakabindie)	Private road Nickel concentrate transported by road to Leinster for drying and on-shipping	BHP 100%	BHP	Mining leases granted by Western Australian Government Key leases expire between 2029 and 2036 First renewal of 21 years is as a right. Further renewals at government discretion Mt Keith mining leases approximately 9,240 hectares Mt Keith satellite mining leases approximately 3,835 hectares	Production stage Commissioned in 1995 by WMC Acquired in 2005 as part of WMC acquisition Mt Keith Satellite Mine contains 2 open-pit mines: Six Mile Well in full production and Goliath currently being pre-stripped	Open-cut Disseminated textured magmatic nickel-sulphide mineralisation associated with a metamorphosed ultramafic intrusion	On-site third-party gas-fired turbines with backup from diesel engine generation Contracts expire in December 2038 Natural gas sourced and transported under separate long-term contracts	Concentration plant with a nominal capacity of 11 Mtpa of ore

Key permit conditions	Use of the land for the purposes set out by the Western Australian Government under granted mining tenements and broadly comprise of submission of detailed mining proposals; payment of royalties, annual rent to the State Government; rates to relevant local governments; compliance with environmental regulations and mine closure requirements and other reporting obligations. Existing mining operations are also subject to an Indigenous Land Use Agreement (ILUA), which includes commitments for payments made to trust accounts; Indigenous employment and business opportunities; heritage and cultural protections.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
Nickel West								
Leinster mine complex and concentrator								
375 km north of Kalgoorlie, Western Australia Venus sub-level caving operation B11 block caving operation Camelot open-pit mine Rocky's Reward open-pit mine	Public road Nickel concentrate shipped by road and rail to Kalgoorlie Nickel Smelter	BHP 100%	BHP	Mining leases granted by Western Australian Government Key leases expire between 2025 and 2040 Renewals of principal mineral lease in accordance with State Agreement ratified by the Nickel (Agnew) Agreement Act 1974 Leinster mining leases approximately 6,325 hectares Camelot mining leases approximately 2,353 hectares	Production stage Production commenced in 1979 Acquired in 2005 as part of WMC acquisition Leinster underground ceased operations in 2013 and recommenced operations in 2016 with Venus sub-level cave now in operation and B11 block cave developing its undercut and draw points Rocky's Reward open-pit mine ceased mining in 2021	Open-cut and underground Steeply dipping disseminated and massive textured nickel-sulphide mineralisation associated with metamorphosed ultramafic lava flows and intrusions	On-site third-party gas-fired turbines with back up from diesel engine generation Contracts expire in December 2038 Natural gas sourced and transported under separate long-term contracts	Concentration plant with a nominal capacity: 3 Mtpa of ore

Key permit conditions	Use of the land for the purposes set out by the Western Australian Government in the Nickel (Agnew) Agreement Act 1974 and other Nickel West granted tenements broadly comprise of submission of detailed mining proposals; payment of royalties, annual rent to Western Australian Government; rates to relevant local governments; compliance with environmental regulations and mine closure requirements and other reporting obligations. Existing mining operations are also subject to an Indigenous Land Use Agreement (ILUA), which includes commitments for payments made to trust accounts; Indigenous employment and business opportunities; heritage and cultural protections.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
Nickel West								
Cliffs mine 450 km north of Kalgoorlie, Western Australia	Private road Nickel ore transported by road to Leinster or Mt Keith for further processing	BHP 100%	BHP	Mining leases granted by Western Australian Government Key leases expire between 2025 and 2028 First renewal of 21 years is as of right. Further renewals at government discretion Mining leases approximately 2,675 hectares	Production stage Production commenced in 2008 Acquired in 2005 as part of WMC acquisition	Underground Steeply dipping massive textured nickel-sulphide mineralisation associated with metamorphosed ultramafic lava flows	Supplied from Mt Keith	Mine site
Key permit conditions	Use of the land for the purposes set out by the Western Australian Government under granted mining tenements and broadly comprise of submission of detailed mining proposals; payment of royalties, annual rent to the State Government; rates to relevant local government; compliance with environmental regulations and mine closure requirements and other reporting obligations. Existing mining operations are also subject to an Indigenous Land Use Agreement (ILUA), which includes commitments for payments made to trust accounts; Indigenous employment and business opportunities; heritage and cultural protections.							

Nickel smelters, refineries and processing plants

Smelter, refinery or processing plant	Location	Ownership	Operator	Title, leases or options	Key permit conditions	Product	Power source	Nominal production capacity
Nickel West								
Kambalda nickel concentrator	56 km south of Kalgoorlie, Western Australia	BHP 100%	BHP	Mineral leases granted by Western Australian Government Key leases expire in 2028 Mining leases approximately 242 hectares	Use of the land for the purposes set out by the Western Australian Government under granted mining tenements and broadly comprise of submission of detailed mining proposals; payment of royalties, annual rent to the State Government; rates to relevant local government; compliance with environmental regulations and mine closure requirements and other reporting obligations	Concentrate containing approximately 13% nickel	On-site third-party gas-fired turbines supplemented by access to grid power Contracts expire in December 2038 Natural gas sourced and transported under separate long-term contracts	1.6 Mtpa ore Nickel sourced through ore tolling and concentrate purchase arrangements with third parties in Kambalda and outer regions
Kalgoorlie nickel smelter	Kalgoorlie, Western Australia	BHP 100%	BHP	Freehold title over the property		Matte containing approximately 65% nickel	On-site third-party gas-fired turbines supplemented by access to grid power Contracts expire in December 2038 Natural gas sourced and transported under separate long-term contracts	110 ktpa nickel metal in matte
Kwinana nickel refinery	30 km south of Perth, Western Australia	BHP 100%	BHP	Freehold title over the property		London Metal Exchange grade nickel briquettes, nickel powder Also intermediate products, including copper sulphide, cobalt-nickel-sulphide, ammonium-sulphate Nickel sulphate containing approximately 22% nickel	Power is sourced from the local grid, which is supplied under a retail contract, supplemented by a Power Purchase Agreement with Merredin Solar Farm for 50% of its output	82.5 ktpa nickel metal in powder, briquettes, and nickel sulphate (with approval to increase up to 90 ktpa) 99 kt–100 kt nickel sulphate (approximately 22 kt–24 kt nickel)

Minerals Americas

Copper mining operations

The following table contains additional details of our mining operations. This table should be read in conjunction with OFR 5.2 and the production table and reserves and resources tables in Additional information 4 and 5.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
Escondida Atacama Desert 170 km southeast of Antofagasta, Chile	Private road available for public use Copper cathode transported by privately owned rail to ports at Antofagasta and Mejillones Copper concentrate transported by Escondida-owned pipelines to its Coloso port facilities	BHP 57.5% Rio Tinto 30% JECO Corporation consortium comprising Mitsubishi, JX Nippon Mining and Metals 10% JECO 2 Ltd 2.5%	BHP	Mining concession from Chilean Government valid indefinitely (subject to payment of annual fees) Mining concessions (exploitation): approximately 380,000 hectares	Production stage Original construction completed and production commenced in 1990 Start of operations of the third concentrator plant in 2015 Inauguration of Escondida Water Supply desalination plant (CY2018) and its extension (CY2019)	2 open-cut pits: Escondida and Escondida Norte Escondida and Escondida Norte mineral deposits are adjacent but distinct supergene enriched porphyry copper deposits	Escondida-owned transmission lines connect to Chile's northern power grid Electricity sourced from external vendors and Tamakaya SpA (100% owned by BHP), which generates power from the Kelar gas-fired power plant Renewable power agreements signed in FY2020 with supply commenced in FY2022	Crushing facilities feed concentrator and leaching processes 3 concentrator plants produce copper concentrate from sulphide ore by flotation extraction process (by-products: gold and silver) 2 solvent extraction and electrowinning plants produce copper cathode Nominal capacity: 422 ktpd (nominal milling capacity) and 350 ktpa copper cathode (nominal capacity of tank house) 2 x 168 km concentrate pipelines, 167 km water pipeline Port facilities at Coloso, Antofagasta Desalinated water plant (total water capacity of 3,800 litres per second)

Key permit conditions	Mining companies in Chile must comply with an Environmental Impact Assessment (EIA) approved by the Environmental Assessment Service (SEA) in order to operate. Changes in the scope of the operation can trigger a Environmental Impact Declaration (DIA) or a full EIA. Mining companies must also pay a yearly mining concession.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
Pampa Norte Spence								
Atacama Desert 162 km northeast of Antofagasta, Chile	Public road Copper cathode transported by rail to ports at Mejillones and Antofagasta Copper concentrate transported by rail or trucks to port in Mejillones Molybdenum concentrate is transported by trucks	BHP 100%	BHP	Mining concession from Chilean Government valid indefinitely (subject to payment of annual fees) Mining concessions (exploitation): approximately 44,000 hectares	Production stage First copper produced in 2006 Spence Growth Option project (i.e. new 95 ktpd copper concentrator and molybdenum plants) produced first copper in December 2020 and first molybdenum in April 2022	Open-cut Enriched and oxidised porphyry copper deposit containing in situ copper oxide mineralisation that overlies a near-horizontal sequence of supergene sulphides, transitional sulphides, and finally primary (hypogene) sulphide mineralisation	Spence-owned transmission lines connect to Chile's northern power grid Electricity purchased from external vendors Renewable power agreements signed in FY2020 with supply commenced in FY2022	Crushing facilities feed concentrator and leaching processes 1 copper concentrator plant with 95 ktpd capacity (by-products: gold and silver), molybdenum plant and a 1,000 lps desalinated water plant under a Build, Own, Operate, Transfer (BOOT) agreement Dynamic leach pads, solvent extraction and electrowinning plant Nominal capacity of tank house: 200 ktpa copper cathode
Key permit conditions	Mining companies in Chile must comply with an EIA approved by the SEA in order to operate Changes in the scope of the operation can trigger a DIA or a full EIA Mining companies must also pay a yearly mining concession							

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
Pampa Norte Cerro Colorado								
Atacama Desert 120 km east of Iquique, Chile	Public road Copper cathode trucked to port at Iquique	BHP 100%	BHP	Mining concession from Chilean Government valid indefinitely (subject to payment of annual fees) Current environmental licence expires at the end of CY2023 Mining concessions (exploitation): approximately 34,000 hectares	Production stage Commercial production commenced in 1994 Expansions in 1996 and 1998	Open-cut Enriched and oxidised porphyry copper deposit containing in situ copper oxide mineralisation that overlies a near-horizontal sequence of supergene sulphides, transitional sulphides and finally primary (hypogene) sulphide mineralisation	Electricity purchased from external vendors	Crushing facilities, dynamic leach pads, solvent extraction plant, electrowinning plant Nominal capacity of tank house: 130 ktpa copper cathode

Key permit conditions	Mining companies in Chile must comply with an EIA approved by the SEA in order to operate. Changes in the scope of the operation can trigger a DIA or a full EIA. Mining companies must also pay a yearly mining concession.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
Antamina Andes mountain range 270 km northeast of Lima, Peru	Public road Copper and zinc concentrates transported by Antamina-owned pipeline to its Punta Lobitos port Molybdenum and lead/bismuth concentrates transported by truck	BHP 33.75% Glencore 33.75% Teck 22.5% Mitsubishi 10%	Compañía Minera Antamina S.A.	Mining rights from Peruvian Government held indefinitely, subject to payment of annual fees and supply of information on investment and production Total acreage: approximately 6,600 hectares	Production stage Commercial production commenced in 2001	Open-cut Zoned porphyry and skarn deposit with central copper dominated ores and an outer band of copper-zinc dominated ores	Long-term contracts with individual power producers	Primary crusher, concentrator, copper and zinc flotation circuits, bismuth/moly cleaning circuit Nominal milling capacity 145 ktpd 304 km concentrate pipeline Port facilities at Huarmey

Key permit conditions	In April 2022, Antamina submitted to Peruvian authorities an Environmental Impact Study Modification (MEIA), which would enable Antamina to extend its life from 2028 to 2036, maintaining annual production volumes within its current operational footprint.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
Resolution Superior, Arizona, Pinal County, US	Public road	BHP 45% Rio Tinto 55% (operator)	Resolution Copper Mining LLC	Private land, patented and unpatented mining claims Total acreage: approximately 46,000 acres	Exploration stage The Resolution deposit is within the footprint and adjacent the historical Magma Copper Mine The Resolution Non-Operated Joint Venture (NOJV) was formed in 2004 with Rio Tinto as operator	Underground Porphyry copper and molybdenum deposit	115kV power lines to East and West Plant sites with supply contract with Salt River Project	Water treatment and reverse osmosis plant, two active underground shafts with associated support infrastructure including hoisting, ventilation and cooling, and a rail corridor connecting the site to the national rail network

Key permit conditions	The Resolution Copper Project is subject to a federal permitting process pursuant to the National Environmental Policy Act (NEPA) and other U.S. legislation, including requirements for consultation, coordination and collaboration with Native American Tribes. The NEPA process is led by the U.S. Forest Service. The Resolution Copper Project is also required to obtain several state and local permits, including air quality and groundwater protection permits.

Iron ore mining operations

The following table contains additional details of our mining operations. This table should be read in conjunction with OFR 5.2 and the production table and reserves and resources tables in Additional information 4 and 5.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
Samarco								
Southeast Brazil	Public road Conveyor belts used to transport iron ore to beneficiation plant Three slurry pipelines owned by Samarco used to transport concentrate to its pellet plants on coast Iron ore pellets exported via port facilities	BHP Brasil 50% Vale S.A. 50%	Samarco	Mining concessions granted by Brazilian Government subject to compliance with the mine plan Samarco recommenced iron ore pellet production in December 2020, having met licensing requirements to restart operations at its Germano complex in Minas Gerais and its Ubu complex in Espírito Santo Mining rights for approximately 1,605 hectares	Production stage Production began at Germano mine in 1977 and at Alegria complex in 1992 Second pellet plant built in 1997 Third pellet plant, second concentrator and second pipeline built in 2008 Fourth pellet plant, third concentrator and third pipeline built in 2014	Open-cut Itabirites (metamorphic quartz-hematite rock) and friable hematite ores	Samarco holds interests in 2 hydroelectric power plants, which supply part of its electricity Power supply contract with Cemig Geração e Transmissão expires in 2026	Samarco's gradual restart of operations includes 1 concentrator and a new system of tailings disposal combining a confined pit and filtration plant for dry stacking of sandy tailings Beneficiation plants, pipelines, pellet plants and port facilities
Key permit conditions	Samarco has an operating licence (LOC – Corrective Operating License) obtained for the return of operations. For the continuity of operations, it has a long-term licensing plan that includes expansion of the mining area and new structures for the disposal of waste and tailings.							

Other mining operations

The following table contains additional details of our mining operations. This table should be read in conjunction with OFR 5.2 and the production table and reserves and resources tables in Additional information 4 and 5.

Mine & location	Means of access	Type and amount of ownership	Operator	Title, leases or options and acreage involved	History and stage of property	Mine type & mineralisation style	Power source	Processing plants and other available facilities
Jansen Stage 1 (under construction)								
Province of Saskatchewan Approximately 150 km east of Saskatoon, Canada	Public road Muriate of Potash (MOP) to be transported by rail to the port at Westshore Terminal in Delta, British Columbia, Canada	BHP 100%	BHP	The total area of the Jansen lease is approximately 1,156 square km All surface lands have been acquired	Development stage Stage 1 is currently under construction	Underground The Lower Patience Lake (LPL) sub-member is the potash horizon targeted for Jansen. The LPL sub-member is composed of sylvite (KCl), halite (NaCl) with variable amounts of disseminated insolubles and clay seams	Permanent power supply to be constructed	Mill, buildings, and other facilities and infrastructure are planned to be constructed Construction of production and service shafts was completed during FY2022

Key permit conditions	An Environmental Assessment is required to be submitted to the regulatory authority in order to determine the potential environmental and social impacts of a project during construction, operation and closure. Depending on the activity, permits from municipal, provincial and federal agencies may also be required.

3 Financial information by commodity

Management believes the following financial information presented by commodity provides a meaningful indication of the underlying financial performance of the assets, including equity accounted investments, of each reportable segment. Information relating to assets that are accounted for as equity accounted investments is shown to reflect BHP's share, unless otherwise noted, to provide insight into the drivers of these assets.

For the purposes of this financial information, segments are reported on a statutory basis in accordance with IFRS 8/AASB 8 'Operating Segments'. The tables for each commodity include an 'adjustment for equity accounted investments' to reconcile the equity accounted results to the statutory segment results.

For a reconciliation of non-IFRS financial information to respective IFRS measures and an explanation as to the use of Underlying EBITDA in assessing our performance refer to OFR 11. For the definition and method of calculation of non-IFRS financial information refer to OFR 11.1. For more information as to the statutory determination of our reportable segments refer to Financial Statements note 1 'Segment reporting'.

3.1 Copper

Detailed below is financial information for our Copper assets for FY2022 and FY2021.

Year ended 30 June 2022 US$M	**Revenue**	**Underlying EBITDA**	**D&A**	**Underlying EBIT**	**Net operating assets**	**Capital expenditure**	**Exploration gross**	**Exploration to profit**
Escondida[1]	**9,500**	**6,198**	**907**	**5,291**	**11,703**	**860**		
Pampa Norte[2]	**2,670**	**1,363**	**893**	**470**	**4,543**	**673**		
Antamina[3]	**1,777**	**1,289**	**146**	**1,143**	**1,306**	**323**		
Olympic Dam	**1,776**	**409**	**421**	**(12)**	**9,877**	**966**		
Other[3,4]	**–**	**(157)**	**16**	**(173)**	**(9)**	**29**		
Total Copper from Group production	**15,723**	**9,102**	**2,383**	**6,719**	**27,420**	**2,851**		
Third-party products	**2,903**	**36**	**–**	**36**	**–**	**–**		
Total Copper	**18,626**	**9,138**	**2,383**	**6,755**	**27,420**	**2,851**	**96**	**92**
Adjustment for equity accounted investments[5]	**(1,777)**	**(573)**	**(148)**	**(425)**	**–**	**(323)**	**(11)**	**(7)**
Total Copper statutory result	**16,849**	**8,565**	**2,235**	**6,330**	**27,420**	**2,528**	**85**	**85**

Year ended 30 June 2021 US$M	Revenue	Underlying EBITDA	D&A	Underlying EBIT	Net operating assets	Capital expenditure	Exploration gross	Exploration to profit
Escondida[1]	9,470	6,483	969	5,514	11,926	666		
Pampa Norte[2]	1,801	954	390	564	4,510	678		
Antamina[3]	1,627	1,158	142	1,016	1,362	237		
Olympic Dam	2,211	598	313	285	9,045	830		
Other[3,4]	–	(230)	10	(240)	85	7		
Total Copper from Group production	15,109	8,963	1,824	7,139	26,928	2,418		
Third-party products	2,244	64	–	64	–	–		
Total Copper	17,353	9,027	1,824	7,203	26,928	2,418	62	58
Adjustment for equity accounted investments[5]	(1,627)	(538)	(144)	(394)	–	(238)	(9)	(5)
Total Copper statutory result	15,726	8,489	1,680	6,809	26,928	2,180	53	53

1 Escondida is consolidated under IFRS 10 and reported on a 100 per cent basis.

2 Includes Spence and Cerro Colorado.

3 Antamina, SolGold and Resolution are equity accounted investments and their financial information presented above with the exception of net operating assets reflects BHP Group's share.

4 Predominantly comprises divisional activities, greenfield exploration and business development. Includes Resolution and SolGold.

5 Total Copper statutory result revenue excludes US$1,777 million (FY2021: US$1,627 million) revenue related to Antamina. Total Copper statutory result Underlying EBITDA includes US$148 million (FY2021: US$144 million) D&A and US$425 million (FY2021: US$394 million) net finance costs and taxation expense related to Antamina, Resolution and SolGold that are also included in Underlying EBIT. Total Copper Capital expenditure excludes US$323 million (FY2021: US$237 million) related to Antamina and US$ nil (FY2021: US$1 million) related to SolGold. Exploration gross excludes US$11 million (FY2021: US$9 million) related to SolGold of which US$7 million (FY2021: US$5 million) was expensed.

3.2 Iron Ore

Detailed below is financial information for our Iron Ore assets for FY2022 and FY2021.

Year ended 30 June 2022 US$M	**Revenue**	**Underlying EBITDA**	**D&A**	**Underlying EBIT**	**Net operating assets**	**Capital expenditure**	**Exploration gross[1]**	**Exploration to profit**
Western Australia Iron Ore	**30,632**	**21,788**	**2,119**	**19,669**	**20,376**	**1,847**		
Samarco[2]	**–**	**–**	**–**	**–**	**(3,433)**	**–**		
Other[3]	**116**	**(81)**	**117**	**(198)**	**(120)**	**1**		
Total Iron Ore from Group production	**30,748**	**21,707**	**2,236**	**19,471**	**16,823**	**1,848**		
Third-party products[4]	**19**	**–**	**–**	**–**	**–**	**–**		
Total Iron Ore	**30,767**	**21,707**	**2,236**	**19,471**	**16,823**	**1,848**	**95**	**54**
Adjustment for equity accounted investments	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Total Iron Ore statutory result	**30,767**	**21,707**	**2,236**	**19,471**	**16,823**	**1,848**	**95**	**54**

Year ended 30 June 2021 US$M	Revenue	Underlying EBITDA	D&A	Underlying EBIT	Net operating assets	Capital expenditure	Exploration gross[1]	Exploration to profit
Western Australia Iron Ore	34,337	26,270	1,959	24,311	21,289	2,186		
Samarco[2]	–	–	–	–	(2,794)	–		
Other[3]	120	7	25	(18)	168	2		
Total Iron Ore from Group production	34,457	26,277	1,984	24,293	18,663	2,188		
Third-party products[4]	18	1	–	1	–	–		
Total Iron Ore	34,475	26,278	1,984	24,294	18,663	2,188	100	55
Adjustment for equity accounted investments	–	–	–	–	–	–	–	–
Total Iron Ore statutory result	34,475	26,278	1,984	24,294	18,663	2,188	100	55

1 Includes US$41 million of capitalised exploration (FY2021: US$45 million).

2 Samarco is an equity accounted investment and its financial information presented above, with the exception of net operating assets, reflects BHP Billiton Brasil Ltda's share. All financial impacts following the Samarco dam failure have been reported as exceptional items in both reporting periods.

3 Predominantly comprises divisional activities, towage services, business development and ceased operations.

4 Includes inter-segment and external sales of contracted gas purchases.

3.3 Coal

Detailed below is financial information for our Coal assets for FY2022 and FY2021.

Year ended 30 June 2022 US$M	**Revenue**	**Underlying EBITDA**	**D&A**	**Underlying EBIT**	**Net operating assets**	**Capital expenditure**	**Exploration gross**	**Exploration to profit**
BHP Mitsubishi Alliance	**10,254**	**6,335**	**627**	**5,708**	**7,802**	**491**		
New South Wales Energy Coal[1]	**3,122**	**1,868**	**91**	**1,777**	**(121)**	**73**		
Colombia[2]	**–**	**–**	**–**	**–**	**–**	**–**		
Other[3,4]	**2,260**	**1,363**	**80**	**1,283**	**(31)**	**57**		
Total Coal from Group production	**15,636**	**9,566**	**798**	**8,768**	**7,650**	**621**		
Third-party products	**–**	**–**	**–**	**–**	**–**	**–**		
Total Coal	**15,636**	**9,566**	**798**	**8,768**	**7,650**	**621**	**17**	**6**
Adjustment for equity accounted investments[5,6]	**(87)**	**(62)**	**(27)**	**(35)**	**–**	**–**	**–**	**–**
Total Coal statutory result	**15,549**	**9,504**	**771**	**8,733**	**7,650**	**621**	**17**	**6**

Year ended 30 June 2021 US$M	Revenue	Underlying EBITDA	D&A	Underlying EBIT	Net operating assets	Capital expenditure	Exploration gross	Exploration to profit
BHP Mitsubishi Alliance	3,537	567	597	(30)	7,240	440		
New South Wales Energy Coal[1]	927	(87)	144	(231)	(289)	50		
Colombia[2]	281	74	86	(12)	–	21		
Other[3,4]	778	(96)	152	(248)	561	90		
Total Coal from Group production	5,523	458	979	(521)	7,512	601		
Third-party products	–	–	–	–	–	–		
Total Coal	5,523	458	979	(521)	7,512	601	20	7
Adjustment for equity accounted investments[5,6]	(369)	(170)	(114)	(56)	–	(22)	–	–
Total Coal statutory result	5,154	288	865	(577)	7,512	579	20	7

1 Newcastle Coal Infrastructure Group is an equity accounted investment and its financial information presented above with the exception of net operating assets reflects BHP Group's share.

2 On 11 January 2022, BHP completed the sale of its 33.33 per cent interest in Cerrejón to Glencore. The transaction was first announced on 28 June 2021 for a total cash consideration of US$294 million with an effective economic date of 31 December 2020. During the year ended 30 June 2022, the Group received dividends of US$238 million from Cerrejón, reducing completion proceeds, net of expected transaction costs at completion date. For more information refer to Financial Statements note 29 'Investments accounted for using the equity method'.

3 On 3 May 2022, BHP completed the sale of its 80 per cent interest in BHP Mitsui Coal (BMC) to Stanmore SMC Holdings Pty Ltd, a wholly owned entity of Stanmore Resources Limited (Stanmore Resources) resulting in a net after tax gain on disposal of US$840 million that has been recognised as an exceptional item. For more information refer to Financial Statements note 3 'Exceptional items'. The Group's share of BMC revenue, Underlying EBITDA, D&A, Underlying EBIT, Net operating assets and Capital expenditure have been presented within 'Other'.

4 Predominantly comprises BMC, divisional activities and ceased operations.

5 Total Coal statutory result revenue excludes US$ nil (FY2021: US$281 million) revenue related to Cerrejón. Total Coal statutory result Underlying EBITDA includes US$ nil (FY2021: US$86 million) D&A and US$ nil (FY2021: US$2 million) net finance costs and taxation benefit related to Cerrejón, that are also included in Underlying EBIT. Total Coal statutory result Capital expenditure excludes US$ nil (FY2021: US$21 million) related to Cerrejón.

6 Total Coal statutory result revenue excludes US$87 million (FY2021: US$88 million) revenue related to Newcastle Coal Infrastructure Group. Total Coal statutory result excludes US$62 million (FY2021: US$82 million) Underlying EBITDA, US$27 million (FY2021: US$28 million) D&A and US$35 million (FY2021: US$54 million) Underlying EBIT related to Newcastle Coal Infrastructure Group until future profits exceed accumulated losses. Total Coal Capital expenditure excludes US$ nil (FY2021: US$1 million) related to Newcastle Coal Infrastructure Group.

3.4 Other assets

Detailed below is financial information for our Other assets for FY2022 and FY2021.

Year ended 30 June 2022 US$M	**Revenue**	**Underlying EBITDA**	**D&A**	**Underlying EBIT**	**Net operating assets**	**Capital expenditure**	**Exploration gross**	**Exploration to profit**
Potash	**–**	**(147)**	**2**	**(149)**	**3,570**	**376**	**–**	**–**
Nickel West	**1,926**	**420**	**93**	**327**	**721**	**362**	**42**	**37**

Year ended 30 June 2021 US$M	Revenue	Underlying EBITDA	D&A	Underlying EBIT	Net operating assets	Capital expenditure	Exploration gross	Exploration to profit
Potash	–	(167)	2	(169)	3,073	268	–	–
Nickel West	1,545	259	110	149	300	286	17	17

4 Production

The table below details our mineral and derivative product production for all operations for the three years ended 30 June 2022, 2021 and 2020. Unless otherwise stated, the production numbers represent our share of production and include BHP's share of production from which profit is derived from our equity accounted investments. Production information for equity accounted investments is included to provide insight into the operational performance of these entities. For discussion of minerals pricing during the past three years refer to OFR 10.

	BHP interest %	BHP share of production[1] Year ended 30 June 2022	2021	2020
Copper[2]				
Payable metal in concentrate ('000 tonnes)				
Escondida, Chile[3]	57.5	**802.6**	871.7	925.9
Pampa Norte, Chile[5]	100	**111.2**	27.4	0
Antamina, Peru[4]	33.75	**149.9**	144.0	124.5
Total copper concentrate		**1,063.7**	1,043.1	1,050.4
Copper cathode *('000 tonnes)*				
Escondida, Chile[3]	57.5	**201.4**	196.5	259.4
Pampa Norte, Chile[5]	100	**170.0**	190.8	242.7
Olympic Dam, Australia	100	**138.4**	205.3	171.6
Total copper cathode		**509.8**	592.6	673.7
Total copper concentrate and cathode		**1,573.5**	1,635.7	1,724.1
Lead				
Payable metal in concentrate ('000 tonnes)				
Antamina, Peru[4]	33.75	**1.1**	2.5	1.7
Total lead		**1.1**	2.5	1.7
Zinc				
Payable metal in concentrate ('000 tonnes)				
Antamina, Peru[4]	33.75	**123.2**	145.1	88.5
Total zinc		**123.2**	145.1	88.5
Gold				
Payable metal in concentrate ('000 ounces)				
Escondida, Chile[3]	57.5	**167.0**	167.0	177.4
Pampa Norte, Chile[5]	100	**28.9**	4.7	
Olympic Dam, Australia (refined gold)	100	**119.5**	146.0	146.0
Total gold		**315.4**	317.7	323.4
Silver				
Payable metal in concentrate ('000 ounces)				
Escondida, Chile[3]	57.5	**5,334**	5,759	6,413
Antamina, Peru[4]	33.75	**5,078**	5,965	4,116
Pampa Norte, Chile[5]	100	**1,011**	214	
Olympic Dam, Australia (refined silver)	100	**743**	810	984
Total silver		**12,166**	12,748	11,513
Uranium				
Payable metal in concentrate (tonnes)				
Olympic Dam, Australia	100	**2,375**	3,267	3,678
Total uranium		**2,375**	3,267	3,678
Molybdenum				
Payable metal in concentrate (tonnes)				
Antamina, Peru[4]	33.75	**798**	863	1,666
Pampa Norte, Chile[5]	100	**71**		
Total molybdenum		**869**	863	1,666

	BHP interest %	BHP Group share of production[1] Year ended 30 June 2022	2021	2020
Iron ore				
Western Australia Iron Ore				
Production ('000 tonnes)[6]				
Newman, Australia	85	**57,041**	63,221	65,641
Area C Joint Venture, Australia	85	**94,431**	52,386	51,499
Yandi Joint Venture, Australia	85	**38,922**	68,596	69,262
Jimblebar, Australia[7]	85	**58,782**	67,393	61,754
Wheelarra, Australia	85	**0**	0	3
Total Western Australia Iron Ore		**249,176**	251,596	248,159
Samarco, Brazil[4]	50	**4,071**	1,938	–
Total iron ore		**253,247**	253,534	248,159
Coal				
Metallurgical coal				
Production ('000 tonnes)[8]				
Blackwater, Australia	50	**5,834**	6,224	5,545
Goonyella Riverside, Australia	50	**8,360**	9,448	8,765
Peak Downs, Australia	50	**4,944**	5,892	5,783
Saraji, Australia	50	**4,614**	4,489	4,963
Daunia, Australia	50	**1,491**	1,928	2,170
Caval Ridge, Australia	50	**3,899**	3,903	4,349
Total BHP Mitsubishi Alliance		**29,142**	31,884	31,575
South Walker Creek, Australia[9]	80	**4,941**	4,887	5,415
Poitrel, Australia[9]	80	**2,981**	3,854	4,128
Total BHP Mitsui Coal[11]		**7,922**	8,741	9,543
Total metallurgical coal		**37,064**	40,625	41,118
Energy coal				
Production ('000 tonnes)				
New South Wales Energy Coal, Australia	100	**13,701**	14,326	16,052
Cerrejón, Colombia[4]	33.3	**4,236**	4,964	7,115
Total energy coal		**17,937**	19,290	23,167
Nickel				
Saleable production ('000 tonnes)				
Nickel West, Australia[10]	100	**76.8**	89.0	80.1
Total nickel		**76.8**	89.0	80.1

1 BHP share of production includes the Group's share of production for which profit is derived from our equity accounted investments, unless otherwise stated.

2 Metal production is reported on the basis of payable metal.

3 Shown on 100 per cent basis. BHP interest in saleable production is 57.5 per cent.

4 For statutory financial reporting purposes, this is an equity accounted investment. We have included production numbers from our equity accounted investments as the level of production and operating performance from these operations impacts Underlying EBITDA of the Group. Our use of Underlying EBITDA is explained in OFR 4.3. BHP completed the sale of its 33.3 per cent interest in Cerrejón on 11 January 2022. Production for Cerrejón reported until 31 December 2021.

5 Includes Cerro Colorado and Spence.

6 Iron ore production is reported on a wet tonnes basis.

7 Shown on 100 per cent basis. BHP interest in saleable production is 85 per cent.

8 Metallurgical coal production is reported on the basis of saleable product. Production figures include some thermal coal.

9 Shown on 100 per cent basis. BHP interest in saleable production is 80 per cent.

10 Nickel contained in matte and refined nickel metal, including briquette, powder, nickel sulphate and by-product streams.

11 BHP completed the sale of its 80 per cent interest in BHP Mitsui Coal (BMC) on 3 May 2022. Production reported until 30 April 2022.

5 Mineral resources and mineral reserves

Our mineral resources and mineral reserves presented in this annual report have been prepared in accordance with US Securities and Exchange Commission (SEC) regulations Subpart 1300 of Regulation S-K (S-K 1300).

Mineral resource is a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralisation, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralisation drilled or sampled.

Our mineral resources have been classified as measured, indicated or inferred depending on the level of geological certainty and confidence in the estimates, as defined in Item 1300 of S-K 1300.

Mineral reserve is an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.

Our mineral reserves have been classified as proven and probable depending on the mineral resource classification and level of confidence in the assumptions, as defined in Item 1300 of S-K 1300.

To estimate mineral reserves, assumptions are required about a range of technical and economic factors, including quantities, qualities, production techniques, recovery efficiency, production and transport costs, commodity supply and demand, commodity prices and exchange rates. Estimating the quantity and/or quality of mineral reserves requires the size, shape and depth of ore bodies to be determined by analysing geological data such as drilling samples and geophysical survey interpretations. Economic assumptions used to estimate reserves may change from period to period as additional technical, financial and operational data becomes available.

Our mineral resources and mineral reserves are constrained to tenure that we have rights to. Our mineral leases are of sufficient duration (or convey a legal right to renew for sufficient duration) to enable all reserves on the leased properties to be mined in accordance with current production schedules. Reserves may include areas where some additional approvals remain outstanding, however it is anticipated these approvals will be obtained with the timeframe required by the current life of mine schedules.

Presentation of mineral resources and mineral reserves

Mineral resources and mineral reserves are presented at the proportion attributable to our economic interest and represent estimates as at 30 June 2022. Mineral resources are presented exclusive of mineral reserves. The specific point of reference and commodity prices defining the mineral resources and mineral reserves estimates are provided in the footnotes associated with each of the mineral resources and mineral reserves tables below. Quantities of mineral reserves and mineral resources are reported in million metric tonnes (Mt). Tonnes are reported as dry metric tonnes (unless otherwise stated). All tonnes and quality information have been rounded, small differences may be present in the totals. Refer to the Glossary for definitions of technical terms relating to mineral resources, mineral reserves, geology, mining or related matters and abbreviations.

Our mineral resources and mineral reserves presented in this annual report differ from the Mineral Resources and Ore Reserves we report in our home jurisdiction of Australia. The jurisdiction of Australia requires reporting in accordance with the Australian Stock Exchange (ASX) listing rules and the Australasian Code for reporting of Exploration Results, Mineral Resources and Ore Reserves, December 2012 (the JORC Code).

A key difference in the estimation of our resources and reserves pursuant to the ASX listing rules and S-K 1300 are the economic inputs, commodity prices and cost assumptions. Estimates we report in accordance with the ASX listing rules are based on internally generated, projected long-term commodity prices and current operating costs or costs used in studies for development projects.

S-K 1300 requires mineral resources and mineral reserves estimates to be based on reasonable and justifiable commodity prices selected by a qualified person. Further, the prices must provide a reasonable basis for establishing the prospects of economic extraction for mineral resources, and be the expected prices for mineral reserves. Since S-K 1300 requires the disclosure of the prices used in the estimation of mineral resources and mineral reserves, due to commercial sensitivity regarding the disclosure of our internally generated projected long-term commodity prices, estimates included in this report in accordance with S-K 1300 are based on historical average commodity prices. Our mineral resources are based on the third quartile average monthly prices over the timeframe of 1 July 2018 to 30 June 2021, unless otherwise stated. Our mineral reserves are based on the second quartile average monthly prices over the timeframe of 1 July 2018 to 30 June 2021, unless otherwise stated. Exceptions are described in the footnotes associated with each of the mineral resources or mineral reserves tables below.

Except as otherwise stated, the estimates included in this report in accordance with S-K 1300 are based on average costs over the timeframe of 1 July 2018 to 30 June 2021 for production-stage properties or, for development-stage properties, costs are determined from first principles.

For non-operated properties that we have an economic interest in, the commodity prices and costs used are as the operator has advised.

The qualified persons consider that the use of historic prices and costs are appropriate to demonstrate economic viability of the mineral resources and mineral reserves. The prices are factual and the time interval is of sufficient duration to consider a range of price fluctuations. The commodity prices used to estimate the mineral resources and mineral reserves are included as footnotes to the mineral resources and mineral reserves tables below.

Internal controls and assurance programs

We have internal controls over our mineral resources and mineral reserves estimation efforts that are designed to produce reasonable and reliable estimates aligned with industry practice and our regulatory reporting requirements. The governance for our estimation efforts is located at both the asset and the BHP Group level within our Resource Centre of Excellence, an internal assurance team independent of our qualified persons and BHP employees who are responsible for the estimations. The assets provide first-line assurance on estimates through peer review and validation processes. The Resource Centre of Excellence is responsible for assurance over the processes implemented by the assets as they relate to mineral resources and mineral reserves estimation and the compiling of the mineral resources and mineral reserves estimates to be reported in accordance with S-K 1300.

Our internal controls utilise management systems, including, but not limited to, formal quality assurance and quality control processes, standardised procedures, workflow processes, data security covering record keeping, chain of custody and data storage, supervision and management approval, reconciliations, internal and external reviews and audits.

Our internal requirements and standards provide the basis for the governance over the estimation and reporting of mineral resources and mineral reserves and provide technical guidance to all reporting assets. These internal requirements and standards are periodically reviewed and updated for alignment with industry practice and reporting regulations.

Our internal controls for exploration data, as they relate to mineral resources and mineral reserves estimations, are managed by our operating assets with assurance provided by the Resource Centre of Excellence. These include, but are not limited to:

- documented procedures and standards defining minimum requirements on critical aspects to support exploration and resource development programs
- peer review of data collection including staged sign off by reviewers
- quality control checks on drill hole positions, collar and down hole surveys
- geological logs verified by either peer review or cross validation from other data sources, such as, sample analysis, downhole geophysical logging, core photography or scanning technologies
- sample security protocols at all stages of handling, from sample collection, transportation, preparation and analysis, including the storage of core or pulps post analysis
- industry standard practices for sample analysis quality control. Insertion of standards, duplicates, and blanks into sample batches at a frequency to enable the assessment of analytical data quality
- commercial or internal laboratories site inspected periodically and their internal quality control data is reviewed. From time to time a selection of samples are analysed at alternate laboratories to monitor laboratory performance
- quality control data reviewed at regular intervals to verify deviations to enable timely remediation
- quality assurance and quality control data validation and verification processes in place to support database integrity. This is based on automatic routines inbuilt into the geological databases. Inconsistencies are reviewed, verified and where required rectified by the responsible geologist
- geological databases periodically audited from source data
- geological data is stored on company servers and are routinely backed up
- geological models, including interpretation and mineralisation domains, internally peer reviewed prior to estimation

Our internal controls for mineral resources and mineral reserves estimation include, but are not limited to:

- source data review from database extracts, using exploratory data statistical analysis prior to use in the estimation of mineral resources. Identification of data to exclude, outliers and visual checks against estimation domains
- peer reviews of the estimation inputs based on statistical studies and estimation parameters as applied in industry standard estimation software
- visual and statistical validation of the estimates against source data and where available reconciliation to previous models, operational models and production data
- peer review of the classification applied, considering quantitative measures and qualitative considerations
- peer review of assumptions applied that convert resources to reserves
- independent audits or reviews for new or materially changed mineral resources and mineral reserves

Operating assets manage internal risk registers relating to uncertainties in the mineral resources and mineral reserves estimates to direct future work programs or estimation updates. These may include but are not limited to:

- areas of uncertainty in the estimates impacting local interpretations
- bulk density assumptions, based on sample test work or operational results
- metallurgical recovery assumptions, based on test work or plant performance
- changes in commodity prices, costs and exchange rate assumptions
- geotechnical and hydrogeological considerations impacting on underground or open-cut mining assumptions
- ore loss and dilution, mining selectivity and production rate assumptions
- cut-off value changes to meet product specifications
- changes in environmental, permitting and social license to operate assumptions

Further to assurance activities by the assets specifically relating to the estimation of mineral resources and mineral reserves, the Resource Centre of Excellence with subject matter experts have developed standards and guidelines across BHP for reviewing and documenting the information supporting our mineral resources and mineral reserves estimates, describing the methods used and verifying the reliability of such estimates. These activities are supported by the following controls:

- The reporting of mineral resources and mineral reserves estimates are required to follow BHP's standard procedures for public reporting in accordance with current regulatory requirements.
- Annual risk reviews are conducted with qualified persons and BHP employees on all mineral resources and mineral reserves to be reported including year on year change impact assessment, reconciliation performance metrics for the operating mines and control assessment for the estimation inputs. The information and supporting documentation is prepared by the applicable qualified persons relating to the estimates and is evaluated for compliance with BHP's internal controls. Based on these reviews, recommendations of endorsement are provided to our senior management for the use and reporting of the mineral resources and mineral reserves estimates.
- Periodic internal technical 'deep dive' assessments of mineral resources and mineral reserves estimates are conducted on a frequency that is informed by asset materiality and outcomes of the annual risk reviews.
- Management and closure reviews of actions assigned to qualified persons and BHP employees resulting from the annual risk reviews and technical 'deep dive' assessments are conducted.
- Assurance is undertaken over the reporting documentation provided by qualified persons for public release and management and verification of inputs into BHP mineral resources and mineral reserves reporting database.

The Resource Centre of Excellence also provides an annual update on assurance activities and changes relating to our mineral resources and mineral reserves estimation efforts to the Risk and Audit Committee (RAC) in connection with the RAC's responsibility over the effectiveness of systems of internal control and risk management of BHP.

Inherent risks in the estimation of mineral resources and mineral reserves

The estimation of our mineral resources and mineral reserves are largely based on historical average prices of the commodities we produce or intend to produce, primarily iron ore, copper, coal, potash and nickel. Estimated annual cash flows from our future operations, estimated production schedules, estimated capital expenditure and operating costs, estimated site closure costs, estimated royalty and tax costs, valuation assumptions and interpretations of geologic data obtained from drill holes and other exploration techniques, all of which may not necessarily be indicative of future results. The assumptions and interpretations used to estimate our mineral resources and mineral reserves may change from period to period, and, because additional geological data generated during the course of our operations may not be consistent with the data on which we based our mineral resources and mineral reserves, such estimates may change from period to period or may need to be revised. No assurance can be given that our mineral resources or mineral reserves presented in this report will be recovered at the grade, quality or quantities presented or at all.

There are numerous uncertainties inherent in the estimation of mineral resources and mineral reserves. Areas of uncertainty that may materially impact our mineral resources or mineral reserves estimates may include, but are not limited to: (i) changes to long-term commodity prices, external market factors, foreign exchange rates and other economic assumptions; (ii) changes in geological interpretations of mineral deposits and geological modelling, including estimation input parameters and techniques; (iii) changes to metallurgical or process recovery assumptions which adversely affect the volume, grade or qualities of our commodities produced (for example, processing that results in higher deleterious elements that result in penalties) or other changes to mining method assumptions; (iv) changes to input assumptions used to derive the potentially mineable shapes applicable to the assumed underground or open-pit mining methods used to constrain the estimates; (v) changes to life of mine or production rate assumptions; (vi) changes to dilution and mining recovery assumptions; (vii) changes to cut-off grades applied to the estimates; (viii) changes to geotechnical (including seismicity), structures, rock mass strength, stress regime, hydrogeological, hydrothermal or geothermal factors; (ix) changes to infrastructure supporting the operations of or access to the applicable mine site; (x) changes to mineral, surface, water or other natural resources rights; (xi) changes to royalty, taxes, environmental, permitting and social license assumptions in the jurisdictions in which we operate; and (xii) changes in capital or operating costs.

Additionally, the term “mineral resources” does not indicate recoverable proven and probable mineral reserves pursuant to S-K 1300. Estimates of mineral resources are subject to further exploration and evaluation of development and operating costs, grades, recoveries and other material factors, and, therefore, are subject to considerable uncertainty. Mineral resources do not meet the threshold for mineral reserve modifying factors, such as engineering, legal or economic feasibility, that would allow for the conversion to mineral reserves. Accordingly, no assurance can be given that our mineral resources not included in mineral reserves will become recoverable proven and probable mineral reserves.

Refer to “Forward-looking statements” and the Risk Factors in OFR 9.1 for other factors that may affect our mineral resources and mineral reserves estimates.

5.1 Copper

Mineral Resources

As at 30 June 2022

		Measured Resources					Indicated Resources					Measured + Indicated Resources					Inferred Resources				
	Mining	Tonnage	Qualities				Tonnage	Qualities				Tonnage	Qualities				Tonnage	Qualities			
Copper[1,2]	Method	Mt	%Cu				Mt	%Cu				Mt	%Cu				Mt	%Cu			
Chile																					
Escondida[3,4,5,6,7]																					
Oxide	OC	4.0	0.48	–	–	–	5.0	0.47	–	–	–	9.0	0.48	–	–	–	2.0	0.75	–	–	–
Mixed	OC	4.0	0.53	–	–	–	9.0	0.44	–	–	–	13	0.47	–	–	–	11	0.49	–	–	–
Sulphide	OC	596	0.49	–	–	–	1,020	0.49	–	–	–	1,620	0.49	–	–	–	5,370	0.53	–	–	–
Escondida Total		**604**	**0.49**	–	–	–	**1,030**	**0.49**	–	–	–	**1,640**	**0.49**	–	–	–	**5,380**	**0.53**	–	–	–
Pampa Norte[8]	OC	282	0.45	–	–	–	570	0.47	–	–	–	852	0.46	–	–	–	636	0.44	–	–	–
Australia		**Mt**	**%Cu**	**kg/tU3O8**	**g/tAu**	**g/tAg**	**Mt**	**%Cu**	**kg/tU3O8**	**g/tAu**	**g/tAg**	**Mt**	**%Cu**	**kg/tU3O8**	**g/tAu**	**g/tAg**	**Mt**	**%Cu**	**kg/tU3O8**	**g/tAu**	**g/tAg**
Olympic Dam[9]	UG	485	1.32	0.38	0.56	2	437	1.26	0.37	0.50	2	922	1.29	0.38	0.53	2	170	1.41	0.39	0.62	3
Peru		**Mt**	**%Cu**	**%Zn**	**g/tAg**	**ppmMo**	**Mt**	**%Cu**	**%Zn**	**g/tAg**	**ppmMo**	**Mt**	**%Cu**	**%Zn**	**g/tAg**	**ppmMo**	**Mt**	**%Cu**	**%Zn**	**g/tAg**	**ppmMo**
Antamina[10]	OC & UG	41	0.70	0.51	11	150	159	0.85	0.63	11	180	200	0.82	0.61	11	180	425	0.99	0.57	11	170
Total copper		**1,410**	**0.77**	–	–	–	**2,200**	**0.66**	–	–	–	**3,620**	**0.71**	–	–	–	**6,610**	**0.57**	–	–	–

1 Mineral resources are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals.

2 Mineral resources are presented exclusive of mineral reserves.

3 Escondida, in which BHP has a 57.5% interest, is considered a material property for purposes of Item 1304 of S-K 1300.

4 Escondida point of reference for the mineral resources was mine gate.

5 Escondida mineral resources estimates were based on a copper price of US$3.04/lb.

6 Escondida mineral resources cut-off criteria used was Oxide ≥ 0.20% soluble Cu; Mixed ≥ 0.30% Cu; Sulphide ≥ 0.25% Cu for mineralisation assigned to be processed via leaching or ≥ 0.30% Cu for mineralisation assigned to be processed via the concentrator.

7 Escondida metallurgical recoveries for Oxide 62%; Mixed 42%; Sulphide 42% for material processed by leaching or 83% for material processed via the concentrator.

8 Pampa Norte, in which BHP has a 100% interest, includes Cerro Colorado and Spence deposits. The mineral resources estimates were based on a copper price of US$3.04/lb. The reference point for the mineral resources was mine gate.

9 Olympic Dam mineral resources estimates, in which BHP has a 100% interest, were based on a copper price of US$3.04/lb, uranium oxide price of US$30.06/lb, gold price of US$1,817/troy oz and silver price of US$24.40/troy oz. The reference point for the mineral resources was mine gate, ex-processing.

10 Antamina mineral resources estimates, in which BHP has a 33.75% interest, were based on a copper price of US$3.30/lb, zinc price of US$1.20/lb, silver price of US$25.10/troy oz and molybdenum price of US$11.10/lb. The reference point for the mineral resources was in situ.

Mineral Reserves

As at 30 June 2022

		Proven Reserves					Probable Reserves					Total Reserves				
	Mining	Tonnage	Qualities				Tonnage	Qualities				Tonnage	Qualities			
Copper[1]	**Method**	**Mt**	**%Cu**				**Mt**	**%Cu**				**Mt**	**%Cu**			
Chile																
Escondida[2,3,4,5,6]																
Oxide	OC	75	0.57	–	–	–	31	0.51	–	–	–	106	0.55	–	–	–
Sulphide	OC	1,560	0.70	–	–	–	939	0.56	–	–	–	2,500	0.65	–	–	–
Sulphide Leach	OC	755	0.46	–	–	–	197	0.40	–	–	–	952	0.45	–	–	–
Escondida Total		**2,390**	**0.62**	**–**	**–**	**–**	**1,170**	**0.53**	**–**	**–**	**–**	**3,560**	**0.59**	**–**	**–**	**–**
Pampa Norte[7]	OC	725	0.51	–	–	–	419	0.50	–	–	–	1,150	0.50	–	–	–
Australia		**Mt**	**%Cu**	**kg/tU_3O_8**	**g/tAu**	**g/tAg**	**Mt**	**%Cu**	**kg/tU_3O_8**	**g/tAu**	**g/tAg**	**Mt**	**%Cu**	**kg/tU_3O_8**	**g/tAu**	**g/tAg**
Olympic Dam[8]	UG	285	1.96	0.59	0.72	5	263	1.71	0.53	0.63	4	548	1.84	0.56	0.68	5
Peru		**Mt**	**%Cu**	**%Zn**	**g/tAg**	**ppmMo**	**Mt**	**%Cu**	**%Zn**	**g/tAg**	**ppmMo**	**Mt**	**%Cu**	**%Zn**	**g/tAg**	**ppmMo**
Antamina[9]	OC	57	0.92	0.65	9	280	48	0.98	0.99	11	230	105	0.94	0.80	10	260
Total copper		**3,460**	**0.71**	**–**	**–**	**–**	**1,900**	**0.70**	**–**	**–**	**–**	**5,360**	**0.71**	**–**	**–**	**–**

1 Mineral reserves are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals.

2 Escondida, in which BHP has a 57.5% interest, is considered a material property for purposes of Item 1304 of S-K 1300.

3 Escondida point of reference for the mineral reserves was mine gate.

4 Escondida mineral reserves estimates were based on a copper price of US$2.79/lb.

5 Escondida mineral reserves cut-off criteria used was Oxide ≥ 0.20% soluble Cu. For Sulphide ≥ 0.30% Cu and where greater than the variable cut-off of the concentrator. Sulphide ore is processed in the concentrator plants as a result of an optimised mine plan with consideration of technical and economic parameters in order to maximise net present value. Sulphide Leach ≥ 0.25% Cu and 70% or less of copper contained in chalcopyrite and lower than the variable cut-off grade. Sulphide leach ore is processed in the leaching plant as an alternative to the concentrator process.

6 Escondida metallurgical recoveries for Oxide 62%; Sulphide Leach 42%; Sulphide 42% for material processed by leaching or 83% for material processed via the concentrator.

7 Pampa Norte, in which BHP has a 100% interest, includes Cerro Colorado and Spence deposits. The mineral reserves estimates were based on a copper price of US$2.79/lb. The point of reference for the mineral reserves was mine gate.

8 Olympic Dam mineral reserves estimates, in which BHP has a 100% interest, were based on a copper price of US$2.79/lb, uranium oxide price of US$28.68/lb, gold price of US$1,535.75/troy oz and silver price of US$17.16/troy oz. The point of reference for the mineral reserves was mine gate, ex-processing.

9 Antamina mineral reserves estimates, in which BHP has a 33.75% interest, were based on a copper price of US$3.30/lb, zinc price of US$1.10/lb, silver price of US$20.70/troy oz and molybdenum price of US$9.30/lb. The point of reference for the mineral reserves was delivery to processing plant.

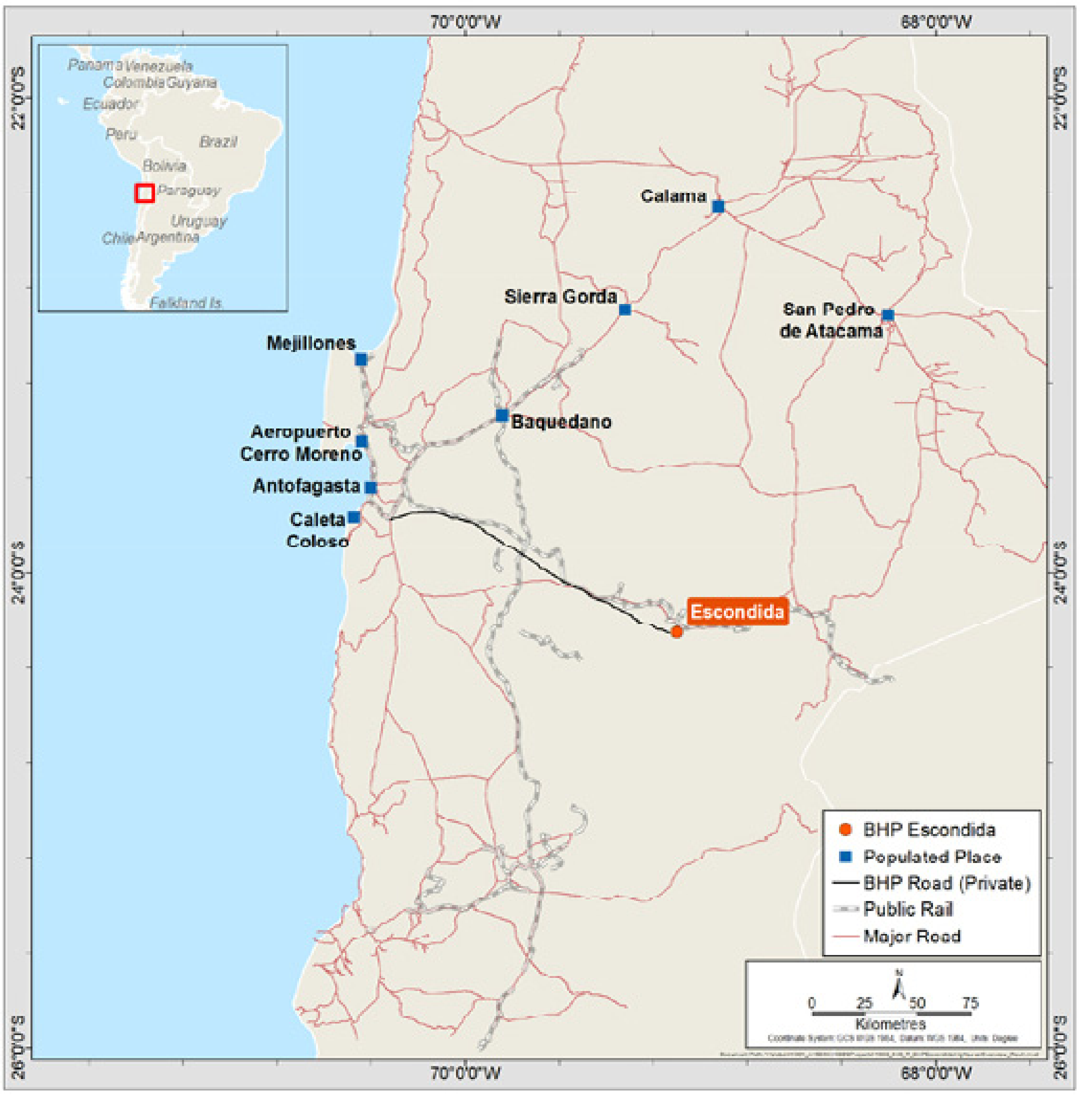
5.2 Escondida individual property disclosure

5.2.1 Property description

Escondida copper mine (Escondida) is a production stage property operated by Minera Escondida Limitada (MEL) consisting of Escondida and Escondida Norte deposits located in northern Chile, 170 km south-east of Antofagasta at an elevation of approximately 3,100 m above sea level.

The location of the operations centred upon the two pits are listed and shown below.

- Escondida: Latitude 24°16’ S, Longitude 69° 04’ W
- Escondida Norte: Latitude 24°13’ S, Longitude 69° 03’ W



5.2.2 Infrastructure

All required infrastructure supporting the current mine plan including roads, rail and port, power and water supply is in place. Access to the property is via a company maintained public road from Antofagasta. The city of Antofagasta is serviced by the regional airport.

The site infrastructure, centred on the two pits, includes three concentrator plants, one heap and one dump leaching process facilities, associated cathode production plant, tailings deposit, along with support and service facilities.

Two MEL owned and operated seawater desalination plants are located at Punta Coloso on the Antofagasta coastline and supply water for processing plants, mine operations and supporting infrastructure via three pipelines to the mine site. Water is recycled from the tailings dam for re-use in the concentrator plants.

The nearby Coloso port facility receives copper concentrate via a pipeline from the mine site and processes this to a dry concentrate ready for stockpiling and loading via a dedicated concentrate shiploading facility. Both concentrate pipeline and port facilities are owned and operated by MEL.

Additional third-party owned port infrastructure is located at Antofagasta, including rail, train unloading and ship loading facilities.

Escondida utilises an existing privately owned railway system to transport copper cathode product from site and consumables to site through the ports of Antofagasta and Mejillones. Escondida owns a minor rail spur connecting the mine site into the publicly owned railway.

The source of water for the mine, processing plants and supporting infrastructure is provided from two seawater desalination plants located at Punta Coloso, and pumping facilities to site via three pipelines. Water is recycled from the tailings dam for re-use in the concentrator plants.

Electrical power supplied to site infrastructure was purchased from suppliers Power Angamos and Tamakaya. From FY2023, MEL are expected to be supplied via a third-party renewable power purchase agreement, contributing towards reducing the site’s emissions. The contract has two providers Enel Generation (60%) and Colbun (40%).

The power is supplied at 220kV and then distributed throughout the operations to the required locations via a series of substations. The power transmission system that supplies the mine site is owned and managed by MEL.

The workforce is a combination of employees and contractors supporting the operations. Operational personnel reside on site in MEL accommodation and are sourced from Antofagasta or from other parts of Chile.

5.2.3 Mineral tenure

MEL holds a total of 764 mining concessions covering an area of 406,018 ha. There are 18 principal mining concessions that provide MEL with the right to explore and mine indefinitely, subject to payment of annual license fees. All leases were obtained through the legally established process in which judicial requests are presented to the Chilean state.

Lease name	Registered tenement holder	Expiry date	Surface area (ha)	Annual rent and rate (UTM)[1]
Alexis 1/1424	Minera Escondida Ltda.	Permanent	7,059	705.9
Amelia 1/1049	Minera Escondida Ltda.	Permanent	5,235	523.5
Catita 1/376	Minera Escondida Ltda.	Permanent	1,732	173.2
Claudia 1/70	Minera Escondida Ltda.	Permanent	557	55.7
Colorado 501/977	Minera Escondida Ltda.	Permanent	2,385	238.5
Costa 1/1861	Minera Escondida Ltda.	Permanent	9,159	915.9
Donaldo 1/612	Minera Escondida Ltda.	Permanent	3,060	306.0
Ela 1/100	Minera Escondida Ltda.	Permanent	500	50.0
Gata 1 1/100	Minera Escondida Ltda.	Permanent	400	40.0
Gata 2 1/50	Minera Escondida Ltda.	Permanent	200	20.0
Guillermo 1/368	Minera Escondida Ltda.	Permanent	1,785	178.5
Hole 14	Minera Escondida Ltda.	Permanent	1	0.1
Naty 1/46	Minera Escondida Ltda.	Permanent	230	23.0
Paola 1/3000	Minera Escondida Ltda.	Permanent	15,000	1,500.0
Pista 1/22	Minera Escondida Ltda.	Permanent	22	2.2
Pistita 1/5	Minera Escondida Ltda.	Permanent	9	0.9
Ramón 1/640	Minera Escondida Ltda.	Permanent	3,200	320.0
Rola 1/1680	Minera Escondida Ltda.	Permanent	8,400	840.0
	Total		**58,934**	**5,893.0**

1 Unidad Tributaria Mensual (UTM) is a Chilean state tax unit valued in Chilean pesos (CLP) per hectare. The 2022 rate is 0.1 UTM. Annual payments are made at the end of the Chilean tax year (end of March) for concessions.

In addition to mining concessions, Chilean law also regulates, independently of mining concessions, the rights to the use of the land surface. MEL owns 155,000 ha of surface rights and these are also renewable on an annual basis. These rights are also obtained through legal process presented to the Chilean state and potentially to other third party owners, including the Chilean "Consejo de Defensa del Estado" as required, MEL's main surface rights cover operational activities such as pits, dumps, leach pads, plant and other infrastructure.

Infrastructure	Surface rights identifier[1]			Register	Regional office	Surface area (ha)
	Folio	Number	Year			
Pits, waste dumps, leach pads, plants	619 V	964	1984	Hipotecas y Gravámenes	Bienes Raíces Antofagasta	22,084
Energy transmission lines, aqueducts, mineral pipelines, roads	1121 V	1117	2018	Hipotecas y Gravámenes	Bienes Raíces Antofagasta	26,988

1 As defined by Chilean legal requirements

MEL also holds maritime concessions for the Coloso port facilities. These concessions are requested through submission of the proposed project to the Chilean Ministry of Defence and are awarded by legal decree.

5.2.4 Registrant interest

BHP does not hold any royalty in the Escondida property in addition to its economic interest of 57.5%.

5.2.5 Present condition of property

Escondida is a production-stage property actively operating two open cut mines, Escondida and Escondida Norte.

Continuous resource definition activities are ongoing to upgrade mineral resources understanding to support the mine plans and to develop mineral reserves. These activities include drilling and in-pit mapping. Geological understanding of the two deposits is supported by a total of approximately 2,700 km of drilling undertaken in a total of approximately 8,600 drill holes.

Surface mining is by drilling and blasting along with shovel/excavator loading and truck haulage from each of the two open pits. Extracted sulphide ore undergoes crushing prior to processing in one of three concentrators with concentrate piped to the Coloso port for drying. Lower grade sulphide ore is directly dumped onto leach pads and is processed by biological leaching. Oxide and transitional ores are processed using heap leaching. Leached products are converted to copper cathode then railed to Antofagasta port.

5.2.6 Physical condition

Construction commenced on the Escondida property in 1988 with first production in 1990. A number of expansion phases followed from 1993 onwards which included the development of additional infrastructure to increase production. Key milestones subsequent to first production in 1990 relating to the development of the operations were:

- 1998 Acid heap leaching of oxides commenced
- 2002 Second concentrator (Phase 4) inaugurated
- 2005 Mining commenced at Escondida Norte
- 2006 Dump bio-leaching of sulphides commenced
- 2007 First desalination plant commenced pumping
- 2016 Third concentrator inaugurated
- 2017 Second desalination plant commenced pumping
- 2020 Operation converted to 100% use of desalination water

The operations undertake planned maintenance programs and implement scheduled replacement of mine fleet and infrastructure components that is intended to maintain the continued reliable operating of equipment, facilities and infrastructure to meet operational requirements.

5.2.7 Book value

The total book value for the Escondida property and its associated plant and equipment was US$10.6 billion as of 30 June 2022.

5.2.8 History of previous operations

Utah International Inc. (Utah) and Getty Oil Co. (Getty) commenced geochemical exploration in the region in 1978 which led to the discovery of Escondida deposit in 1981. In 1984 through corporate acquisitions, BHP acquired the Escondida property. Ownership changed in 1985 to a joint venture between BHP (57.5%), Rio Tinto Zinc (30%), JECO Corporation (10%) and World Bank (2.5%). The joint venture undertook all the subsequent exploration and development work to bring Escondida into operation in 1990. Current ownership, since 2010 is BHP (57.5%), Rio Tinto (30%), JECO Corporation (10%) and JECO 2 Limited (2.5%). Minera Escondida Limitada operates Escondida.

5.2.9 Significant encumbrances

Minera Escondida holds the licenses to operate pursuant to the current mine plan. BHP is not aware of any material encumbrances that would impact the current mineral resources or mineral reserves.

5.2.10 Geology and mineralisation

The Escondida and Escondida Norte copper deposits lie in the Escondida-Sierra de Varas shear lens of the Domeyko Fault System. The deposits are supergene-enriched copper porphyries with primary sulphide mineralisation associated with multiple phase intrusions of monzonite to granodiorite composition into host volcanics.

Primary mineralisation has undergone secondary supergene leaching and enrichment with associated local formation of copper oxide mineralisation, predominately brochantite. Supergene enrichment generated laterally-continuous and sub-horizontal high-grade sulphide mineralisation zones across the deposit, predominately chalcocite and covellite. The primary hypogene mineralisation, present in the deepest parts of the deposits is chalcopyrite with bornite.

5.2.11 Mineral resources and mineral reserves

Tables of mineral resources and mineral reserves for Escondida reported by ore type are included in section 5.1 above.

5.2.12 Changes to mineral resources and mineral reserves

Mineral resources are being reported for the first time in a filing with the SEC in accordance with S-K 1300 for the fiscal year ending 30 June 2022. There are no comparable estimates for the preceding year ending 30 June 2021.

Similarly, mineral reserves are being reported for the first time in accordance with S-K 1300 for the fiscal year ending 30 June 2022. In the preceding year ending 30 June 2021, BHP had reported mineral reserves for Escondida in accordance with the US SEC Industry Guide 7 at a 100% ownership basis.

Total reserves as at 30 June 2022 were 3,560Mt, compared to the previous year as at 30 June 2021 which were 4,010Mt (on an equity basis), a decrease of 11% (-450Mt). The changes were mainly due to the application of economic assumptions relating to commodity prices and costs in response to the disclosure requirements of S-K 1300 relative to the assumptions we applied for the previous year in accordance with the US SEC Industry Guide 7 with some depletion.

5.2.13 Material assumptions and criteria

Material assumptions in the estimation of mineral resources are:

- Resources estimated using ordinary kriging.
- The sample data preparation including data capping.
- The pit optimisation used to determine the resources that have reasonable prospects of economic extraction based on a copper price of US$3.04/lb.

Material assumptions in the estimation of mineral reserves are:

- The classified resource model.
- Variable cut-off grade strategy that maximises throughput for the concentrator, smelter and refinery.
- Commodity prices, operating and capital costs.

Details of the material assumptions are described in the Technical Report Summary filed as an exhibit to this report, sections 11 Mineral Resource Estimates and 12 Mineral Reserve Estimates.

5.3 Iron ore

Mineral Resources

As at 30 June 2022

		Measured Resources						Indicated Resources						Measured + Indicated Resources						Inferred Resources					
	Mining	Tonnage	Qualities					Tonnage	Qualities					Tonnage	Qualities					Tonnage	Qualities				
Iron ore[1,2]	Method	Mt	%Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI	Mt	%Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI	Mt	%Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI	Mt	%Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI
Australia																									
WAIO[3,4,5,6,7,8]																									
Mt Newman	OC	250	61.0	0.11	3.5	2.3	6.2	770	59.7	0.13	4.8	2.8	6.3	1,020	60.0	0.12	4.5	2.7	6.3	2,240	59.7	0.12	4.8	2.6	6.4
Goldsworthy[9]	OC	100	56.7	0.13	7.9	3.6	6.8	490	58.8	0.08	6.0	3.0	6.0	590	58.4	0.09	6.4	3.1	6.2	3,900	59.9	0.10	5.2	2.3	6.2
Yandi	OC	360	58.3	0.11	4.7	2.4	8.9	1,300	59.4	0.14	4.5	2.3	7.6	1,660	59.2	0.13	4.5	2.3	7.8	1,930	57.9	0.13	5.5	2.6	8.3
Jimblebar	OC	210	60.1	0.10	5.1	2.9	5.2	560	59.5	0.14	5.3	3.1	5.7	760	59.7	0.13	5.2	3.0	5.6	280	58.6	0.10	5.7	3.4	6.2
BHP (Non-JV)[10]	OC	170	60.5	0.13	4.8	2.5	5.6	200	59.3	0.13	6.1	2.5	6.0	370	59.9	0.13	5.5	2.5	5.8	2,050	59.0	0.13	4.9	2.8	7.1
Total iron ore		**1,090**	**59.5**	**0.11**	**4.8**	**2.6**	**6.8**	**3,320**	**59.4**	**0.13**	**5.0**	**2.7**	**6.6**	**4,400**	**59.4**	**0.12**	**5.0**	**2.6**	**6.7**	**10,410**	**59.3**	**0.12**	**5.1**	**2.6**	**6.8**

1 Mineral resources are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest in the respective joint venture. All tonnes and quality information have been rounded, small differences may be present in the totals.

2 Mineral resources are presented exclusive of mineral reserves.

3 WAIO is considered a material property for purposes of Item 1304 of S-K 1300. BHP interest is 85% for all joint ventures except BHP (Non-JV) where it is 100%.

4 Mineral resources qualities are presented as in situ mass percentage on a dry weight basis and tonnage as wet tonnes. Moisture content is based on deposit types, Brockman (BKM) – 3%; Marra Mamba (MM) – 4%; Channel Iron Deposit (CID) – 8% and Detrital Iron Deposits (DID) – 4%.

5 WAIO point reference for the mineral resources was in situ.

6 Mineral resources estimates were based on an iron ore price of US$86/dmt for Platts 62% Fe Fines Index free on board (FOB) Port Hedland basis. Based on the median three-year monthly average price over a timeframe of 1 July 2018 to 30 June 2021.

7 Mineral resource estimates cut-off criteria was based on deposit types identified in the joint venture. These are BKM and MM 54% Fe; CID 52% Fe and DID 58% Fe and less than 6% Al_2O_3.

8 WAIO is predominantly a producer of direct shipping ore and the metallurgical recovery was assumed as 100% for the purpose of reporting all mineral resources.

9 Goldsworthy joint venture includes 2 Mt measured + indicated and 3 Mt of inferred mineral resources from the POSMAC joint venture that BHP has a 65% economic interest.

10 BHP (Non-JV) mineral resources are those that are wholly attributable to BHP without associated mineral reserves.

Mineral Reserves

As at 30 June 2022

Iron ore[1]	Mining Method	Proven Reserves Tonnage Mt	Proven Qualities %Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI	Probable Reserves Tonnage Mt	Probable Qualities %Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI	Total Reserves Tonnage Mt	Total Qualities %Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI
Australia																			
WAIO[2,3,4,5,6,7]																			
Mt Newman	OC	240	63.7	0.10	2.9	1.8	3.3	510	61.9	0.11	3.4	2.1	5.3	750	62.5	0.11	3.3	2.0	4.6
Goldsworthy[8]	OC	910	62.0	0.09	3.2	1.8	5.8	1,030	61.0	0.08	3.9	1.9	6.4	1,940	61.5	0.08	3.6	1.8	6.1
Jimblebar	OC	480	61.8	0.12	3.4	2.5	5.1	410	61.4	0.11	4.1	2.7	4.7	900	61.6	0.12	3.7	2.6	4.9
Total iron ore		**1,630**	**62.2**	**0.10**	**3.2**	**2.0**	**5.2**	**1,960**	**61.3**	**0.09**	**3.8**	**2.1**	**5.7**	**3,590**	**61.7**	**0.10**	**3.6**	**2.1**	**5.5**

1 Mineral reserves are being first time reported in accordance with S-K 1300 regulations and are presented for the portion attributable to BHP's economic interest in the respective joint ventures. All tonnes and quality information have been rounded, small differences may be present in the totals.

2 WAIO is considered a material property for purposes of Item 1304 of S-K 1300. BHP interest is 85% for all joint ventures.

3 Mineral reserves qualities are presented as in situ mass percentage on a dry weight basis and tonnage as wet tonnes. Moisture content is based on deposit types, Brockman (BKM) – 3%; Marra Mamba (MM) – 4%; Channel Iron Deposit (CID) – 8% and Detrital Iron Deposits (DID) – 4%.

4 WAIO point of reference for the mineral reserves was as delivered to the ore handling/process plant.

5 Mineral reserves estimates were based on an iron ore price of US$86/dmt for Platts 62% Fe Fines Index and US$103/dmt for lump, both FOB Port Hedland basis.

6 WAIO joint ventures include Brockman (BKM) and Marra Mamba (MM) deposit types. All mineral reserves estimates applied a cut-off criteria of 58% Fe.

7 WAIO is predominantly a producer of direct shipping ore and the metallurgical recovery was assumed as 99% for Mt Newman and 100% for Goldsworthy and Jimblebar joint ventures for the purposes of reporting mineral reserves.

8 Goldsworthy joint venture includes 11Mt of mineral reserves from the POSMAC joint venture that BHP has a 65% economic interest.

5.4 WAIO individual property disclosure

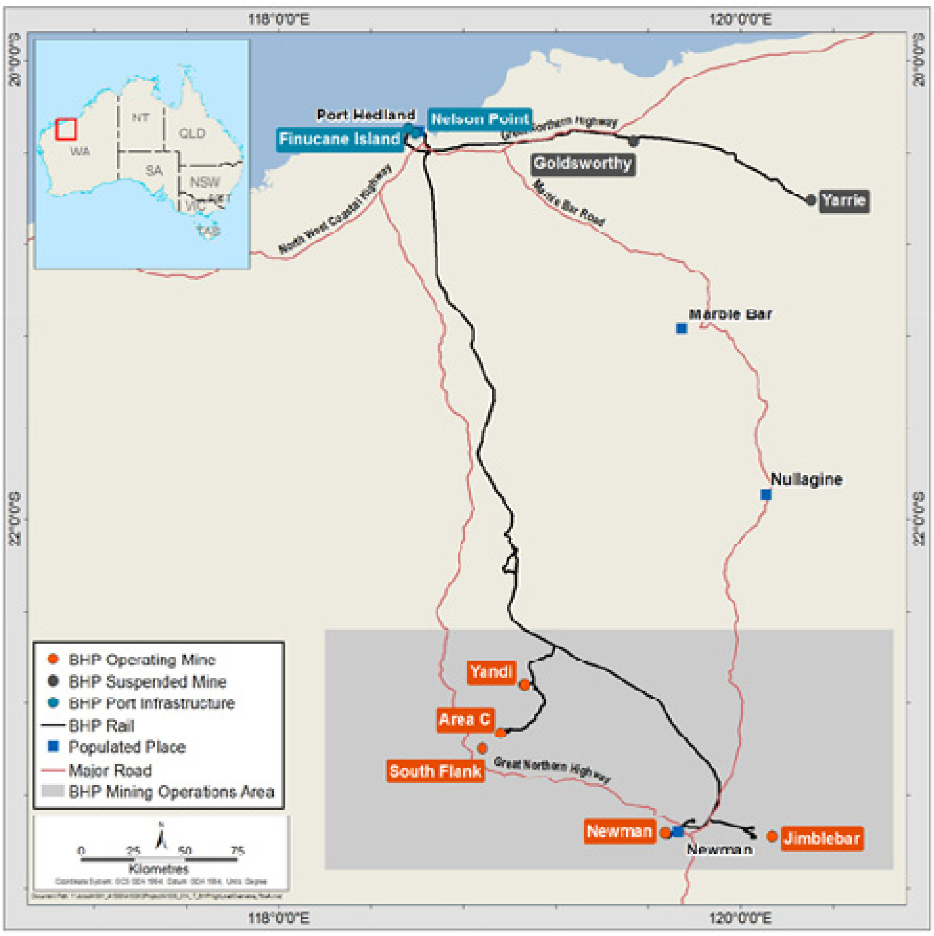
5.4.1 Property description

WAIO is a production-stage property with mines located in the Pilbara iron ore province in the north-west of Western Australia (WA), Australia and is centred on the regional town of Newman located approximately 1,000 km north of WA's capital city Perth. The property is accessible from Perth by road via the Great Northern Highway and by air via regular commercial flights to Newman.

Mines, processing facilities, railways and port facilities comprising WAIO are spread over a geographical area of 350 km N-S and 250 km E-W between Port Hedland and Newman towns in the Pilbara region.

The geographic coordinates of the central points of the five mines are provided below and their locations shown below.

- Newman: Latitude: 23°21'40" S, Longitude: 119°40'15" E
- Jimblebar: Latitude: 23°22'40" S, Longitude: 120°07'45" E
- Mining Area C: Latitude: 22°55'30" S, Longitude: 118°58'55" E
- South Flank: Latitude: 22°59'35" S, Longitude: 118°59'45" E
- Yandi: Latitude: 22°43'15" S, Longitude: 119°05'15" E



5.4.2 Infrastructure

Most of the infrastructure required for WAIO to support the current mining operations including roads, airport, rail and port, power and water supply is in place. These have been developed by BHP gradually over the last six decades in pace with staged expansion of production capacity.

WAIO's mines (Newman, Jimblebar, Mining Area C, South Flank and Yandi) and processing hubs (Newman, Jimblebar, Mining Area C and Yandi) are connected to its two ports (Nelson Point and Finucane Island) located at Port Hedland by a network of more than 1,000 km of rail infrastructure.

The mines have a network of BHP owned roads to service the mining operations and connect to the Great Northern Highway.

Water is sourced from ground water supplies for all WAIO mines, process plants and mine camps. These water supplies are drawn from BHP managed bore fields around mine sites established by WAIO under license for its operations and mine camps. Port Hedland operations are supplied water under contract from the municipal provider, sourced from nearby coastal aquifers.

WAIO has a natural gas-fired power plant (Yarnima Power Station, in Newman town), with an installed generator capacity for 190 megawatt. The plant supplies the entire power requirement for all its mining, processing facilities and mine camps. Power consumed for WAIO's port operations at Port Hedland is purchased via a power purchase agreement with Alinta Energy, a large energy supplier in Australia.

BHP has set up its own accommodation villages / camps at the mines to accommodate its fly-in-fly-out (FIFO) personnel. In addition to the commercial airport at Newman, BHP has set up private airports at mine sites and operates regular charter flights from Perth directly to transport FIFO workforce.

WAIO relies mainly on FIFO workforce sourced primarily from within Western Australia (Perth and other regional towns) and to a lesser extent from other states in Australia.

5.4.3 Mineral tenure

BHP and its joint venture partners hold mineral rights in 54 mineral titles covering a total area of approximately 4,523 km^2. Of this, approximately 2,678 km^2 is contributed by eight mineral titles held pursuant to five State Agreement Acts of the state of Western Australia and the remaining area (1,845 km^2) by 46 mineral titles held pursuant to the Mining Act, 1978 (Western Australia).

The five State Agreement Acts (incorporating agreements between BHP along with its joint venture partners and the state of Western Australia) are ratified by the parliament of Western Australia and provide WAIO long-term tenure security for mineral development. These acts and details of mining titles held pursuant to each State Agreement are provided in the list and table below.

1. Iron Ore (Mount Newman) Agreement Act 1964 (WA) - ML244SA held by the Mount Newman Joint Venture.
2. Iron Ore (Mount Goldsworthy) Agreement Act 1964 (WA) - ML235SA and ML249SA held by the Mount Goldsworthy (Northern Areas) Joint Venture and ML281SA held by the Mount Goldsworthy (Area C) Joint Venture.
3. Iron Ore (Goldsworthy-Nimingarra) Agreement Act 1972 (WA) - M263SA & ML251SA held by the Mount Goldsworthy (Northern Areas) Joint Venture.
4. Iron Ore (McCamey's Monster) Agreement Authorisation Act 1972 (WA) - M266SA held by BHP Iron Ore (Jimblebar) Pty Ltd.
5. Iron Ore (Marillana Creek) Agreement Act 1991 (WA) - M270SA held by the Yandi Joint Venture.

Lease number	Registered tenement holders[1] / interest	Start date	Expiry date[2]	Legal area (ha)	Annual rent and rate[4]
ML235SA	BHP (85/100), Itochu (8/100), Mitsui (7/100)	5/08/1965	4/08/2028	4,142	$ 4,818
ML244SA	BHP (85/100), Itochu (10/100), Mitsui (5/100)	7/04/1967	6/04/2030	78,934	$ 116,342
ML251SA	BHP (85/100), Itochu (8/100), Mitsui (7/100)	22/09/1972	21/09/2035	1,300	$ 7,433
ML249SA	BHP (85/100), Itochu (8/100), Mitsui (7/100)	8/05/1974	4/08/2028	30,647	$ 36,618
M266SA	BHP (100/100)[3]	11/10/1988	10/10/2030	51,756	$ 123,468
M263SA	BHP (85/100), Itochu (8/100), Mitsui (7/100)	22/01/1989	21/09/2035	14,323	$ 325,346
M270SA	BHP (85/100), Itochu (8/100), Mitsui (7/100)	4/09/1991	3/09/2033	30,344	$ 1,571,645
ML281SA	BHP (85/100), Itochu (8/100), Mitsui (7/100)	26/04/2002	4/08/2028	56,335	$ 157,882

1 Full Legal entity names for the tenement holders are: (i) BHP: BHP Minerals Pty Ltd, (ii) Mitsui-Itochu: Mitsui-Itochu Iron Pty Ltd, (iii) Itochu: Itochu Minerals & Energy of Australia Pty Ltd and (iv) Mitsui: Mitsui Iron Ore Corporation Pty Ltd.

2 All State Agreement Act leases, except M270SA, have right to successive renewals of 21 years each. M270SA has right to only two renewals, each for 21 years ultimately expiring in 2054. The lease will then revert to Mining Act. BHP will need to engage with the State Government before the expiry to renegotiate the terms of the State Agreement.

3 M266SA is held by BHP Iron Ore (Jimblebar) Pty Ltd, a subsidiary of BHP Minerals Pty Ltd (BHP). In 2013, BHP entered into an incorporated Joint Venture (Jimblebar IJV) with Itochu and Mitsui in respect of the Jimblebar mining hub, owned by BHP Iron Ore (Jimblebar) Pty Ltd (BHPIOJ). The Jimblebar IJV is structured so that BHP, Itochu and Mitsui hold A Class Shares in BHPIOJ, which confer an 85:8:7 economic interest, respectively in the "Jimblebar Assets", being certain assets of BHPIOJ including the Jimblebar mine. BHPIOJ also owns other assets, called "Excluded Assets", in which BHP alone holds a 100% economic interest through B Class Shares in BHPIOJ.

4 Statutory Rents and Rates are payable annually to the State Government and the Local Government/Shire respectively.

As at 30 June 2022, all of WAIO's mineral reserves and 86% of mineral resources (exclusive of mineral reserves) were located on the eight mineral titles held pursuant to the five State Agreement Acts. The remaining 14% of mineral resources are located across the 46 mineral titles held pursuant to the Mining Act. All mineral development and extraction activities are currently being undertaken only within tenements held pursuant to the State Agreement Acts. Activities within the Mining Act tenements are currently limited to exploration work aimed at defining mineral resources.

5.4.4 Registrant interest

In addition to being the majority owner of the property, BHP holds one royalty stream which entitles BHP to earn royalty income in relation to ore produced only from Mining Area C and South Flank. This royalty stream contributed 0.1% of free on board (FOB) revenue in FY2022.

5.4.5 Present condition of property

WAIO is a production-stage property with a large base of mineral reserves and mineral resources.

Exploration activities have been ongoing on the property since the 1960s. Drilling is the primary method for exploration and sampling. From the 1950s to December 2021, WAIO had completed over 145,000 exploration drill holes for a total of 11,400 km, including 8,312 km reverse circulation and 773 km diamond core drilling, across its tenements for the purpose of resource identification and definition. For the past 15 years, annually 400 to 500 km of drilling was carried out.

The exploration activities have occurred in areas adjacent to operating mines (brownfield areas) to replenish mineral resources depleted by mine production. In addition, activities have also been completed in strategic greenfield areas to provide optionality for future development.

All mines are open cut, with ore extracted using excavator and truck. After extraction, the ore is crushed before train loading and transporting to the port for direct shipping.

5.4.6 Physical condition

Production on the WAIO property started in late 1960s from one mine. Currently there are five operating mines, Newman, Yandi, Mining Area C Jimblebar and South Flank, started in 1969, 1992, 2003, 2013 and 2021 respectively. Equipment fleet for the mining operations are replaced and upgraded routinely as required to ensure these are meeting the production targets.

Yandi mine has started its end-of-life production ramp down, closure and decommissioning of associated infrastructure commenced in July 2021.

The operations undertake planned maintenance programs and implement scheduled replacement of equipment and infrastructure that is required to maintain the continued reliable operation of the mines and supporting services such as power, port facilities, water supplies and rail.

Modernisation of rail operations and automation of haul trucks are currently in progress.

5.4.7 Book value

The total book value of the WAIO property and its associated plant and equipment was US$17.5 billion on equity ownership basis, as of 30 June 2022.

5.4.8 History of previous operations

Since the 1960s, BHP has been continuously exploring, developing and extracting iron ore at gradually increasing rates of production to keep pace with global sea-borne market demands.

In 1966, BHP's joint venture partner Goldsworthy Mining Limited (GML) was the first company to develop an iron ore mine in the Pilbara. The mine, Mount Goldsworthy ceased operations in 1982 with production entirely for export purposes. BHP was initially a joint venture partner in GML, but acquired the full ownership of GML in 1990.

In 1969, BHP developed the Mount Whaleback deposit at Newman entirely for export purposes as a part of the Mount Newman Mining Joint Venture (NJV). The majority ownership of NJV was acquired by BHP in 1986.

In 1991, BHP developed the Yandi deposit and in 1992 acquired the Jimblebar deposits. In the 1990s, subleases tied to ore purchase agreements by a Chinese consortium over part of the Jimblebar deposits and by South Korea's POSCO for C Deposit at Mining Area C.

Since the 1990s to present day, BHP has been expanding production from its five mining hubs, Newman, Jimblebar, Mining Area C, South Flank and Yandi. South Flank commenced production in May 2021 to replace Yandi production. Yandi is decreasing production towards closure and decommissioning of infrastructure.

5.4.9 Significant encumbrances

BHP is not aware of any significant encumbrances to the property, including current and future permitting requirements and associated timelines or permit conditions.

5.4.10 Geology and mineralisation

The WAIO iron ore deposits are hosted in the late Archaean to early Proterozoic-age banded iron formations of the Hamersley Group in the Pilbara region of Western Australia. The two main hosts for bedrock mineralisation in the Hamersley Group are the Brockman and Marra Mamba iron formations.

Brockman Iron Formation tend to have higher phosphorous and alumina concentration (both deleterious elements) with a lower loss-on ignition than the Marra Mamba Iron Formation. These compositional differences are one of reasons for dividing the ore by stratigraphy. The bedded iron deposits are further subdivided in terms of their genesis and mineralogy into hypogene martite-microplaty hematite and supergene martite-geothite ores.

Widespread detrital sequences occur adjacent to the bedded iron deposits in the form of colluvial-alluvial fans. The detrital deposits economic value depends on the size and concentration and are mostly exploited when associated with bedrock deposits.

In addition, mineralisation is found in fluviatile channel iron deposits of the late Eocene to early Miocene age. The iron content in the channel iron deposits tends to be lower than the bedrock mineralisation, however, they tend to be lower in phosphorous and alumina.

The primary iron bearing minerals are hematite and goethite which vary in concentration within the deposits.

Mineralisation extends more or less continuously over strike lengths of 5-10km for the majority of deposits, but may extend for up to 50-60km. The width of mineralisation at surface typically ranges from about 200m up to 1500m. Mineralisation extends to depths of between 100 and 400m and deposits typically have some form of surface expression.

5.4.11 Mineral resources and mineral reserves

Tables of mineral resources and mineral reserves for WAIO reported by joint venture are included in section 5.3 above.

5.4.12 Changes to mineral resources and mineral reserves

Mineral resources are being reported for the first time in a filing with the SEC in accordance with S-K 1300 for the fiscal year ending 30 June 2022. There are no comparable estimates for the preceding year ending 30 June 2021.

Similarly, mineral reserves are being reported for the first time in accordance with S-K 1300 for the fiscal year ending 30 June 2022. In the preceding year ending 30 June 2021, BHP reported mineral reserves for WAIO in accordance with the US SEC Industry Guide 7 and at a 100% ownership basis.

Total reserves as at 30 June 2022 were 3,590 Mt, compared to the previous year as at 30 June 2021 which were 3,780 Mt (on equity basis), a decrease of 5% (190 Mt). The changes were mainly due to the application of economic assumptions relating to commodity prices and costs in response to the disclosure requirements of S-K 1300 relative to the assumptions we applied for the previous year in accordance with the SEC Industry Guide 7, as well as, the removal of mineral reserves late in the life of asset plan requiring updating to current economic assumptions and depletion.

5.4.13 Material assumptions and criteria

Mineral resources estimated for WAIO's active mines and undeveloped deposits consider the following assumptions:

- Resources estimated using ordinary kriging and inverse distance weighted methods.
- Resources are reported exclusive of mineral reserves and are presented as in situ estimates.
- Resources are reported on a wet tonnage basis for all deposit types associated with the joint ventures.
- Standard open cut practices are assumed for all ore extraction.
- Resources are excluded from reporting as appropriate for heritage, environmental, hydrological, tenure, and infrastructure purposes to minimise any potential impacts.

Mineral reserves are estimated for WAIO's active mining areas and considers the following assumptions:

- The latest and approved resource models and mineral resource estimates have been used for mine planning and conversion to mineral reserves by application of all relevant modifying factors.
- The resource models are converted to mining models (WAIO equivalent of a "reserve" model) by regularising the resource model blocks to SMU-sized blocks.
- The average of the previous three years (FY2019 to FY2021) actual yearly operating and capital costs are used to estimate the cut-off grades and mineral reserves.
- The median of the three-year trailing calendar monthly average iron ore prices from July 2018 to June 2021 are used to estimate the cut-off grades and mineral reserves.
- Mineral reserves are estimated using conventional open-cut mining method involving drill and blast with load and haul activities.
- Pit optimisations are completed to determine economic pit limits using industry standard Lerch-Grossman algorithm.
- Mine designs including pit, waste dumps and haul roads are generated in industry standard CAD software. The designs incorporate the minimum mining width based on the equipment and slope design parameters from geotechnical models.
- WAIO's run-of-mine (ROM) ore is direct shipping ore without the need of concentration or beneficiation. The processing method involves simple crushing and screening of the ore to produce lump and fines products.

Details of the material assumptions are described in the Technical Report Summary filed as an exhibit to this report, sections 11 Mineral Resource Estimates, 12 Mineral Reserve Estimates, 13 Mining Methods, 14 Processing and Recovery Methods and 18 Capital and Operating Costs.

5.5 Metallurgical coal

Coal Resources[1]

As at 30 June 2022

Metallurgical coal[2,3]	Mining method	Measured Resources Tonnage Mt	Measured %Ash	Measured Qualities %VM	Measured %S	Indicated Resources Tonnage Mt	Indicated %Ash	Indicated Qualities %VM	Indicated %S	Measured + Indicated Resources Tonnage Mt	M+I %Ash	M+I Qualities %VM	M+I %S	Inferred Resources Tonnage Mt	Inferred %Ash	Inferred Qualities %VM	Inferred %S
Australia																	
BMA[4,5,6]	OC & UG	1,038	9.9	19.8	0.57	599	10.3	20.9	0.60	1,637	10.1	20.2	0.58	746	11.0	22.2	0.58
Total metallurgical coal		**1,038**	**9.9**	**19.8**	**0.57**	**599**	**10.3**	**20.9**	**0.60**	**1,637**	**10.1**	**20.2**	**0.58**	**746**	**11.0**	**22.2**	**0.58**

1 Coal resources is used as an equivalent term to mineral resources.

2 Coal resources are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest in the respective joint venture. All tonnes and quality information have been rounded, small differences may be present in the totals.

3 Coal resources are presented exclusive of coal reserves.

4 BMA mineral resources, in which BHP has a 50% interest, includes Goonyella Complex, Daunia, Caval Ridge, Peak Downs, Saraji, Saraji South and Blackwater deposits.

5 The point of reference for the coal resources tonnage estimates is in situ. Coal qualities are presented as a potential product on an air-dried basis.

6 Coal resources estimates comprise 94% metallurgical and 6% thermal coal product categories. Coal resources were assessed for reasonable prospects of economic extraction assuming a hard coking coal (Met) price of US$197/t and a thermal coal price of US$96/t for optimisation studies.

Coal Reserves[1]

As at 30 June 2022

Metallurgical coal[2]	Mining method	Proven Reserves Tonnage Mt	Probable Reserves Tonnage Mt	Total Reserves Tonnage Mt	Proven Marketable Reserves Tonnage Mt	Proven Marketable %Ash	Proven Marketable Qualities %VM	Proven Marketable %S	Probable Marketable Reserves Tonnage Mt	Probable Marketable %Ash	Probable Marketable Qualities %VM	Probable Marketable %S	Total Marketable Reserves Tonnage Mt	Total Marketable %Ash	Total Marketable Qualities %VM	Total Marketable %S
Australia																
BMA[3,4,5,6]	OC & UG	1,012	283	1,295	659	10.0	21.1	0.56	169	10.4	22.3	0.62	828	10.0	21.4	0.57
Total metallurgical coal		**1,012**	**283**	**1,295**	**659**	**10.0**	**21.1**	**0.56**	**169**	**10.4**	**22.3**	**0.62**	**828**	**10.0**	**21.4**	**0.57**

1 Coal reserves is used as an equivalent term to mineral reserves.

2 Coal reserves are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest in the respective joint venture. All tonnes and quality information have been rounded, small differences may be present in the totals.

3 BMA mineral reserves, in which BHP has a 50% interest, includes Goonyella Complex, Daunia, Caval Ridge, Peak Downs, Saraji, Saraji South and Blackwater deposits.

4 Total coal reserves were at a 4% moisture content when mined. Total marketable reserves were at a product specification moisture content (9.5-10% Goonyella Complex; 9.5% Peak Downs; 10.5% Caval Ridge; 10.1% Saraji; 10-11% Saraji South; 7.5-11.5% Blackwater; 10-10.5% Daunia) and at an air-dried quality basis for sale after the beneficiation of the total coal reserves.

5 The point of reference for the coal reserves was delivery to the coal handling process plants.

6 Coal reserves estimates comprise 95% hard coking coal, 2% soft coking coal, 1% pulverised coal injection (PCI) and 2% thermal coal product categories. Coal reserves prices used for each of the coal categories were hard coking coal US$155/t, soft coking coal US$98/t, PCI US$99/t and thermal coal US$75/t.

5.6 Energy coal

Coal Resources[1]

As at 30 June 2022

		Measured Resources					Indicated Resources					Measured + Indicated Resources					Inferred Resources				
		Tonnage	Qualities				Tonnage	Qualities				Tonnage	Qualities				Tonnage	Qualities			
Energy coal[2,3]	Mining Method	Mt	%Ash	%VM	%S	Kcal/kgCV	Mt	%Ash	%VM	%S	Kcal/kgCV	Mt	%Ash	%VM	%S	Kcal/kgCV	Mt	%Ash	%VM	%S	Kcal/kgCV
Australia																					
NSWEC[4,5,6,7]	OC	6.2	19.0	29.6	0.66	6,170	0.6	19.7	29.3	0.54	6,060	6.8	19.2	29.5	0.63	6,130	8.6	23.1	28.8	0.49	5,720
Total energy coal		**6.2**	**19.0**	**29.6**	**0.66**	**6,170**	**0.6**	**19.7**	**29.3**	**0.54**	**6,060**	**6.8**	**19.2**	**29.5**	**0.63**	**6,130**	**8.6**	**23.1**	**28.8**	**0.49**	**5,720**

1 Coal resources is used as an equivalent term to mineral resources.

2 Coal resources are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals.

3 Coal resources are presented exclusive of coal reserves.

4 NSWEC, in which BHP has a 100% interest, includes Mt Arthur Coal deposit.

5 Coal qualities are reported on an air-dried in situ basis. Tonnages are reported as in situ.

6 The point of reference for the coal resources was in situ.

7 Coal resources estimates were based on thermal coal price of US$96/t.

Coal Reserves[1]

As at 30 June 2022

		Proven Reserves	Probable Reserves	Total Reserves	Proven Marketable Reserves					Probable Marketable Reserves					Total Marketable Reserves				
		Tonnage	Tonnage	Tonnage	Tonnage	Qualities				Tonnage	Qualities				Tonnage	Qualities			
Energy coal[2]	Mining Method	Mt	Mt	Mt	Mt	%Ash	%VM	%S	Kcal/kgCV	Mt	%Ash	%VM	%S	Kcal/kgCV	Mt	%Ash	%VM	%S	Kcal/kgCV
Australia																			
NSWEC[3,4,5,6]	OC	95	49	144	69	15.8	30.5	0.53	5,880	36	15.8	30.4	0.53	5,880	104	15.8	30.4	0.53	5,880
Total energy coal		**95**	**49**	**144**	**69**	**15.8**	**30.5**	**0.53**	**5,880**	**36**	**15.8**	**30.4**	**0.53**	**5,880**	**104**	**15.8**	**30.4**	**0.53**	**5,880**

1 Coal reserves is used as an equivalent term to mineral reserves.

2 Coal reserves are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals.

3 NSWEC, in which BHP has a 100% interest, includes Mt Arthur Coal deposit.

4 Coal qualities are presented as a potential product on an air-dried basis. Tonnages for the coal reserves are reported on an in situ moisture basis. Moisture when mined was 8.7% and for marketable reserves was 9.5%.

5 The point of reference for the coal reserves was as delivered to the coal handling process plant.

6 Coal reserves estimates were based on thermal coal price of US$85/t.

5.7 Potash

Mineral Resources

As at 30 June 2022

Potash[1,2]	Mining Method	Measured Resources Tonnage Mt	%K2O	Qualities %Insol.	%MgO	Indicated Resources Tonnage Mt	%K2O	Qualities %Insol.	%MgO	Measured + Indicated Resources Tonnage Mt	%K2O	Qualities %Insol.	%MgO	Inferred Resources Tonnage Mt	%K2O	Qualities %Insol.	%MgO
Canada																	
Jansen[3,4,5,6,7,8,9,10]																	
LPL	UG	–	–	–	–	–	–	–	–	–	–	–	–	1,280	25.6	7.7	0.08
Total potash		–	–	–	–	–	–	–	–	–	–	–	–	1,280	25.6	7.7	0.08

1 Mineral resources are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals.

2 Mineral resources are presented exclusive of mineral reserves.

3 Jansen, in which BHP has a 100% interest, is considered a material property for the purposes of item 1304 of S-K 1300.

4 The point of reference for the mineral resources was in situ.

5 Mineral resources estimate was based on a potash price of US$338/t. The primary basis was Nutrien's quarterly published offshore and onshore realised price from 2008 to 2020.

6 Mineral resources are stated for the Lower Patient Lake (LPL) potash unit and using a seam thickness of 3.96 m from the top of 406 clay seam.

7 Mineral resources are based on the expected metallurgical recovery of 92%.

8 Potash or sylvite (KCl) content of the deposit is reported in potassium oxide form (K_2O). The conversion from KCl to K_2O uses a mineralogical conversion factor of 1.583, for example, 25.6% K_2O grade is equivalent to 40.5% KCl.

9 % MgO is used as a measure of carnallite ($KCl.MgCl_2.6H_2O$) content where per cent carnallite equivalent = % MgO x 6.8918.

10 Mineral resources tonnages are reported on an in situ moisture content basis and was estimated to be 0.3%.

Mineral Reserves

As at 30 June 2022

Potash[1,2]	Mining Method	Proven Reserves Tonnage Mt	%K2O	Qualities %Insol.	%MgO	Probable Reserves Tonnage Mt	%K2O	Qualities %Insol.	%MgO	Total Reserves Tonnage Mt	%K2O	Qualities %Insol.	%MgO
Canada													
Jansen[3,4,5,6,7,8,9]													
LPL	UG	–	–	–	–	1,070	24.9	7.5	0.10	1,070	24.9	7.5	0.10
Total potash		–	–	–	–	1,070	24.9	7.5	0.10	1,070	24.9	7.5	0.10

1 Mineral reserves are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals.

2 Jansen, in which BHP has a 100% interest, is considered a material property for the purposes of item 1304 of S-K 1300.

3 The point of reference for the mineral reserves was ore as delivered to the mill for processing.

4 Mineral reserves estimates were based on a potash price of US$338/t. The primary basis was Nutrien's quarterly published offshore and onshore realised price from 2008 to 2020.

5 Mineral reserves estimates cut-off is a function of mining parameters and seam thickness. The calculated cut-off grade from economic modelling where the mine plan would be break-even is 11.6% K_2O.

6 Mineral reserves are based on the expected metallurgical recovery of 92%.

7 Potash or sylvite (KCl) content of the deposit is reported in potassium oxide form (K_2O). The conversion from KCl to K_2O uses a mineralogical conversion factor of 1.583, for example, 25.6% K_2O grade is equivalent to 40.5% KCl.

8 % MgO is used as a measure of carnallite ($KCl.MgCl_2.6H_2O$) content where per cent carnallite equivalent = % MgO x 6.8918.

9 Mineral reserves tonnages are reported on an in-situ moisture content basis and was estimated to be 0.3%.

5.8 Jansen individual property disclosure

5.8.1 Property description

The Jansen potash project is located in the rural municipalities of Leroy and Prairie Rose in the province of Saskatchewan, Canada, approximately 150 kilometres east of the city of Saskatoon.

The geographic coordinate location for the service shaft is Latitude 51°53’56.62“N and Longitude 104°42’53.44“W.

5.8.2 Infrastructure

The site is accessed by road from provincial Highway 16 approximately 12 kilometres to the south and Highway 5 approximately 32 kilometres to the north. Access to the mine site from these highways uses upgraded secondary and/or primary roads from the village of Jansen to the south and the town of LeRoy to the north. The nearest commercial airport is in the city of Saskatoon.

Communications, power, water, and natural gas are provided by provincial crown corporations. The pipeline connection to the Saskatoon South East Water Supply system for Jansen's primary water use is complete. The natural gas supply pipeline has been installed. Currently temporary construction power is provided by SaskPower with a 138 kV overhead line, the permanent 230kV supply is to be completed when mine construction is complete.

The Jansen site has two mine shafts, the service shaft and the production shaft. The service shaft permanent headframe, hoist houses, and collar house are constructed. The production shaft sinking headframe and ground mounted drum winders are installed and in use.

A third party rail provider is planned to transport the potash produced from the Jansen site to the port terminal, located in Delta, British Columbia, Canada, which is owned and operated by a third party provider. The port facility will unload the railcars, store the product, and load shipping vessels.

The processing facilities to be constructed at Jansen include:

- Raw ore handling, storage and crushing;
- Process mill building wet area comprising attrition scrubbing, de-sliming, flotation and de-brining;
- Process mill building dry area comprising drying, screening, compaction and glazing;
- Tailings processing, crystallizer and reagents;
- Product handling, storage and loadout.

Employees of Jansen mine are anticipated to reside in several existing communities located in the area.

5.8.3 Mineral tenure

The total area of the Jansen project lease is approximately 115,638 ha. Most mineral rights parcels are owned by the Saskatchewan Crown, the remaining mineral parcels are owned by individuals or corporations. To gain access to the potash within mineral parcels owned by individuals or corporations ('freehold mineral lease'), BHP must either purchase the mineral parcels or negotiate mineral lease agreement(s) with the registered owner(s) of the mineral parcel(s). The freehold mineral leases secured by BHP have a term of 21 years and are renewable at the option of BHP for successive terms of 21 years. An annual rental payment of CA$4.94/hectare is also paid to keep these leases in good standing.

All surface lands that form part of the Jansen mine operations footprint have been acquired by BHP Canada.

On 23 November 2012, the Government of Saskatchewan and BHP Canada entered into Potash Lease Special Agreement KLSA 011. This agreement gives BHP the exclusive right to search for, dig, work, mine, extract, recover, process, and carry away subsurface minerals under or within all of the Saskatchewan Crown mineral parcels of KLSA 011. The lease pertains to two categories of lands, 'KLSA 011 Core Lands' comprising primarily the mineral reserves and 'KLSA 011 Expansion Lands', area outside mineral reserves that includes the primarily inferred resources.

During the first three years of KLSA 011, BHP was required to complete CA$12M of work on the lease area. This work commitment has been met.

Lease description	**Area (ha)**	**%**	**Expiry date**	**Annual lease payment[1]**
Jansen project total lease area	115,638	100		
KLSA 011 Core lands	63,939.43	55	22/11/2033	1,056,623.66
KLSA 011 Expansion lands	41,724.73	36	22/11/2033	
BHP acquired freehold mineral rights	8,997.56	8	Not applicable	
Total of Core, Expansion, and acquired freehold mineral rights	**114,661.72**	**99**		

1 Annual lease payment in CA$

5.8.4 Registrant interest

BHP does not hold any royalty in Jansen in addition to its economic interest of 100%.

5.8.5 Present condition of property

Jansen is currently in construction phase. A substantial portion of the site grading, drainage and road network is in place. The site is connected to natural gas supply, construction electrical power, communication fibre and non-potable water. A 2,600 person construction camp has been constructed and in use. The service shaft and the production shaft have been excavated and hydrostatically lined. The service shaft permanent headframe, hoist houses, and collar house are constructed. The production shaft sinking headframe and ground mounted drum winders are installed and in use.

5.8.6 Physical condition

Jansen is a development stage property that is in the process of construction with board approval to proceed with Stage 1 announced in August 2021. Some permanent infrastructure is in place including site facilities, service and production shafts, along with temporary construction infrastructure. BHP has a construction program to complete all the necessary requirements such as installation of processing, underground development, mining equipment, rail and port facilities to enable the mine to commence operations.

5.8.7 Book value

The total book value for the Jansen property and its associated plant and equipment was US$3.7 billion as of 30 June 2022.

5.8.8 History of previous operations

There is no history of previous operations on the Jansen project area.

5.8.9 Significant encumbrances

There have been no material encumbrances to the property identified as of the date of this report. Federal, provincial, municipal permits and approval for construction and operation have been received. All material permits that have been applied for to-date have been received.

5.8.10 Geology and mineralisation

The Jansen potash deposit is located within the Williston Basin, a large, intracratonic, and horizontally bedded sedimentary basin that has not been subject to structural deformation, either faulting or folding.

The potash beds are hosted within the Prairie Evaporite Formation, in regionally extensive, horizontal layers created by the repeated, cyclical evaporation of a shallow, inland sea during the Devonian period. The potash deposit extends from east to west in the province and are relatively uniform, except where there are anomalies due to local alterations or disruption of the potash beds.

In the Jansen area, the potash is at a depth of 800 to 1,050 metres. Two potash members are present the Patience Lake and Belle Plaine Members. The Patience Lake Member is further subdivided into Upper Patience Lake and Lower Patience Lake sub-members. The Lower Patience Lake sub-member is the potash horizon targeted for Jansen. The Lower Patience Lake sub-member is composed of sylvite (KCl), halite (NaCl) with variable amounts of disseminated insolubles and clay seams. Carnallite ($KCl.MgCl_2.6H_2O$), a mineral which can impact processing and ground stability, occasionally occurs in place of sylvite within the potash layer. Large carnallite zones can typically be mapped using 3D seismic survey information.

The Dawson Bay Formation includes the Second Red Beds Member and the Dawson Bay Carbonate members which overlay the Prairie Evaporite Formation. The Dawson Bay Formation in the Jansen area is expected to have low permeability or relatively low inflow deliverability potential.

Approximately 400 metres below the Prairie Evaporite Formation are the Cambrian-Ordovician Winnipeg and Deadwood formations. Sediments of these formations were deposited in near shore, shallow water marine environments on top of the Precambrian rocks. The coarse to fine sands of the formations, host a vast deep saline aquifer that is used for brine disposal.

5.8.11 Mineral resources and mineral reserves

Tables of mineral resources and mineral reserves for Jansen reported by ore type are included in section 5.7 above.

5.8.12 Changes to mineral resources and mineral reserves

Mineral resources and mineral reserves are being reported for the first time in a filing with the SEC in accordance with S-K 1300 for the fiscal year ending 30 June 2022. There are no comparable estimates for the preceding year ending 30 June 2021.

5.8.13 Material assumptions and criteria

The key assumptions in the estimation of mineral resources are summarised as:

- Cut-off parameter of 3.96 m from the top of the 406 clay seam contact with the top of Lower Patience Lake sub-member, aligned with the mining equipment requirements.
- Geological anomalies identification including collapses representing potential water ingress hazards, carnallite anomalies impacting extraction and processing and no potash zones creating additional dilution.
- Exclusion zones sterilising sections of the reserves due to lease boundaries and around drill holes.
- Brine and solid salt waste estimate for disposal modelling into the aquifer and tailings management area.

The key assumptions in the estimation of mineral reserves are summarised as:

- The mining method will be continuous mining using long room and pillar method.
- Extraction ratios to reduce stress and provide room stability.
- Thickness of the roof salt beam (horizon) as potential planes of weakness, impacting amount of ground support or dilution estimates.
- Mine design layout maximising the Mineral Resource extraction based on estimated thicknesses, avoiding anomalies (collapse, massive carnallite and no potash zones) and salt beam modelling.
- Commodity price and operating costs.

Details of the material assumptions are described in the Technical Report Summary filed as an exhibit to this report, sections 11 Mineral Resource Estimates, 12 Mineral Reserve Estimates and 13 Mining Methods.

5.9 Nickel

Mineral Resources

As at 30 June 2022

Nickel[1,2]	Mining Method	Measured Resources Tonnage Mt	Measured Resources Qualities %Ni	Indicated Resources Tonnage Mt	Indicated Resources Qualities %Ni	Measured + Indicated Resources Tonnage Mt	Measured + Indicated Resources Qualities %Ni	Inferred Resources Tonnage Mt	Inferred Resources Qualities %Ni
Australia									
Nickel West[3,4,5]	OC & UG	54	0.59	166	0.73	220	0.69	20	0.75
Total nickel		**54**	**0.59**	**166**	**0.73**	**220**	**0.69**	**20**	**0.75**

1 Mineral resources are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals.

2 Mineral resources are presented exclusive of mineral reserves.

3 Nickel West mineral resources, in which BHP has a 100% interest, includes Leinster, Mt Keith, Yakabindie, Venus and Honeymoon Well deposits.

4 The point of reference for the mineral resources was delivery to Leinster gatehouse.

5 Mineral resources estimates were based on a nickel price of US$7.24/lb.

Mineral Reserves

As at 30 June 2022

Nickel[1]	Mining Method	Proven Reserves Tonnage Mt	Proven Reserves Qualities %Ni	Probable Reserves Tonnage Mt	Probable Reserves Qualities %Ni	Total Reserves Tonnage Mt	Total Reserves Qualities %Ni
Australia							
Nickel West[2,3,4]	OC & UG	110	0.58	47	0.72	157	0.62
Total nickel		**110**	**0.58**	**47**	**0.72**	**157**	**0.62**

1 Mineral reserves are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals.

2 Nickel West mineral reserves, in which BHP has a 100% interest, includes Leinster, Mt Keith and Yakabindie deposits.

3 The point of reference for the mineral reserves was delivery to Leinster gatehouse.

4 Mineral reserves estimates were based on nickel price of US$6.13/lb.

6 Major projects

The Jansen Stage 1 project was tracking to plan at the end of FY2022. We are working to bring forward Jansen Stage 1 first production to 2026 and assessing options to accelerate Jansen Stage 2. Approximately US$740 million in capital expenditure is planned for work at Jansen Stage 1 in FY2023, which is expected to continue to focus on civil and mechanical construction on the surface and underground, as well as equipment procurement and port construction.

Commodity	Project and ownership	Project scope/capacity[1]	Capital expenditure[1] US$M Budget	Date of initial production Target	Progress/comments
Projects completed during FY2022					
Potash	Jansen Potash Project (Canada) 100%	Investment to finish the excavation and lining of the production and service shafts, and to continue the installation of essential surface infrastructure and utilities	2,972	CY2027	Completed in June 2022
Projects in execution at 30 June 2022					
Potash	Jansen Stage 1 (Canada) 100%	Design, engineering and construction of an underground potash mine and surface infrastructure, with capacity to produce 4.35 Mtpa	5,723	CY2027	Approved in August 2021. The project is 8% complete

1 Unless noted otherwise, references to capacity are on a 100 per cent basis, references to capital expenditure from subsidiaries are reported on a 100 per cent basis and references to capital expenditure from joint operations reflects BHP's share.

Capital and exploration expenditure (continuing operations) of US$6.1 billion in the 2022 financial year was lower than guidance of US$6.5 billion primarily due to favourable exchange rate movements. This included maintenance expenditure of US$2.8 billion and exploration of US$256 million.

Capital and exploration expenditure of approximately US$7.6 billion and US$9.0 billion are expected for the 2023 and 2024 financial years, including a US$0.4 billion exploration program planned in the 2023 financial year. In the medium term, capital and exploration expenditure of approximately US$10 billion per annum on average is expected. Guidance is subject to exchange rate movements.

7 People – performance data – 2022

Table 1 – Workforce data and diversity by region FY2022

Region	Number and % of employees		Average number and % of contractors[2]		Employees by gender number and %			
					Male	Male %	Female	Female %
Asia	1,544	3.9	2,188	5.4	619	40.1	925	59.9
Australia	29,368	74.9	20,052	49.8	20,341	69.3	9,027	30.7
Europe	61	0.2	10	<1.0	29	47.5	32	52.5
North America	467	1.2	928	2.3	259	55.5	208	44.5
South America	7,770	19.8	17,083	42.4	5,288	68.1	2,482	31.9
Total	**39,210**	**100**	**40,261**	**100**	**26,536**	**67.7**	**12,674**	**32.3**

Table 2 – Employees by category and diversity for FY2022

Employment category	Total	% of Total	Gender		Region				
			Male	Female	Asia	Australia	Europe	North America	South America
Full time	36,965	94.3	25,622	11,343	1,513	27,489	56	459	7,448
Part time	1,233	3.1	581	652	3	1,224	4	2	
Fixed term full time	943	2.4	311	632	28	587	1	5	322
Fixed term part time	28	0.1	6	22		27		1	
Casual	41	0.1	16	25		41			
Total	**39,210**	**100**	**26,536**	**12,674**	**1,544**	**29,368**	**61**	**467**	**7,770**

Table 3 – Employees by category and diversity for FY2022

Category	Total	Gender		Gender %		Age group %			
		Male	Female	Male %	Female %	Under 30	30-39	40-49	50+
Senior leaders	259	168	91	64.9	35.1	0.0	12.4	53.6	34.0
Managers	1,228	781	447	63.6	36.4	0.2	28.3	48.5	23.0
Supervising and professional	16,208	10,131	6,077	62.5	37.5	10.1	40.4	31.2	18.3
Operators and general support	21,515	15,456	6,059	71.8	28.2	18	29.7	26.3	26.0
Total	**39,210**	**26,536**	**12,674**	**67.7**	**32.3**	**14.0**	**34.0**	**29.2**	**22.8**

1 Based on a ‘point in time’ snapshot of employees as at 30 June including employees on extended absence, which was 948 in FY2022. There is no significant seasonal variation in employment numbers.

2 Contractor data is collected from internal surveys and the organisation systems and averages for a 10-month period.

3 Employees who left BHP via the merger of our Petroleum business with WoodsideEnergy Group Ltd (Woodside), which completed on 1 June 2022 (approximately 1,000 employees), or the sale of our 80 per cent interest in BHP Mitsui Coal Pty Ltd (BMC) to Stanmore Resources, which completed on 3 May 2022 (approximately 500 employees) are excluded.

8 Legal proceedings

The Group is involved from time to time in legal proceedings and governmental investigations of a character normally incidental to our business, including claims and pending actions against it seeking damages, or clarification or prosecution of legal rights and regulatory inquiries regarding business practices. Insurance or other indemnification protection may offset the financial impact on the Group of a successful claim.

This section summarises the significant legal proceedings and investigations and associated matters in which the Group is currently involved or has finalised since our last Annual Report. The timing of many of the legal proceedings and investigations continue to be delayed or uncertain as a result of court closures or delays in response to the COVID-19 pandemic.

Legal proceedings relating to the failure of the Fundão tailings dam at the Samarco iron ore operations in Minas Gerais and Espírito Santo (Samarco dam failure)

The Group is engaged in numerous legal proceedings relating to the Samarco dam failure. While there has been progress in priority areas, such as individual compensation and indemnification for the damage caused by the dam failure, it is not possible at this time to provide a range of possible outcomes for all proceedings or a reliable estimate of potential future exposures. There are numerous additional lawsuits against Samarco relating to the dam failure to which the Group is not party. Currently, there are approximately 54 ongoing public civil claims and 36 that are suspended. The most significant of these proceedings are summarised below.

R$20 billion public civil claim commenced by the Federal Government of Brazil, states of Espírito Santo and Minas Gerais and other authorities (R$20 billion Public Civil claim)

On 30 November 2015, the Federal Government of Brazil, states of Espírito Santo and Minas Gerais and other public authorities collectively filed a public civil claim before the 12th Federal Court of Belo Horizonte against Samarco and its shareholders, BHP Billiton Brasil Ltda. (BHP Brasil) and Vale S.A. (Vale), seeking the establishment of a fund of up to R$20 billion (approximately US$4 billion) in aggregate for clean-up costs and damages.

On 2 March 2016, Samarco, BHP Brasil and Vale, entered into a Framework Agreement with the states of Espírito Santo and Minas Gerais and other public authorities to establish a foundation (Fundação Renova) to develop and execute environmental and socioeconomic programs (Programs) to remediate and provide compensation for damage caused by the Samarco dam failure.

The term of the Framework Agreement is 15 years, renewable for periods of one year successively until all obligations under the Framework Agreement have been performed. Under the Framework Agreement, Samarco is responsible, as a primary obligor, for funding Fundação Renova's annual calendar year budget for the duration of the Framework Agreement. The amount of funding for each calendar year will be dependent on the remediation and compensation projects to be undertaken in a particular year. To the extent that Samarco does not meet its funding obligations under the Framework Agreement, each of BHP Brasil and Vale has funding obligations under the Framework Agreement, as secondary obligors, in proportion to its 50 per cent shareholding in Samarco.

R$155 billion public civil claim commenced by the Federal Public Prosecutors' Office (R$155 billion Federal Public Prosecutors' Office claim)

On 3 May 2016, the Brazilian Federal Public Prosecutors' Office filed a public civil claim before the 12th Federal Court of Belo Horizonte against Samarco, BHP Brasil and Vale – as well as 18 other public entities (which has since been reduced to five defendants[1] by the 12th Federal Court) – seeking R$155 billion (approximately US$30 billion) for reparation, compensation and collective moral damages in relation to the Samarco dam failure.

This public civil claim and the R$20 billion Public Civil claim are broad claims that encompass the majority of the public civil claims filed against Samarco, BHP Brasil and Vale. For this reason, the 12th Federal Court has suspended other public civil claims while negotiations continue in relation to the settlement of the R$155 billion Federal Public Prosecutors' Office claim.

This public civil claim was suspended for a period of two years from the date of ratification of the Governance Agreement (described below) on 8 August 2018.

On 19 March 2021, the parties to the case agreed to extend the suspension of this case until 27 April 2021. Although the stay period has formally elapsed, neither party has made any filings to date, and the parties are engaged in negotiations to seek a definitive settlement (summarised below).

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1 Currently, solely BHP Brasil, Vale and Samarco, the Federal Government and the state of Minas Gerais are defendants.

Governance Agreement

On 25 June 2018, Samarco, BHP Brasil, Vale, the other parties to the Framework Agreement, the Public Prosecutors' Office[2] and the Public Defense Office[3] entered into a Governance Agreement, which settled the R$20 billion Public Civil claim and established a process to renegotiate the Programs over two years to progress settlement of the R$155 billion Federal Public Prosecutors' Office claim.

Under the Governance Agreement, renegotiation of the Programs will be based on certain agreed principles, including full reparation consistent with Brazilian law, the requirement for a technical basis for any proposed changes, consideration of findings from experts appointed by Samarco, BHP Brasil and Vale, consideration of findings from experts appointed by prosecutors and consideration of feedback from impacted communities.

Since early CY2021, the parties have been engaging in negotiations to seek a definitive and substantive settlement of claims relating to the dam failure. The negotiations are overseen by the President of the National Council of Justice, as the Chief Justice of the Supreme Court in Brazil, and are expected to continue until at least the expected end of the term of the current President on 31 August 2022. Outcomes of the negotiations are highly uncertain, and it is therefore not possible to provide a reliable estimate of potential outcomes and there is a risk that a negotiated outcome may be materially higher than amounts currently reflected in the Samarco dam failure provision. Until revisions to the Programs are agreed, Fundação Renova will continue to implement the Programs in accordance with the terms of the Framework Agreement and the Governance Agreement.

Enforcement Proceedings

Since 7 January 2020, the 12th Federal Court of Belo Horizonte has issued several decisions creating 13 enforcement proceedings (Enforcement Proceedings) linked to the R$20 billion Public Civil claim and R$155 billion Federal Public Prosecutors' Office claim described above.

Issues covered by these Enforcement Proceedings include environmental recovery, human health risk and ecological risk, resettlement of affected communities, infrastructure and development, registration of certain impacted individuals under the Programs and indemnities for people impacted by the dam failure, resumption of economic activities, water supply for human consumption and hiring of technical advisers to impacted people, and restructuring Fundação Renova's management system, among other key delivery areas.

In the context of these Enforcement Proceedings, Samarco, BHP Brasil and Vale are seeking determinations, including, among other things, the repealing of fishing bans ordered by the courts or administration entities, set-off of compensation paid against future damages that may need to be paid, and regarding the hiring and supervision of technical assistants to impacted people.

In August 2020, a Simplified Indemnification System (the Novel System) was created by the 12th Federal Court of Belo Horizonte with specific rules designed for those who could not easily demonstrate their status as an impacted person based on 'rough justice' principles. Led by Fundação Renova, the Novel System has, as at the date of this Report, settled with more than 68,000 claimants who were able to prove their damages, with approximately 66,500 claims already having been paid.

On 26 June 2022, the President of the Federal Court of Appeals issued a preliminary ruling applying to impacted persons from Naque (a city in Minas Gerais) regarding the Novel System, determining that its terms do not provide a full release from damages. The amounts paid under the Novel System should therefore be considered as a 'minimum indemnification' granting a partial release from damages. For the same reasons, it was also determined that impacted persons should have the option to seek legal representation when settling claims under the Novel System, and that the Novel System settlement agreement does not prevent impacted persons from pursuing lawsuits in foreign jurisdictions. On 1 July 2022, the Federal Prosecutors filed a motion requesting the extension of the decision to all affected areas, as well as any settlements which have already been paid. On 6 July 2022, BHP Brasil filed its appeal and, as at the date of this Report, no decision has been made.

On 30 June 2022, the 12th Federal Court of Belo Horizonte extended the deadline for claim applications under the Novel System from 30 June 2022 to 31 August 2022.

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2 The Public Prosecutors' Office includes the Federal, State of Minas Gerais and State of Espírito Santo public prosecutors' offices.

3 The Public Defense Office includes the Federal, State of Minas Gerais and State of Espírito Santo public defense offices.

Samarco's judicial reorganisation

On 9 April 2021, Samarco filed for judicial reorganisation (JR) with the Second Business State Court for the Belo Horizonte District of Minas Gerais (JR Court). The JR proceeding seeks to enable Samarco to negotiate and implement an orderly restructuring of its financial indebtedness in order to establish a sustainable financial position for Samarco, among other things, to continue to rebuild its operations and meet its Fundação Renova obligations. Samarco filed for JR following multiple enforcement actions filed by some of Samarco's creditors that threatened its operations. The JR Court granted Samarco's JR motion on 12 April 2021 and granted a stay of the enforcement actions.

On 10 June 2021, Samarco submitted its first proposed Plan of Reorganisation (Plan) to the JR Court. Certain of Samarco's creditors have submitted formal objections to the Plan.

On 18 August 2021, the State Prosecutor's Office filed an application to hold BHP Brasil and Vale responsible for Samarco's debt. On 18 October 2021, certain creditors of Samarco filed a similar application with the same purpose. Neither application has been decided yet.

Pursuant to the list of creditors produced by Judicial Administrators appointed by the JR Court, Samarco's obligation to fund Renova is not subject to the JR. Certain creditors of Samarco have challenged the Judicial Administrators' list of creditors. Among other things, such creditors are seeking to disallow shareholders' claims against Samarco and impair Samarco's obligation to fund Renova. No final decision has been rendered on these issues yet.

Certain creditors of Samarco have also requested that the JR Court appoint an examiner and a judicial manager for Samarco. The JR Court has not ruled on that request yet.

On 18 April 2022, certain creditors of Samarco voted to reject the Plan in a General Meeting of Creditors (GMC). Samarco, BHP Brasil and Vale have challenged the votes of such creditors and the JR Court has not ruled on such challenge yet.

On 18 May 2022, certain creditors of Samarco submitted an alternative plan of reorganisation (Lenders Plan), which, among other things, caps Samarco's Renova funding obligations and contemplates a change in Samarco's control. On the same date, the local labour unions also filed an alternative plan with the support of Samarco's shareholders. Samarco, BHP Brasil and Vale filed objections to the Lenders Plan, which are pending. No plan of reorganisation has been approved or confirmed.

No BHP entity is a debtor in Samarco's JR case. BHP Brasil is participating in Samarco's JR proceeding in its capacities as a shareholder and creditor of Samarco.

United States Chapter 15 case

On 19 April 2021, Samarco filed a petition with the US Bankruptcy Court for the Southern District of New York seeking recognition of the JR proceeding under Chapter 15 of the US Bankruptcy Code. On 13 May 2021, the US Bankruptcy Court granted recognition of the JR proceeding as a 'foreign main proceeding' and accordingly stayed enforcement actions against Samarco in US territory. No BHP entity is a debtor in Samarco's Chapter 15 case. BHP Brasil is participating in Samarco's Chapter 15 proceeding in its capacities as a shareholder and creditor of Samarco.

Civil public actions commenced by the State Prosecutors' Office in the state of Minas Gerais (Mariana CPA cases)

The State Prosecutors of Mariana have commenced several civil public actions (CPA) against Samarco, BHP Brasil and Vale.

On 10 December 2015, the State Prosecutors' Office in the state of Minas Gerais filed a CPA against Samarco, BHP Brasil and Vale before the State Court in Mariana claiming indemnification (amount not specified) for moral and material damages to an unspecified group of individuals affected by the Samarco dam failure, including the payment of costs for housing and social and economic assistance (CPA Mariana I).

On 2 October 2018, the parties reached a settlement dismissing the claim, which was ratified by the Court. Under this settlement, Fundação Renova has reached more than 100 individual agreements with impacted families in Mariana for the payment of damages.

In connection with CPA Mariana I, the State Prosecutors (Minas Gerais) started enforcement proceedings against Samarco, BHP Brasil and Vale. There are seven enforcement proceedings under way seeking (i) to set a deadline for completion of resettlement of the residents of Mariana's districts and for fines to be imposed for delays to resettlement; (ii) to set the final term that will allow new households to join the resettlement; (iii) payment of compensation to affected individuals for delivery of houses below standard; (iv) to guarantee access to water sources for the families of the collective resettlements; (v) payment of fines for alleged delays in presenting proposals and making payments to affected individuals; and (vi) payment of compensation to impacted individuals who allege that they have not yet received compensation and a penalty for the alleged delays in making such payments.

In addition to CPA Mariana I, the State Prosecutors (Minas Gerais) commenced nine other CPAs in Mariana against Samarco, BHP Brasil, Vale and, in some cases, Fundação Renova. The claims presented in those CPAs are related to damages that, according to the State Prosecutors, are not covered by CPA Mariana I.

The remaining CPAs have either been settled by the parties, including BHP Brasil, or the claims to which the CPAs relate have been dismissed (though the decisions are not yet final). Fundação Renova is responsible for any pending obligations set forth in the settlement agreements relating to the CPAs.

Fundação Renova dissolution lawsuit

On 24 February 2021, the Minas Gerais State Prosecutor filed a CPA against Samarco, BHP Brasil, Vale and Fundação Renova seeking the dissolution of Fundação Renova. The plaintiffs are seeking R$10 billion (approximately US$2 billion) for moral damages and an injunction for the immediate intervention of Fundação Renova was also made, alleging the need to preserve information and documents produced by Fundação Renova to evaluate criminal and civil responsibilities. On 25 May 2021, the Superior Court of Justice granted urgent relief to suspend the lawsuit. As at the date of this Report, the Court's decision regarding the merits remains pending.

Civil public action commenced by the State Prosecutors' Office in the state of Espírito Santo and Minas Gerais (CPA Advertising)

On 11 May 2021, Federal and State Prosecutors (Minas Gerais and Espírito Santo) filed a CPA against Samarco, BHP Brasil, Vale and Fundação Renova, challenging Fundação Renova's advertising expenditures. The plaintiffs requested injunctive relief for Fundação Renova to cease advertisements and stop incurring new expenses on advertising. The plaintiffs requested approximately R$56 million (approximately US$11 million) to be paid as compensation to the communities and approximately R$28 million (approximately US$5 million) to be spent on execution of Fundação Renova's socio-economic and socio-environmental programs. A ruling is still pending.

Civil public action commenced by Associations concerning the use of tanfloc for water treatment (R$120 billion Associations claim)

On 28 October 2021, Vila Lenira Residents Association, State of Espírito Santo Rural Producers and Artisans Association, Colatina Velha Neighborhood Residents Association, and United for the Progress of Palmeiras Neighborhood Association filed a lawsuit against Samarco, BHP Brasil and Vale and others, including the State of Minas Gerais, the State of Espirito Santo and the Federal Government. The plaintiffs allege that the defendants carried out a clandestine study on the citizens of the locations affected by the Fundão's Dam Failure, using tanfloc – a tannin-based flocculant/coagulant – that is currently used for wastewater treatment applications. The plaintiffs claim that this product allegedly put the population at risk due to its alleged experimental qualities.

The plaintiffs are seeking multiple kinds of relief – material damage, moral damages, loss of profits – and that the defendants should pay for water supply in all locations where there is no water source other than the Doce River.

On 25 July 2022, Samarco, BHP Brasil and Vale presented their defences individually, as well as the State of Minas Gerais, the State of Espírito Santo and the Federal Government. The Court's decision is still pending.

Public civil claims currently suspended

Approximately 20 of the proceedings to which BHP Brasil is a party are currently suspended due to their connection with R$20 billion Public Civil claim and R$155 billion Federal Public Prosecutors' Office claim. There has not yet been a ruling in these cases.

The suspended proceedings include proceedings commenced by the State Prosecutors (Minas Gerais and Espírito Santo), Public Defenders (Minas Gerais and Espírito Santo), and the states of Minas Gerais and Espírito Santo against Samarco, BHP Brasil, Vale and Fundação Renova. The claims relate to environmental remediation measures, compensation for the impacts of the dam failure, including moral damages, reconstruction of properties and populations, including historical, religious, cultural, social, environmental and intangible heritages affected by the dam failure, and suspension of public water supply, among others.

Other civil proceedings in Brazil

As noted above, BHP Brasil has been named as a defendant in numerous lawsuits relating to the Samarco dam failure. In addition, government inquiries and investigations relating to the Samarco dam failure have been commenced by numerous agencies of the Brazilian Government and are ongoing, including criminal investigations by the federal and state police, and by federal prosecutors.

BHP Brasil's potential liabilities, if any, resulting from other pending and future claims, lawsuits and enforcement actions relating to the Samarco dam failure, together with the potential cost of implementing remedies sought in the various proceedings, cannot be reliably estimated at this time and therefore a provision has not been recognised and nor has any contingent liability been quantified for these matters. Ultimately, these could have a material adverse impact on BHP's business, competitive position, cash flows, prospects, liquidity and shareholder returns. For more information on the Samarco dam failure refer to OFR 8.

As at June 2022, Samarco had been named as a defendant in more than 57,000 small claims for moral damages in which people argue their public water service was interrupted for between five and 10 days. BHP Brasil is a co-defendant in more than 24,000 of these cases.

The Brazilian Code of Civil Procedure provides that repetitive claims can be settled through a system known as the Resolution of Repetitive Demands Procedure (IRDR). Under the IRDR, a court will hear a 'pilot case' representative of such recurring legal matters and the judgment in that decision will set a precedent for the resolution of similar cases in that jurisdiction. An IRDR has been established in Minas Gerais and the court in the pilot case has ruled that the mandatory parameter for resolution of claims will be the payment of R$2,000 (approximately US$400) per individual claim for moral damages due to the suspension of public water supply. Appeals before higher courts are pending judgment. Meanwhile, Samarco has reached settlement in more than 9,900 individual cases.

Criminal charges

On 20 October 2016, the Federal Prosecutors' Office in Brazil filed criminal charges against Samarco, BHP Brasil, Vale and certain of their employees and former employees in the Federal Court of Ponte Nova, Minas Gerais. On 3 March 2017, BHP Brasil and the charged employees and former employees of BHP Brasil (Affected Individuals) filed their preliminary defences. The Federal Court granted Habeas Corpus petitions in favour of all eight Affected Individuals terminating the charges against those individuals. The Federal Prosecutors' Office appealed seven of the decisions with hearings of the appeals still pending. BHP Brasil rejects outright the charges against BHP Brasil and the Affected Individuals and will defend the charges and fully support each of the Affected Individuals in their defences of the charges.

Australian class action claim

BHP Group Limited is named as a defendant in a shareholder class action in the Federal Court of Australia on behalf of persons who acquired shares in BHP Group Limited on the Australian Securities Exchange or shares in BHP Group Plc (now known as BHP Group (UK) Ltd) on the London Stock Exchange and Johannesburg Stock Exchange in periods prior to the Samarco dam failure. The amount of damages sought in the class action is unspecified.

On 12 May 2020, BHP Group Limited filed an application seeking declaratory relief which, if successful, would narrow the group of claimants in the class action. BHP Group Limited was unsuccessful at first instance and on appeal to the Full Court of the Federal Court of Australia. The High Court of Australia heard an appeal from the Full Court's decision on 9 August 2022 and a decision is pending.

United Kingdom group action claim

BHP Group (UK) Ltd (formerly BHP Group Plc) and BHP Group Limited are named as defendants in group action claims for damages that have been filed in the courts of England. These claims have been filed on behalf of certain individuals, governments, businesses and communities in Brazil allegedly impacted by the Samarco dam failure.

On 7 August 2019, the BHP parties filed a preliminary application to strike out or stay this action on jurisdictional and other procedural grounds. That application was successful before the High Court and the action was dismissed. However, on 8 July 2022, the Court of Appeal reversed the dismissal decision and allowed the action to proceed in England. The BHP parties will now seek leave to appeal the Court of Appeal judgment to the Supreme Court.

9 Shareholder information

9.1 History and development

BHP Group Limited (formerly BHP Billiton Limited, then BHP Limited and, before that, The Broken Hill Proprietary Company Limited) was incorporated in 1885 and is registered in Australia with ABN 49 004 028 077. BHP Group Plc (formerly BHP Billiton Plc, and before that Billiton Plc) was incorporated in 1996 and is registered in England and Wales with registration number 3196209. Successive predecessor entities to BHP Group Plc have operated since 1860.

We operated under a Dual Listed Company (DLC) structure from 29 June 2001 until 31 January 2022. Under the DLC structure, the two parent companies, BHP Group Limited and BHP Group Plc, operated as a single economic entity, run by a unified Board and senior executive management team.

On 31 January 2022, we unified our corporate structure under BHP Group Limited, which is now the sole parent company.

9.2 Markets

As at the date of this Annual Report, BHP Group Limited has a primary listing on the Australian Securities Exchange (ASX) (ticker BHP) in Australia, a standard listing on the London Stock Exchange (LSE) (ticker BHP), a secondary listing on the Johannesburg Stock Exchange (ticker BHG) and is listed on the New York Stock Exchange (NYSE) in the United States.

Trading on the NYSE is in the form of American Depositary Receipts (ADRs) evidencing American Depositary Shares (ADSs), with each ADS representing two ordinary shares of BHP Group Limited. Citibank N.A. (Citibank) is the Depositary for the ADS program. BHP Group Limited's ADSs have been listed for trading on the NYSE (ticker BHP) since 28 May 1987.

9.3 Organisational structure

From June 2001 to January 2022, BHP operated under a Dual Listed Company structure, with two separate parent companies (BHP Group Limited and BHP Group Plc) and their respective subsidiaries operating as a single unified economic entity.

On 31 January 2022, BHP unified its Dual Listed Company structure, following which BHP Group Plc became a subsidiary of BHP Group Limited. BHP Group Limited is now the ultimate BHP parent company of all subsidiaries within the BHP Group.

Refer to Financial Statements note 28 'Subsidiaries' for a list of our significant subsidiaries and to Exhibit 8.1 – List of Subsidiaries for a list of our subsidiaries.

9.4 Constitution

This section sets out a summary of BHP Group Limited's Constitution, as well as other related arrangements under applicable laws and regulations.

Provisions of the Constitution of BHP Group Limited can be amended only where such amendment is approved by special resolution. A 'special resolution' is a resolution that is passed by 75 per cent (i.e. at least three quarters) of the votes cast by BHP shareholders entitled to vote being in favour of the resolution.

Directors

The Board may exercise all powers of BHP, other than those that are reserved for BHP shareholders to exercise in a general meeting.

Power to issue securities

Under the Constitution, the Board of Directors has the power to issue any BHP shares or other securities (including redeemable shares) with preferred, deferred or other special rights, obligations or restrictions. The Board may issue shares on any terms it considers appropriate, provided that:

- the issue does not affect any special rights of shareholders
- if required, the issue is approved by shareholders
- if the issue is of a class other than ordinary shares, the rights attaching to the class are expressed at the date of issue

Restrictions on voting by Directors

A Director may not vote in respect of any contract or arrangement or any other proposal in which they have a material personal interest except in certain prescribed circumstances, including (subject to applicable laws) where the material personal interest:

- arises because the Director is a shareholder of BHP and is held in common with the other shareholders of BHP
- arises in relation to the Director's remuneration as a Director of BHP
- relates to a contract BHP is proposing to enter into that is subject to approval by the shareholders and will not impose any obligation on BHP if it is not approved by the shareholders
- arises merely because the Director is a guarantor or has given an indemnity or security for all or part of a loan, or proposed loan, to BHP
- arises merely because the Director has a right of subrogation in relation to a guarantee or indemnity referred to above
- relates to a contract that insures, or would insure, the Director against liabilities the Director incurs as an officer of BHP, but only if the contract does not make BHP or a related body corporate the insurer
- relates to any payment by BHP or a related body corporate in respect of an indemnity permitted by law, or any contract relating to such an indemnity, or
- is in a contract, or proposed contract with, or for the benefit of, or on behalf of, a related body corporate and arises merely because the Director is a director of a related body corporate

If a Director has a material personal interest and is not entitled to vote on a proposal, they will not be counted in the quorum for any vote on a resolution concerning the material personal interest.

Loans by Directors

Any Director may lend money to BHP at interest with or without security or may, for a commission or profit, guarantee the repayment of any money borrowed by BHP and underwrite or guarantee the subscription of shares or securities of BHP or of any corporation in which BHP may be interested without being disqualified as a Director and without being liable to account to BHP for any commission or profit.

Appointment and retirement of Directors

Appointment of Directors

The Constitution provides that a person may be appointed as a Director of BHP by the existing Directors of BHP or may be elected by the shareholders in a general meeting.

Any person appointed as a Director of BHP by the existing Directors will hold office only until the next general meeting that includes an election of Directors.

A person may be nominated by shareholders as a Director of BHP if:

- a shareholder provides a valid written notice of the nomination; and
- the person nominated by the shareholder satisfies candidature for the office and consents in writing to his or her nomination as a Director,

and the nomination is provided at least 40 business days before the date of the general meeting. The person nominated as a Director may be elected to the Board by ordinary resolution passed in a general meeting.

Retirement of Directors

The Board has a policy under which all Non-executive Directors must, if they wish to remain on the Board, seek re-election by shareholders annually. This policy took effect from the 2011 Annual General Meetings (AGMs) and replaced the previous system that required Non-executive Directors to submit themselves to shareholders for re-election at least every three years.

A Director may be removed by BHP in accordance with applicable law and must vacate his or her office as a Director in certain circumstances set out in the Constitution. There is no requirement for a Director to retire on reaching a certain age.

Rights attaching to shares

Dividend rights

Under Australian law, dividends on shares may be paid only if the company's assets exceed its liabilities immediately before the dividend is determined and the excess is sufficient for payment of the dividend, the payment of the dividend is fair and reasonable to the company's shareholders as a whole and the payment of the dividend does not materially prejudice the company's ability to pay its creditors.

The Constitution provides that payment of any dividend may be made in any manner, by any means and in any currency determined by the Board.

All unclaimed dividends may be invested or otherwise used by the Board for the benefit of BHP Group Limited until claimed or otherwise disposed of according to law. BHP Group Limited is governed by the Victorian unclaimed monies legislation, which requires BHP Group Limited to pay to the State Revenue Office any unclaimed dividend payments of A$20 or more that have remained unclaimed for over 12 months.

Voting rights

For the purposes of determining which shareholders are entitled to attend or vote at a meeting of BHP Group Limited, and how many votes such shareholder may cast, the Notice of Meeting will specify when a shareholder must be entered on the Register of Shareholders in order to have the right to attend or vote at the meeting. The specified time must be not more than 48 hours before the time of the meeting.

Shareholders who wish to appoint a proxy to attend, vote or speak at a meeting of BHP Group Limited on their behalf must deposit the form appointing a proxy so that it is received not less than 48 hours before the time of the meeting.

Rights to share in BHP Group Limited's profits

The rights attached to the ordinary shares of BHP Group Limited, as regards the participation in the profits available for distribution that the Board determines to distribute, are as follows:

- The holders of any preference shares will be entitled, in priority to any payment of dividend to the holders of any other class of shares, to a preferred right to participate as regards dividends up to but not beyond a specified amount in distribution.
- Any surplus remaining after payment of the distributions above will be payable to the holders of BHP Group Limited ordinary shares in equal amounts per share.

Rights on return of assets on liquidation

On a return of assets on liquidation of BHP Group Limited, the assets of BHP Group Limited remaining available for distribution among shareholders after the payment of all prior ranking amounts owed to all creditors and holders of preference shares, and to all prior ranking statutory entitlements, are to be applied on an equal priority with any amount paid to the holders of BHP Group Limited ordinary shares, and any surplus remaining is to be applied in making payments solely to the holders of BHP Group Limited ordinary shares in accordance with their entitlements.

Redemption of preference shares

If BHP Group Limited at any time proposes to create and issue any preference shares, the terms of the preference shares may give either or both of BHP Group Limited and the holder the right to redeem the preference shares.

The preference shares terms may also give the holder the right to convert the preference shares into ordinary shares.

Under the Constitution, the preference shares must give the holders:

- the right (on redemption and on a winding-up) to payment in cash in priority to any other class of shares of (i) the amount paid or agreed to be considered as paid on each of the preference shares; and (ii) the amount, if any, equal to the aggregate of any dividends accrued but unpaid and of any arrears of dividends; and
- the right, in priority to any payment of dividend on any other class of shares, to the preferential dividend.

Capital calls

Subject to the terms on which any shares may have been issued, the Board may make calls on the shareholders in respect of all monies unpaid on their shares. BHP has a lien on every partly paid share for all amounts payable in respect of that share. Each shareholder is liable to pay the amount of each call in the manner, at the time and at the place specified by the Board (subject to receiving at least 14 days' notice specifying the time and place for payment). A call is considered to have been made at the time when the resolution of the Board authorising the call was passed.

Borrowing powers

Subject to relevant law, the Directors may exercise all powers of BHP to borrow money, and to mortgage or charge its undertaking, property, assets (both present and future) and all uncalled capital or any part or parts thereof and to issue debentures and other securities, whether outright or as collateral security for any debt, liability or obligation of BHP or of any third party.

Variation of class rights

Rights attached to any class of shares issued by BHP Group Limited can only be varied where such variation is approved by:

- the company as a special resolution; and
- the holders of the issued shares of the affected class, either by a special resolution passed at a separate meeting of the holders of the issued shares of the class affected, or with the written consent of members with at least 75 per cent of the votes of that class.

Annual General Meetings

The Annual General Meeting (AGM) provides a forum to facilitate the sharing of shareholder views and is an important event in the BHP calendar. The meeting provides an update for shareholders on our performance and offers an opportunity for shareholders to ask questions and vote. To vote at an AGM, a shareholder must be a registered holder of BHP Group Limited shares at a designated time before the relevant AGM.

Key members of management, including the Chief Executive Officer (CEO) and Chief Financial Officer, are present and available to answer questions. The External Auditor will also be available to answer questions.

Proceedings at shareholder meetings are webcast live from our website. Copies of the speeches delivered by the Chair and CEO to the AGM are released to the relevant stock exchanges and posted on our website. The outcome of voting on the items of business are released to the relevant stock exchanges and posted on our website as soon as they are available following completion of the AGM and finalisation of the polls.

More information on our AGMs is available at bhp.com/meetings.

Conditions governing general meetings

The Board may, and must on requisition in accordance with applicable laws, call a general meeting of the shareholders at the time and place or places and in the manner determined by the Board. No shareholder may convene a general meeting of BHP except where entitled under law to do so. Any Director may convene a general meeting whenever the Director thinks fit. General meetings can also be adjourned or cancelled, or postponed where permitted by law or the Constitution. Notice of a general meeting must be given to each shareholder entitled to vote at the meeting and such notice of meeting must be given in the form and manner in which the Board thinks fit subject to any applicable law. Five shareholders of the company present in person or by proxy constitute a quorum for a meeting. A shareholder who is entitled to attend and cast a vote at a general meeting of BHP may appoint a person as a proxy to attend and vote for the shareholder in accordance with applicable law. All provisions relating to general meetings apply with any necessary modifications to any special meeting of any class of shareholders that may be held.

Limitations of rights to own securities

There are no limitations under the Constitution restricting the right to own BHP shares or other securities. In addition, the Australian Foreign Acquisitions and Takeovers Act 1975 imposes a number of conditions that restrict foreign ownership of Australian-based companies.

For information on share control limits imposed by relevant laws refer to Additional information 9.8.

Documents on display

Documents filed by BHP Group Limited on the Australian Securities Exchange (ASX) are available at asx.com.au and documents filed on the London Stock Exchange (LSE) are available at data.fca.org.uk/#/nsm/nationalstoragemechanism. Documents filed on the ASX or on the LSE are not incorporated by reference into this Annual Report. The documents referred to in this Annual Report as being available on our website, bhp.com, are not incorporated by reference and do not form part of this Annual Report.

BHP Group Limited files Annual Reports and other reports and information with the US Securities and Exchange Commission (SEC). These filings are available on the SEC website at sec.gov.

9.5 Share ownership

Share capital

The details of the share capital for BHP Group Limited are presented in Financial Statements note 16 'Share capital' and remain current as at 4 August 2022.

Major shareholders

The table in 'Ordinary share holdings and transactions' in Remuneration Report 5.4 and the information set out in 'Executive Key Management Personnel' in Directors' Report 4 present information pertaining to the shares in BHP Group Limited held by Directors and members of the Key Management Personnel.

BHP Group Limited is not directly or indirectly controlled by another corporation or by any government. No shareholder possesses voting rights that differ from those attaching to all of BHP Group Limited's voting securities.

Substantial shareholders in BHP Group Limited

The following table shows holdings of 5 per cent or more of voting rights in BHP Group Limited's shares as notified to BHP Group Limited under the Australian Corporations Act 2001, Section 671B as at 30 June 2022.[1]

		Date of last notice			
Title of class	**Identity of person or group**	**Date received**	**Date of change**	**Number owned**	**% of total voting rights[2]**
Ordinary shares	Citigroup Global Markets Australia Pty Limited	26 April 2022	21 April 2022	318,921,856.17	6.2999%
Ordinary shares	BlackRock Group	3 February 2022	31 January 2022	351,161,439	6.93%
Ordinary shares	First Sentier Investors Holdings Pty Limited	25 January 2022	21 January 2022	148,776,229	5.04%

1 Between 1 July 2022 and 4 August 2022, BHP received a substantial shareholder notice from State Street Corporation on 22 July 2022, which included the following information: date of change 20 July 2022, the number of securities owned 261,205,833 and percentage of voting rights 5.16 per cent.

2 The percentages quoted are based on the voting rights provided in the last substantial shareholders notice.

Twenty largest shareholders as at 4 August 2022 (as named on the Register of Shareholders)[1]

BHP Group Limited		**Number of fully paid shares**	**% of issued capital**
1.	HSBC Custody Nominees (Australia) Limited[2]	1,308,389,176	25.85
2.	J P Morgan Nominees Australia Pty Limited	808,044,953	15.96
3.	Computershare Clearing Pty Ltd <CCNL DI A/C>[3]	377,361,065	7.45
4.	Citicorp Nominees Pty Ltd	345,389,241	6.82
5.	Citicorp Nominees Pty Limited <Citibank NY ADR Dep A/C>	287,052,215	5.67
6.	South Africa Control A/C\C[4]	215,543,062	4.26
7.	BNP Paribas Noms Pty Ltd <Drp>	140,537,183	2.78
8.	National Nominees Limited	133,886,307	2.64
9.	BNP Paribas Nominees Pty Ltd <Agency Lending Drp A/C>	61,711,472	1.22
10.	Citicorp Nominees Pty Limited <Colonial First State Inv A/C>	41,973,139	0.83
11.	HSBC Custody Nominees (Australia) Limited <Nt-Comnwlth Super Corp A/C>	32,952,696	0.65
12.	BNP Paribas Nominees Pty Ltd ACF Clearstream	21,016,512	0.42
13.	Computershare Nominees CI Ltd <ASX Shareplus Control A/C>	19,149,708	0.38
14.	Australian Foundation Investment Company Limited	13,413,159	0.26
15.	Netwealth Investments Limited <Wrap Services A/C>	12,887,342	0.25
16.	BNP Paribas Nominees Pty Ltd Hub24 Custodial Serv Ltd <DRP A/C>	10,288,935	0.20
17.	Argo Investments Limited	8,968,304	0.18
18.	HSBC Custody Nominees (Australia) Limited[2]	7,379,822	0.15
19.	HSBC Custody Nominees (Australia) Limited <Euroclear Bank SA NV A/C>	6,927,263	0.14
20.	Solium Nominees (Australia) Pty Ltd <VSA A/C>	5,574,376	0.11
		3,858,445,930	**76.22**

1 Many of the 20 largest shareholders shown for BHP Group Limited hold shares as a nominee or custodian. In accordance with the reporting requirements, the tables reflect the legal ownership of shares and not the details of the underlying beneficial holders.

2 HSBC Custody Nominees (Australia) Limited is listed twice in the above table as they are registered separately under the same name on the share register.

3 Computershare Clearing Pty Ltd <CCNL DI A/C> represents the Depositary Interest Register (UK).

4 South Africa Control A/C\C represents the South African branch register.

US share ownership as at 4 August 2022

	BHP Group Limited			
	Number of shareholders	%	Number of shares	%
Classification of holder				
Registered holders of voting securities	1,613	0.26	3,665,430	0.07
ADR holders	1,760	0.29	285,080,406[1]	5.63

1 These shares translate to 142,540,203 ADRs.

Geographical distribution of shareholders and shareholdings as at 4 August 2022

	BHP Group Limited			
	Number of shareholders	%	Number of shares	%
Registered address				
Australia	595,906	97.41	5,006,223,404	98.89
New Zealand	7,448	1.22	17,288,389	0.34
United Kingdom	2,463	0.40	6,396,636	0.13
United States	1,613	0.26	3,665,430	0.07
South Africa	93	0.02	194,146	0.00
Other	4,206	0.69	28,555,185	0.57
Total	611,729	100	5,062,323,190	100

Distribution of shareholdings by size as at 4 August 2022

	BHP Group Limited			
	Number of shareholders	%	Number of shares[1]	%
Size of holding				
1 – 500[2]	294,628	48.163	59,084,642	1.17
501 – 1,000	109,464	17.894	83,778,512	1.65
1,001 – 5,000	164,130	26.831	367,994,711	7.27
5,001 – 10,000	26,073	4.262	183,985,534	3.63
10,001 – 25,000	13,245	2.165	198,949,969	3.93
25,001 – 50,000	2,766	0.452	94,261,200	1.86
50,001 – 100,000	936	0.153	64,334,549	1.27
100,001 – 250,000	347	0.057	49,498,045	0.98
250,001 – 500,000	66	0.011	22,227,516	0.44
500,001 – 1,000,000	25	0.004	17,084,058	0.34
1,000,001 and over	49	0.008	3,921,124,454	77.46
Total	611,729	100	5,062,323,190	100

1 One ordinary share entitles the holder to one vote.

2 The number of BHP Group Limited shareholders holding less than a marketable parcel (A$500) based on the market price of A$38.17 as at 4 August 2022 was 9,468.

9.6 Dividends

Policy

The Group adopted a dividend policy in February 2016 that provides for a minimum 50 per cent payout of Underlying attributable profit (Continuing operations) at every reporting period. For information on Underlying attributable profit (Continuing operations) for FY2022 refer to OFR 4.2 and OFR 11.

The Board will assess, at each reporting period, the ability to pay amounts additional to the minimum payment, in accordance with the Capital Allocation Framework, as described in OFR 2.2.

In FY2022, we determined our dividends and other distributions in US dollars as it is our main functional currency.

Payments

BHP Group Limited shareholders may have their cash dividends paid directly into their bank account in Australian dollars, UK pounds sterling, New Zealand dollars, or US dollars, provided they have submitted direct credit details and if required, a valid currency election nominating a financial institution to the BHP Share Registrar in Australia no later than close of business on the dividend reinvestment plan election date. BHP Group Limited shareholders who do not provide their direct credit details will receive dividend payments by way of a cheque in Australian dollars.

Dividend reinvestment plan

BHP offers a dividend reinvestment plan to registered shareholders, which provides the opportunity to use cash dividends to purchase BHP shares in the market. Following the unification of BHP's DLC structure, BHP made amendments to its dividend reinvestment programme to provide former shareholders of BHP Group Plc (now known as BHP Group (UK) Ltd) with an ongoing opportunity to participate in the BHP Group Limited dividend reinvestment plan.

9.7 American Depositary Receipts fees and charges

We have an American Depositary Receipts (ADR) program for BHP Group Limited which has a 2:1 ordinary shares to American Depositary Share (ADS) ratio.

Depositary fees

Citibank serves as the depositary bank for our ADR program. ADR holders agree to the terms in the deposit agreement filed with the SEC for depositing ordinary shares or surrendering ADSs for cancellation and for certain services as provided by Citibank. Holders are required to pay certain fees for general depositary services provided by Citibank, as set out in the tables below.

Standard depositary fees

Depositary service	Fee payable by the ADR holders
Issuance of ADSs upon deposit of shares	Up to US$5.00 per 100 ADSs (or fraction thereof) issued
Delivery of Deposited Securities against surrender of ADSs	Up to US$5.00 per 100 ADSs (or fraction thereof) surrendered
Distribution of Cash Dividends	Up to US$1.50 per 100 ADSs (or fraction thereof) held

Corporate actions depositary fees

Depositary service	Fee payable by the ADR holders
Cash Distributions other than Cash Dividends (i.e. sale of rights, other entitlements, return of capital)	Up to US$2.00 per 100 ADSs (or fraction thereof) held
Distribution of ADSs pursuant to exercise of rights to purchase additional ADSs. Excludes stock dividends and stock splits	Up to US$5.00 per 100 ADSs (or fraction thereof) held
Distribution of securities other than ADSs or rights to purchase additional ADSs (i.e., spin-off shares)	Up to US$5.00 per 100 ADSs (or fraction thereof) held
Distribution of ADSs pursuant to an ADR ratio change in which shares are distributed	No fee

Fees payable by the Depositary to the Issuer

Citibank has provided BHP net reimbursement of US$1,067,481.21 in FY2022 for ADR program-related expenses for BHP's ADR program (FY2021: US$1,157,500). ADR program-related expenses include legal and accounting fees, listing fees, expenses related to investor relations in the United States, fees payable to service providers for the distribution of material to ADR holders, expenses of Citibank as administrator of the ADS Direct Plan and expenses to remain in compliance with applicable laws.

Citibank has further agreed to waive other ADR program-related expenses for FY2022, amounting to US$18,195.03 which are associated with the administration of the ADR program (FY2021: US$24,189.85).

The ADSs issued under our ADR program trade on the NYSE under the stock ticker BHP. As of 4 August 2022, there were 142,540,203 ADSs on issue and outstanding in the BHP Group Limited ADR program.

Charges

Holders are also required to pay the following charges in connection with depositing of ordinary shares and surrendering ADSs for cancellation and for the purpose of withdrawing deposited securities: taxes and other governmental charges, registration fees, transmission and delivery expenses, expenses and charges incurred by the depositary in the conversion of foreign currency, fees and expenses of the depositary in connection with compliance with exchange control regulations and other regulatory requirements and fees and expenses incurred by the depositary or other nominee in connection with servicing or delivery of deposit securities.

9.8 Government regulations

Our assets are subject to a broad range of laws and regulations imposed by governments and regulatory bodies. These regulations touch all aspects of our assets, including how we extract, process and explore for minerals and how we conduct our business, including regulations governing matters such as environmental protection, land rehabilitation, occupational health and safety, human rights, the rights and interests of Indigenous peoples, competition, foreign investment, export, marketing of minerals, and taxes.

The ability to extract and process minerals is fundamental to BHP. In most jurisdictions, the rights to extract mineral deposits are owned by the government. We obtain the right to access the land and extract the product by entering into licences or leases with the government that owns the mineral deposit. We also rely on governments to grant the rights necessary to transport and treat the extracted material to prepare it for sale. The terms of the lease or licence, including the time period of the lease or licence, vary depending on the laws of the relevant government or terms negotiated with the relevant government. Generally, we own the product we extract and we are required to pay royalties or other taxes to the government. The Queensland Government recently announced that a 10-year freeze on coal royalties would expire on 30 June 2022, with a new progressive royalty system to apply from 1 July 2022. The revised system replaced the fixed royalty amount of 15 per cent on any amounts above A$150 per tonne with a tiered approach, which increases the royalty amount payable as the price of coal passes certain monetary thresholds. The royalty rates for amounts up to and including A$150 will not change despite the expiry of the royalty freeze. For more information refer to OFR 5.1.

The rights to explore for minerals are granted to us by the government that owns the natural resources we wish to explore. Usually, the right to explore carries with it the obligation to spend a defined amount of money on the exploration, or to undertake particular exploration activities.

Environmental protection, mine closure and land rehabilitation, and occupational health and safety are principally regulated by governments and to a lesser degree, if applicable, by leases. These obligations often require us to make substantial expenditures to minimise or remediate the environmental impact of our assets and to ensure the safety of our employees and contractors and the communities where we operate. Regulations setting emissions standards for fuels used to power vehicles and equipment at our assets and the modes of transport used in our supply chains can also have a substantial impact, both directly and indirectly, on the markets for these products, with flow-on impacts on our costs. For more information on these types of obligations refer to OFR 7.

The Parliament of Western Australia recently passed the Aboriginal Cultural Heritage Act 2021 (WA) (ACH Act). The ACH Act, which received assent on 22 December 2021, will replace the Aboriginal Cultural Heritage Act 1972 (WA), concluding more than three years of consultation with Indigenous Australians, industry representatives, heritage professionals and the Western Australian community. The ACH Act will strengthen the Western Australian government's authority to regulate land use including mining activities, and the consultation process in relation to Aboriginal cultural heritage sites in Western Australia. Before the ACH Act comes into operation, there will be a transitional period of at least 12 months during which subordinate legislation, statutory guidelines and operational policies will be developed to ensure the ACH Act will achieve its intended effects. There is potential for the ACH Act to impact BHP's mining operations or future access to mining areas. For more information refer to OFR 7.13.

From time to time, certain trade sanctions are adopted by the United Nations (UN) Security Council and/or various governments, including in the United Kingdom, the United States, the European Union (EU), China and Australia against certain countries, entities or individuals, that may restrict our ability to sell extracted minerals, oil or natural gas to, and/or our ability to purchase goods or services from, these countries, entities or individuals.

Disclosure of Iran-related activities pursuant to section 13(r) of the US Securities Exchange Act of 1934

Section 13(r) of the US Securities Exchange Act of 1934, as amended (the Exchange Act) requires an issuer to disclose in its annual reports whether it or any of its affiliates knowingly engaged in certain activities, transactions or dealings relating to Iran. If applicable, disclosure is required even where the activities, transactions or dealings are conducted outside the United States by non-US persons in compliance with applicable law, and whether or not the activities are sanctionable under US law. Provided in this section is certain information concerning activities of certain affiliates of BHP that took place in FY2022. BHP believes that these activities are not sanctionable either as being outside the scope of US sanctions, or within the scope of a specific licence issued by the US Department of the Treasury's Office of Foreign Assets Control (OFAC).

On 30 November 2018, BHP Billiton Petroleum Great Britain Ltd (BHP GB), a wholly owned subsidiary of BHP, and its co-venturers in the Bruce and Keith gas and oil fields offshore United Kingdom (BP Exploration Operating Company (BP), Marubeni Oil & Gas (UK) Limited (Marubeni) and Total E&P UK Limited (Total)) completed the sale of their interests in the Bruce and Keith gas and oil fields to Serica Energy (UK) Limited (Serica) (the Bruce and Keith Transaction). BHP divested its entire licence interests in Bruce and Keith but retained the obligation to fund decommissioning in accordance with its previous licence interest.

The transfer of licence interests and retention of decommissioning liabilities for the Bruce and Keith co-venturers in the respective gas and oil fields is described below:

	Bruce			Keith		
	Pre-sale interest %	Post-sale licence interest %	Post-sale decom. interest %	Pre-sale interest %	Post-sale licence interest %	Post-sale decom. interest %
BP	37	1	37	34.83	0	34.83
Total	43.25	1	43.25	25	0	25
BHP GB	16	0	16	31.83	0	31.83
Marubeni	3.65	0	0	8.33	0	0
Serica	0	98	3.75	0	100	8.33

While the sale closed on 30 November 2018, it was effective in economic terms as of 1 January 2018. In addition to initial cash consideration received from Serica at completion, BHP:

- subsequently received a share of pre-tax net cash flow attributable to its historic interest in the Bruce and Keith gas and oil fields of 60 per cent during December 2018, 50 per cent in CY2019 and 40 per cent in each of CY2020 and CY2021 under a Net Cash Flow Sharing Deed; and
- will continue to receive a share of projected decommissioning costs up to a specified cap.

The Bruce platform provides transportation and processing services to the nearby Rhum gas field pursuant to a contract between the Bruce owners and Rhum owners (the Bruce-Rhum Agreement). At the same time as the Bruce and Keith Transaction, Serica acquired from BP its 50 per cent interest and operatorship of the Rhum gas field. The Rhum gas field is now owned by a 50:50 unincorporated joint venture arrangement between Serica and Iranian Oil Company (UK) Limited (IOC). IOC is an indirect subsidiary of the National Iranian Oil Company, which is a corporation owned by the Government of Iran.

OFAC issued licence No. IA-2018-352294-2 (the OFAC Licence) authorising BP, Serica and all US persons and US-owned or controlled foreign entities identified in the licence application to provide goods, services and support for the operation, maintenance and production of the Rhum gas field, and goods, services and support to the Bruce platform for a period from 2 November 2018 through 31 October 2019. On 22 October 2019, OFAC renewed this licence through to 28 February 2021, and on 19 January 2021, OFAC renewed the license through to 31 January 2023. OFAC also provided an assurance that non-US persons would not be exposed to US secondary sanctions for engaging in these activities and transactions involving Rhum or the Bruce platform, namely providing goods, services, and support to the Rhum field.

BHP continues to monitor developments concerning US sanctions with respect to Iran to maintain compliance with applicable sanctions laws and requirements. Although BHP has no ongoing direct dealings with any Iranian party, because BHP received ongoing consideration from Serica related to the sale of its interest in the Bruce-Rhum Agreement, BHP has included this disclosure.

BHP recognised the following transactions in FY2022 related to the Bruce-Rhum Agreement. For the period 1 July 2021 to 30 June 2022, BHP received US$6.5 million from Serica under the Net Cash Flow Sharing Deed.

Shareholding limits

Under current Australian legislation, the payment of any dividends, interest or other payments by BHP Group Limited to non-resident holders of BHP Group Limited's shares is not restricted by exchange controls or other limitations, except that, in certain circumstances, BHP Group Limited may be required to withhold Australian taxes.

From time to time, certain sanctions are adopted by the UN Security Council and/or various governments, including in the United Kingdom, the United States, the EU and Australia. Those sanctions prohibit or, in some cases, impose certain approval and reporting requirements on transactions involving sanctioned countries, entities and individuals and/or assets controlled or owned by them. Certain transfers into or out of Australia of amounts greater than A$10,000 in any currency may also be subject to reporting requirements.

The Australian Foreign Acquisitions and Takeovers Act 1975 (the FATA) restricts certain acquisitions of interests in securities in Australian companies, including BHP Group Limited. Generally, under the FATA, the prior approval of the Australian Treasurer must be obtained for proposals by a foreign person (either alone or together with its associates) to acquire 20 per cent or more of the voting power or issued securities in an Australian company. Lower approval thresholds apply in certain circumstances, including for acquisitions of interests in entities that operate a 'national security business', and acquisitions of interests by foreign government investors of voting power or issued securities in an Australian company.

The FATA also empowers the Treasurer to make certain orders prohibiting acquisitions by foreign persons in Australian companies, including BHP Group Limited (and requiring divestiture if the acquisition has occurred) where the Treasurer considers the acquisition to be contrary to national security or the national interest.

Except for the restrictions under the FATA, there are no limitations, either under Australian law or under the Constitution of BHP Group Limited, on the right of non-residents to hold or vote BHP Group Limited ordinary shares.

Post-unification requirements under FATA

The Treasurer gave approval under the FATA for the actions taken as part of implementation of the unification of BHP's DLC structure on the conditions set out below:

- BHP Group Limited remains an Australian resident company, incorporated under the Corporations Act, that is listed on the ASX under the name 'BHP Group Limited' and trades under that name.
- BHP Group Limited remains the ultimate holding company of, and continues to ultimately manage and control the companies conducting the businesses which are presently conducted by the subsidiaries of BHP Group Limited, including the Minerals and Services businesses, for so long as those businesses form part of the BHP Group.
- The headquarters of BHP Group Limited (including the BHP Group's corporate head offices) are to be in Australia.
- The Chief Executive Officer of BHP Group Limited has their principal office in Australia.
- The centre of administrative and practical management of BHP Group Limited is in Australia and BHP Group Limited's corporate head office activities, of the kind presently carried on in Australia, continue to be managed in Australia.
- The headquarters of BHP Group Limited is publicly acknowledged as being in Australia in significant public announcements and in all public documents.
- The Chief Executive Officer of BHP Group Limited has their principal place of residence in Australia.
- The majority of all regularly scheduled Board meetings of BHP Group Limited in any calendar year occurs in Australia.

9.9 Taxation

The taxation discussion below describes the material Australian, UK and US federal income tax consequences to a US holder owning BHP Group Limited ordinary shares or ADSs.

The following discussion is not relevant to non-US holders of BHP Group Limited ordinary shares or ADSs. By its nature, the commentary below is of a general nature and we recommend that holders of ordinary shares or ADSs consult their own tax advisers regarding the Australian, UK and US federal, state and local tax and other tax consequences of owning and disposing of ordinary shares and ADSs in their particular circumstances.

For purposes of this commentary, a US holder is a beneficial owner of ordinary shares or ADSs who is, for US federal income tax purposes:

- a citizen or resident alien of the US;
- a corporation (or other entity treated as a corporation for US federal income tax purposes) that is created or organised under the laws of the US or any political subdivision thereof;
- an estate, the income of which is subject to US federal income taxation regardless of its source; or
- a trust:
  - (a) if a court within the US is able to exercise primary supervision over its administration and one or more US persons have the authority to control all of its substantial decisions; or
  - (b) that has made a valid election to be treated as a US person for tax purposes.

This discussion of material tax consequences for US holders is based on the Australian, UK and US laws currently in effect, the published practice of tax authorities in those jurisdictions and the double taxation treaties and conventions currently in existence. These laws are subject to change, possibly on a retroactive basis.

(a) Australian taxation

Dividends

Dividends (including other distributions treated as dividends for Australian tax purposes) paid by BHP Group Limited to a US holder that is not an Australian resident for Australian tax purposes will generally not be subject to Australian withholding tax if they are fully franked (broadly, where a dividend is franked, tax paid by BHP Group Limited is imputed to the shareholders).

Dividends paid to such US holders, which are not fully franked, will generally be subject to Australian withholding tax not exceeding 15 per cent only to the extent (if any) that the dividend is neither:

- franked; nor
- declared by BHP Group Limited to be conduit foreign income. (Broadly, this means that the relevant part of the dividend is declared to have been paid out of foreign source amounts received by BHP Group Limited that are not subject to tax in Australia, such as dividends remitted to Australia by foreign subsidiaries).

The Australian withholding tax outcome described above applies to US holders who are eligible for benefits under the Tax Convention between Australia and the US as to the Avoidance of Double Taxation (the Australian Tax Treaty). Otherwise, the rate of Australian withholding tax may be 30 per cent.

In contrast, dividends (including other distributions treated as dividends for Australian tax purposes) paid by BHP Group Limited to a US holder may instead be taxed by assessment in Australia if the US holder:

- is an Australian resident for Australian tax purposes (although the tax will generally not exceed 15 per cent where the US holder is eligible for benefits under the Australian Tax Treaty as a treaty resident of the US and any franking credits may be creditable against their Australian income tax liability); or
- carries on business in Australia through a permanent establishment as defined in the Australian Tax Treaty, or performs personal services from a fixed base in Australia, and the shareholding in respect of which the dividend is paid is effectively connected with that permanent establishment or fixed base, (however, in such a case any franking credits may be creditable against the Australian income tax liability).

The treatment of dividends outlined above may be modified where the shareholding in BHP Group *Limited is held through a trust, limited partnership, limited liability company, pension fund, sovereign wealth fund or other investment vehicle. Affected US holders should seek their own advice in relation to such arrangements.*

Sale of ordinary shares and ADSs

Gains made by US holders on the sale of ordinary shares or ADSs will generally not be taxed in Australia.

However, the precise Australian tax treatment of gains made by US holders on the sale of ordinary shares or ADSs generally depends on whether or not the gain is an Australian sourced gain of an income nature for Australian income tax purposes.

Where the gain is of an income nature, a US holder will generally only be liable to Australian income tax on an assessment basis (whether or not they are also an Australian resident for Australian tax purposes) if:

- they are not eligible for benefits under the Australian Tax Treaty and the gain is sourced in Australia for Australian tax purposes; or
- they are eligible for benefits under the Australian Tax Treaty but the gain constitutes any of the following (in which case the gain will be deemed to have an Australian source):
  - business profits of an enterprise attributable to a permanent establishment situated in Australia through which the enterprise carries on business in Australia; or
  - income or gains from the alienation of property that form part of the business property of a permanent establishment of an enterprise that the US holder has in Australia, or pertain to a fixed base available to the US holder in Australia for the purpose of performing independent personal services; or
  - income derived from the disposition of shares in a company, the assets of which consist wholly or principally of real property (which includes rights to exploit or to explore for natural resources) situated in Australia, whether such assets are held directly or indirectly through one or more interposed entities.

Where the gain is not taxed as Australian sourced income, the US holder will generally only be liable to Australian capital gains tax on an assessment basis if they acquired (or are deemed to have acquired) their shares or ADSs after 19 September 1985 and one or more of the following applies:

- the US holder is an Australian resident for Australian tax purposes; or
- the ordinary shares or ADSs have been used by the US holder in carrying on a business through a permanent establishment in Australia; or
- the ordinary shares or ADSs constitute an ‘indirect Australian real property interest’ for Australian CGT purposes – this will generally be the case if the US holder (either alone or together with associates) directly or indirectly owns or owned 10 per cent or more of the issued share capital of BHP Group Limited at the time of the disposal or throughout a 12-month period during the two years prior to the time of disposal and, at the time of the disposal, the sum of the market values of BHP Group Limited’s assets that are taxable Australian real property (held directly or through interposed entities) exceeds the sum of the market values of BHP Group Limited’s assets (held directly or through interposed entities) that are not taxable Australian real property at that time (which, for these purposes includes mining, quarrying or prospecting rights in respect of minerals, petroleum or quarry materials situated in Australia); or
- the US holder is an individual who is not eligible for benefits under the Australian Tax Treaty as a treaty resident of the US and elected on becoming a non-resident of Australia to continue to have the ordinary shares or ADSs subject to Australian capital gains tax.

In certain circumstances, if the ordinary shares or ADSs constitute an ‘indirect Australian real property interest’ for Australian CGT purposes, the purchaser may be required to withhold under the non-resident CGT withholding regime an amount equal to 12.5 per cent of the purchase price in situations including where the acquisition is undertaken by way of an off-market transfer. Affected US holders should seek their own advice in relation to how this withholding regime may apply to them.

The comments above on the sale of ordinary shares and ADSs do not apply:

- to temporary residents of Australia who should seek advice that is specific to their circumstances; or
- if the Investment Management Regime (IMR) applies to the US holder, which exempts from Australian income tax and capital gains tax gains made on disposals by certain categories of non-resident funds – called IMR entities – of (relevantly) portfolio interests in Australian public companies (subject to a number of conditions). The IMR exemptions broadly apply to widely held IMR entities in relation to their direct investments and indirect investments made through an independent Australian fund manager. The exemptions apply to gains made by IMR entities that are treated as companies for Australian tax purposes as well as gains made by non-resident investors in IMR entities that are treated as trusts and partnerships for Australian tax purposes.

Stamp duty, gift, estate and inheritance tax

Australia does not impose any stamp duty, gift, estate or inheritance taxes in relation to transfers or gifts of shares or ADSs or upon the death of a shareholder.

(b) US taxation

This section describes the material US federal income tax consequences to a US holder of owning ordinary shares or ADSs. It applies only to ordinary shares or ADSs that are held as capital assets for tax purposes. This discussion addresses only US federal income taxation and does not discuss all of the tax consequences that may be relevant to US holders in light of their individual circumstances, including foreign, state or local tax consequences, estate and gift tax consequences, and tax consequences arising under the Medicare contribution tax on net investment income. This section does not apply to a holder of ordinary shares or ADSs that is a member of a special class of holders subject to special rules, including a dealer in securities, a trader in securities that elects to use a mark-to-market method of accounting for its securities holdings, a tax-exempt organisation, a life insurance company, a person liable for alternative minimum tax, a person who actually or constructively owns 10 per cent or more of the combined voting power of the voting stock or of the total value of the stock of BHP Group Limited, a person that holds ordinary shares or ADSs as part of a straddle or a hedging or conversion transaction, a person that purchases or sells ordinary shares or ADSs as part of a wash sale for tax purposes, or a person whose functional currency is not the US dollar.

If an entity or arrangement that is treated as a partnership for US federal income tax purposes holds the ordinary shares or ADSs, the US federal income tax treatment of a partner generally will depend on the status of the partner and the tax treatment of the partnership. A partner in a partnership holding the ordinary shares or ADSs should consult its tax adviser with regard to the US federal income tax treatment of an investment in the ordinary shares or ADSs.

This section is based on the Internal Revenue Code of 1986, as amended, its legislative history, existing and proposed regulations, published rulings and court decisions, and the Australian Tax Treaty, all as currently in effect. These authorities are subject to change, possibly on a retroactive basis.

This section is in part based on the representations of the Depositary and the assumption that each obligation in the deposit agreement and any related agreement will be performed in accordance with its terms.

In general, for US federal income tax purposes, a holder of ADSs will be treated as the owner of the ordinary shares represented by those ADSs. Exchanges of ordinary shares for ADSs, and ADSs for ordinary shares, generally will not be subject to US federal income tax.

Dividends

Under US federal income tax laws and subject to the Passive Foreign Investment Company (PFIC) rules discussed below, a US holder must include in its gross income the amount of any dividend paid by BHP Group Limited out of its current or accumulated earnings and profits (as determined for US federal income tax purposes) plus any Australian tax withheld from the dividend payment even though the holder does not receive it. The dividend is taxable to the holder when the holder, in the case of ordinary shares, or the Depositary, in the case of ADSs, actually or constructively receives the dividend.

Dividends paid to a non-corporate US holder on shares or ADSs will be taxable at the preferential rates applicable to long-term capital gains provided the US holder holds the shares or ADSs for more than 60 days during the 121-day period beginning 60 days before the ex-dividend date and does not enter into certain risk reduction transactions with respect to the shares or ADSs during the abovementioned holding period. However, a non-corporate US holder that elects to treat the dividend income as 'investment income' pursuant to Section 163(d)(4) of the US Internal Revenue Code will not be eligible for such preferential rates. In the case of a corporate US holder, dividends on shares and ADSs are taxed as ordinary income and will not be eligible for the dividends received deduction generally allowed to US corporations in respect of dividends received from other US corporations.

Distributions in excess of current and accumulated earnings and profits, as determined for US federal income tax purposes, will be treated as a non-taxable return of capital to the extent of the holder's tax basis, determined in US dollars, in the ordinary shares or ADSs and thereafter as a capital gain. However, BHP Group Limited does not expect to calculate earnings and profits in accordance with US federal income tax principles. Accordingly, holders should expect to generally treat distributions made by BHP Group Limited as dividends.

The amount of any cash distribution paid in any foreign currency will be equal to the US dollar value of such currency, calculated by reference to the spot rate in effect on the date such distribution is received by the US holder or, in the case of ADSs, by the Depositary, regardless of whether and when the foreign currency is in fact converted into US dollars. If the foreign currency is converted into US dollars on the date received, the US holder generally should not recognise foreign currency gain or loss on such conversion. If the foreign currency is not converted into US dollars on the date received, the US holder will have a basis in the foreign currency equal to its US dollar value on the date of the distribution, and generally will recognise foreign currency gain or loss on a subsequent conversion or other disposal of such currency. Such foreign currency gain or loss generally will be treated as ordinary income or loss ineligible for the preferential tax rate applicable to dividend income and generally will be income or loss from US sources for foreign tax credit limitation purposes.

Subject to certain limitations, Australian tax withheld in accordance with the Australian Tax Treaty and paid over to Australia will be creditable against an individual's US federal income tax liability. However, under recently finalized Treasury regulations, it is possible that such withholding tax will not be creditable unless the U.S. holder is eligible to claim the benefits of the Australian Tax Treaty and elects to apply the Australian Tax Treaty. Special rules apply in determining the foreign tax credit limitation with respect to dividends that are taxed at the preferential rates applicable to long-term capital gains. To the extent a reduction or refund of the tax withheld is available to a US holder under Australian law or under the Australian Tax Treaty, the amount of tax withheld that could have been reduced or that is refundable will not be eligible for credit against the holder's US federal income tax liability. A US holder that does not elect to claim a US foreign tax credit may instead claim a deduction for Australian income tax withheld, but only for a taxable year in which the US holder elects to do so with respect to all foreign income taxes paid or accrued in such taxable year.

Dividends will be income from sources outside the US, and generally will be 'passive category' income for the purpose of computing the foreign tax credit allowable to a US holder. In general, a taxpayer's ability to use foreign tax credits may be limited and is dependent on the particular circumstances. US holders should consult their tax advisers with respect to these matters.

Sale of ordinary shares and ADSs

Subject to the PFIC rules discussed below, a US holder who sells or otherwise disposes of ordinary shares or ADSs will recognise a capital gain or loss for US federal income tax purposes equal to the difference between the US dollar value of the amount realised and the holder's tax basis, determined in US dollars, in those ordinary shares or ADSs. The gain or loss will generally be income or loss from sources within the US for foreign tax credit limitation purposes. The capital gain of a non-corporate US holder is generally taxed at preferential rates where the holder has a holding period greater than 12 months in the shares or ADSs sold. There are limitations on the deductibility of capital losses.

The US dollar value of any foreign currency received upon a sale or other disposition of ordinary shares or ADSs will be calculated by reference to the spot rate in effect on the date of sale or other disposal (or, in the case of a cash basis or electing accrual basis taxpayer, on the settlement date). A US holder will have a tax basis in the foreign currency received equal to that US dollar amount, and generally will recognise foreign currency gain or loss on a subsequent conversion or other disposal of the foreign currency. This foreign currency gain or loss generally will be treated as US source ordinary income or loss for foreign tax credit limitation purposes.

Passive Foreign Investment Company rules

We do not believe that the BHP Group Limited ordinary shares or ADSs will be treated as stock of a PFIC for US federal income tax purposes, but this conclusion is a factual determination that is made annually at the end of the year and thus may be subject to change. If BHP Group Limited were treated as a PFIC, any gain realised on the sale or other disposition of ordinary shares or ADSs would in general not be treated as a capital gain. Instead, a US holder would be treated as if it had realised such gain and certain 'excess distributions' ratably over its holding period for the ordinary shares or ADSs and would be taxed at the highest tax rate in effect for each such year to which the gain was allocated, together with an interest charge in respect of the tax attributable to each such year. In addition, dividends received with respect to ordinary shares or ADSs would not be eligible for the preferential tax rates applicable to dividend income if BHP Group Limited were a PFIC either in the taxable year of the distribution or the preceding taxable year, but instead would be taxable at rates applicable to ordinary income. Assuming the shares or ADSs are 'marketable stock', a US holder may mitigate the adverse tax consequences described above by electing to be taxed annually on a mark-to-market basis with respect to such shares or ADSs.

(c) UK taxation

Dividends

Under UK law, no UK tax is required to be withheld at source from dividends paid on ordinary shares or ADSs.

Sale of ordinary shares and ADSs

US holders will not be liable for UK tax on capital gains realised on disposal of ordinary shares or ADSs unless:

- they are resident in the UK; or
- they carry on a trade, profession or vocation in the UK through a branch or agency for the year in which the disposal occurs and the shares or ADSs have been used, held or acquired for the purposes of such trade (or profession or vocation), branch or agency. In the case of a trade, the term 'branch' includes a permanent establishment.

An individual who ceases to be a resident in the UK for tax purposes while owning shares or ADSs and then disposes of those shares or ADSs while not a UK resident may become subject to UK tax on capital gains if he/she:

- had sole UK residence in the UK tax year preceding his/her departure from the UK;
- had sole UK residence at any time during at least four of the seven UK tax years preceding his/her year of departure from the UK; and
- subsequently becomes treated as having sole UK residence again before five complete UK tax years of non-UK residence have elapsed from the date he/she left the UK.

In this situation US holders will generally be entitled to claim US tax paid on such a disposition as a credit against any corresponding UK tax payable.

UK inheritance tax

Under the current UK–US Estate and Gift Tax Treaty, ordinary shares or ADSs held by a US holder who is domiciled for the purposes of the UK–US Estate and Gift Tax Treaty in the US, and is not for the purposes of the UK–US Estate and Gift Tax Treaty a national of the UK, will generally not be subject to UK inheritance tax on the individual's death or on a chargeable gift of the ordinary shares or ADSs during the individual's lifetime, provided that any applicable US federal gift or estate tax liability is paid. The position as previously set out will not apply to ordinary shares or ADSs which: (a) are part of the business property of a permanent establishment of the individual in the UK; or (b) in the case of a shareholder who performs independent personal services, pertain to a fixed base situated in the UK. Where the ordinary shares or ADSs have been placed in trust by a settlor who, at the time of settlement, was a US resident shareholder, the ordinary shares or ADSs will generally not be subject to UK inheritance tax unless the settlor, at the time of settlement, was not domiciled in the US and was a UK national. In the exceptional case where the ordinary shares or ADSs are subject to both UK inheritance tax and US federal gift or estate tax, the UK–US Estate and Gift Tax Treaty generally provides for double taxation to be relieved by means of credit relief.

UK stamp duty and stamp duty reserve tax

Under applicable legislation, UK stamp duty or stamp duty reserve tax (SDRT) is, subject to certain exemptions, payable on any issue or transfer of shares to the Depositary or their nominee where those shares are for inclusion in the ADR program at a rate of 1.5 per cent of their price (if issued), the amount of any consideration provided (if transferred on sale) or their value (if transferred for no consideration). This 1.5 per cent charge will not generally be payable on the issue or transfer of shares to the Depository or their nominee where, for SDRT purposes, the shares are in a non-UK incorporated company and, for stamp duty purposes, the instrument of transfer is executed and remains at all times outside the UK.

Similarly, no SDRT should be payable on the transfer of an ordinary share to a person other than the Depository or their nominee or on the transfer of an ADS. No UK stamp duty should be payable on the transfer of an ADS or an ordinary share provided that the instrument of transfer is executed and remains at all times outside the UK. Where it is payable, the relevant rate is currently 0.5 per cent of the amount payable for the shares. The purchaser normally pays the stamp duty or SDRT.

Special rules apply to transactions involving intermediates and stock lending.

10 Glossary

10.1 Mining-related terms

3D

Three dimensional.

AIG

The Australian Institute of Geoscientists.

Anth (Anthracite)

Coal of high rank with the highest carbon content.

APEGS

Association of Professional Engineers and Geoscientists of Saskatchewan.

ASPB

Alberta Society of Professional Biologists

AusIMM

The Australasian Institute of Mining and Metallurgy.

Beneficiation

The process of physically separating ore from waste material prior to subsequent processing of the improved ore.

Bituminous

Coal of intermediate rank with relatively high carbon content.

Block cave

An area resulting from an underground mining method where the orebody is undermined to make it collapse under its own weight.

Brownfield

The development or exploration located inside the area of influence of existing mine operations which can share infrastructure/management.

Coal Reserves

Equivalent to mineral reserves, but specifically concerning coal.

Coal Resources

Equivalent to mineral resources, but specifically concerning coal.

Coking coal

Used in the manufacture of coke, which is used in the steelmaking process by virtue of its carbonisation properties. Coking coal may also be referred to as metallurgical coal.

Copper cathode

Electrolytically refined copper that has been deposited on the cathode of an electrolytic bath of acidified copper sulphate solution. The refined copper may also be produced through leaching and electrowinning.

Cut-off grade

Cut-off grade is the grade (i.e., the concentration of metal or mineral in rock) that determines the destination of the material during mining. For purposes of establishing “prospects of economic extraction,” the cut-off grade is the grade that distinguishes material deemed to have no economic value (it will not be mined in underground mining or if mined in surface mining, its destination will be the waste dump) from material deemed to have economic value (its ultimate destination during mining will be a processing facility). Other terms used in similar fashion as cut-off grade include net smelter return, pay limit, and break-even stripping ratio.

Development stage

Development stage, as used in “Additional Information—Information on mining operations”, refers to a property that has mineral reserves disclosed, pursuant to S-K 1300, but no material extraction.

Electrowinning/electrowon

An electrochemical process in which metal is recovered by dissolving a metal within an electrolyte and plating it onto an electrode.

Energy coal

Used as a fuel source in electrical power generation, cement manufacture and various industrial applications. Energy coal may also be referred to as steaming or thermal coal.

Exploration stage

Exploration stage, as used in “Additional Information—Information on mining operations”, refers to a property that has no mineral reserves disclosed.

First Principles

First principles refers to building up the costs for a piece of work considering all the parts and activities needed to put it together.

Flotation

A method of selectively recovering minerals from finely ground ore using a froth created in water by specific reagents. In the flotation process, certain mineral particles are induced to float by becoming attached to bubbles of froth and the unwanted mineral particles sink.

Grade or Quality

Any physical or chemical measurement of the characteristics of the material of interest in samples or product.

Greenfield

The development or exploration located outside the area of influence of existing mine operations/infrastructure.

Hypogene Sulphide

Hypogene mineralisation is formed by fluids at high temperature and pressure derived from magmatic activity. Copper in Hypogene Sulphide is mainly provident from the copper bearing mineral chalcopyrite and higher metal recoveries are achieved via grinding/flotation concentration processes.

Indicated mineral resource

Indicated mineral resources is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an indicated mineral resource is sufficient to allow a Qualified Person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an indicated mineral resource has a lower level of confidence than the level of confidence of a measured mineral resource, an indicated mineral resource may only be converted to a probable mineral reserve.

Inferred mineral resources

Inferred mineral resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The level of geological uncertainty associated with an inferred mineral resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an inferred mineral resource has the lowest level of geological confidence of all mineral resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an inferred mineral resource may not be considered when assessing the economic viability of a mining project, and may not be converted to a mineral reserve.

In situ

Situated in the original place.

Joint Ore Reserves Committee (JORC) Code

A set of minimum standards, recommendations and guidelines for public reporting in Australasia of Exploration Results, Mineral Resources and Ore Reserves. The guidelines are defined by the Australasian Joint Ore Reserves Committee (JORC), which is sponsored by the Australian mining industry and its professional organisations.

Leaching

The process by which a soluble metal can be economically recovered from minerals in ore by dissolution.

LOI (loss on ignition)

A measure of the percentage of volatile matter (liquid or gas) contained within a mineral or rock. LOI is determined to calculate loss in mass when subjected to high temperatures.

Marketable Coal Reserves

Tonnes of coal available, at specified moisture content and air-dried qualities, for sale after the beneficiation of Coal Reserves.

Material of economic interest

Material of economic interest when used in the context of mineral resource determination, includes mineralization, including dumps and tailings, mineral brines, and other resources extracted on or within the earth's crust. It does not include oil and gas resources resulting from oil and gas producing activities, gases (e.g. helium and carbon dioxide), geothermal fields, and water.

MAusIMM

Member of the Australasian Institute of Mining and Metallurgy.

Measured mineral resource

Measured mineral resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a measured mineral resource is sufficient to allow a Qualified Person to apply modifying factors, as defined in this section, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a measured mineral resource has a higher level of confidence than the level of confidence of either an indicated mineral resource or an inferred mineral resource, a measured mineral resource may be converted to a proven mineral reserve or to a probable mineral reserve.

Metallurgical coal

A broader term than coking coal, which includes all coals used in steelmaking, such as coal used for the pulverised coal injection process.

Mine Gate

The location at which the product is transferred from the mining operation on to the next stage, either for further off-site processing or distribution to customers as a saleable product.

Mineral resource

Mineral resource is a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.

Mineral reserve

Mineral reserve is an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the Qualified Person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.

Mineralisation

Any single mineral or combination of minerals occurring in a mass, or deposit, of economic interest.

Mixed (ore type)

Refer to Transitional Sulphide.

Modifying Factors

Modifying factors are the factors that a qualified person must apply to indicated and measured mineral resources and then evaluate in order to establish the economic viability of mineral reserves. A Qualified Person must apply and evaluate modifying factors to convert measured and indicated mineral resources to proven and probable mineral reserves. These factors include, but are not restricted to: Mining; processing; metallurgical; infrastructure; economic; marketing; legal; environmental compliance; plans, negotiations, or agreements with local individuals or groups; and governmental factors. The number, type and specific characteristics of the modifying factors applied will necessarily be a function of and depend upon the mineral, mine, property, or project.

Nominated production rate

The approved average production rate for the remainder of the life-of-asset plan or five-year plan production rate if significantly different to life-of-asset production rate.

Open-cut (OC)

Surface working in which the working area is kept open to the sky.

PCI

Pulverised coal injection.

Probable mineral reserve

Probable mineral reserve is the economically mineable part of an indicated and, in some cases, a measured mineral resource.

Production stage

Production stage, as used in "Additional Information—Information on mining operations", refers to a property with material extraction of mineral reserves.

Proven mineral reserve

Proven mineral reserve is the economically mineable part of a measured mineral resource and can only result from conversion of a measured mineral resource.

Qualified Person

Defined by US SEC as an individual who is both (1) a mineral industry professional with at least five years of relevant experience in the type of mineralisation and type of deposit under consideration and in the specific type of activity that person is undertaking on behalf of the registrant; and (2) an eligible member or licensee in good standing of a recognised professional organisation at the time the technical report is prepared.

ROM (run of mine)

Run of mine product mined in the course of regular mining activities. Tonnes include allowances for diluting materials and for losses that occur when the material is mined.

Slag

A by-product of smelting after the desired metal has been extracted from its ore.

Smelting

The process of extracting metal from its ore by heating and melting.

Solvent extraction

A method of separating one or more metals from a leach solution by treating with a solvent that will extract the required metal, leaving the others. The metal is recovered from the solvent by further treatment.

Stockpile

An accumulation of ore or mineral built up when demand slackens or when the treatment plant or beneficiation equipment is incomplete or temporarily unable to process the mine output; any heap of material formed to create a buffer for loading or other purposes or material dug and piled for future use.

Sub-level cave

An area within an underground mine which uses the sub-level cave method. This is where an ore body is extracted from the upper horizons first and mining progresses downwards level by level.

Supergene Sulphide

Supergene is a term used to describe near-surface processes and their products, formed at low temperature and pressure by the activity of meteoric or surface water. Copper in Supergene Sulphide is mainly provident from the copper bearing minerals chalcocite and covellite and is amenable to both grinding/flotation concentration and leaching processes.

Tailings

Those portions of washed or milled ore that are too poor to be treated further or remain after the required metals and minerals have been extracted.

Total resources

The sum of inferred, indicated and measured mineral resources.

Total reserves

The sum of proved and probable mineral reserves.

Transitional Sulphide

Transitional Sulphide is a term used to describe the zone of mineralisation that is a gradation between Supergene Sulphide and Hypogene Sulphide resulting from the incomplete development of the former as it overprints the latter. This results in a more irregular distribution of the three main copper bearing minerals and is amenable to both grinding/flotation concentration and leaching processes.

Troy oz

Troy ounce is a unit of measure of precious metals.

Underground (UG)

Below the surface mining activities.

Wet tonnes

Production is usually quoted in terms of wet metric tonnes (wmt). To adjust from wmt to dry metric tonnes (dmt) a factor is applied based on moisture content.

10.2 Terms used in reserves and resources

Ag	silver
Al_2O_3	alumina
Anth	anthracite
Ash	inorganic material remaining after combustion
Au	gold
Cu	copper
CV	calorific value
Fe	iron
Insol.	insolubles
K_2O	potassium oxide
KCl	potassium chloride
KCl.MgCl2.6H2O	carnallite
LOI	loss on ignition
LPL	Lower Patience Lake (stratigraphic unit)
Met	metallurgical coal
MgO	magnesium oxide
Mo	molybdenum
Ni	nickel
P	phosphorous
Pc	phosphorous in concentrate
PCI	pulverised coal injection
S	sulphur
SCu	soluble copper
SiO_2	silica
TCu	total copper
Th	thermal coal
U_3O_8	uranium oxide
VM	volatile matter
Yield	the percentage of material of interest that is extracted during mining and/or processing
Zn	zinc

10.3 Units of measure

%	percentage or per cent
dmt	dry metric tonne
g/t	grams per tonne
ha	hectare
kcal/kg	kilocalories per kilogram
kg/tonne or kg/t	kilograms per tonne
km	kilometre
koz	thousand troy ounces
kt	kilotonnes
ktpa	kilotonnes per annum
ktpd	kilotonnes per day
kV	kilovolt
kW	kilowatt
kWh	kilowatt hour
lb	pound
m	metre
m^3	cubic metre
ML	megalitre
Mt	million tonnes
Mtpa	million tonnes per annum
MW	megawatt
oz	ounce
ppm	parts per million
scf	standard cubic feet
t	tonne
TW	terawatt
TWh	terawatt hour
tpa	tonnes per annum
tpd	tonnes per day
t/h	tonnes per hour
wmt	wet metric tonnes

10.4 Other terms

AASB (Australian Accounting Standards Board)

Accounting standards as issued by the Australian Accounting Standards Board.

Activity data

A quantitative measure of a level of activity that results in greenhouse gas emissions. Activity data is multiplied by an energy and/or emissions factor to derive the energy consumption and greenhouse gas emissions associated with a process or an operation. Examples of activity data include kilowatt-hours of electricity used, quantity of fuel used, output of a process, hours equipment is operated, distance travelled and floor area of a building.

ADR (American Depositary Receipt)

An instrument evidencing American Depositary Shares or ADSs, which trades on a stock exchange in the United States.

ADS (American Depositary Share)

A share issued under a deposit agreement that has been created to permit US-resident investors to hold shares in non-US companies and, if listed, trade them on the stock exchanges in the United States.

ADSs are evidenced by American Depositary Receipts, or ADRs, which are the instruments that, if listed, trade on a stock exchange in the United States.

ASIC (Australian Securities and Investments Commission)

The Australian Government agency that enforces laws relating to companies, securities, financial services and credit in order to protect consumers, investors and creditors.

Assets

Assets are a set of one or more geographically proximate operations (including open-cut mines and underground mines). Assets include our operated and non-operated assets

Asset groups

We group our assets into geographic regions in order to provide effective governance and accelerate performance improvement. Minerals assets are grouped under Minerals Australia or Minerals Americas based on their geographic location.

ASX (Australian Securities Exchange)

ASX is a multi-asset class vertically integrated exchange group that functions as a market operator, clearing house and payments system facilitator. It oversees compliance with its operating rules, promotes standards of corporate governance among Australia’s listed companies and helps educate retail investors.

BHP

BHP Group Limited and its subsidiaries.

BHP Group Limited

BHP Group Limited and its subsidiaries.

BHP Group Limited share

A fully paid ordinary share in the capital of BHP Group Limited.

BHP Group Limited shareholders

The holders of BHP Group Limited shares.

BHP Group Limited Special Voting Share

A single voting share issued to facilitate joint voting by shareholders of BHP Group Limited on Joint Electorate Actions (prior to unification of the DLC structure).

BHP Group Plc

BHP Group Plc (now known as BHP Group (UK) Ltd) and its subsidiaries.

BHP Group Plc share

A fully paid ordinary share in the capital of BHP Group Plc (now known as BHP Group (UK) Ltd).

BHP Group Plc shareholders

The holders of BHP Group Plc shares (prior to unification of the DLC structure).

BHP Group Plc Special Voting Share

A single voting share issued to facilitate joint voting by shareholders of BHP Group Plc (now known as BHP Group (UK) Ltd) on Joint Electorate Actions (prior to unification of the DLC structure).

BHP Group (UK) Ltd

BHP Group (UK) Ltd (formerly known as BHP Group Plc) and its subsidiaries.

BHP shareholders

In the context of BHP's financial results, BHP shareholders refers to the holders of shares in BHP Group Limited.

Board

The Board of Directors of BHP.

Carbon dioxide equivalent (CO_2-e)

The universal unit of measurement to indicate the global warming potential (GWP) of each greenhouse gas, expressed in terms of the GWP of one unit of carbon dioxide. It is used to evaluate releasing (or avoiding releasing) different greenhouse gases against a common basis.

Carbon neutral

Carbon neutral includes all those greenhouse gas emissions as defined for BHP reporting purposes.

Carbon offsets

The central purpose of a carbon offset for an organisation is to substitute for internal GHG emission reductions. Offsets may be generated through projects in which GHG emissions are avoided, reduced, removed from the atmosphere or permanently stored (sequestration). Carbon offsets are generally created and independently verified in accordance with either a voluntary program or under a regulatory program. The purchaser of a carbon offset can 'retire' or 'surrender' it to claim the underlying reduction towards their own GHG emissions reduction targets or goals or to meet legal obligations.

CEO Water Mandate

The CEO Water Mandate is a UN Global Compact initiative that mobilises business leaders on water, sanitation, and the Sustainable Development Goals. Endorsers of the CEO Water Mandate commit to continuous progress against six core elements of stewardship and in so doing understand and manage their own water risks. Companies that endorse the Mandate agree to continuous improvement in six core areas of their water stewardship practice: Direct Operations, Supply Chain & Watershed Management, Collective Action, Public Policy, Community Engagement and Transparency. BHP is an active signatory of the Mandate.

Commercial

Our Commercial function seeks to maximise commercial and social value across our end-to-end supply chain. It provides effective and efficient service levels to our assets and customers through world-class insights and market intelligence, deep subject-matter expertise, simple processes and centralised standard activities. The function is organised around the core activities in our inbound and outbound value chains, supported by credit and market risk management, and strategy and planning activities.

Company

BHP Group Limited and its subsidiaries.

Continuing operations

Assets/operations/entities that are owned and/or operated by BHP, excluding assets/operations/entities classified as Discontinued Operations.

Convention of Biological Diversity

The Convention on Biological Diversity (CBD) is the international legal instrument for 'the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources' that has been ratified by 196 nations.

CQCA

Central Queensland Coal Associates.

Discontinued operations

Assets/operations/entities that have either been disposed of or are classified as held for sale in accordance with IFRS 5/AASB 5 *Non-current Assets Held for Sale and Discontinued Operations*.

Dividend record date

The date, determined by a company's board of directors, by when an investor must be recorded as an owner of shares in order to qualify for a forthcoming dividend.

DLC (Dual Listed Company)

BHP's Dual Listed Company structure had two parent companies (BHP Group Limited and BHP Group Plc (now known as BHP Group (UK) Ltd)) operating as a single economic entity as a result of the DLC merger. The DLC structure was unified on 31 January 2022

DLC Dividend Share

A share to enable a dividend to be paid by BHP Group Plc to BHP Group Limited or by BHP Group Limited to BHP Group Plc (as applicable) prior to unification of the DLC structure

DLC merger

The Dual Listed Company merger between BHP Group Limited and BHP Group Plc (now known as BHP Group (UK) Ltd) on 29 June 2001.

ECR

BHP's Economic Contribution Report for the year ended 30 June 2022.

ELT (Executive Leadership Team)

The Executive Leadership Team directly reports to the Chief Executive Officer and is responsible for the day-to-day management of BHP and leading the delivery of our strategic objectives.

Emission factor

A factor that converts activity data into greenhouse gas emissions data (e.g. kgCO_2-e emitted per GJ of fuel consumed, kg CO_2-e emitted per KWh of electricity used).

Energy

Energy means all forms of energy products where 'energy products' means combustible fuels, heat, renewable energy, electricity, or any other form of energy from operations that are owned or controlled by BHP. The primary sources of energy consumption come from fuel consumed by haul trucks at our operated assets, as well as purchased electricity used at our operated assets.

Energy content factor

The energy content of a fuel is an inherent chemical property that is a function of the number and types of chemical bonds in the fuel.

Entrained water

Entrained water includes water incorporated into product and/or waste streams, such as tailings, that cannot be easily recovered.

Equity share approach

A consolidation approach whereby a company accounts for greenhouse gas emissions from operations according to its share of equity in the operation. The equity share reflects economic interest, which is the extent of rights a company has to the risks and rewards flowing from an operation. Also see the definition for ‘Operational control approach’.

Executive KMP (Key Management Personnel)

Executive KMP includes the Executive Director (our CEO), the Chief Financial Officer, the President Operations (Minerals Australia), the President Operations (Minerals Americas), and the Senior Executive Officer (President Petroleum until 31 May). It does not include the Non-Executive Directors (our Board).

Financial control approach

A consolidation approach whereby a company reports greenhouse gas emissions based on the accounting treatment in the company’s consolidated financial statements, as follows:

- 100 per cent for operations accounted for as subsidiaries, regardless of the equity interest owned
- for operations accounted for as a joint operation, the company’s interest in the operations

It does not report greenhouse gas emissions from operations that are accounted for using the equity method in the company’s financial statements.

Functions

Functions operate along global reporting lines to provide support to all areas of the organisation. Functions have specific accountabilities and deep expertise such as finance, legal, governance, technology, human resources, corporate affairs, health, safety and community.

Gearing ratio

The ratio of net debt to net debt plus net assets.

GHG (greenhouse gas)

For BHP reporting purposes, these are the aggregate anthropogenic carbon dioxide equivalent emissions of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6). Nitrogen trifluoride (NF_3) GHG emissions are currently not relevant for BHP reporting purposes.

Global goal for nature

The global goal for nature defines what is needed to halt and reverse today’s catastrophic loss of nature. It is supported by a number of organisations that ask governments to adopt the goal at the international level, which each country, the private sector, communities and others can contribute to achieving.

Goal (in respect of greenhouse gas emissions)

An ambition to seek an outcome for which there is no current pathway(s), but for which efforts will be pursued towards addressing that challenge, subject to certain assumptions or conditions.

GRI (Global Reporting Initiative)

GRI works with businesses and governments to understand and communicate their impact on critical sustainability issues.

Groundwater

Water beneath the earth’s surface, including beneath the seabed, which fills pores or cracks between porous media such as soil, rock, coal, and sand, often forming aquifers. Groundwater may be abstracted for use from bore fields or accessed via dewatering to access ore. For accounting purposes, water that is entrained in the ore can be considered as groundwater.

Group

BHP Group Limited and its subsidiaries.

GWP (global warming potential)

A factor describing the radiative forcing impact (degree of harm to the atmosphere) of one unit of a given greenhouse gas relative to one unit of CO_2. BHP currently uses GWP from the Intergovernmental Panel on Climate Change (IPCC) Assessment Report 5 (AR5) based on a 100-year timeframe.

HPI (high-potential injuries)

High-potential injuries (HPI) are recordable injuries and first aid cases where there was the potential for a fatality.

ICMM (International Council on Mining and Metals)

The International Council on Mining and Metals is an international organisation dedicated to a safe, fair and sustainable mining and metals industry.

IFRS (International Financial Reporting Standards)

Accounting standards as issued by the International Accounting Standards Board.

IPCC (Intergovernmental Panel on Climate Change)

The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change.

IUCN (International Union for Conservation of Nature)

The International Union for Conservation of Nature is an international organisation working in the field of nature conservation and sustainable use of natural resources.

KMP (Key Management Personnel)

Key Management Personnel (KMP) includes the roles which have the authority and responsibility for planning, directing and controlling the activities of BHP. These are Non-executive Directors, the CEO, the Chief Financial Officer, the President Minerals Australia, the President Minerals Americas and the Senior Executive Officer (i.e. President Petroleum until 31 May 2022).

KPI (key performance indicator)

Used to measure the performance of the Group, individual businesses and executives in any one year.

Legacy assets

Legacy assets refer to those BHP-operated assets, or part thereof, located in the Americas that are in the closure phase.

LME (London Metal Exchange)

A major futures exchange for the trading of industrial metals.

Location-based reporting

Scope 2 greenhouse gas emissions based on average energy generation emission factors for defined geographic locations, including local, subnational, or national boundaries (i.e. grid factors). In the case of a direct line transfer, the location-based emissions are equivalent to the market-based emissions.

Market-based reporting

Scope 2 greenhouse gas emissions based on the generators (and therefore the generation fuel mix from which the reporter contractually purchases electricity and/or is directly provided electricity via a direct line transfer).

Nature positive

A high-level goal and concept describing a future state of nature (e.g. biodiversity, ecosystem services and natural capital) which is greater than the current state. This definition comes from the Taskforce on Nature-related Financial Disclosures (TNFD) Framework – Beta release v0.1.

Net zero (for a BHP greenhouse gas goal, target or pathway, or similar)

Net zero includes the use of carbon offsets as governed by BHP's approach to carbon offsetting described at bhp.com/climate.

Net zero (for industry sectors, the global economy, transition or future, or similar)

Net zero refers to a state in which the greenhouse gases (as defined in this Glossary) going into the atmosphere are balanced by removal out of the atmosphere.

NGER (National Greenhouse and Energy Reporting Scheme)

The Australian National Greenhouse and Energy Reporting (NGER) scheme is a single national framework for reporting and disseminating company information about greenhouse gas emissions, energy production, energy consumption and other information specified under NGER legislation.

Nickel intermediates

Concentrate, matte, residue, and mix sulphide.

Non-operated asset/non-operated joint venture (NOJV)

Non-operated assets/non-operated joint ventures include interests in assets that are owned as a joint venture but not operated by BHP. References in this Annual Report to a 'joint venture' are used for convenience to collectively describe assets that are not wholly owned by BHP. Such references are not intended to characterise the legal relationship between the owners of the asset.

Occupational illness

An illness that occurs as a consequence of work-related activities or exposure. It includes acute or chronic illnesses or diseases, which may be caused by inhalation, absorption, ingestion or direct contact.

OELs (occupational exposure limits)

An occupational exposure limit is an upper limit on the acceptable concentration of a hazardous substance in workplace air for a particular material or class of materials. OELs may also be set for exposure to physical agents such as noise, vibration or radiation.

OFR

BHP's Operating and Financial Review for the year ended 30 June 2022.

Onshore US

BHP's Petroleum asset (divested in the year ended 30 June 2019) in four US shale areas (Eagle Ford, Permian, Haynesville and Fayetteville), where we produced oil, condensate, gas and natural gas liquids.

Operated assets

Operated assets include assets that are wholly owned and operated by BHP and assets that are owned as a joint venture and operated by BHP. References in this Annual Report to a 'joint venture' are used for convenience to collectively describe assets that are not wholly owned by BHP. Such references are not intended to characterise the legal relationship between the owners of the asset.

Operational control approach

A consolidation approach whereby a company accounts for 100 per cent of the greenhouse gas emissions over which it has operational control (a company is considered to have operational control over an operation if it or one of its subsidiaries has the full authority to introduce and implement its operating policies at the operation). It does not account for greenhouse gas emissions from operations in which it owns an interest but does not have operational control. Also see the definition for 'Equity share approach'.

Operations

Open-cut mines, underground mines and processing facilities.

Other (with respect to water consumption volumes)

This includes water volumes used for purposes such as potable water consumption and amenity facilities at our operated assets.

Paris Agreement

The Paris Agreement is an agreement between countries party to the United Nations Framework Convention on Climate Change (UNFCC) to strengthen efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so.

Aims of the Paris Agreement

The central objective of the Paris Agreement is its long-term temperature goal to hold global average temperature increase to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

Paris-aligned

Aligned to the Paris Agreement goals.

Petroleum (asset group)

A group of oil and gas assets (see 'Asset groups') formerly operated by BHP before its merger with Woodside in June 2022. Petroleum's core production operations were located in the US Gulf of Mexico, Australia and Trinidad and Tobago. Petroleum produced crude oil and condensate, gas and natural gas liquids.

PPE (personal protective equipment)

PPE means anything used or worn to minimise risk to worker's health and safety, including air supplied respiratory equipment.

Residual mix

The mix of energy generation resources and associated attributes such as greenhouse gas emissions in a defined geographic boundary left after contractual instruments have been claimed/retired/cancelled. The residual mix can provide an emission factor for companies without contractual instruments to use in a market-based method calculation. A residual mix is currently unavailable to account for voluntary purchases and this may result in double counting between electricity consumers.

SASB (Sustainability Accounting Standards Board)

The Sustainability Accounting Standards Board is a non-profit organisation that develops standards focused on the financial impacts of sustainability.

Scope 1 greenhouse gas emissions

Scope 1 greenhouse gas emissions are direct emissions from operations that are owned or controlled by the reporting company. For BHP, these are primarily emissions from fuel consumed by haul trucks at our operated assets, as well as fugitive methane emissions from coal and petroleum production at our operated assets.

Scope 2 greenhouse gas emissions

Scope 2 greenhouse gas emissions are indirect emissions from the generation of purchased or acquired electricity, steam, heat or cooling that is consumed by operations that are owned or controlled by the reporting company. BHP's Scope 2 emissions have been calculated using the market-based method unless otherwise specified.

Scope 3 greenhouse gas emissions

Scope 3 greenhouse gas emissions are all other indirect emissions (not included in Scope 2) that occur in the reporting company's value chain. For BHP, these are primarily emissions resulting from our customers using and processing the commodities we sell, as well as upstream emissions associated with the extraction, production and transportation of the goods, services, fuels and energy we purchase for use at our operations; emissions resulting from the transportation and distribution of our products; and operational emissions (on an equity basis) from our non-operated joint ventures.

SEC (United States Securities and Exchange Commission)

The US regulatory commission that aims to protect investors, maintain fair, orderly and efficient markets and facilitate capital formation.

Senior manager

An employee who has responsibility for planning, directing or controlling the activities of the entity or a strategically significant part of it. In the OFR, senior manager includes senior leaders and any persons who are directors of any subsidiary company even if they are not senior leaders.

Shareplus

All-employee share purchase plan.

Social investment

Social investment is our voluntary contribution towards projects or donations with the primary purpose of contributing to the resilience of the communities where we operate and the environment, aligned with our broader business priorities. BHP's targeted level of contribution is 1 per cent of pre-tax profit calculated on the average of the previous three years' pre-tax profit as reported. For FY2023-FY2030, our social investment will be assessed as a total over the seven-year goals period to FY2030, rather than calculated as an average of the previous three years' pre-tax profit.

South32

During FY2015, BHP demerged a selection of our alumina, aluminium, coal, manganese, nickel, silver, lead and zinc assets into a new company – South32 Limited.

Surface water

All water naturally open to the atmosphere, including rivers, lakes and creeks and external water dams but excluding water from oceans, seas and estuaries (e.g. precipitation and runoff, including snow and hail).

Target (in respect of greenhouse gas emissions)

An intended outcome in relation to which we have identified one or more pathways for delivery of that outcome, subject to certain assumptions or conditions.

Third-party water

Water supplied by an entity external to the operational facility. Third-party water may contains water from three sources, surface water, groundwater and seawater.

Tier 1 asset

An asset that we believe is large, long life and low cost.

TRIF (total recordable injury frequency)

The sum of (fatalities + lost-time cases + restricted work cases + medical treatment cases) x 1,000,000 ÷ actual hours worked.

Stated in units of per million hours worked. BHP adopts the US Government Occupational Safety and Health Administration guidelines for the recording and reporting of occupational injury and illnesses. TRIF statistics exclude non-operated assets.

TSR (total shareholder return)

TSR measures the return delivered to shareholders over a certain period through the movements in share price and dividends paid (which are assumed to be reinvested). It is the measure used to compare BHP’s performance to that of other relevant companies under the Long-Term Incentive Plan.

Underlying attributable profit

Profit/(loss) after taxation attributable to BHP shareholders excluding any exceptional items attributable to BHP shareholders as described in Financial Statements note 3 ‘Exceptional items’. For more information refer to OFR 11.

Underlying EBIT

Earnings before net finance costs, taxation expense, Discontinued operations and any exceptional items. Underlying EBIT includes BHP’s share of profit/(loss) from investments accounted for using the equity method including net finance costs and taxation expense/(benefit). For more information refer to OFR 11.

Underlying EBITDA

Earnings before net finance costs, depreciation, amortisation and impairments, taxation expense, Discontinued operations and exceptional items. Underlying EBITDA includes BHP’s share of profit/(loss) from investments accounted for using the equity method including net finance costs, depreciation, amortisation and impairments and taxation expense/(benefit). For more information refer to OFR 11.

Unification

The unification of BHP’s corporate structure under BHP Group Limited as effected on 31 January 2022.

Unit costs

One of the financial measures BHP uses to monitor the performance of individual assets. Unit costs are calculated as ratio of net costs of the assets to the equity share of sales tonnage. Net costs is defined as revenue less Underlying EBITDA excluding freight and other costs, depending on the nature of each asset. Western Australia Iron Ore, Queensland Coal and New South Wales Energy Coal unit costs exclude government royalties; Escondida unit costs exclude by-product credits.

United Nations Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity.

WAF (Water Accounting Framework)

The Water Accounting Framework is a common mining and metals industry approach to water accounting in Australia.

Water quality – Type 1

Water of high quality that would require minimal (if any) treatment to meet drinking water standards. This water is considered high-quality/high-grade in the International Council on Mining and Metals (ICMM) 'Good Practice Guide' (2nd Edition) (2021).

Water quality – Type 2

Water of medium quality that would require moderate treatment to meet drinking water standards (it may have a high salinity threshold of no higher than 5,000 milligrams per litre total dissolved solids and other individual constituents). This water is considered high-quality/high-grade in the International Council on Mining and Metals (ICMM) 'Good Practice Guide' (2nd Edition) (2021).

Water quality – Type 3

Water of low quality that would require significant treatment to meet drinking water standards. It may have individual constituents with high values of total dissolved solids, elevated levels of metals or extreme levels of pH. This type of water also includes seawater. This water is considered low-quality/low-grade in the International Council on Mining and Metals (ICMM) 'Good Practice Guide' (2nd Edition) (2021).

WRSA (Water Resource Situational Analysis)

A Water Resource Situational Analysis (WRSA) is a holistic assessment of the water situation where an asset operates. The process is designed to describe the water challenges that stakeholders share and the opportunities for collective action to address those challenges. The WRSA is prepared by a credible third-party and draws on publicly available information and direct stakeholder input. Within a defined area that includes the water resources that BHP interacts, each WRSA includes assessment of:

- the sustainability of the volume and quality of the water resources, taking into account interactions of all other parties and any related environmental, social or cultural values and climate change forecasts
- the state of water infrastructure, water access, sanitation and hygiene of local communities
- the environmental health of the water catchments that feed the water resources taking into account the extent of vegetation, runoff, and any conservation of the area
- external water governance arrangements and their effectiveness

Exhibits

Exhibits marked "*" have been filed as exhibits to this annual report on Form 20-F. Remaining exhibits have been incorporated by reference as indicated.

Exhibit 1	***Constitution***
*1.1	Constitution of BHP Group Limited, incorporating the amendments approved by shareholders at the 2022 General Meeting of BHP Group Limited on 20 January 2022
Exhibit 2	***Securities***
*2.1	Description of Securities
Exhibit 4	***Material Contracts***
*4.1	Form of Service Agreement for Specified Executive (referred to in this Annual Report as the Key Management Personnel)
*4.2	BHP Billiton Ltd Long Term Incentive Plan Rules, approved November 2013 (as amended in July 2018)
4.3	Framework Agreement entered into on 2 March 2016 between Samarco Mineração S.A., Vale S.A. and BHP Billiton Brasil Ltda, the Federal Government of Brazil, the states of Espirito Santo and Minas Gerais and certain other public authorities in Brazil[1]
Exhibit 8	***List of Subsidiaries***
*8.1	List of subsidiaries of BHP Group Limited
Exhibit 12	***Certifications (section 302)***
*12.1	Certification by Chief Executive Officer, Mr Mike Henry, dated 6 September 2022
*12.2	Certification by Chief Financial Officer, Mr David Lamont, dated 6 September 2022
Exhibit 13	***Certifications (section 906)***
*13.1	Certification by Chief Executive Officer, Mr Mike Henry, dated 6 September 2022
*13.2	Certification by Chief Financial Officer, Mr David Lamont, dated 6 September 2022
Exhibit 15	***Consents***
*15.1	Consent of Independent Registered Public Accounting firms Ernst & Young for incorporation by reference of audit reports in registration statements on Form S-8
*15.2	Consents of Qualified Persons for Technical Report Summary for Minera Escondida Limitada
*15.3	Consents of Qualified Persons for Technical Report Summary for Western Australia Iron Ore
*15.4	Consents of Qualified Persons for Technical Report Summary for Jansen Potash Project
Exhibit 96	***Technical Report Summaries***
*96.1	Technical Report Summary for Minera Escondida Limitada
*96.2	Technical Report Summary for Western Australia Iron Ore
*96.3	Technical Report Summary for Jansen Potash Project
Exhibit 101	***Interactive Data File***
*101.INS	Inline XBRL Instance Document—this instance document does not appear in the Interactive Data File because its XBRL tags embedded within the Inline XBRL document
*101.SCH	Inline XBRL Taxonomy Extension Schema Document
*101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
*101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
*101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
*101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
Exhibit 104	***Cover Page Interactive Data File***
*104	Cover page Interactive Data File (embedded within the Inline XBRL document)

Footnotes

1 Previously filed as an exhibit to BHP's annual report on Form 20-F for the year ended 30 June 2016 on 21 September 2016.

SIGNATURE

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorised the undersigned to sign this annual report on its behalf.

BHP Group Limited

/s/ David Lamont

David Lamont

Chief Financial Officer

Date: 6 September 2022

Financial Statements

About these Financial Statements

Reporting entity

BHP Group Limited, an incorporated Australian-listed company, and BHP Group Plc, an incorporated UK-listed company, formed a Dual Listed Company (DLC) until 31 January 2022. Under the DLC structure BHP Group Limited, BHP Group Plc and their subsidiaries operated together as a single for-profit economic entity with a common Board of Directors, unified management structure and joint objectives. On 31 January 2022, BHP unified its corporate structure under BHP Group Limited, and subsequently BHP Group Plc changed its name to BHP Group (UK) Ltd. Throughout the Consolidated Financial Statements (the Financial Statements), the collective contributions of the aforementioned entities are referred to as 'BHP' or 'the Group', regardless of the DLC or unified corporate structure.

Group and related party information is presented in note 31 'Related party transactions' to the Financial Statements. This details transactions between the Group's subsidiaries, associates, joint arrangements and other related parties. The nature of the operations and principal activities of the Group are described in the segment information (refer to note 1 'Segment reporting' to the Financial Statements).

Presentation of the Consolidated Financial Statements

Directors of BHP have included information in this report they deem to be material and relevant to the understanding of the Financial Statements. Disclosure may be considered material and relevant if the dollar amount is significant due to its size or nature, or the information is important to understand the:

- Group's current year results
- impact of significant changes in the Group's business or
- aspects of the Group's operations that are important to future performance

On 22 November 2021, the Group and Woodside Energy Group Limited ('Woodside') signed a binding Share Sale Agreement ('SSA') for the merger of the Group's oil and gas portfolio with Woodside. While the merger had an economic effective date of 1 July 2021, the Group continued to control the Petroleum assets and carry on business in the normal course for 11 months until 1 June 2022 (Completion Date). As such, the Group recognises its share of revenue, expenses, net finance costs and associated income tax expense related to the Discontinued operation until the Completion Date. Comparative periods have been adjusted for the effects of applying IFRS 5/AASB 5 'Non-current Assets Held for Sale and Discontinued Operations' to disclose the Group's Petroleum business on the same basis as the current period.

These Financial Statements were approved by the Board of Directors on 16 August 2022.

1 Consolidated Financial Statements

1.1 Consolidated Income Statement for the year ended 30 June 2022

	Notes	**2022 US$M**	2021 US$M Restated	2020 US$M Restated
Continuing operations				
Revenue	2	**65,098**	56,921	38,924
Other income	5	**1,398**	380	720
Expenses excluding net finance costs	5	**(32,371)**	(30,871)	(25,453)
Loss from equity accounted investments, related impairments and expenses	29	**(19)**	(915)	(508)
Profit from operations		**34,106**	25,515	13,683
Financial expenses		**(1,050)**	(1,290)	(1,192)
Financial income		**81**	67	334
Net finance costs	22	**(969)**	(1,223)	(858)
Profit before taxation		**33,137**	24,292	12,825
Income tax expense		**(10,430)**	(10,376)	(4,216)
Royalty-related taxation (net of income tax benefit)		**(307)**	(240)	19
Total taxation expense	6	**(10,737)**	(10,616)	(4,197)
Profit after taxation from Continuing operations		**22,400**	13,676	8,628
Discontinued operations				
Profit/(loss) after taxation from Discontinued operations	27	**10,655**	(225)	108
Profit after taxation from Continuing and Discontinued operations		**33,055**	13,451	8,736
Attributable to non-controlling interests		**2,155**	2,147	780
Attributable to BHP shareholders		**30,900**	11,304	7,956
Basic earnings per ordinary share (cents)	7	**610.6**	223.5	157.3
Diluted earnings per ordinary share (cents)	7	**609.3**	223.0	157.0
Basic earnings from Continuing operations per ordinary share (cents)	7	**400.0**	228.0	155.2
Diluted earnings from Continuing operations per ordinary share (cents)	7	**399.2**	227.5	154.8

The accompanying notes form part of these Financial Statements.

1.2 Consolidated Statement of Comprehensive Income for the year ended 30 June 2022

	Notes	2022 US$M	2021 US$M	2020 US$M
Profit after taxation from Continuing and Discontinued operations		**33,055**	13,451	8,736
Other comprehensive income				
Items that may be reclassified subsequently to the income statement:				
Hedges:				
(Losses)/gains taken to equity		**(914)**	863	(315)
Losses/(gains) transferred to the income statement		**881**	(837)	297
Exchange fluctuations on translation of foreign operations taken to equity		**(5)**	5	1
Exchange fluctuations on translation of foreign operations transferred to income statement		**(54)**	–	–
Tax recognised within other comprehensive income	6	**10**	(8)	5
Total items that may be reclassified subsequently to the income statement		**(82)**	23	(12)
Items that will not be reclassified to the income statement:				
Re-measurement gains/(losses) on pension and medical schemes		**24**	58	(81)
Equity investments held at fair value		**(8)**	(2)	(2)
Tax recognised within other comprehensive income	6	**(9)**	(20)	26
Total items that will not be reclassified to the income statement		**7**	36	(57)
Total other comprehensive (loss)/income		**(75)**	59	(69)
Total comprehensive income		**32,980**	13,510	8,667
Attributable to non-controlling interests		**2,160**	2,158	769
Attributable to BHP shareholders		**30,820**	11,352	7,898

The accompanying notes form part of these Financial Statements.

1.3 Consolidated Balance Sheet as at 30 June 2022

	Notes	2022 US$M	2021 US$M
ASSETS			
Current assets			
Cash and cash equivalents	20	**17,236**	15,246
Trade and other receivables	8	**5,426**	6,059
Other financial assets	23	**629**	230
Inventories	10	**4,935**	4,426
Assets held for sale		**–**	324
Current tax assets		**263**	279
Other		**175**	129
Total current assets		**28,664**	26,693
Non-current assets			
Trade and other receivables	8	**153**	337
Other financial assets	23	**802**	1,610
Inventories	10	**1,315**	1,358
Property, plant and equipment	11	**61,295**	73,813
Intangible assets	12	**1,369**	1,437
Investments accounted for using the equity method	29	**1,420**	1,742
Deferred tax assets	14	**56**	1,912
Other		**92**	25
Total non-current assets		**66,502**	82,234
Total assets		**95,166**	108,927
LIABILITIES			
Current liabilities			
Trade and other payables	9	**6,687**	7,027
Interest bearing liabilities	20	**2,622**	2,628
Liabilities directly associated with the assets held for sale		**–**	17
Other financial liabilities	23	**579**	130
Current tax payable		**3,032**	2,800
Provisions	4,15,19,26	**3,965**	3,696
Deferred income		**34**	105
Total current liabilities		**16,919**	16,403
Non-current liabilities			
Interest bearing liabilities	20	**13,806**	18,355
Other financial liabilities	23	**1,997**	1,146
Non-current tax payable		**87**	120
Deferred tax liabilities	14	**3,063**	3,314
Provisions	4,15,19,26	**10,478**	13,799
Deferred income		**50**	185
Total non-current liabilities		**29,481**	36,919
Total liabilities		**46,400**	53,322
Net assets		**48,766**	55,605
EQUITY			
Share capital – BHP Group Limited		**4,638**	1,111
Share capital – BHP Group Plc		**–**	1,057
Treasury shares		**(31)**	(33)
Reserves	17	**12**	2,350
Retained earnings		**40,338**	46,779
Total equity attributable to BHP shareholders		**44,957**	51,264
Non-controlling interests	17	**3,809**	4,341
Total equity		**48,766**	55,605

The accompanying notes form part of these Financial Statements.

The Financial Statements were approved by the Board of Directors on 16 August 2022 and signed on its behalf by:

Ken MacKenzie
Chair

Mike Henry
Chief Executive Officer

1.4 Consolidated Cash Flow Statement for the year ended 30 June 2022

	Notes	2022 US$M	2021 US$M Restated	2020 US$M Restated
Operating activities				
Profit before taxation from Continuing operations		**33,137**	24,292	12,825
Adjustments for:				
Depreciation and amortisation expense		**5,683**	5,084	4,667
Impairments of property, plant and equipment, financial assets and intangibles		**515**	2,507	482
Net finance costs		**969**	1,223	858
Loss from equity accounted investments, related impairments and expenses		**19**	915	508
Other		**(350)**	573	896
Changes in assets and liabilities:				
Trade and other receivables		**(703)**	(2,389)	128
Inventories		**(865)**	(405)	(714)
Trade and other payables		**727**	1,149	(589)
Provisions and other assets and liabilities		**(248)**	486	1,350
Cash generated from operations		**38,884**	33,435	20,411
Dividends received		**1,018**	728	117
Interest received		**58**	97	368
Interest paid		**(657)**	(766)	(1,213)
Proceeds/(settlements) of cash management related instruments		**378**	(401)	85
Net income tax and royalty-related taxation refunded		**105**	222	47
Net income tax and royalty-related taxation paid		**(10,501)**	(7,432)	(5,130)
Net operating cash flows from Continuing operations		**29,285**	25,883	14,685
Net operating cash flows from Discontinued operations	27	**2,889**	1,351	1,021
Net operating cash flows		**32,174**	27,234	15,706
Investing activities				
Purchases of property, plant and equipment		**(5,855)**	(5,612)	(5,991)
Exploration expenditure		**(256)**	(192)	(176)
Exploration expenditure expensed and included in operating cash flows		**199**	134	123
Net investment and funding of equity accounted investments		**(266)**	(553)	(596)
Proceeds from sale of assets		**221**	158	187
Proceeds/(settlements) from sale of subsidiaries, operations and joint operations net of their cash		**1,255**	(3)	–
Other investing		**(271)**	(257)	(130)
Net investing cash flows from Continuing operations		**(4,973)**	(6,325)	(6,583)
Net investing cash flows from Discontinued operations	27	**(904)**	(1,520)	(1,033)
Net cash completion payment on merger of Petroleum with Woodside	27	**(683)**	–	–
Cash and cash equivalents disposed on merger of Petroleum with Woodside	27	**(399)**	–	–
Net investing cash flows		**(6,959)**	(7,845)	(7,616)
Financing activities				
Proceeds from interest bearing liabilities		**1,164**	568	514
Proceeds/(settlements) of debt related instruments		**–**	167	(157)
Repayment of interest bearing liabilities		**(3,358)**	(8,357)	(2,008)
Purchase of shares by Employee Share Ownership Plan (ESOP) Trusts		**(149)**	(234)	(143)
Dividends paid		**(17,851)**	(7,901)	(6,876)
Dividends paid to non-controlling interests		**(2,540)**	(2,127)	(1,043)
Net financing cash flows from Continuing operations		**(22,734)**	(17,884)	(9,713)
Net financing cash flows from Discontinued operations	27	**(33)**	(38)	(39)
Net financing cash flows		**(22,767)**	(17,922)	(9,752)
Net increase/(decrease) in cash and cash equivalents from Continuing operations		**1,578**	1,674	(1,611)
Net increase/(decrease) in cash and cash equivalents from Discontinued operations		**1,952**	(207)	(51)
Net cash completion payment on merger of Petroleum with Woodside		**(683)**	–	–
Cash and cash equivalents disposed on merger of Petroleum with Woodside		**(399)**	–	–
Cash and cash equivalents, net of overdrafts, at the beginning of the financial year		**15,246**	13,426	15,593
Foreign currency exchange rate changes on cash and cash equivalents		**(458)**	353	(505)
Cash and cash equivalents, net of overdrafts, at the end of the financial year	20	**17,236**	15,246	13,426

The accompanying notes form part of these Financial Statements.

1.5 Consolidated Statement of Changes in Equity for the year ended 30 June 2022

	Attributable to BHP shareholders								
	Share capital		Treasury shares						
US$M	**BHP Group Limited**	**BHP Group Plc**	**BHP Group Limited**	**BHP Group Plc**	**Reserves**	**Retained earnings**	**Total equity attributable to BHP shareholders**	**Non-controlling interests**	**Total equity**
Balance as at 1 July 2021	**1,111**	**1,057**	**(32)**	**(1)**	**2,350**	**46,779**	**51,264**	**4,341**	**55,605**
Total comprehensive income	**–**	**–**	**–**	**–**	**(90)**	**30,910**	**30,820**	**2,160**	**32,980**
Transactions with owners:									
BHP Group Limited shares issued	**172**	**–**	**(172)**	**–**	**–**	**–**	**–**	**–**	**–**
Purchase of shares by ESOP Trusts	**–**	**–**	**(148)**	**(1)**	**–**	**–**	**(149)**	**–**	**(149)**
Employee share awards exercised net of employee contributions net of tax	**–**	**–**	**321**	**2**	**(207)**	**(116)**	**–**	**–**	**–**
Vested employee share awards that have lapsed, been cancelled or forfeited	**–**	**–**	**–**	**–**	**(30)**	**30**	**–**	**–**	**–**
Accrued employee entitlement for unexercised awards net of tax	**–**	**–**	**–**	**–**	**143**	**–**	**143**	**–**	**143**
Corporate structure unification	**3,355**	**(1,057)**	**–**	**–**	**(2,298)**	**–**	**–**	**–**	**–**
Dividends	**–**	**–**	**–**	**–**	**–**	**(17,720)**	**(17,720)**	**(2,540)**	**(20,260)**
In specie dividend on merger of Petroleum with Woodside	**–**	**–**	**–**	**–**	**–**	**(19,559)**	**(19,559)**	**–**	**(19,559)**
Divestment of subsidiaries, operations and joint operations	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**(157)**	**(157)**
Transfers within equity on divestment of subsidiaries, operations and joint operations	**–**	**–**	**–**	**–**	**(14)**	**14**	**–**	**–**	**–**
Equity contributed net of tax	**–**	**–**	**–**	**–**	**158**	**–**	**158**	**5**	**163**
Balance as at 30 June 2022	**4,638**	**–**	**(31)**	**–**	**12**	**40,338**	**44,957**	**3,809**	**48,766**
Balance as at 1 July 2020	1,111	1,057	(5)	–	2,306	43,396	47,865	4,310	52,175
Total comprehensive income	–	–	–	–	22	11,330	11,352	2,158	13,510
Transactions with owners:									
Purchase of shares by ESOP Trusts	–	–	(229)	(5)	–	–	(234)	–	(234)
Employee share awards exercised net of employee contributions net of tax	–	–	202	4	(149)	(57)	–	–	–
Vested employee share awards that have lapsed, been cancelled or forfeited	–	–	–	–	(4)	4	–	–	–
Accrued employee entitlement for unexercised awards net of tax	–	–	–	–	175	–	175	–	175
Dividends	–	–	–	–	–	(7,894)	(7,894)	(2,127)	(10,021)
Balance as at 30 June 2021	1,111	1,057	(32)	(1)	2,350	46,779	51,264	4,341	55,605
Balance as at 1 July 2019	1,111	1,057	(32)	–	2,285	42,748	47,169	4,584	51,753
Total comprehensive income	–	–	–	–	(12)	7,910	7,898	769	8,667
Transactions with owners:									
Purchase of shares by ESOP Trusts	–	–	(139)	(4)	–	–	(143)	–	(143)
Employee share awards exercised net of employee contributions net of tax	–	–	166	4	(132)	(38)	–	–	–
Vested employee share awards that have lapsed, been cancelled or forfeited	–	–	–	–	(10)	10	–	–	–
Accrued employee entitlement for unexercised awards net of tax	–	–	–	–	175	–	175	–	175
Dividends	–	–	–	–	–	(7,234)	(7,234)	(1,043)	(8,277)
Balance as at 30 June 2020	1,111	1,057	(5)	–	2,306	43,396	47,865	4,310	52,175

The accompanying notes form part of these Financial Statements.

Basis of preparation

The Group's Financial Statements as at and for the year ended 30 June 2022:

- are a consolidated general purpose financial report
- have been prepared in accordance with the requirements of:
  - the Australian Corporations Act 2001 (Corporations Act 2001)
  - Australian Accounting Standards and other authoritative pronouncements of the Australian Accounting Standards Board (AASB) and International Financial Reporting Standards as issued by the International Accounting Standards Board (IASB) (collectively referred to as IFRS)
- are prepared on a going concern basis as the Directors:
  - have made an assessment of the Group's ability to continue as a going concern for the 12 months from the date of this report
  - consider it appropriate to adopt the going concern basis of accounting in preparing the Group's Financial Statements
- measure items on the basis of historical cost principles, except for the following items:
  - derivative financial instruments and certain other financial assets and liabilities, which are carried at fair value
  - non-current assets or disposal groups that are classified as held-for-sale or held-for-distribution, which are measured at the lower of carrying amount and fair value less costs to sell
- include significant accounting policies in the notes to the Financial Statements that summarise the recognition and measurement basis used and are relevant to an understanding of the Financial Statements
- apply a presentation currency of US dollars, consistent with the predominant functional currency of the Group's operations. Amounts are rounded to the nearest million dollars, unless otherwise stated, in accordance with ASIC (Rounding in Financial/Directors' Reports) Instrument 2016/191
- present reclassified comparative information where required for consistency with the current year's presentation
- adopt all new and amended standards and interpretations under IFRS, that are mandatory for application in periods beginning on 1 July 2021. None had a significant impact on the Financial Statements. Refer note 37 'New and amended accounting standards and interpretations and changes to accounting policies' for details
- have not early adopted any standards and interpretations that have been issued or amended but are not yet effective. Refer note 37 'New and amended accounting standards and interpretations and changes to accounting policies' for details

The accounting policies are consistently applied by all entities included in the Financial Statements.

Following unification of the Group's corporate structure under BHP Group Limited, which was completed in January 2022, the Group Financial Statements are no longer required to be prepared in accordance with:

- the UK Companies Act 2006
- International Accounting Standards in conformity with the requirements of the UK Companies Act 2006 and International Financial Reporting Standards adopted pursuant to Regulation (EC) No. 1606/2002 as it applies in the European Union (EU)
- International Accounting Standards adopted for use within the UK

In assessing the appropriateness of the going concern assumption over the going concern period, management have stress tested BHP's most recent financial projections to incorporate a range of potential future outcomes by considering BHP's principal risks. The Group's financial forecasts, including downside commodity price and production scenarios, demonstrate that the Group believes that it has sufficient financial resources to meet its obligations as they fall due throughout the going concern period. As such, the Financial Statements continue to be prepared on the going concern basis.

Principles of consolidation

In preparing the Financial Statements, the effects of all intragroup balances and transactions have been eliminated.

A list of significant entities in the Group, including subsidiaries, joint arrangements and associates at year-end is contained in note 28 'Subsidiaries', note 29 'Investments accounted for using the equity method' and note 30 'Interests in joint operations'.

Subsidiaries: The Financial Statements of the Group include the consolidation of BHP Group Limited (the Company or parent entity) and its subsidiaries, being the entities controlled by the parent entity during the year and BHP Group Plc and its subsidiaries whilst the DLC was in effect. Control exists where the Group:

- has power over the investee
- is exposed to, or has rights to, variable returns from its involvement with the entity
- has the ability to affect those returns through its power to direct the activities of the entity

The ability to approve the operating and capital budget of a subsidiary and the ability to appoint key management personnel are decisions that demonstrate that the Group has the existing rights to direct the relevant activities of a subsidiary.

Consolidation of a subsidiary begins when the Company obtains control over the subsidiary and ceases when the Company loses control of the subsidiary. Specifically, the results of subsidiaries acquired or disposed of during the year are included in profit or loss from the date the Company gains control until the date when the Company ceases to control the subsidiary.

Where the Group's interest is less than 100 per cent, the interest attributable to outside shareholders is reflected in non-controlling interests.

Changes in the Group's interests in subsidiaries that do not result in a loss of control are accounted for as equity transactions. The carrying amount of the Group's interests and the non-controlling interests are adjusted to reflect the changes in their relative interests in the subsidiaries. Any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received is recognised directly in equity and attributed to the owners of the Company.

When the Group loses control of a subsidiary, the gain or loss on disposal is recognised in profit or loss.

The Financial Statements of subsidiaries are prepared for the same reporting period as the Group. The acquisition method of accounting is used to account for the Group's business combinations.

Joint arrangements: The Group undertakes a number of business activities through joint arrangements, which exist when two or more parties have joint control. Joint arrangements are classified as either joint operations or joint ventures, based on the contractual rights and obligations between the parties to the arrangement:

- ***Joint operations:*** A joint operation is an arrangement in which the Group shares joint control, primarily via contractual arrangements with other parties. In a joint operation, the Group has rights to the underlying assets and obligations for the liabilities relating to the arrangement. This includes situations where the parties benefit from the joint activity through a share of the output, rather than by receiving a share of the results of trading. In relation to the Group's interest in a joint operation, the Group recognises: its assets and liabilities, including its share of any assets and liabilities held or incurred jointly; revenue from the sale of its share of the output and its share of any revenue generated from the sale of the output by the joint operation; and its expenses including its share of expenses incurred jointly. All such amounts are allocated in accordance with the terms of the arrangement, which is usually in proportion to the Group's interest in the joint operation.

  The Group accounts for the assets, liabilities, revenue and expenses relating to its interest in a joint operation in accordance with the IFRS Standards applicable to the particular assets, liabilities, revenue and expenses.

- ***Joint ventures:*** A joint venture is a joint arrangement in which the parties that share joint control have rights to the net assets of the arrangement. A separate vehicle, not the parties, will have the rights to the assets and obligations for the liabilities relating to the arrangement. More than an insignificant share of output from a joint venture is sold to third parties, which indicates the joint venture is not dependent on the parties to the arrangement for funding, nor do the parties have an obligation for the liabilities of the arrangement. Joint ventures are accounted for using the equity method as outlined below.

Associates: The Group accounts for investments in associates using the equity method as outlined below. An entity is considered an associate where the Group is deemed to have significant influence but not control or joint control. Significant influence is presumed to exist where the Group:

- has over 20 per cent but less than 50 per cent of the voting rights of an entity, unless it can be clearly demonstrated that this is not the case or
- holds less than 20 per cent of the voting rights of an entity; however, has the power to participate in the financial and operating policy decisions affecting the entity

The Group uses the term 'equity accounted investments' to refer to joint ventures and associates collectively.

Under the equity method, an investment in an associate or a joint venture is recognised initially at cost and adjusted thereafter to recognise the Group's share of the profit or loss and other comprehensive income of the associate or joint venture. When the Group's share of losses of an associate or a joint venture exceeds the Group's interest in that associate or joint venture, the Group discontinues recognising its share of further losses. Additional losses are recognised only to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the associate or joint venture.

Foreign currencies

Transactions related to the Group's worldwide operations are conducted in a number of foreign currencies. The majority of the subsidiaries, joint arrangements and associates within each of the operations have assessed US dollars as the functional currency, however, some subsidiaries, joint arrangements and associates have functional currencies other than US dollars.

Transactions and monetary items denominated in foreign currencies are translated into US dollars as follows:

Foreign currency item	**Applicable exchange rate**
Transactions	Date of underlying transaction
Monetary assets and liabilities	Period-end rate

Foreign exchange gains and losses resulting from translation are recognised in the income statement, except for qualifying cash flow hedges (which are deferred to equity) and foreign exchange gains or losses on foreign currency provisions for site closure and rehabilitation costs (which are capitalised in property, plant and equipment for operating sites).

On consolidation, the assets, liabilities, income and expenses of foreign operations with non-US dollar functional currencies are translated into US dollars using the following applicable exchange rates:

Foreign currency amount	Applicable exchange rate
Income and expenses	Date of underlying transaction
Assets and liabilities	Period-end rate
Equity	Historical rate
Reserves	Historical rate

Foreign exchange differences resulting from translation are initially recognised in the foreign currency translation reserve and subsequently transferred to the income statement on disposal of a foreign operation.

Significant accounting policies, judgements and estimates

The Group's accounting policies require the use of judgement, estimates and assumptions. All judgements, estimates and assumptions are based on the most current facts and circumstances and are reassessed on an ongoing basis. Actual results in future reporting periods may differ for these estimates under different assumptions and conditions.

Further information regarding the Group's significant judgements and key estimates and assumptions, being those where changes may materially affect financial results and the carrying amount of assets and liabilities to be reported in the next reporting period, are embedded within the following notes:

Note	
4	Significant events – Samarco dam failure
6	Taxation
11	Overburden removal costs
11	Depreciation of property, plant and equipment
13	Impairments of non-current assets
15	Closure and rehabilitation provisions
21	Leases

Additional information including sensitivity analysis, where appropriate, has been provided in the relevant notes to enhance an understanding of the impact of key estimates and assumptions on the Group's financial position and performance.

Reserve estimates

Reserves are estimates of the amount of product that can be demonstrated to be able to be economically and legally extracted from the Group's properties. In order to estimate reserves, assumptions are required about a range of technical and economic factors, including quantities, qualities, production techniques, recovery efficiency, production and transport costs, commodity supply and demand, commodity and carbon prices and exchange rates.

Estimating the quantity and/or quality of reserves requires the size, shape and depth of ore bodies to be determined by analysing geological data, such as drilling samples and geophysical survey interpretations. Economic assumptions used to estimate reserves change from period-to-period as additional technical and operational data is generated. This process may require complex and difficult geological judgements to interpret the data.

Reserve impact on financial reporting

Estimates of reserves may change from period-to-period as the economic assumptions used to estimate reserves change and additional geological data is generated during the course of operations. Changes in reserves may affect the Group's financial results and financial position in a number of ways, including:

- asset carrying values may be affected due to changes in estimated future production levels
- depreciation, depletion and amortisation charged to the income statement may change where such charges are determined on the units of production basis, or where the useful economic lives of assets change
- overburden removal costs recorded on the balance sheet or charged to the income statement may change due to changes in stripping ratios or the units of production basis of depreciation
- closure and rehabilitation provisions may change where changes in estimated reserves affect expectations about the timing or cost of these activities
- the carrying amount of deferred tax assets may change due to changes in estimates of the likely recovery of the tax benefits

Climate change

The Group continues to develop its assessment of the potential impacts of climate change and the transition to a low carbon economy. The Group's current climate change strategy focuses on reducing operational greenhouse gas (GHG) emissions, investing in low emissions technologies, supporting emissions reductions in our value chain and promoting product stewardship, managing climate-related risk and opportunity, and working with others to enhance the global policy and market response. Future changes to the Group's climate change strategy or global decarbonisation signposts may impact the Group's significant judgements and key estimates and result in material changes to financial results and the carrying values of certain assets and liabilities in future reporting periods.

During FY2022, the Group completed the merger of the Group's Petroleum business with Woodside and the divestments of the Group's interests in BHP Mitsui Coal Pty Ltd (BMC) and the Cerrejón non-operated energy coal joint venture. In addition, the Group announced that it will retain New South Wales Energy Coal (NSWEC) in its portfolio, seek approvals to continue mining at NSWEC beyond its current mining consent that expires in 2026, and intends to proceed with a managed process to cease mining at the asset by the end of FY2030. While climate change and the transition to a low carbon economy remain key considerations in the Group's significant judgements and estimates, the portfolio updates during FY2022 have reduced the Group's exposure to fossil fuels. Following the updates, the potential risk to the carrying value of the Group's assets and liabilities from long-term price estimates for oil, gas and energy coal is largely limited to the impact of those commodities on the Group's supply chain.

The Group's current climate change strategy is reflected in the Group's significant judgements and key estimates, and therefore the Financial Statements, as follows:

Transition risks

The Group's targets and goals

As part of its response to the Paris Agreement goals, the Group has set a target to reduce its operational GHG emissions (Scope 1 and Scope 2 from our operated assets) by at least 30 per cent from FY2020 levels by FY2030 and a goal to achieve net zero operational GHG emissions by 2050. For the FY2030 target, the FY2020 baseline has been adjusted to reflect the divestment of the Group's Petroleum and BMC operations and will be adjusted for any material future acquisitions and divestments. Approved emissions reduction projects aimed at contributing to the achievement of the Group's operational GHG emissions target and goal have been incorporated into the forecast cash flows of the Group's assets. The use of carbon offsets will be governed by the Group's approach to carbon offsetting, with the Group's offset strategy currently being managed at a consolidated Group level and therefore not currently incorporated into the forecast cash flows of individual assets. Any change to the Group's climate change strategy could impact these forecasts and the Group's significant judgements and key estimates.

The Group continues to invest, including in partnership with others, in emissions reduction projects and technology innovation and development in its value chain to support reductions to its total reported Scope 3 GHG emissions inventory, with a particular focus on steelmaking and maritime emissions. However, while we seek to influence, Scope 3 emissions occur outside of our direct control. Reduction pathways are dependent on the development, and upstream or downstream deployment of solutions and/or supportive policy. Where possible, the financial impact of the Group's activities in support of Scope 3 reduction pathways is reflected in the financial statements, for example the Group's chartering of LNG-fuelled vessels. It is however currently not possible to reliably estimate or measure the full potential financial statement impacts of the Group's pursuit of its Scope 3 goals and targets.

The Climate Investment Program (CIP), as announced by the Group in July 2019, aims to invest at least US$400 million over the CIP's five-year life in emissions reduction projects across the Group's operated assets and value chain. Spend under the CIP, along with capital expenditure in support of operational decarbonisation at our operated assets, is recognised in the relevant year of spend.

Global transition signposts

In addition to the Group's targets and goals, significant judgements and key estimates are also impacted by the Group's current assessment of the range of economic and climate related conditions that could exist in transitioning to a low carbon economy, considering the current trajectory of society and the global economy as a whole. Signposts do not yet indicate that the appropriate measures are in place to drive decarbonisation at the pace or scale required for the Group to assess achieving the aims of the Paris Agreement as the most likely future outcome. However, as governments, institutions, companies and society increasingly focus on addressing climate change, the potential for a non-linear and/or more rapid transition and the subsequent impact on threats and opportunities increases.

The BHP Climate Transition Action Plan 2021 references the Group's divergent climate scenarios across a range of temperature outcomes. The Group currently uses two of those scenarios, being the Central Energy View and Lower Carbon View[1] as inputs to the Group's operational planning cases. The use of these two scenarios reflects the Group's current estimates of the most likely range of future states for the global economy and associated sub-systems. These operational planning cases inform updates to the Group's supply, demand and price outlooks, capital allocation and portfolio decisions.

Given the complexity of climate modelling, these scenarios are reviewed periodically to reflect new information, with developments in the periods between scenario updates being reflected in updated internal long-term price outlooks.

Investment decisions and asset valuations also incorporate carbon price assumptions for major Group operational, competitor and customer countries. In determining the Group's forecast, factors such as a country's current and announced climate policies and targets and societal factors such as public acceptance and demographics are considered, with the Group forecasting the global range of regional carbon prices to reach between US$0-175/t$CO_2$-e in FY2030 and US$10-250/tCO_2-e in FY2050, and US$10-175/t$CO_2$-e in FY2030 and US$100-250/tCO_2-e in FY2050 in BHP's current major operational and market countries.

1 Central Energy View reflects, and is periodically updated to respond to, existing policy trends and commitments. Lower Carbon View accelerates decarbonisation trends and policies, particularly in easier-to-abate sectors such as power generation and light duty vehicles. BHP's Climate Change Report 2020 describes these scenarios in more detail.

The operational planning cases, price outlooks and cost of carbon assumptions, impact certain significant judgements and key estimates, including the determination of the valuation of assets and potential impairment charges (notes 11 'Property, plant and equipment' and 13 'Impairment of non-current assets'), the estimation of the remaining useful economic life of assets for depreciation purposes (note 11 'Property, plant and equipment') and the timing of closure and rehabilitation activities (note 15 'Closure and rehabilitation provisions').

In addition to the operational planning cases, the Group utilises a range of scenarios, including its 1.5°C Paris-aligned scenario[2], when testing the resilience of its portfolio, forming strategy and making investment decisions. While a 1.5ºC Paris-aligned scenario does not currently represent one of the inputs to the Group's operational planning cases, the Group has, during FY2022, systematically integrated the Group's 1.5ºC Paris-aligned scenario into the Group's strategy and capital allocation process to test the extent to which its capital allocation is aligned with a rapidly decarbonising global economy. Specifically, the Group applies the Group's 1.5°C Paris-aligned scenario to assess whether future demand for the Group's products under that scenario supports ongoing capital investment. The internal allocation of capital under the Group's Capital Allocation Framework and all major investment decisions now require an assessment of investment viability under the Group's 1.5°C Paris-aligned scenario.

The Group continues to monitor global decarbonisation signposts and update its operational planning cases, price outlooks, and cost of carbon assumptions and assessments relating to strategy and capital allocation accordingly. Where such signposts indicate the appropriate measures are in place for achievement of a 1.5ºC Paris-aligned scenario, this will be reflected in the Group's operational planning cases.

Sensitivity to demand for the Group's commodities

The Group acknowledges that there are a range of possible energy transition scenarios, including those that are aligned with the aims of the Paris Agreement, that may indicate different outcomes for individual commodities. The resilience of the Group's portfolio to a 1.5°C Paris-aligned scenario (the Group's 1.5°C Paris-aligned scenario) continues to be considered, including the impact of Paris-aligned commodity price estimates under that scenario on the Group's latest asset plans.

There are inherent limitations with scenario analysis and it is difficult to predict which, if any, of the scenarios might eventuate and none of the scenarios considered constitutes a definitive outcome for the Group.

However, the long-term commodity price estimates under the Group's 1.5°C Paris-aligned scenario reflect the world needing around twice as much steel, copper and potash and four times as much nickel in the next 30 years as in the last 30. In addition, the Group's portfolio is transitioning towards higher quality iron ore and metallurgical coal that enable steelmakers to be more efficient and operate with a lower emissions intensity.

As such, although all potential financial reporting consequences under the Group's 1.5°C Paris-aligned scenario are currently impracticable to fully assess, the long-term commodity price outlooks under this scenario for iron ore, copper, metallurgical coal, nickel and potash are either largely consistent with or favourable to the price outlooks in the Group's current operational planning cases.

Given the positive long-term price outlooks for these commodities, the Group currently considers that a material adverse change is not expected to the valuation, and remaining useful life, of assets and discounting of closure and rehabilitation provisions for assets relating to these commodities under its 1.5°C Paris-aligned scenario.

While energy coal long-term commodity price outlooks under the Group's 1.5°C Paris-aligned scenario are unfavourable when compared to the price outlooks in the Group's current operational planning cases, following impairments recognised in FY2021, the carrying value of assets at the Group's remaining energy coal operations at NSWEC is no longer material.

Further, the Group's closure provision for NSWEC reflects the announcement in FY2022 of the Group's plans to seek approvals to continue mining at NSWEC beyond its current mining consent that expires in 2026 and intention to proceed with a managed process to cease mining at NSWEC by the end of FY2030. While the closure provision remains subject to estimation and assumptions, the timing of closure is no longer considered materially susceptible to the long-term impacts of climate change.

Physical risks

The Group is progressing work to assess the potential impact of physical risks of climate change in line with the Group's Risk Management Framework. In FY2022, the Group conducted a physical risk identification process that prioritised key potential climate hazards for more detailed analysis including, for example, risks associated with higher sea levels disrupting port operations and extreme rainfall impacting the stability of tailings storage facilities. Given the ongoing nature of the Group's physical risk assessment process, inclusion of adaptation risk in the Group's operating plans, and associated asset valuations, is currently limited. As the Group progresses its adaptation strategy, including risk evaluations planned for FY2023, the identification of additional risks or the detailed development of the Group's response may result in material changes to financial results and the carrying values of assets and liabilities in future reporting periods.

2 This scenario aligns with the aims of the Paris Agreement and requires steep global annual emissions reduction, sustained for decades, to stay within a 1.5°C carbon budget. 1.5°C is above pre-industrial levels. BHP's Climate Change Report 2020 describes this scenario, including its assumptions, outputs and limitations, in more detail.

1.6 Notes to the Financial Statements

Performance

1 Segment reporting

Reportable segments

The Group operated three reportable segments during FY2022, which are aligned with the commodities that are extracted and marketed and reflect the structure used by the Group's management to assess the performance of the Group.

Reportable segment	Principal activities
Copper	Mining of copper, silver, zinc, molybdenum, uranium and gold
Iron Ore	Mining of iron ore
Coal	Mining of metallurgical coal and energy coal

On 22 November 2021, the Group signed a binding SSA for the merger of the Group's oil and gas portfolio with Woodside. Following that announcement, the Group's Petroleum business no longer meets the reporting segment recognition criteria as outlined in IFRS 8/AASB 8 'Operating segments' and therefore does not form part of the reportable segments. Comparative periods have been adjusted for the effects of applying IFRS 5/AASB 5 'Non-current Assets Held for Sale and Discontinued Operations' to disclose the Group's Petroleum business on the same basis as the current period.

Group and unallocated items includes functions, other unallocated operations including Potash, Nickel West and legacy assets, and consolidation adjustments. Revenue not attributable to reportable segments comprises the sale of freight and fuel to third parties, as well as revenues from unallocated operations. Exploration and technology activities are recognised within relevant segments.

Year ended 30 June 2022 US$M	Copper	Iron Ore	Coal	Group and unallocated items/ eliminations	Group total
Revenue	16,849	30,767	15,549	1,933	65,098
Inter-segment revenue	–	–	–	–	–
Total revenue	16,849	30,767	15,549	1,933	65,098
Underlying EBITDA	8,565	21,707	9,504	858	40,634
Depreciation and amortisation	(1,765)	(2,203)	(762)	(953)	(5,683)
Impairment losses[1]	(470)	(33)	(9)	(3)	(515)
Underlying EBIT	6,330	19,471	8,733	(98)	34,436
Exceptional items[2]	(81)	(648)	849	(450)	(330)
Net finance costs					(969)
Profit before taxation					33,137
Capital expenditure (cash basis)	2,528	1,848	621	858	5,855
Profit/(loss) from equity accounted investments, related impairments and expenses	577	(595)	–	(1)	(19)
Investments accounted for using the equity method	1,415	–	–	5	1,420
Total assets[3]	32,762	24,613	11,524	26,267	95,166
Total liabilities[3]	5,342	7,790	3,874	29,394	46,400

Year ended 30 June 2021 US$M Restated	Copper	Iron Ore	Coal	Group and unallocated items/ eliminations	Group total
Revenue	15,726	34,475	5,154	1,566	56,921
Inter-segment revenue	–	–	–	–	–
Total revenue	15,726	34,475	5,154	1,566	56,921
Underlying EBITDA	8,489	26,278	288	18	35,073
Depreciation and amortisation	(1,608)	(1,971)	(845)	(660)	(5,084)
Impairment losses[1]	(72)	(13)	(20)	(31)	(136)
Underlying EBIT	6,809	24,294	(577)	(673)	29,853
Exceptional items[2]	(144)	(1,319)	(1,567)	(1,308)	(4,338)
Net finance costs					(1,223)
Profit before taxation					24,292
Capital expenditure (cash basis)	2,180	2,188	579	665	5,612
Profit/(loss) from equity accounted investments, related impairments and expenses	692	(1,126)	(480)	(1)	(915)
Investments accounted for using the equity method	1,482	–	–	260	1,742
Total assets[3]	31,517	26,171	11,030	40,209	108,927
Total liabilities[3]	4,589	7,508	3,518	37,707	53,322

Year ended 30 June 2020 US$M Restated	Copper	Iron Ore	Coal	Group and unallocated items/ eliminations	Group total
Revenue	10,666	20,797	6,241	1,220	38,924
Inter-segment revenue	–	–	1	(1)	–
Total revenue	10,666	20,797	6,242	1,219	38,924
Underlying EBITDA	4,347	14,554	1,632	(663)	19,870
Depreciation and amortisation	(1,740)	(1,608)	(807)	(512)	(4,667)
Impairment losses[1]	(17)	(22)	(14)	(20)	(73)
Underlying EBIT	2,590	12,924	811	(1,195)	15,130
Exceptional items[2]	(1,228)	(614)	(18)	413	(1,447)
Net finance costs					(858)
Profit before taxation					12,825
Capital expenditure (cash basis)	2,434	2,328	603	626	5,991
Profit/(loss) from equity accounted investments, related impairments and expenses	67	(508)	(68)	1	(508)
Investments accounted for using the equity method	1,558	–	776	251	2,585
Total assets[3]	28,892	23,841	12,110	40,890	105,733
Total liabilities[3]	3,535	5,441	2,601	41,981	53,558

1 Impairment losses exclude exceptional items of US$ nil (2021: US$2,371 million; 2020: US$409 million).

2 Exceptional items reported in Group and unallocated include Samarco dam failure costs of US$(13) million (2021: US$(14) million; 2020: US$(32) million) and Samarco related other income of US$ nil (2021: US$34 million; 2020: US$489 million). Refer to note 3 'Exceptional items' for further information.

3 Group and unallocated comparative periods total assets and total liabilities include Petroleum assets and liabilities that were previously disclosed as part of the Petroleum segment.

Geographical information

	Revenue by location of customer		
	2022	2021	2020
	US$M	US$M	US$M
		Restated	Restated
Australia	**1,649**	1,871	1,212
Europe	**2,129**	886	963
China	**36,618**	39,653	26,503
Japan	**8,401**	4,387	3,314
India	**5,215**	2,189	1,475
South Korea	**4,786**	3,420	2,666
Rest of Asia	**4,303**	2,934	1,730
North America	**1,282**	1,147	719
South America	**715**	426	315
Rest of world	**–**	8	27
	65,098	56,921	38,924

	Non-current assets by location of assets		
	2022	2021	2020
	US$M	US$M	US$M
Australia	**43,250**	48,612	48,236
North America	**3,964**	9,701	9,682
South America	**18,280**	18,548	18,179
Rest of world	**150**	1,851	1,955
Unallocated assets[1]	**858**	3,522	6,210
	66,502	82,234	84,262

1 Unallocated assets comprise deferred tax assets and other financial assets.

Underlying EBITDA

Underlying EBITDA is earnings before net finance costs, depreciation, amortisation and impairments, taxation expense, Discontinued operations and any exceptional items. Underlying EBITDA includes BHP's share of profit/(loss) from investments accounted for using the equity method including net finance costs, depreciation, amortisation and impairments and taxation expense/(benefit).

Exceptional items are excluded from Underlying EBITDA in order to enhance the comparability of such measures from period-to-period and provide investors with further clarity in order to assess the performance of the Group's operations. Management monitors exceptional items separately. Refer to note 3 'Exceptional items' for additional detail.

Segment assets and liabilities

Total segment assets and liabilities of reportable segments represents operating assets and operating liabilities, including the carrying amount of equity accounted investments and predominantly excludes cash balances, loans to associates, interest bearing liabilities and deferred tax balances. The carrying value of investments accounted for using the equity method represents the balance of the Group's investment in equity accounted investments, with no adjustment for any cash balances, interest bearing liabilities or deferred tax balances of the equity accounted investment.

2 Revenue

Revenue by segment and asset

	2022 US$M	2021 US$M Restated	2020 US$M Restated
Escondida	**9,500**	9,470	6,719
Pampa Norte	**2,670**	1,801	1,395
Olympic Dam	**1,776**	2,211	1,463
Third-party products	**2,903**	2,244	1,089
Total Copper[1]	**16,849**	15,726	10,666
Western Australia Iron Ore	**30,632**	34,337	20,663
Third-party products	**19**	18	15
Other	**116**	120	119
Total Iron Ore	**30,767**	34,475	20,797
BHP Mitsubishi Alliance	**10,254**	3,537	4,422
New South Wales Energy Coal	**3,035**	839	885
Other[2]	**2,260**	778	935
Total Coal[3]	**15,549**	5,154	6,242
Group and unallocated items[4]	**1,933**	1,566	1,220
Inter-segment adjustment	**–**	–	(1)
Total revenue	**65,098**	56,921	38,924

1 Total Copper revenue includes: copper US$15,992 million (2021: US$14,812 million; 2020: US$10,044 million) and other US$857 million (2021: US$914 million; 2020: US$622 million). Other consists of silver, zinc, molybdenum, uranium and gold.

2 Includes revenue related to BHP Mitsui Coal (BMC) divested in May 2022.

3 Total Coal revenue includes: metallurgical coal US$11,990 million (2021: US$4,260 million; 2020: US$5,311 million) and energy coal US$3,559 million (2021: US$894 million; 2020: US$931 million).

4 Group and unallocated items revenue includes: Nickel West US$1,926 million (2021: US$1,545 million; 2020: US$1,189 million) and other revenue US$7 million (2021: US$21 million; 2020: US$31 million).

Revenue consists of revenue from contracts with customers of US$65,504 million (2021: US$55,562 million; 2020: US$38,917 million) and other revenue predominantly relating to provisionally priced sales of US$(406) million (2021: US$1,359 million; 2020: US$7 million).

Recognition and measurement

The Group generates revenue from the production and sale of commodities. Revenue is recognised when or as control of the promised goods or services passes to the customer. In most instances, control passes when the goods are delivered to a destination specified by the customer, typically on board the customer's appointed vessel. Revenue from the provision of services is recognised over time as the services are provided, but does not represent a significant proportion of total revenue and is aggregated with the respective asset and product revenue for disclosure purposes.

The amount of revenue recognised reflects the consideration to which the Group expects to be entitled in exchange for transferring goods or services.

Where the Group's sales are provisionally priced, the final price depends on future index prices. The amount of revenue initially recognised is based on the relevant forward market price. Adjustments between the provisional and final price are accounted for under IFRS 9/AASB 9 'Financial Instruments' (IFRS 9), separately recorded as other revenue and presented as part of the total revenue of each asset. The period between provisional pricing and final invoicing is typically between 60 and 120 days.

Revenue from the sale of significant by-products is included within revenue. Where a by-product is not significant, revenue is credited against costs.

The Group applies the practical expedient to not adjust the expected consideration for the effects of the time value of money if the period between the delivery and when the customer pays for the promised good or service is one year or less.

The Group applies the practical expedient not to disclose information relating to unfulfilled performance obligations, either due to the expected duration of the contract term being one year or less, or for longer term contracts, because the entity has a right to consideration (and can recognise revenue) for goods delivered.

3 Exceptional items

Exceptional items are those gains or losses where their nature, including the expected frequency of the events giving rise to them, and impact is considered material to the Financial Statements. Such items included within the Group's profit from Continuing operations for the year are detailed below. Exceptional items attributable to Discontinued operations are detailed in note 27 'Discontinued operations'.

Year ended 30 June 2022	Gross US$M	Tax US$M	Net US$M
Exceptional items by category			
Samarco dam failure	**(1,032)**	**(31)**	**(1,063)**
Impairment of US deferred tax assets	**–**	**(423)**	**(423)**
Corporate structure unification costs	**(428)**	**–**	**(428)**
BHP Mitsui Coal (BMC) gain on disposal	**840**	**–**	**840**
Total	**(620)**	**(454)**	**(1,074)**
Attributable to non-controlling interests	**–**	**–**	**–**
Attributable to BHP shareholders	**(620)**	**(454)**	**(1,074)**

Samarco Mineração S.A. (Samarco) dam failure

The FY2022 exceptional loss of US$1,063 million (after tax) related to the Samarco dam failure in November 2015 comprises the following:

Year ended 30 June 2022	US$M
Other income	**–**
Expenses excluding net finance costs:	
Costs incurred directly by BHP Brasil and other BHP entities in relation to the Samarco dam failure	**(66)**
Loss from equity accounted investments, related impairments and expenses:	
Samarco impairment expense	**–**
Samarco Germano dam decommissioning	**68**
Samarco dam failure provision	**(663)**
Fair value change on forward exchange derivatives	**(81)**
Net finance costs	**(290)**
Income tax expense	**(31)**
Total[1]	**(1,063)**

1 Refer to note 4 'Significant events – Samarco dam failure' for further information.

Impairment of US deferred tax assets

The Group recognised an impairment charge of US$423 million (after tax) in relation to deferred tax assets where the recoverability has historically been reliant on Petroleum earnings in the same tax group. While these tax assets remained with the Group following the merger of the Group's oil and gas portfolio with Woodside, the impairment charge reflects the extent of other currently forecast future earnings against which the assets can be recovered.

Corporate structure unification costs

The Group incurred transaction costs associated with the unification of the Group corporate structure under its existing Australian parent company, BHP Group Limited, which was completed on 31 January 2022. Refer note 16 'Share capital' for further information.

BHP Mitsui Coal (BMC) gain on disposal

On 3 May 2022 the Group sold its 80 per cent interest in BHP Mitsui Coal Pty Ltd (BMC) to Stanmore SMC Holdings Pty Ltd, a wholly owned subsidiary of Stanmore Resources Limited (Stanmore Resources).

Stanmore Resources paid US$1.1 billion cash consideration at completion plus a preliminary completion adjustment of US$218 million for working capital. US$100 million in cash remains payable in six months on 3 November 2022 with potential for an additional amount of up to US$150 million (US$122 million discounted) in a price-linked earnout payable in the 2024 calendar year.

Details of the gain on disposal is as follows:

	US$M
Assets	
Cash and cash equivalents	**63**
Trade and other receivables	**360**
Other financial assets	**26**
Inventories	**92**
Property, plant and equipment	**1,214**
Total assets	**1,755**
Liabilities	
Trade and other payables	**253**
Interest bearing liabilities	**249**
Tax payables	**9**
Provisions	**425**
Deferred tax liabilities	**31**
Total liabilities	**967**
Net assets disposed	**788**
Less non-controlling interest share of net assets disposed	**157**
BHP share of net assets disposed	**631**
Gross consideration	**1,318**
Transaction and other directly applicable costs	**(69)**
Income tax expense	**–**
Deferred consideration	**222**
Gain on disposal	**840**

The exceptional items relating to the year ended 30 June 2021 and the year ended 30 June 2020 are detailed below.

30 June 2021

Year ended 30 June 2021 Restated	Gross US$M	Tax US$M	Net US$M
Exceptional items by category			
Samarco dam failure	(1,087)	(71)	(1,158)
COVID-19 related costs	(499)	138	(361)
Impairment of Energy coal assets	(1,523)	(651)	(2,174)
Impairment of Potash assets	(1,314)	(473)	(1,787)
Total	(4,423)	(1,057)	(5,480)
Attributable to non-controlling interests	(34)	10	(24)
Attributable to BHP shareholders	(4,389)	(1,067)	(5,456)

Samarco Mineração S.A. (Samarco) dam failure

The FY2021 exceptional loss of US$1,158 million related to the Samarco dam failure in November 2015 comprises the following:

Year ended 30 June 2021	US$M
Other income	34
Expenses excluding net finance costs:	
Costs incurred directly by BHP Brasil and other BHP entities in relation to the Samarco dam failure	(46)
Loss from equity accounted investments, related impairments and expenses:	
Samarco impairment expense	(111)
Samarco Germano dam decommissioning	(15)
Samarco dam failure provision	(1,000)
Fair value change on forward exchange derivatives	136
Net finance costs	(85)
Income tax expense	(71)
Total[1]	(1,158)

1 Refer to note 4 'Significant events – Samarco dam failure' for further information.

COVID-19 related costs

The exceptional item reflects the directly attributable COVID-19 pandemic related additional costs for the Group for FY2021, including costs associated with the increased provision of health and hygiene services, the impacts of maintaining social distancing requirements and demurrage and other standby charges related to delays caused by COVID-19. At the time, COVID-19 was considered a single protracted globally pervasive event.

However, as the pandemic has continued to evolve, certain impacts that were initially considered to be potentially short-term in nature are now expected to continue over a number of reporting periods. These activities are now considered to be part of business as usual operations and, as such, for FY2022, the incremental costs have not been classified as an exceptional item.

Impairment of Energy coal assets

The Group recognised an impairment charge of US$1,704 million (after tax) in relation to New South Wales Energy Coal (NSWEC) reflecting the status of the divestment process and current market conditions for thermal coal, the strengthening Australian dollar and changes to the mine plan. In addition, the Group recognised an impairment charge of US$470 million (after tax) for Cerrejón, reflecting the expected net sales proceeds.

Impairment of Potash assets

The Group recognised an impairment charge of US$1,787 million (after tax) in relation to Potash. The impairment charge reflected an analysis of market perspectives and the value that we expected a market participant to attribute to our investments to date.

30 June 2020

Year ended 30 June 2020 Restated	Gross US$M	Tax US$M	Net US$M
Exceptional items by category			
Samarco dam failure	(176)	–	(176)
Cancellation of power contracts	(778)	271	(507)
COVID-19 related costs	(177)	51	(126)
Cerro Colorado impairment	(409)	(83)	(492)
Total	(1,540)	239	(1,301)
Attributable to non-controlling interests	(291)	90	(201)
Attributable to BHP shareholders	(1,249)	149	(1,100)

Samarco Mineração S.A. (Samarco) dam failure

The FY2020 exceptional loss of US$176 million related to the Samarco dam failure in November 2015 comprises the following:

Year ended 30 June 2020	US$M
Other income	489
Expenses excluding net finance costs:	
Costs incurred directly by BHP Brasil and other BHP entities in relation to the Samarco dam failure	(64)
Loss from equity accounted investments, related impairments and expenses:	
Samarco impairment expense	(95)
Samarco Germano dam decommissioning	46
Samarco dam failure provision	(459)
Net finance costs	(93)
Total[1]	(176)

1 Refer to note 4 'Significant events – Samarco dam failure' for further information.

Cancellation of power contracts

Reflects an onerous contract provision in relation to the cancellation of power contracts at the Group's Escondida and Spence operations, as part of the shift towards 100 per cent renewable energy supply contracts.

COVID-19 related costs

The exceptional item reflects the directly attributable COVID-19 pandemic related additional costs for the Group for FY2020, including costs associated with the increased provision of health and hygiene services, the impacts of maintaining social distancing requirements and other standby charges related to delays caused by COVID-19. At the time, COVID-19 was considered a single protracted globally pervasive event.

However, as the pandemic has continued to evolve, certain impacts that were initially considered to be potentially short-term in nature are now expected to continue over a number of reporting periods. These activities are now considered to be part of business as usual operations and, as such, for FY2022, the incremental costs have not been classified as an exceptional item.

Cerro Colorado impairment

The Group recognised an impairment charge of US$492 million (after tax) in relation to Cerro Colorado. This reflects the decision taken by the Group to reduce Cerro Colorado's throughput for the remaining period of its current environmental licence, which expires at the end of CY2023.

4 Significant events – Samarco dam failure

On 5 November 2015, the Samarco Mineração S.A. (Samarco) iron ore operation in Minas Gerais, Brazil, experienced a tailings dam failure that resulted in a release of mine tailings, flooding the communities of Bento Rodrigues, Gesteira and Paracatu and impacting other communities downstream (the Samarco dam failure). Refer to section on ‘Samarco’ in the Operating and Financial Review.

Samarco is jointly owned by BHP Billiton Brasil Ltda (BHP Brasil) and Vale S.A. (Vale). BHP Brasil’s 50 per cent interest is accounted for as an equity accounted joint venture investment. BHP Brasil does not separately recognise its share of the underlying assets and liabilities of Samarco, but instead records the investment as one line on the balance sheet. Each period, BHP Brasil recognised its 50 per cent share of Samarco’s profit or loss and adjusted the carrying value of the investment in Samarco accordingly. Such adjustment continued until the investment carrying value was reduced to US$ nil, with any additional share of Samarco losses only recognised to the extent that BHP Brasil has an obligation to fund the losses. After applying equity accounting, any remaining carrying value of the investment is tested for impairment.

Any charges relating to the Samarco dam failure incurred directly by BHP Brasil or other BHP entities are recognised 100 per cent in the Group’s results.

The financial impacts of the Samarco dam failure on the Group’s income statement, balance sheet and cash flow statement for the year ended 30 June 2022 are shown in the tables below and have been treated as an exceptional item.

Financial impacts of Samarco dam failure	**2022 US$M**	2021 US$M	2020 US$M
Income statement			
Other income[1]	**–**	34	489
Expenses excluding net finance costs:			
Costs incurred directly by BHP Brasil and other BHP entities in relation to the Samarco dam failure[2]	**(66)**	(46)	(64)
Loss from equity accounted investments, related impairments and expenses:			
Samarco impairment expense[3]	**–**	(111)	(95)
Samarco Germano dam decommissioning[4]	**68**	(15)	46
Samarco dam failure provision[5]	**(663)**	(1,000)	(459)
Fair value change on forward exchange derivatives[6]	**(81)**	136	–
Loss from operations	**(742)**	(1,002)	(83)
Net finance costs[7]	**(290)**	(85)	(93)
Loss before taxation	**(1,032)**	(1,087)	(176)
Income tax expense[8]	**(31)**	(71)	–
Loss after taxation	**(1,063)**	(1,158)	(176)
Balance sheet movement			
Trade and other payables	**(1)**	(5)	(5)
Derivatives	**(160)**	136	–
Tax liabilities	**(31)**	(71)	–
Provisions	**(629)**	(741)	(137)
Net liabilities	**(821)**	(681)	(142)

		2022 US$M		2021 US$M		2020 US$M
Cash flow statement						
Loss before taxation		**(1,032)**		(1,087)		(176)
Adjustments for:						
Samarco impairment expense[3]	**–**		111		95	
Samarco Germano dam decommissioning[4]	**(68)**		15		(46)	
Samarco dam failure provision[5]	**663**		1,000		459	
Fair value change on forward exchange derivatives[6]	**81**		(136)		–	
Proceeds of cash management related instruments	**79**		–		–	
Net finance costs[7]	**290**		85		93	
Changes in assets and liabilities:						
Trade and other payables	**1**		5		5	
Net operating cash flows		**14**		(7)		430
Net investment and funding of equity accounted investments[9]		**(256)**		(470)		(464)
Net investing cash flows		**(256)**		(470)		(464)
Net decrease in cash and cash equivalents		**(242)**		(477)		(34)

1 Proceeds from insurance settlements.

2 Includes legal and advisor costs incurred.

3 Impairment expense from working capital funding provided during the period.

4 US$(56) million (2021: US$(6) million; 2020: US$37 million) change in estimate and US$(12) million (2021: US$21 million; 2020: US$(83) million) exchange translation.

5 US$747 million (2021: US$842 million; 2020: US$916 million) change in estimate and US$(84) million (2021: US$158 million; 2020: US$(457) million) exchange translation.

6 During the period the Group entered into forward exchange contracts to limit the Brazilian reais exposure on the dam failure provisions. While not applying hedge accounting, the fair value changes in the forward exchange instruments are recorded within Loss from equity accounted investments, related impairments and expenses in the Income Statement.

7 Amortisation of discounting of provision.

8 Includes tax on forward exchange derivatives and other taxes incurred during the period.

9 Includes US$ nil (2021: US$(111) million; 2020: US$(95) million) funding provided during the period, US$(256) million (2021: US$(351) million; 2020: US$(365) million) utilisation of the Samarco dam failure provision, and US$ nil (2021: US$(8) million; 2020: US$(4) million) utilisation of the Samarco Germano decommissioning provision.

Equity accounted investment in Samarco

BHP Brasil's investment in Samarco remains at US$ nil. No dividends have been received by BHP Brasil from Samarco during the period and Samarco currently does not have profits available for distribution.

Provisions related to the Samarco dam failure

		2022		2021
		US$M		US$M
At the beginning of the financial year		**2,792**		2,051
Movement in provisions		**629**		741
Comprising:				
Utilised	**(256)**		(359)	
Adjustments charged to the income statement:				
Change in estimate - Samarco dam failure provision	**747**		842	
Change in estimate - Samarco Germano dam decommissioning	**(56)**		(6)	
Amortisation of discounting impacting net finance costs	**290**		85	
Exchange translation	**(96)**		179	
At the end of the financial year		**3,421**		2,792
Comprising:				
Current		**1,815**		1,206
Non-current		**1,606**		1,586
At the end of the financial year		**3,421**		2,792
Comprising:				
Samarco dam failure provision		**3,237**		2,560
Samarco Germano dam decommissioning provision		**184**		232

Samarco dam failure provisions and contingencies

As at 30 June 2022, BHP Brasil has identified provisions and contingent liabilities arising as a consequence of the Samarco dam failure as follows:

Provisions

Provision for Samarco dam failure

On 2 March 2016, BHP Brasil, Samarco and Vale, entered into a Framework Agreement with the Federal Government of Brazil, the states of Espírito Santo and Minas Gerais and certain other public authorities to establish a foundation (Fundação Renova) that is developing and executing environmental and socio-economic programs (Programs) to remediate and provide compensation for damage caused by the Samarco dam failure (the Framework Agreement). Key Programs include those for financial assistance and compensation of impacted persons, including fisherfolk impacted by the dam failure, and those for remediation of impacted areas and resettlement of impacted communities. A committee (Interfederative Committee) comprising representatives from the Brazilian Federal and State Governments, local municipalities, environmental agencies, impacted communities and Public Defence Office oversees the activities of the Fundação Renova in order to monitor, guide and assess the progress of actions agreed in the Framework Agreement. In addition, the 12th Federal Court is supervising the work of the Fundação Renova and the Court's decisions, including decisions relating to the scope of individuals eligible for compensation and the amount of damages to which they are entitled, have been considered in the Samarco dam failure provision change in estimate. Any future decisions will be analysed for impacts on the provision at the time of any decision and the provision may be impacted in future reporting periods as a result of appeals and motions for clarification on certain Court decisions that remain outstanding.

The term of the Framework Agreement is 15 years, renewable for periods of one year successively until all obligations under the Framework Agreement have been performed. Under the Framework Agreement, Samarco has primary responsibility for funding Fundação Renova's annual calendar year budget for the duration of the Framework Agreement. The funding amounts for each calendar year will be dependent on the remediation and compensation projects to be undertaken in a particular year. Annual contributions may be reviewed under the Framework Agreement. To the extent that Samarco does not meet its funding obligations, each of BHP Brasil and Vale have secondary funding obligations under the Framework Agreement in proportion to their 50 per cent shareholding in Samarco.

Samarco began to gradually recommence operations in December 2020, however, there remains significant uncertainty regarding Samarco's long-term cash flow generation and the outcome of the Judicial Reorganisation (outlined below). In light of these uncertainties and based on currently available information, BHP Brasil's provision for its obligations under the Framework Agreement Programs is US$3.2 billion before tax and after discounting at 30 June 2022 (30 June 2021: US$2.6 billion). The dam failure provision at 30 June 2022 reflects only the Group's estimate of the costs to be incurred in completing those Programs, as the Group is unable to provide a range of possible outcomes or a reliable estimate of other existing or potential future claims (refer to contingent liabilities below).

Under a Governance Agreement ratified on 8 August 2018, BHP Brasil, Samarco and Vale were to establish a process to renegotiate the Programs over two years to progress settlement of the R$155 billion (approximately US$30 billion) Federal Public Prosecution Office claim (described below). Pre-requisites established in the Governance Agreement, for re-negotiation of the Framework Agreement, were not implemented during the two year period and on 30 September 2020, Brazilian Federal and State prosecutors and public defenders filed a request for the immediate resumption of the R$155 billion (approximately US$30 billion) claim, which was suspended from the date of ratification of the Governance Agreement. Formal suspension of the claim ceased on 10 December 2021, however no further rulings have been made.

BHP Brasil, Samarco, Vale and Federal and State prosecutors have been engaging in negotiations to seek a definitive and substantive settlement of the obligations under the Framework Agreement and the R$155 billion (approximately US$30 billion) Federal Public Prosecution Office claim. The negotiations are overseen by the President of the National Council of Justice, as the Chief Justice of the Supreme Court in Brazil and are expected to continue until at least the expected end of the term of the current President on 31 August 2022. Outcomes of the negotiations are highly uncertain and, until any revisions to the Programs are agreed, Fundação Renova will continue to implement the Programs in accordance with the terms of the Framework Agreement and the Governance Agreement.

BHP Brasil, Samarco and Vale are required to maintain security of an amount equal to the Fundação Renova's annual budget up to a limit of R$2.2 billion (approximately US$420 million). The security currently comprises R$1.3 billion (approximately US$250 million) in insurance bonds and a charge of R$800 million (approximately US$150 million) over Samarco's assets. A further R$100 million (approximately US$20 million) in liquid assets previously maintained as security was released for COVID-19 related response efforts in Brazil.

Samarco Germano dam decommissioning

Samarco is currently progressing plans for the accelerated decommissioning of its upstream tailings dams (the Germano dam complex). Given the uncertainties surrounding Samarco's long-term cash flow generation, BHP Brasil's provision for a 50 per cent share of the expected Germano decommissioning costs is US$184 million (30 June 2021: US$232 million). The decommissioning is progressing, however further engineering work and required validation by Brazilian authorities could lead to changes to estimates in future reporting periods.

Key judgements and estimates

Judgements

The outcomes of litigation are inherently difficult to predict and significant judgement has been applied in assessing the likely outcome of legal claims and determining which legal claims require recognition of a provision or disclosure of a contingent liability. The facts and circumstances relating to these cases are regularly evaluated in determining whether a provision for any specific claim is required.

Management has determined that a provision can only be recognised for obligations under the Framework Agreement and Samarco Germano dam decommissioning as at 30 June 2022. It is not yet possible to provide a range of possible outcomes or a reliable estimate of potential future exposures to BHP in connection to the contingent liabilities noted below, given their status.

Estimates

The provision for the Samarco dam failure currently only reflects the Group's estimate of the remaining costs to complete Programs under the Framework Agreement and requires the use of significant judgements, estimates and assumptions. Based on current estimates, it is expected that approximately 95 per cent of remaining costs for Programs under the Framework Agreement will be incurred by December 2024.

While the provision has been measured based on the latest information available, changes in facts and circumstances are likely in future reporting periods and may lead to material revisions to these estimates. However, it is currently not possible to determine what facts and circumstances may change, therefore revisions in future reporting periods due to the key estimates and factors outlined below cannot be reliably measured.

The key estimates that may have a material impact on the provision in the next and future reporting periods include the:

- number of people eligible for financial assistance and compensation and the corresponding amount of expected compensation
- costs to complete key infrastructure programs

The provision may also be affected by factors including but not limited to:

- potential changes in scope of work and funding amounts required under the Framework Agreement including the impact of the decisions of the Interfederative Committee along with further technical analysis, community participation required under the Governance Agreement and rulings made by the 12th Federal Court
- the outcome of ongoing negotiations with State and Federal Prosecutors, including review of Fundação Renova's Programs as provided in the Governance Agreement
- actual costs incurred
- resolution of uncertainty in respect of the nature and extent of Samarco's long-term cash generation
- updates to discount and foreign exchange rates
- the outcomes of Samarco's judicial reorganisation

In addition, the provision may be impacted by decisions in, or resolution of, existing and potential legal claims in Brazil and other jurisdictions, including the outcome of the United Kingdom group action complaint and the negotiations seeking a definitive and substantive settlement of the obligations under the Framework Agreement and the R$155 billion (approximately US$30 billion) Federal Public Prosecution Office claim.

Outcomes of the negotiations are highly uncertain and it is therefore not possible to provide a reliable estimate of potential outcomes.

Given these factors, future actual cash outflows may differ from the amounts currently provided and changes to any of the key assumptions and estimates outlined above could result in a material impact to the provision in the next and future reporting periods.

Contingent liabilities

The following matters are disclosed as contingent liabilities and given the status of these matters it is not possible to provide a range of possible outcomes or a reliable estimate of potential future exposures for BHP, unless otherwise stated. A number of the claims below have not specified the amount of damages sought and, where this is specified, amounts could change as the matter progresses. Ultimately, all the legal matters disclosed as contingent liabilities could have a material adverse impact on BHP's business, competitive position, cash flows, prospects, liquidity and shareholder returns.

Federal Public Prosecution Office claim

BHP Brasil is among the defendants named in a claim brought by the Federal Public Prosecution Office on 3 May 2016, seeking R$155 billion (approximately US$30 billion) for reparation, compensation and moral damages in relation to the Samarco dam failure.

The 12th Federal Court previously suspended the Federal Public Prosecution Office claim, including a R$7.7 billion (approximately US$1.5 billion) injunction request. On 30 September 2020, Brazilian Federal and State prosecutors and public defenders filed a request for the immediate resumption of the R$155 billion (approximately US$30 billion) claim, which was suspended since the date of ratification of the Governance Agreement. Formal suspension of the claim ceased on 10 December 2021, however no further rulings have been made.

BHP Brasil, Samarco, Vale and Federal and State prosecutors have been engaging in negotiations to seek a definitive and substantive settlement of the obligations under the Framework Agreement and the R$155 billion (approximately US$30 billion) Federal Public Prosecution Office claim. The negotiations are overseen by the President of the National Council of Justice, as the Chief Justice of the Supreme Court in Brazil and are expected to continue until at least the expected end of the term of the current President on 31 August 2022. Outcomes of the negotiations are highly uncertain and it is therefore not possible to provide a reliable estimate of potential outcomes and there is a risk that a negotiated outcome may be materially higher than amounts currently reflected in the Samarco dam failure provision.

Australian class action complaint

BHP Group Ltd is named as a defendant in a shareholder class action filed in the Federal Court of Australia on behalf of persons who acquired shares in BHP Group Ltd on the Australian Securities Exchange or shares in BHP Group Plc on the London Stock Exchange and Johannesburg Stock Exchange in periods prior to the Samarco dam failure. The amount of damages sought is unspecified.

United Kingdom group action complaint

BHP Group Plc and BHP Group Ltd were named as defendants in group action claims for damages filed in the courts of England. These claims were filed on behalf of certain individuals, governments, businesses and communities in Brazil allegedly impacted by the Samarco dam failure. The amount of damages sought in these claims is unspecified. In August 2019, the BHP parties filed a preliminary application to strike out or stay this action on jurisdictional and other procedural grounds. That application was successful before the High Court and the action was dismissed. However, on 8 July 2022, the Court of Appeal reversed the dismissal decision and allowed the action to proceed in England. BHP Group Ltd and BHP Group (UK) Ltd (formerly BHP Group Plc) will seek permission to appeal to the Supreme Court of the United Kingdom.

Criminal charges

The Federal Prosecutors' Office has filed criminal charges against BHP Brasil, Samarco and Vale and certain employees and former employees of BHP Brasil (Affected Individuals) in the Federal Court of Ponte Nova, Minas Gerais. On 3 March 2017, BHP Brasil filed its preliminary defences. The Federal Court terminated the charges against eight of the Affected Individuals. The Federal Prosecutors' Office has appealed seven of those decisions with hearings of the appeals still pending. BHP Brasil rejects outright the charges against the company and the Affected Individuals and is defending itself from all charges while fully supporting each of the Affected Individuals in their defence of the charges.

Civil public action commenced by Associations concerning the use of Tanfloc for water treatment

The Vila Lenira Residents Association, State of Espírito Santo Rural Producers and Artisans Association, Colatina Velha Neighborhood Residents Association, and United for the Progress of Palmeiras Neighborhood Association have filed a lawsuit against Samarco, BHP Brasil and Vale and others, including the State of Minas Gerais, the State of Espirito Santo and the Federal Government. The plaintiffs allege that the defendants carried out a clandestine study on the citizens of the locations affected by the Fundão's Dam Failure, using TANFLOC – a tannin-based flocculant/coagulant – that is currently used for wastewater treatment applications. The plaintiffs claim that this product allegedly put the population at risk due to its alleged experimental qualities.

The plaintiffs are seeking multiple kinds of relief – material damage, moral damages, loss of profits – and that the defendants should pay for water supply in all locations where there is no water source other than the Doce River.

On 25 July 2022, Samarco, BHP Brasil and Vale presented their defences individually, as well as the State of Minas Gerais, the State of Espírito Santo and the Federal Government. The Court's decision is still pending.

Other claims

BHP Brasil is among the companies named as defendants in a number of legal proceedings initiated by individuals, non-governmental organisations, corporations and governmental entities in Brazilian Federal and State courts following the Samarco dam failure. The other defendants include Vale, Samarco and Fundação Renova. The lawsuits include claims for compensation, environmental reparation and violations of Brazilian environmental and other laws, among other matters. The lawsuits seek various remedies including reparation costs, compensation to injured individuals and families of the deceased, recovery of personal and property losses, moral damages and injunctive relief. In addition, government inquiries and investigations relating to the Samarco dam failure have been commenced by numerous agencies of the Brazilian government and are ongoing.

Additional lawsuits and government investigations relating to the Samarco dam failure could be brought against BHP Brasil and possibly other BHP entities in Brazil or other jurisdictions.

BHP insurance

BHP has various third party general liability and directors and officers insurances for claims related to the Samarco dam failure made directly against BHP Brasil or other BHP entities, their directors and officers, including class actions. External insurers have been notified of the Samarco dam failure along with the third party claims and class actions referred to above. In the period since the dam failure, the Group has recognised US$573 million other income from general liability insurance proceeds related to the dam failure. Recoveries related to general liability insurance are now considered complete.

As at 30 June 2022, an insurance receivable has not been recognised for any potential recoveries in respect of ongoing matters.

Commitments

Under the terms of the Samarco joint venture agreement, BHP Brasil does not have an existing obligation to fund Samarco.

BHP has agreed to fund a total of up to US$1,350 million for the Fundação Renova programs and Samarco's working capital during calendar year 2022. Samarco's cash flow generation in the period was sufficient to fund its working capital and the Fundação Renova programs, as such no funding was provided by the Group in the six months to 30 June 2022. Any additional requests for funding or future investment provided would be subject to a future decision by BHP, accounted for at that time.

Samarco judicial reorganisation

Samarco filed for Judicial Reorganisation (JR) in April 2021, with the Commercial Courts of Belo Horizonte, State of Minas Gerais, Brazil (JR Court), after multiple enforcement actions taken by certain financial creditors of Samarco which threatened Samarco's operations. The JR Court granted a stay of the enforcement actions in Brazil until 15 October 2022.

The JR is an insolvency proceeding that provides a means for Samarco to seek to restructure its financial debts and establish a sustainable financial position that allows Samarco to, among other things, continue to rebuild its operations and strengthen its ability to meet its Fundação Renova funding obligations. Samarco's operations have continued during the JR proceeding.

According to the list of creditors filed with the JR Court by the Judicial Administrators (who are in charge of a first review of the list of creditors filed by Samarco), Fundação Renova's funding obligations undertaken by Samarco are not subject to the JR, although some financial creditors of Samarco have objected to this position. Some such creditors filed challenges to the list of creditors filed by the Judicial Administrators, in order to, among other things, prevent Samarco from funding Fundação Renova. In December 2021, the 12th Federal Court granted BHP Brasil's request that Samarco be able to fund Fundação Renova obligations, overturning a temporary injunction against such funding previously granted by the State Court in October 2021. BHP Brasil also obtained a preliminary injunction from the Superior Court supporting the jurisdiction of the 12th Federal Court, and not the State Court, in this matter. An appeal against this ruling by certain financial creditors is still to be ruled upon. Samarco has, with the support of BHP Brasil and Vale, continued to meet its Fundação Renova funding obligations.

In April 2022, Samarco presented a restructure proposal for voting at a meeting of its creditors under the JR proceeding, which was rejected by certain of the Samarco financial creditors. Certain Samarco creditors, including a group of financial creditors and Samarco's employee unions then proposed alternative restructure proposals. Samarco, BHP Brasil and Vale subsequently each filed objections with the JR Court to both the voting process regarding the rejection of the Samarco proposal and the restructure proposal filed by a group of financial creditors. These legal disputes, and others in the JR process, have yet to be ruled on by the JR Court.

It is expected that there will be continuing litigation from creditors against Samarco and its shareholders over the course of the JR proceeding, including with respect to the treatment of Samarco's Fundação Renova-related obligations and attempts to pierce Samarco's corporate veil to hold BHP Brasil and Vale liable for Samarco's debts. The duration and outcome of the JR remains uncertain with the potential for protracted litigation and appeals because, among other things, the Samarco JR is occurring under new and untested Brazilian bankruptcy legislation.

While the JR is not expected to affect Samarco's obligation or commitment to make full redress for the 2015 Fundão dam failure, and is not expected to impact Fundação Renova's ability to undertake that remediation and compensation, it is not possible to determine the outcomes of the JR or reliably estimate any impact that the reorganisation may have for BHP Brasil, including its share of the Samarco dam failure provisions.

The following section includes disclosure required by IFRS of Samarco's provisions, contingencies and other matters arising from the dam failure for matters in addition to the above-mentioned claims to which Samarco is a party.

Samarco

Dam failure related provisions and contingencies

In addition to its obligations under the Framework Agreement as at 30 June 2022, Samarco has recognised provisions of US$0.3 billion (30 June 2021: US$0.2 billion), based on currently available information. The magnitude, scope and timing of these additional costs are subject to a high degree of uncertainty and Samarco has indicated that it anticipates that it will incur future costs beyond those provided. These uncertainties are likely to continue for a significant period and changes to key assumptions could result in a material change to the amount of the provision in future reporting periods. Any such unrecognised obligations are therefore contingent liabilities and, at present, it is not practicable to estimate their magnitude or possible timing of payment. Accordingly, it is also not possible to provide a range of possible outcomes or a reliable estimate of total potential future exposures at this time.

Samarco is also named as a defendant in a number of other legal proceedings initiated by individuals, non-governmental organisations, corporations and governmental entities in Brazilian Federal and State courts following the Samarco dam failure. The lawsuits include claims for compensation, environmental rehabilitation and violations of Brazilian environmental and other laws, among other matters. The lawsuits seek various remedies including rehabilitation costs, compensation to injured individuals and families of the deceased, recovery of personal and property losses, moral damages and injunctive relief. In addition, government inquiries and investigations relating to the Samarco dam failure have been commenced by numerous agencies of the Brazilian government and are ongoing. Given the status of proceedings it is not possible to provide a range of possible outcomes or a reliable estimate of total potential future exposures to Samarco.

Additional lawsuits and government investigations relating to the Samarco dam failure could be brought against Samarco.

Samarco insurance

Samarco has standalone insurance policies in place with Brazilian and global insurers. Insurers' loss adjusters or claims representatives continue to investigate and assist with the claims process for matters not yet settled. As at 30 June 2022, an insurance receivable has not been recognised by Samarco in respect of ongoing matters.

Samarco commitments

At 30 June 2022, Samarco has commitments of US$0.7 billion (30 June 2021: US$0.7 billion). Following the dam failure Samarco invoked force majeure clauses in a number of long-term contracts with suppliers and service providers to suspend contractual obligations.

Samarco non-dam failure related contingent liabilities

The following non-dam failure related contingent liabilities pre-date and are unrelated to the Samarco dam failure. Samarco is currently contesting both of these matters in the Brazilian courts. Given the status of these tax matters, the timing of resolution and potential economic outflow for Samarco is uncertain.

Brazilian Social Contribution Levy

Samarco has received tax assessments for the alleged non-payment of Brazilian Social Contribution Levy for the calendar years 2007-2014 totalling approximately R$6.2 billion (approximately US$1.2 billion).

Brazilian corporate income tax rate

Samarco has received tax assessments for alleged incorrect calculation of Corporate Income Tax (IRPJ) in respect of the 2000-2003 and 2007-2014 income years totalling approximately R$4.8 billion (approximately US$0.9 billion).

5 Expenses and other income

	2022 US$M	2021 US$M Restated	2020 US$M Restated
Employee benefits expense:			
Wages, salaries and redundancies	**4,197**	4,018	3,318
Employee share awards	**109**	88	90
Social security costs	**4**	3	2
Pension and other post-retirement obligations	**338**	274	246
Less employee benefits expense classified as exploration and evaluation expenditure	**(30)**	(26)	(15)
Changes in inventories of finished goods and work in progress	**(774)**	(321)	(348)
Raw materials and consumables used	**5,991**	4,899	5,472
Freight and transportation	**2,319**	1,900	1,838
External services	**4,525**	4,640	3,899
Third-party commodity purchases	**2,959**	2,220	1,098
Net foreign exchange (gains)/losses	**(326)**	293	(617)
Fair value change on derivatives[1]	**(29)**	87	393
Government royalties paid and payable	**4,014**	3,080	2,171
Exploration and evaluation expenditure incurred and expensed in the current period	**199**	134	123
Depreciation and amortisation expense	**5,683**	5,084	4,667
Net impairments:			
Property, plant and equipment	**515**	2,474	482
Goodwill and other intangible assets	**–**	33	–
All other operating expenses	**2,677**	1,991	2,634
Total expenses	**32,371**	30,871	25,453
Insurance recoveries[2]	**(4)**	(46)	(489)
(Gain)/loss on disposal of subsidiaries and operations[3]	**(840)**	2	–
Dividend income[4]	**(241)**	(2)	(2)
Other income[5]	**(313)**	(334)	(229)
Total other income	**(1,398)**	(380)	(720)

1 Fair value change on derivatives is principally related to commodity price contracts, foreign exchange contracts and embedded derivatives used in the ordinary course of business as well as derivatives used as part of the funding of dividends.

2 Insurance recoveries is principally related to claims received from Samarco dam failure. Refer to note 4 'Significant events – Samarco dam failure' for further information.

3 Mainly relates to the divestment of BMC in FY2022. Refer to note 3 'Exceptional items' for further information.

4 During FY2022, the Group received dividends of US$238 million from Cerrejón, which reduced completion proceeds net of transaction costs to US$50 million. Refer to note 29 'Investments accounted for using the equity method' for details.

5 Other income is generally income earned from transactions outside the course of the Group's ordinary activities and may include certain management fees from non-controlling interests and joint arrangements, royalties and commission income.

Recognition and measurement

Other income is recognised when it is probable that the economic benefits associated with a transaction will flow to the Group and can be reliably measured. Dividend income is recognised upon declaration.

6 Income tax expense

	2022 US$M	2021 US$M Restated	2020 US$M Restated
Total taxation expense comprises:			
Current tax expense	**10,673**	9,018	4,285
Deferred tax expense/(benefit)	**64**	1,598	(88)
	10,737	10,616	4,197

	2022 US$M	2021 US$M Restated	2020 US$M Restated
Factors affecting income tax expense for the year			
Income tax expense differs to the standard rate of corporation tax as follows:			
Profit before taxation	**33,137**	24,292	12,825
Tax on profit at Australian prima facie tax rate of 30 per cent	**9,941**	7,288	3,847
Non-tax effected operating losses and capital gains[1]	**1,087**	2,640	409
Tax on remitted and unremitted foreign earnings	**441**	485	225
Investment and development allowance	**–**	–	(99)
Tax rate changes	**–**	(1)	(8)
Recognition of previously unrecognised tax assets	**(3)**	(28)	(7)
Tax effect of loss from equity accounted investments, related impairments and expenses[2]	**(19)**	315	153
Amounts (over)/under provided in prior years	**(80)**	(57)	13
Foreign exchange adjustments	**(233)**	(33)	41
Impact of tax rates applicable outside of Australia	**(801)**	(669)	(272)
Other	**97**	436	(86)
Income tax expense	**10,430**	10,376	4,216
Royalty-related taxation (net of income tax benefit)	**307**	240	(19)
Total taxation expense	**10,737**	10,616	4,197

1 Includes the tax impacts related to the exceptional impairments of US deferred tax assets in the year ended 30 June 2022, NSWEC and Potash in the year ended 30 June 2021 and Cerro Colorado in the year ended 30 June 2020, as presented in note 3 'Exceptional items'.

2 The loss from equity accounted investments, related impairments and expenses is net of income tax, with the exception of the Samarco forward exchange derivatives described in note 4 'Significant events – Samarco dam failure'. This item removes the prima facie tax effect on such loss, related impairments and expenses, excluding the impact of the Samarco forward exchange derivatives which are taxable.

Income tax recognised in other comprehensive income is as follows:

	2022 US$M	2021 US$M	2020 US$M
Income tax effect of:			
Items that may be reclassified subsequently to the income statement:			
Hedges:			
Gains/(losses) taken to equity	**274**	(259)	94
(Gains)/losses transferred to the income statement	**(264)**	252	(89)
Others	**–**	(1)	–
Income tax credit/(charge) relating to items that may be reclassified subsequently to the income statement	**10**	(8)	5
Items that will not be reclassified to the income statement:			
Remeasurement gains/(losses) on pension and medical schemes	**(9)**	(21)	25
Others	**–**	1	1
Income tax (charge)/credit relating to items that will not be reclassified to the income statement	**(9)**	(20)	26
Total income tax credit/(charge) relating to components of other comprehensive income[1]	**1**	(28)	31

1 Included within total income tax relating to components of other comprehensive income is US$1 million relating to deferred taxes and US$ nil relating to current taxes (2021: US$(28) million and US$ nil; 2020: US$31 million and US$ nil).

Recognition and measurement

Taxation on the profit/(loss) for the year comprises current and deferred tax. Taxation is recognised in the income statement except to the extent that it relates to items recognised directly in equity or other comprehensive income, in which case the tax effect is also recognised in equity or other comprehensive income.

Current tax

Current tax is the expected tax on the taxable income for the year, using tax rates and laws enacted or substantively enacted at the reporting date, and any adjustments to tax payable in respect of previous years.

Deferred tax

Deferred tax is the tax expected to be payable or recoverable on differences between the carrying amounts of assets and liabilities in the financial statements and the corresponding tax bases used in the computation of taxable profit, and is accounted for in accordance with IAS 12.

Deferred tax is generally provided on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the Financial Statements. Deferred tax assets are recognised to the extent that it is probable that future taxable profits will be available against which the temporary differences can be utilised.

Deferred tax is not recognised for temporary differences relating to:

- initial recognition of goodwill
- initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit
- investment in subsidiaries, associates and jointly controlled entities where the Group is able to control the timing of the reversal of the temporary difference and it is probable that they will not reverse in the foreseeable future

Deferred tax is measured at the tax rates that are expected to be applied when the asset is realised or the liability is settled, based on the laws that have been enacted or substantively enacted at the reporting date.

Current and deferred tax assets and liabilities are offset when the Group has a legally enforceable right to offset and when the tax balances are related to taxes levied by the same tax authority and the Group intends to settle on a net basis, or realise the asset and settle the liability simultaneously.

The carrying amount of deferred tax assets is reviewed at each reporting date and reduced to the extent that it is no longer probable that sufficient taxable profits will be available to allow all or part of the asset to be recovered.

Royalty-related taxation

Royalties are treated as taxation arrangements (impacting income tax expense/(benefit)) when they are imposed under government authority and the amount payable is calculated by reference to revenue derived (net of any allowable deductions) after adjustment for temporary differences. Obligations arising from royalty arrangements that do not satisfy these criteria are recognised as current liabilities and included in expenses.

Uncertain tax and royalty matters

The Group operates across many tax jurisdictions. Application of tax law can be complex and requires judgement to assess risk and estimate outcomes, particularly in relation to the Group's cross-border operations and transactions. These judgements are subject to risk and uncertainty, hence there is a possibility that changes in circumstances will alter expectations, which may impact the amount of tax assets and tax liabilities, including deferred tax, recognised on the balance sheet and the amount of other tax losses and temporary differences not yet recognised. The evaluation of tax risks considers both amended assessments received and potential sources of challenge from tax authorities. The status of proceedings for these matters will impact the ability to determine the potential exposure and in some cases, it may not be possible to determine a range of possible outcomes or a reliable estimate of the potential exposure.

The Group has unresolved tax and royalty matters for which the timing of resolution and potential economic outflow are uncertain. Tax and royalty matters with uncertain outcomes arise in the normal course of business and occur due to changes in tax law, changes in interpretation of tax law, periodic challenges and disagreements with tax authorities and legal proceedings.

Tax and royalty obligations assessed as having probable future economic outflows capable of reliable measurement are provided for as at 30 June 2022. Matters with a possible economic outflow and/or presently incapable of being measured reliably are contingent liabilities and disclosed in note 32 'Contingent liabilities'. Details of uncertain tax and royalty matters relating to Samarco are disclosed in note 4 'Significant events – Samarco dam failure'.

Key judgements and estimates

Income tax classification

Judgements: The Group's accounting policy for taxation, including royalty-related taxation, requires management's judgement as to the types of arrangements considered to be a tax on income in contrast to an operating cost.

Deferred tax

Judgements: Judgement is required to determine the amount of deferred tax assets that are recognised based on the likely timing and the level of future taxable profits. Judgement is applied in recognising deferred tax liabilities arising from temporary differences in investments. These deferred tax liabilities caused principally by retained earnings held in foreign tax jurisdictions are recognised unless repatriation of retained earnings can be controlled and is not expected to occur in the foreseeable future.

Estimates: The Group assesses the recoverability of recognised and unrecognised deferred taxes, including losses in Australia, the United States and Canada on a consistent basis. Estimates and assumptions relating to projected earnings and cash flows as applied in the Group impairment process are used for operating assets.

7 Earnings per share

	2022	2021 Restated	2020 Restated
Earnings attributable to BHP shareholders (US$M)			
- Continuing operations	**20,245**	11,529	7,848
- Total	**30,900**	11,304	7,956
Weighted average number of shares (Million)			
- Basic	**5,061**	5,057	5,057
- Diluted	**5,071**	5,068	5,069
Basic earnings per ordinary share (US cents)			
- Continuing operations	**400.0**	228.0	155.2
- Total	**610.6**	223.5	157.3
Diluted earnings per ordinary share (US cents)			
- Continuing operations	**399.2**	227.5	154.8
- Total	**609.3**	223.0	157.0
Headline earnings per ordinary share (US cents)			
- Basic	**439.0**	284.8	171.1
- Diluted	**438.1**	284.2	170.7

Refer to note 27 'Discontinued operations' for basic earnings per share and diluted earnings per share for Discontinued operations.

Earnings on American Depositary Shares represent twice the earnings for BHP Group Limited ordinary shares.

Headline earnings is a Johannesburg Stock Exchange defined performance measure and is reconciled from earnings attributable to ordinary shareholders as follows:

	2022 US$M	2021 US$M	2020 US$M
Earnings attributable to BHP shareholders	**30,900**	11,304	7,956
Adjusted for:			
(Gain)/loss on sales of PP&E, Investments and Operations[1]	**(95)**	(50)	4
Impairments of property, plant and equipment, financial assets and intangibles	**515**	2,633	494
Samarco impairment expense	**–**	111	95
Cerrejón impairment expense	**–**	466	–
Gain on disposal of BHP Mitsui Coal	**(840)**	–	–
Gain on merger of Petroleum	**(8,167)**	–	–
Other[2]	**–**	–	48
Tax effect of above adjustments	**(97)**	(60)	54
Subtotal of adjustments	**(8,684)**	3,100	695
Headline earnings	**22,216**	14,404	8,651
Diluted headline earnings	**22,216**	14,404	8,651

1 Included in other income.

2 Mainly represent BHP share of impairment embedded in the statutory income statement of the Group's equity accounted investments.

Recognition and measurement

Diluted earnings attributable to BHP shareholders are equal to the earnings attributable to BHP shareholders.

Prior to Group's corporate structure unification, the calculation of the number of ordinary shares used in the computation of basic earnings per share was the aggregate of the weighted average number of ordinary shares of BHP Group Limited and BHP Group Plc outstanding during the period after deduction of the number of shares held by the Billiton Employee Share Ownership Trust and the BHP Billiton Limited Employee Equity Trust. Effective from 31 January 2022, the aggregate of the weighted average number of ordinary shares of only BHP Group Limited is considered in the computation of basic earnings per share. Refer to note 16 'Share capital' for details on unification.

For the purposes of calculating diluted earnings per share, the effect of 10 million dilutive shares has been taken into account for the year ended 30 June 2022 (2021: 11 million shares; 2020: 12 million shares). The Group's only potential dilutive ordinary shares are share awards granted under the employee share ownership plans for which terms and conditions are described in note 25 'Employee share ownership plans'. Diluted earnings per share calculation excludes instruments which are considered antidilutive.

At 30 June 2022, there are no instruments which are considered antidilutive (2021: nil; 2020: nil).

Working capital

8 Trade and other receivables

	2022 US$M	2021 US$M
Trade receivables	**4,411**	4,450
Other receivables[1]	**1,168**	1,946
Total	**5,579**	6,396
Comprising:		
Current	**5,426**	6,059
Non-current	**153**	337

1 Other receivables mainly relate to indirect tax refunds and receivables from joint venture partners.

Recognition and measurement

Trade receivables are recognised initially at their transaction price or, for those receivables containing a significant financing component, at fair value. Trade receivables are subsequently measured at amortised cost using the effective interest method, less an allowance for impairment, except for provisionally priced receivables which are subsequently measured at fair value through profit or loss under IFRS 9.

The collectability of trade and other receivables is assessed continuously. At the reporting date, specific allowances are made for any expected credit losses based on a review of all outstanding amounts at reporting period-end. Individual receivables are written off when management deems them unrecoverable. The net carrying amount of trade and other receivables approximates their fair values.

Credit risk

Trade receivables generally have terms of less than 30 days. The Group has no material concentration of credit risk with any single counterparty and is not dominantly exposed to any individual industry.

Credit risk can arise from the non-performance by counterparties of their contractual financial obligations towards the Group. To manage credit risk, the Group maintains Group-wide procedures covering the application for credit approvals, granting and renewal of counterparty limits, proactive monitoring of exposures against these limits and requirements triggering secured payment terms. As part of these processes, the credit exposures with all counterparties are regularly monitored and assessed on a timely basis. The credit quality of the Group's customers is reviewed and the solvency of each debtor and their ability to pay the receivable is considered in assessing receivables for impairment.

The 10 largest customers represented 34 per cent (2021: 31 per cent) of total credit risk exposures managed by the Group.

Receivables are deemed to be past due or impaired in accordance with the Group's terms and conditions. These terms and conditions are determined on a case-by-case basis with reference to the customer's credit quality, payment performance and prevailing market conditions. As at 30 June 2022, trade receivables of US$103 million (2021: US$68 million) were past due but not impaired. The majority of these receivables were less than 30 days overdue.

At 30 June 2022, trade receivables are stated net of provisions for expected credit losses of US$3 million (2021: US$3 million).

9 Trade and other payables

	2022 US$M	2021 US$M
Trade payables	**5,360**	5,079
Other payables	**1,327**	1,948
Total	**6,687**	7,027
Comprising:		
Current	**6,687**	7,027
Non-current	**–**	–

10 Inventories

	2022 US$M	2021 US$M	Definitions
Raw materials and consumables	**1,713**	1,904	Spares, consumables and other supplies yet to be utilised in the production process or in the rendering of services.
Work in progress	**3,827**	3,046	Commodities currently in the production process that require further processing by the Group to a saleable form.
Finished goods	**710**	834	Commodities ready-for-sale and not requiring further processing by the Group.
Total[1]	**6,250**	5,784	
Comprising:			Inventories classified as non-current are not expected to be utilised or sold within 12 months after the reporting date or within the operating cycle of the business.
Current	**4,935**	4,426	
Non-current	**1,315**	1,358	

1 Inventory write-downs of US$163 million were recognised during the year (2021: US$58 million; 2020: US$37 million). Inventory write-downs of US$23 million made in previous periods were reversed during the year (2021: US$26 million; 2020: US$8 million).

Recognition and measurement

Regardless of the type of inventory and its stage in the production process, inventories are valued at the lower of cost and net realisable value. Cost is determined primarily on the basis of average costs and involves estimates of expected metal recoveries and work in progress volumes, calculated using available industry, engineering and scientific data. These estimates are periodically reassessed by the Group taking into account technical analysis and historical performance.

For processed inventories, cost is derived on an absorption costing basis. Cost comprises costs of purchasing raw materials and costs of production, including attributable mining and manufacturing overheads taking into consideration normal operating capacity.

Inventory quantities are assessed primarily through surveys and assays.

Resource assets

11 Property, plant and equipment

	Land and buildings US$M	Plant and equipment US$M	Other mineral assets US$M	Assets under construction US$M	Exploration and evaluation US$M	Total US$M
Net book value – 30 June 2022						
At the beginning of the financial year	**8,072**	**44,682**	**8,941**	**10,432**	**1,686**	**73,813**
Additions[1]	**41**	**1,935**	**792**	**5,872**	**137**	**8,777**
Remeasurements of index-linked freight contracts[2]	**–**	**(369)**	**–**	**–**	**–**	**(369)**
Depreciation for the year	**(663)**	**(5,564)**	**(276)**	**–**	**–**	**(6,503)**
Impairments for the year[3]	**(14)**	**(499)**	**(2)**	**–**	**–**	**(515)**
Disposals	**(3)**	**(22)**	**–**	**–**	**–**	**(25)**
Divestment and demerger of subsidiaries and operations[4]	**(448)**	**(8,007)**	**(545)**	**(3,549)**	**(842)**	**(13,391)**
Transfers and other movements	**1,094**	**3,344**	**(416)**	**(3,724)**	**(790)**	**(492)**
At the end of the financial year[5]	**8,079**	**35,500**	**8,494**	**9,031**	**191**	**61,295**
– Cost	**14,823**	**81,218**	**14,353**	**9,755**	**981**	**121,130**
– Accumulated depreciation and impairments	**(6,744)**	**(45,718)**	**(5,859)**	**(724)**	**(790)**	**(59,835)**
Net book value – 30 June 2021						
At the beginning of the financial year	8,387	39,429	8,652	13,774	2,120	72,362
Additions[1]	25	3,841	797	5,961	93	10,717
Acquisition of subsidiaries & operations[6]	–	151	491	–	–	642
Remeasurements of index-linked freight contracts[2]	–	(59)	–	–	–	(59)
Depreciation for the year	(694)	(5,748)	(310)	–	–	(6,752)
Impairments for the year[3]	(208)	(877)	(687)	(745)	(66)	(2,583)
Disposals	(18)	(9)	–	–	–	(27)
Divestment and demerger of subsidiaries and operations	–	(14)	–	(2)	–	(16)
Transfers and other movements	580	7,968	(2)	(8,556)	(461)	(471)
At the end of the financial year[5]	8,072	44,682	8,941	10,432	1,686	73,813
– Cost	14,545	108,049	15,059	11,177	2,531	151,361
– Accumulated depreciation and impairments	(6,473)	(63,367)	(6,118)	(745)	(845)	(77,548)

1 Includes change in estimates and net foreign exchange gains/(losses) related to the closure and rehabilitation provisions for operating sites. Refer to note 15 'Closure and rehabilitation provisions'.

2 Relates to remeasurements of index-linked freight contracts including continuous voyage charters (CVCs). Refer to note 21 'Leases'.

3 Refer to note 13 'Impairment of non-current assets' for information on impairments.

4 BMC and Petroleum were disposed in May 2022 and June 2022 respectively. Refer to notes 3 'Exceptional items' and 27 'Discontinued operations' for more information.

5 Includes the carrying value of the Group's right-of-use assets relating to land and buildings and plant and equipment of US$2,361 million (2021: US$3,350 million). Refer to note 21 'Leases' for the movement of the right-of-use assets.

6 Relates to the acquisition of an additional 28 per cent working interest in Shenzi.

Recognition and measurement

Property, plant and equipment

Property, plant and equipment is recorded at cost less accumulated depreciation and impairment charges. Cost is the fair value of consideration given to acquire the asset at the time of its acquisition or construction and includes the direct costs of bringing the asset to the location and the condition necessary for operation and the estimated future costs of closure and rehabilitation of the facility.

Right-of-use assets are measured at cost, less any accumulated depreciation and impairment losses, and adjusted for any remeasurement of lease liabilities. Refer to note 21 'Leases' for further details. Right-of-use assets are presented within the category of property, plant and equipment according to the nature of the underlying asset leased.

Exploration and evaluation

Exploration costs are incurred to discover mineral resources. Evaluation costs are incurred to assess the technical feasibility and commercial viability of resources found.

Exploration and evaluation expenditure is charged to the income statement as incurred, except in the following circumstances in which case the expenditure may be capitalised:

- the exploration and evaluation activity is within an area of interest that was previously acquired as an asset acquisition or in a business combination and measured at fair value on acquisition or
- the existence of a commercially viable mineral deposit has been established

A regular review of each area of interest is undertaken to determine the appropriateness of continuing to carry forward costs in relation to that area. Capitalised costs are only carried forward to the extent that they are expected to be recovered through the successful exploitation of the area of interest or alternatively by its sale. To the extent that capitalised expenditure is no longer expected to be recovered, it is charged to the income statement.

Development expenditure

When proven mineral reserves are determined and development is sanctioned, capitalised exploration and evaluation expenditure is reclassified as assets under construction within property, plant and equipment. All subsequent development expenditure is capitalised and classified as assets under construction, provided commercial viability conditions continue to be satisfied.

The Group may use funds sourced from external parties to finance the acquisition and development of assets and operations. Finance costs are expensed as incurred, except where they relate to the financing of construction or development of qualifying assets. Borrowing costs directly attributable to acquiring or constructing a qualifying asset are capitalised during the development phase. Development expenditure is net of proceeds from the saleable material extracted during the development phase. On completion of development, all assets included in assets under construction are reclassified as either plant and equipment or other mineral assets and depreciation commences.

Other mineral assets

Other mineral assets comprise:

- capitalised exploration, evaluation and development expenditure for assets in production
- mineral rights acquired
- capitalised development and production stripping costs

Overburden removal costs

The process of removing overburden and other waste materials to access mineral deposits is referred to as stripping. Stripping is necessary to obtain access to mineral deposits and occurs throughout the life of an open-pit mine. Development and production stripping costs are classified as other mineral assets in property, plant and equipment.

Stripping costs are accounted for separately for individual components of an ore body. The determination of components is dependent on the mine plan and other factors, including the size, shape and geotechnical aspects of an ore body. The Group accounts for stripping activities as follows:

Development stripping costs

These are initial overburden removal costs incurred to obtain access to mineral deposits that will be commercially produced. These costs are capitalised when it is probable that future economic benefits (access to mineral ores) will flow to the Group and costs can be measured reliably.

Once the production phase begins, capitalised development stripping costs are depreciated using the units of production method based on the proven and probable reserves of the relevant identified component of the ore body which the initial stripping activity benefits.

Production stripping costs

These are post initial overburden removal costs incurred during the normal course of production activity, which commences after the first saleable minerals have been extracted from the component. Production stripping costs can give rise to two benefits, the accounting for which is outlined below:

	Production stripping activity	
Benefits of stripping activity	Extraction of ore (inventory) in current period.	Improved access to future ore extraction.
Period benefited	Current period	Future period(s)
Recognition and measurement criteria	When the benefits of stripping activities are realised in the form of inventory produced; the associated costs are recorded in accordance with the Group's inventory accounting policy.	When the benefits of stripping activities are improved access to future ore; production costs are capitalised when all the following criteria are met: • the production stripping activity improves access to a specific component of the ore body and it is probable that economic benefits arising from the improved access to future ore production will be realised • the component of the ore body for which access has been improved can be identified • costs associated with that component can be measured reliably
Allocation of costs	Production stripping costs are allocated between the inventory produced and the production stripping asset using a life-of-component waste-to-ore (or mineral contained) strip ratio. When the current strip ratio is greater than the estimated life-of-component ratio a portion of the stripping costs is capitalised to the production stripping asset.	
Asset recognised from stripping activity	Inventory	Other mineral assets within property, plant and equipment.
Depreciation basis	Not applicable	On a component-by-component basis using the units of production method based on proven and probable reserves.

Key judgements and estimates

Judgements: Judgement is applied by management in determining the components of an ore body.

Estimates: Estimates are used in the determination of stripping ratios and mineral reserves by component. Changes to estimates related to life-of-component waste-to-ore (or mineral contained) strip ratios and the expected ore production from identified components are accounted for prospectively and may affect depreciation rates and asset carrying values.

Depreciation

Depreciation of assets, other than land, assets under construction and capitalised exploration and evaluation that are not depreciated, is calculated using either the straight-line (SL) method or units of production (UoP) method, net of residual values, over the estimated useful lives of specific assets. The depreciation method and rates applied to specific assets reflect the pattern in which the asset's benefits are expected to be used by the Group. The Group's proved reserves for petroleum assets and proved and probable reserves for minerals assets are used to determine UoP depreciation unless doing so results in depreciation charges that do not reflect the asset's useful life. Where this occurs, alternative approaches to determining reserves are applied, such as using management's expectations of future oil and gas prices rather than yearly average prices, to provide a phasing of periodic depreciation charges that better reflects the asset's expected useful life.

Where assets are dedicated to a mine or petroleum lease, the useful lives below are subject to the lesser of the asset category's useful life and the life of the mine or petroleum lease, unless those assets are readily transferable to another productive mine or lease.

Assets classified as held for sale are measured at the lower of their carrying amount and fair value less cost to sell and therefore not depreciated. BMC and Petroleum were classified as held for sale since November 2021 and December 2021 respectively.

Key estimates

The determination of useful lives, residual values and depreciation methods involves estimates and assumptions and is reviewed annually. Any changes to useful lives or any other estimates or assumptions, including the expected impact of climate change and the transition to a lower carbon economy, may affect prospective depreciation rates and asset carrying values. The table below summarises the principal depreciation methods and rates applied to major asset categories by the Group.

Category	**Buildings**	**Plant and equipment**	**Mineral rights and petroleum interests**	**Capitalised exploration, evaluation and development expenditure**
Typical depreciation methodology	SL	SL	UoP	UoP
Depreciation rate	25-50 years	3-30 years	Based on the rate of depletion of reserves	Based on the rate of depletion of reserves

Commitments

The Group's commitments for capital expenditure were US$2,820 million as at 30 June 2022 (2021: US$2,469 million). The Group's commitments related to leases are included in note 21 'Leases'.

12 Intangible assets

	2022			2021		
	Goodwill	**Other intangibles**	**Total**	Goodwill	Other intangibles	Total
	US$M	**US$M**	**US$M**	US$M	US$M	US$M
Net book value						
At the beginning of the financial year	**1,197**	**240**	**1,437**	1,197	377	1,574
Additions	**–**	**36**	**36**	–	23	23
Amortisation for the year	**–**	**(60)**	**(60)**	–	(93)	(93)
Impairments for the year[1]	**–**	**–**	**–**	–	(52)	(52)
Disposals	**–**	**(16)**	**(16)**	–	–	–
Divestment and demerger of subsidiaries and operations[2]	**–**	**(66)**	**(66)**	–	–	–
Transfers and other movements	**–**	**38**	**38**	–	(15)	(15)
At the end of the financial year	**1,197**	**172**	**1,369**	1,197	240	1,437
– Cost	**1,197**	**1,363**	**2,560**	1,197	1,506	2,703
– Accumulated amortisation and impairments	**–**	**(1,191)**	**(1,191)**	–	(1,266)	(1,266)

1 Refer to note 13 'Impairment of non-current assets' for information on impairments.

2 Relates to the merger of Petroleum with Woodside. Refer to note 27 'Discontinued operations' for more information.

Recognition and measurement

Goodwill

Where the fair value of the consideration paid for a business acquisition exceeds the fair value of the identifiable assets, liabilities and contingent liabilities acquired, the difference is treated as goodwill. Where consideration is less than the fair value of acquired net assets, the difference is recognised immediately in the income statement. Goodwill is not amortised and is measured at cost less any impairment losses.

Other intangibles

The Group capitalises amounts paid for the acquisition of identifiable intangible assets, such as software, licences and initial payments for the acquisition of mineral lease assets, where it is considered that they will contribute to future periods through revenue generation or reductions in cost. These assets, classified as finite life intangible assets, are carried in the balance sheet at the fair value of consideration paid (cost) less accumulated amortisation and impairment charges. Intangible assets with finite useful lives are amortised on a straight-line basis over their useful lives. The estimated useful lives are generally no greater than eight years.

Initial payments for the acquisition of intangible mineral lease assets are capitalised and amortised over the term of the permit. A regular review is undertaken of each area of interest to determine the appropriateness of continuing to carry forward costs in relation to that area. Capitalised costs are only carried forward to the extent that they are expected to be recovered through the successful exploitation of the area of interest or alternatively by its sale. To the extent that capitalised expenditure is no longer expected to be recovered, it is charged to the income statement.

Assets classified as held for sale are measured at the lower of their carrying amount and fair value less cost to sell and therefore not amortised.

13 Impairment of non-current assets

Cash generating unit	Segment	2022 Property, plant and equipment US$M	Goodwill and other intangibles US$M	Equity-accounted investment US$M	Total US$M
Cerro Colorado	Copper	**455**	–	–	**455**
Other	Various	**60**	–	–	**60**
Total impairment of non-current assets		**515**	–	–	**515**
Reversal of impairment		–	–	–	–
Net impairment of non-current assets – Continuing operations		**515**	–	–	**515**
Net impairment of non-current assets – Discontinued operations		–	–	–	–
Net impairment of non-current assets		**515**	–	–	**515**

Cash generating unit	Segment	2021 Restated Property, plant and equipment US$M	Goodwill and other intangibles US$M	Equity-accounted investment US$M	Total US$M
New South Wales Energy Coal	Coal	1,025	32	–	1,057
Cerrejón	Coal	–	–	466	466
Potash	G&U	1,314	–	–	1,314
Other	Various	135	1	–	136
Total impairment of non-current assets		2,474	33	466	2,973
Reversal of impairment		–	–	–	–
Net impairment of non-current assets – Continuing operations		2,474	33	466	2,973
Net impairment of non-current assets – Discontinued operations		109	19	–	128
Net impairment of non-current assets		2,583	52	466	3,101

Recognition and measurement

Impairment tests for all non-financial assets (excluding goodwill) are performed when there is an indication of impairment. Goodwill is tested for impairment at least annually. Where the asset does not generate cash flows that are independent from other assets, the Group estimates the recoverable amount of the cash generating unit (CGU) to which the asset belongs, being the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets. If the carrying amount of the asset or CGU exceeds its recoverable amount, the asset or CGU is impaired and an impairment loss is charged to the income statement so as to reduce the carrying amount in the balance sheet to its recoverable amount.

Previously impaired assets (excluding goodwill as impairment losses are not reversed in subsequent periods) are reviewed for possible reversal of previous impairment at each reporting date. Impairment reversal cannot exceed the carrying amount that would have been determined (net of depreciation) had no impairment loss been recognised for the asset or CGU. Such reversal is recognised in the income statement. There were no reversals of impairment in the current or prior year.

How recoverable amount is calculated

The recoverable amount is the higher of an asset's or CGU's fair value less cost of disposal (FVLCD) and its value in use (VIU).

Fair value less cost of disposal

FVLCD is an estimate of the amount that a market participant would pay for an asset or CGU, less the cost of disposal. FVLCD for mineral assets is generally determined using independent market assumptions to calculate the present value of the estimated future post-tax cash flows expected to arise from the continued use of the asset, including the anticipated cash flow effects of any capital expenditure to enhance production or reduce cost, and its eventual disposal where a market participant may take a consistent view. Cash flows are discounted using an appropriate post-tax market discount rate to arrive at a net present value of the asset, which is compared against the asset's carrying value. FVLCD may also take into consideration other market-based indicators of fair value. FVLCD are based primarily on Level 3 inputs as defined in note 23 'Financial risk management' unless otherwise noted.

Value in use

VIU is determined as the present value of the estimated future cash flows expected to arise from the continued use of the asset in its present form and its eventual disposal or closure. VIU is determined by applying assumptions specific to the Group's continued use and cannot take into account future development. These assumptions are different to those used in calculating FVLCD and consequently the VIU calculation is likely to give a different result (usually lower) to a FVLCD calculation.

Impairment of non-current assets (excluding goodwill)

Impairment of non-current assets relating to the year ended 30 June 2022 are detailed below.

Impairment of Cerro Colorado

The Group recognised a pre-tax impairment charge of US$455 million. The impairment charge primarily relates to an increase in closure and rehabilitation provision at Cerro Colorado due to additional work required to re-profile waste dumps for closure and an increase in scope for the closure activities.

Impairments of non-current assets relating to the year ended 30 June 2021 are detailed below.

Impairment of New South Wales Energy Coal

The Group recognised pre-tax impairment charges of US$1,057 million. The recoverable amount of negative US$300 million as at 30 June 2021 was determined using VIU methodology, applying discounted cash flow (DCF) techniques. The valuation for NSWEC was most sensitive to changes in energy coal prices, estimated future production volumes and discount rates. The valuation applied a post-tax real discount rate of 6.5 per cent.

Impairment of Cerrejón

The Group recognised a pre-tax impairment charge of US$466 million. The recoverable amount of US$284 million as at 30 June 2021 represented a FVLCD based on the expected net sale proceeds.

Impairment of Potash assets

The Group recognised a pre-tax impairment charge of US$1,314 million. The recoverable amount of US$3.3 billion as at 30 June 2021 was determined using FVLCD methodology, applying DCF techniques. The valuation was most sensitive to changes in the long-term potash price outlook and the risking applied to the future development phases of the potash resource. The valuation applied a post-tax real discount rate of 6.5 per cent.

Impairment test for goodwill

The carrying amount of goodwill has been allocated to the CGUs, or groups of CGUs, as follows:

Cash generating unit	**2022**	2021
	US$M	US$M
Olympic Dam	**1,010**	1,010
Other	**187**	187
Total goodwill	**1,197**	1,197

For the purpose of impairment testing, goodwill has been allocated to CGUs or groups of CGUs, that are expected to benefit from the synergies of previous business combinations, which represent the level at which management will monitor and manage goodwill.

Olympic Dam goodwill	
Impairment test conclusion	The Group performed an impairment test of the Olympic Dam CGU, including goodwill, as at 31 December 2021 and an impairment charge was not required. A goodwill impairment test was not required at 30 June 2022 as there were no indicators of impairment.
How did the goodwill arise?	Goodwill arose on the acquisition of WMC Resources Ltd in June 2005.
Segment	Olympic Dam is part of the Copper reportable segment.
How were the valuations calculated?	FVLCD methodology using DCF techniques has been applied in determining the recoverable amount of Olympic Dam.
Significant assumptions and sensitivities	The current valuation of Olympic Dam exceeds its carrying amount by approximately US$2.4 billion (2021: US$1.8 billion) and is most sensitive to changes in copper and gold commodity prices, production volumes, operating costs and discount rates. The valuation applied a post-tax real discount rate of 6.5 per cent (2021: 6 per cent). Management consider that there are no reasonably possible changes in copper and gold price forecasts, operating cost estimates or the discount rate that would, in isolation, result in the estimated recoverable amount being equal to the carrying amount. A production volume decrease of 6 per cent (2021: 4.8 per cent) across all commodities (copper, gold, silver and uranium) would, in isolation, result in the estimated recoverable amount being equal to the carrying amount. Typically, changes in any one of the aforementioned assumptions (including operating performance) would be accompanied by a change in another assumption which may have an offsetting impact. Action is usually taken to respond to adverse changes in assumptions to mitigate the impact of any such change. Key judgements and estimates that have been applied in the FVLCD valuation are disclosed further below.

Other goodwill

Goodwill held by other CGUs is US$187 million (2021: US$187 million). This represents less than one per cent of net assets at 30 June 2022 (2021: less than one per cent). There was no impairment of other goodwill in the year to 30 June 2022 (2021: US$ nil).

Key judgements and estimates

Judgements: Assessment of indicators of impairment or impairment reversal and the determination of CGUs for impairment purposes require significant management judgement.

Indicators of impairment may include changes in the Group's operating and economic assumptions, including those arising from changes in reserves or mine planning, updates to the Group's commodity supply, demand and price forecasts, or the possible additional impacts from emerging risks including those related to climate change and the transition to a low carbon economy.

Climate change

Impacts related to climate change and the transition to a low carbon economy may include:

- demand for the Group's commodities decreasing, due to policy, regulatory (including carbon pricing mechanisms), legal, technological, market or societal responses to climate change, resulting in a proportion of a CGU's reserves becoming incapable of extraction in an economically viable fashion
- physical impacts related to acute risks resulting from increased frequency or severity of extreme weather events, and those related to chronic risks resulting from longer-term changes in climate patterns

The Group's assessment of the potential impacts of climate change and the transition to a low carbon economy continues to mature. As outlined in the Basis of Preparation, where sufficiently developed, the potential financial impacts on the Group of climate change and the transition to a low carbon economy have been considered in the assessment of indicators of impairment, including:

- the Group's current assumptions relating to demand for commodities and carbon pricing, including their impact on the Group's long-term price forecasts
- the Group's operational emissions reduction strategy

Estimates: The Group performs a recoverable amount determination for an asset or CGU when there is an indication of impairment or impairment reversal.

When the recoverable amount is measured by reference to FVLCD, in the absence of quoted market prices or binding sale agreement, estimates are made regarding the present value of future post-tax cash flows. These estimates are made from the perspective of a market participant and include prices, future production volumes, operating costs, capital expenditure, closure and rehabilitation costs, taxes, risking factors applied to cash flows and discount rates. The cash flow forecasts may include net cash flows expected from the extraction, processing and sale of material that does not currently qualify for inclusion in reserves. Reserves and resources are included in the assessment of FVLCD to the extent that it is considered probable that a market participant would attribute value to them.

When recoverable amount is measured using VIU, estimates are made regarding the present value of future cash flows based on internal budgets and forecasts and life of asset plans. Key estimates are similar to those identified for FVLCD, although some assumptions and values may differ as they reflect the perspective of management rather than a market participant.

All estimates require management judgements and assumptions and are subject to risk and uncertainty that may be beyond the control of the Group; hence, there is a possibility that changes in circumstances will materially alter projections, which may impact the recoverable amount of assets/CGUs at each reporting date. While no indicators of impairment, or impairment reversal, were identified across the Group's CGUs at 30 June 2022, with the exception of the Cerro Colorado CGU, the carrying value of the Spence CGU is the most susceptible to changes in the significant estimates outlined below in the next reporting period.

The significant estimates impacting the Group's recoverable amount determinations are:

Commodity prices

Commodity prices were based on latest internal forecasts which assume short-term market prices will revert to the Group's assessment of long-term price. These price forecasts reflect management's long-term views of global supply and demand, built upon past experience of the commodity markets and are benchmarked with external sources of information such as analyst forecasts. Prices are adjusted based upon premiums or discounts applied to global price markers to reflect the location, nature and quality of the Group's production, or to take into account contracted prices.

Future production volumes

Estimated production volumes were based on detailed data and took into account development plans established by management as part of the Group's long-term planning process. When estimating FVLCD, assumptions reflect all reserves and resources that a market participant would consider when valuing the respective CGU, which in some cases are broader in scope than the reserves that would be used in a VIU test. In determining FVLCD, risk factors may be applied to reserves and resources which do not meet the criteria to be treated as proved.

Cash outflows (including operating costs, capital expenditure, closure and rehabilitation costs and taxes)

Cash outflows are based on internal budgets and forecasts and life of asset plans. Cost assumptions reflect management experience and expectations. Tax assumptions reflect existing tax and royalty regimes and rates applicable in the jurisdiction of the CGU. In the case of FVLCD, cash flow projections include the anticipated cash flow effects of any capital expenditure to enhance production or reduce cost where a market participant may take a consistent view. VIU does not take into account future development.

Discount rates

The Group uses real post-tax discount rates applied to real post-tax cash flows. The discount rates are derived using the weighted average cost of capital methodology. Adjustments to the rates are made for any risks that are not reflected in the underlying cash flows, including country risk.

14 Deferred tax balances

The movement for the year in the Group's net deferred tax position is as follows:

	2022 US$M	2021 US$M	2020 US$M
Net deferred tax (liability)/asset			
At the beginning of the financial year	**(1,402)**	(91)	(491)
Income tax (charge)/credit recorded in the income statement[1]	**(125)**	(1,325)	335
Income tax (charge)/credit recorded directly in equity	**(42)**	42	34
Divestment and demerger of subsidiaries and operations[2]	**(1,439)**	–	–
Other movements	**1**	(28)	31
At the end of the financial year	**(3,007)**	(1,402)	(91)

1 Includes Discontinued operations income tax (charge)/credit to the income statement of US$(61) million (2021: US$273 million; 2020: US$247 million).

2 Relates to the divestment of BMC and merger of Petroleum with Woodside. Refer to notes 3 'Exceptional items' and 27 'Discontinued operations' for more information.

For recognition and measurement refer to note 6 'Income tax expense'.

The composition of the Group's net deferred tax assets and liabilities recognised in the balance sheet and the deferred tax expense charged/(credited) to the income statement is as follows:

	Deferred tax assets		Deferred tax liabilities		Charged/(credited) to the income statement		
	2022 US$M	2021 US$M	2022 US$M	2021 US$M	2022 US$M	2021 US$M	2020 US$M
Type of temporary difference							
Depreciation[1]	**(526)**	(1,349)	**4,844**	4,716	**554**	488	1,394
Exploration expenditure	**9**	51	**–**	–	**13**	347	51
Employee benefits	**21**	94	**(322)**	(333)	**20**	(68)	(38)
Closure and rehabilitation	**104**	638	**(1,448)**	(2,086)	**24**	(515)	(334)
Resource rent tax	**–**	122	**–**	368	**(129)**	(309)	(119)
Other provisions	**70**	108	**(192)**	(227)	**49**	77	(268)
Deferred income	**51**	11	**(1)**	(16)	**(31)**	(31)	33
Deferred charges	**(57)**	(36)	**584**	602	**7**	68	(132)
Investments, including foreign tax credits	**139**	147	**365**	671	**(298)**	414	(77)
Foreign exchange gains and losses	**(13)**	(3)	**154**	133	**33**	63	(18)
Tax losses	**225**	1,999	**(307)**	(82)	**28**	678	(148)
Lease liability[1]	**17**	68	**(594)**	(658)	**(10)**	67	(793)
Other	**16**	62	**(20)**	226	**(135)**	46	114
Total	**56**	1,912	**3,063**	3,314	**125**	1,325	(335)

1 Includes deferred tax associated with the recognition of right-of-use assets and lease liabilities on adoption of IFRS 16. Refer to note 21 'Leases'.

The amount of deferred tax assets dependent on future taxable profits not arising from the reversal of existing deferred tax liabilities, and which relate to tax jurisdictions where the taxable entity has suffered a loss in the current or preceding year, was US$18 million at 30 June 2022 (2021: US$1,675 million). The decrease from FY2021 is primarily attributable to the disposal of assets giving rise to these deferred tax assets as part of the merger of Petroleum with Woodside. For operating assets, the group assesses the recoverability of these deferred tax assets using estimates and assumptions relating to projected earnings and cash flows as applied in the Group impairment process for associated operations. Further information on the key judgements and estimates relating to the recognition of deferred tax assets is provided in note 6 'Income tax expense'.

The composition of the Group's unrecognised deferred tax assets and liabilities is as follows:

	2022 US$M	2021 US$M
Unrecognised deferred tax assets		
Tax losses and tax credits[1]	**8,462**	5,944
Investments in subsidiaries[2]	**1,597**	1,712
Deductible temporary differences relating to PRRT[3]	**–**	2,402
Mineral rights[4]	**2,781**	3,359
Other deductible temporary differences[5]	**1,777**	1,630
Total unrecognised deferred tax assets	**14,617**	15,047
Unrecognised deferred tax liabilities		
Investments in subsidiaries[2]	**2,099**	2,203
Future taxable temporary differences relating to unrecognised deferred tax asset for PRRT[3]	**–**	720
Total unrecognised deferred tax liabilities	**2,099**	2,923

1 At 30 June 2022, the Group had income and capital tax losses with a tax benefit of US$5,777 million (2021: US$3,569 million) and tax credits of US$2,685 million (2021: US$2,375 million), which are not recognised as deferred tax assets, because it is not probable that future taxable profits or capital gains will be available against which the Group can utilise the benefits.

The gross amount of tax losses carried forward that have not been recognised is as follows:

Year of expiry	2022 US$M	2021 US$M
Income tax losses		
Not later than one year	**–**	13
Later than one year and not later than two years	**–**	5
Later than two years and not later than five years	**43**	105
Later than five years and not later than 10 years	**248**	1,449
Later than 10 years and not later than 20 years	**1,290**	3,347
Unlimited	**4,157**	4,799
	5,738	9,718
Capital tax losses		
Not later than one year	**–**	–
Later than two years and not later than five years	**–**	–
Unlimited	**14,173**	4,238
Gross amount of tax losses not recognised	**19,911**	13,956
Tax effect of total losses not recognised	**5,777**	3,569

Of the US$2,685 million of tax credits, US$2,129 million expires not later than 10 years and US$556 million expires later than 10 years and not later than 20 years.

2 The Group had deferred tax assets and deferred tax liabilities associated with undistributed earnings of subsidiaries that have not been recognised because the Group is able to control the timing of the reversal of the temporary differences and it is not probable that these differences will reverse in the foreseeable future. Where the Group has undistributed earnings held by associates and joint interests, the deferred tax liability will be recognised as there is no ability to control the timing of the potential distributions.

3 The Group had unrecognised deferred tax assets relating to Australian Petroleum Resource Rent Tax (PRRT) in FY2021. The assets giving rise to these deferred tax assets were disposed as part of the merger of Petroleum with Woodside. Refer to note 27 'Discontinued operations' for more information.

4 The Group had deductible temporary differences relating to mineral rights for which deferred tax assets had not been recognised because it is not probable that future capital gains will be available against which the Group can utilise the benefits. The deductible temporary differences do not expire under current tax legislation.

5 The Group had other deductible temporary differences for which deferred tax assets had not been recognised because it is not probable that future taxable profits will be available against which the Group can utilise the benefits. The deductible temporary differences do not expire under current tax legislation.

15 Closure and rehabilitation provisions

	2022	2021
	US$M	US$M
At the beginning of the financial year	**11,910**	8,810
Capitalised amounts for operating sites:		
Change in estimate	**1,579**	1,974
Exchange translation	**(694)**	483
Adjustments charged/(credited) to the income statement:		
Increases to existing and new provisions	**174**	564
Exchange translation	**(58)**	76
Released during the year	**(42)**	(157)
Other adjustments to the provision:		
Amortisation of discounting impacting net finance costs	**554**	380
Acquisition of subsidiaries and operations	**–**	179
Divestment and demerger of subsidiaries and operations	**(4,477)**	(81)
Expenditure on closure and rehabilitations activities	**(316)**	(321)
Exchange variations impacting foreign currency translation reserve	**(3)**	3
Other movements	**62**	–
At the end of the financial year	**8,689**	11,910
Comprising:		
Current	**475**	591
Non-current	**8,214**	11,319
Operating sites	**6,198**	9,279
Closed sites	**2,491**	2,631

The Group is required to close and rehabilitate sites and associated facilities at the end of or, in some cases, during the course of production to a condition acceptable to the relevant authorities, as specified in licence requirements and the Group's closure performance requirements as set out within *Our Charter*.

The key components of closure and rehabilitation activities are:

- the removal of all unwanted infrastructure associated with an operation
- the return of disturbed areas to a safe, stable and self-sustaining condition, consistent with the agreed post-closure land use

Recognition and measurement

Provisions for closure and rehabilitation are recognised by the Group when:

- it has a present legal or constructive obligation as a result of past events
- it is more likely than not that an outflow of resources will be required to settle the obligation
- the amount can be reliably estimated

Initial recognition and measurement

Closure and rehabilitation provisions are initially recognised when an environmental disturbance first occurs. The individual site provisions are an estimate of the expected value of future cash flows required to close the relevant site using current standards and techniques and taking into account risks and uncertainties. Individual site provisions are discounted to their present value using currency specific discount rates aligned to the estimated timing of cash outflows.

When provisions for closure and rehabilitation are initially recognised, the corresponding cost is capitalised as an asset, representing part of the cost of acquiring the future economic benefits of the operation.

Subsequent measurement

The closure and rehabilitation asset, recognised within property, plant and equipment, is depreciated over the life of the operations. The value of the provision is progressively increased over time as the effect of discounting unwinds, resulting in an expense recognised in net finance costs.

The closure and rehabilitation provision is reviewed at each reporting date to assess if the estimate continues to reflect the best estimate of the obligation. If necessary, the provision is remeasured to account for factors such as:

- additional disturbance during the period
- revisions to estimated reserves, resources and lives of operations including any changes to expected operating lives arising from the Group's latest assessment of the potential impacts of climate change and the transition to a low carbon economy
- developments in technology
- changes to regulatory requirements and environmental management strategies
- changes in the estimated extent and costs of anticipated activities, including the effects of inflation and movements in foreign exchange rates
- movements in interest rates affecting the discount rate applied

Changes to the closure and rehabilitation estimate for operating sites are added to, or deducted from, the related asset and amortised on a prospective basis over the remaining life of the operation, generally applying the units of production method.

Costs arising from unforeseen circumstances, such as the contamination caused by unplanned discharges, are recognised as an expense and liability when the event gives rise to an obligation that is probable and capable of reliable estimation.

Closed sites

Where future economic benefits are no longer expected to be derived through operation, changes to the associated closure and remediation costs are charged to the income statement in the period identified. This amounted to US$74 million in the year ended 30 June 2022 (2021: US$483 million; 2020: US$669 million).

Key estimates

Closure cost estimates are generally based on conceptual level studies early in the operating life of an asset with more detailed studies and planning performed as closure risks (including those related to climate change) are identified and/or as an asset, or parts thereof, near closure. As such, the recognition and measurement of closure and rehabilitation provisions requires the use of significant estimates and assumptions, including, but not limited to:

- the extent (due to legal or constructive obligations) of potential activities required for the removal of infrastructure, decharacterisation of tailings storage facilities and rehabilitation activities
- costs associated with future closure activities
- the extent and period of post-closure monitoring and maintenance, including water management
- applicable discount rates
- the timing of cash flows and ultimate closure of operations

The extent, cost and timing of future closure activities may also be impacted by the potential physical impacts of climate change. In estimating the potential cost of closure activities, the Group considers factors such as long-term weather outlooks, for example forecast changes in rainfall patterns. Closure cost estimates also consider the impact of the Group's energy transition strategy on the costs and timing of performing closure activities and the impact of new technology when appropriately developed and tested. For example, closure cost estimates largely continue to reflect the use of existing fuel sources for the Group's equipment while the Group continues to invest in the development of alternative fuel sources and fleet electrification.

Estimates for post-closure monitoring and maintenance reflect the Group's strategies for individual sites, which may include possible relinquishment. The period of monitoring and maintenance included in the provision requires judgement and considers regulatory and licencing requirements, the outcomes of studies and management's current assessment of stakeholder expectations. As post-closure monitoring and maintenance may be required for significant periods beyond the completion of other closure activities, it is exposed to the potential long-term impacts of climate change, particularly changes in rainfall patterns. While reflecting management's current best estimate, the cost of post-closure monitoring and maintenance may change in future reporting periods as the understanding of, and potential long-term impacts from, climate change continue to evolve.

While progressive closure is performed across a number of operations, significant activities are generally undertaken at the end of the production life at the individual sites, the estimated timing of which is informed by the Group's current assumptions relating to demand for commodities and carbon pricing, and their impact on the Group's long-term price forecasts.

Remaining production lives range from 2-104 years (2021: 3-91 years). Given the generally shorter remaining operational lives of the Group's previously held Petroleum assets, the average remaining production life for all operating sites, weighted by current closure provision, has increased to approximately 29 years (2021: 27 years). The discount rates applied to the Group's closure and rehabilitation provisions are determined by reference to the currency of the closure cash flows, the period over which the cash flows will be incurred and prevailing market interest rates (where available). The Group continues to monitor current market conditions with no change made to the Group's discount rates in the current year.

The increase in closure and rehabilitation provisions relating to continuing operating sites reflects updates to the expected cost and timing of closure activities across the Group's portfolio, with the most significant increases in the year ended 30 June 2022 being at BHP Mitsubishi Alliance (BMA) and Cerro Colorado.

For BMA, the increase largely reflects a preliminary assessment of the potential impacts on BMA mine lives resulting from:

- the significant increase in coal royalties applicable in Queensland from 1 July 2022
- consideration of the Group's long term outlook for metallurgical coal commodity prices, which reflects a range of drivers of commodity demand and supply, for example, the latest climate-related announcements from key market countries

These factors have resulted in the Group recognising that the end of operations at BMA sites may be earlier than previously anticipated. The best estimate of the impact on the estimated closure cash flows and their timing, and therefore the discounting of the provision, contributed to an increase in the provision, and associated rehabilitation asset, of approximately US$750 million. Given the timing of the announcement of the change to the Queensland coal royalty regime and the preliminary nature of the assessment, further changes to the provision may arise in future reporting periods.

At Cerro Colorado, additional work required to re-profile waste dumps for closure and an increase in scope for other closure activities have contributed to an increase in the closure provision of approximately US$400 million. As operations are ongoing at Cerro Colorado the increase has initially been capitalised. However, given the proximity to closure and the estimated future cash flows of Cerro Colorado the resulting rehabilitation asset has been impaired as outlined in note 13 'Impairment of non-current assets'.

While the closure and rehabilitation provisions reflect management's best estimates based on current knowledge and information, further studies, trials and detailed analysis of relevant knowledge and resultant closure activities for individual assets continue to be performed throughout the life of asset. Such studies and analysis can impact the estimated costs of closure activities. Estimates can also be impacted by the emergence of new closure and rehabilitation techniques, changes in regulatory requirements and stakeholder expectations for closure (including costs associated with equitable transition), development of new technologies, risks relating to climate change and the transition to a low carbon economy, and experience at other operations. These uncertainties may result in future actual expenditure differing from the amounts currently provided for in the balance sheet.

Sensitivity

A 0.5 per cent increase in the discount rates applied at 30 June 2022 would result in a decrease to the closure and rehabilitation provision of approximately US$675 million, a decrease in property, plant and equipment of approximately US$490 million in relation to operating sites and an income statement credit of approximately US$185 million in respect of closed sites. In addition, the change would result in a decrease of approximately US$70 million to depreciation expense and a US$25 million increment in net finance costs for the year ending 30 June 2023.

Given the long-lived nature of the majority of the Group's assets, the majority of final closure activities are generally not expected to occur for a significant period of time.

However, a one-year acceleration in forecast cash flows of the Group's closure and rehabilitation provisions, in isolation, would result in an increase to the provision of approximately US$185 million, an increase in property, plant and equipment of US$125 million in relation to operating sites and an income statement charge of US$60 million in respect of closed sites.

Capital structure

16 Share capital

	BHP Group Limited			BHP Group Plc		
	2022 shares	2021 shares	2020 shares	**2022 shares**	2021 shares	2020 shares
Share capital issued						
Opening number of shares	**2,945,851,394**	2,945,851,394	2,945,851,394	**2,112,071,796**	2,112,071,796	2,112,071,796
Issue of shares	**4,400,000**	–	–	**–**	–	–
Corporate structure unification	**2,112,071,796**	–	–	**(2,112,071,796)**	–	–
Purchase of shares by ESOP Trusts	**(8,704,669)**	(7,587,353)	(5,975,189)	**(63,567)**	(185,054)	(185,297)
Employee share awards exercised following vesting	**8,522,684**	6,948,683	6,893,113	**77,748**	173,644	222,245
Movement in treasury shares under Employee Share Plans	**181,985**	638,670	(917,924)	**(14,181)**	11,410	(36,948)
Closing number of shares	**5,062,323,190**	2,945,851,394	2,945,851,394	**–**	2,112,071,796	2,112,071,796
Comprising:						
Shares held by the public	**5,061,272,144**	2,944,982,333	2,945,621,003	**–**	2,112,057,615	2,112,069,025
Treasury shares	**1,051,046**	869,061	230,391	**–**	14,181	2,771
Other share classes						
5.5% Preference shares of £1 each	**–**	–	–	**–**	50,000	50,000
Special Voting share of no par value	**–**	1	1	**–**	–	–
Special Voting share of US$0.50 par value	**–**	–	–	**–**	1	1
DLC Dividend share	**–**	1	1	**–**	–	–

During August 2021, BHP Group Limited issued 4,400,000 fully paid ordinary shares to the BHP Billiton Limited Employee Equity Trust at A$52.99 per share, to satisfy the vesting of employee share awards and related dividend equivalent entitlements under those employee share plans.

On 3 September 2021, BHP Group Plc acquired by way of gift from J.P. Morgan Limited the 50,000 issued 5.5 per cent cumulative preference shares of £1.00, in the capital of BHP Group Plc. These preference shares held by BHP Group Plc were cancelled on 31 January 2022.

On 31 January 2022, 2,112,071,796 fully paid ordinary shares in BHP Group Limited were issued to BHP Group Plc shareholders in a one for one exchange of their BHP Group Plc ordinary shares, resulting in BHP Group Limited becoming the sole parent company of the Group with a single set of shareholders.

BHP Group Plc had one Special Voting share on issue and BHP Group Limited had one Special Voting share and one DLC dividend share on issue to facilitate operation of the Group's dual listed structure. These shares were bought back for nominal value in January 2022 and subsequently cancelled.

Share capital of BHP Group Limited at 30 June 2022 is composed of the following classes of shares:

Ordinary shares fully paid	Treasury shares
Each fully paid ordinary share of BHP Group Limited carries the right to one vote at a meeting of the Company.	Treasury shares are shares of BHP Group Limited that are held by the ESOP Trusts for the purpose of issuing shares to employees under the Group's Employee Share Plans. Treasury shares are recognised at cost and deducted from equity, net of any income tax effects. When the treasury shares are subsequently sold or reissued, any consideration received, net of any directly attributable costs and income tax effects, is recognised as an increase in equity. Any difference between the carrying amount and the consideration, if reissued, is recognised in retained earnings.

The following classes of shares existed prior to the Group's unification on 31 January 2022:

Special Voting shares	Preference shares	DLC Dividend share
Each of BHP Group Limited and BHP Group Plc issued one Special Voting share to facilitate joint voting by shareholders of BHP Group Limited and BHP Group Plc on Joint Electorate Actions.	Preference shares have the right to repayment of the amount paid up on the nominal value and any unpaid dividends in priority to the holders of any other class of shares in BHP Group Plc on a return of capital or winding up. The holders of preference shares have limited voting rights if payment of the preference dividends are six months or more in arrears or a resolution is passed changing the rights of the preference shareholders.	The DLC Dividend share supported the Dual Listed Company (DLC) equalisation principles in place since the merger in 2001, including the requirement that ordinary shareholders of BHP Group Plc and BHP Group Limited are paid equal cash dividends per share. This share enabled efficient and flexible capital management across the DLC and was issued on 23 February 2016 at par value of US$10.

17 Other equity

	2022 US$M	2021 US$M	2020 US$M	**Recognition and measurement**
Share premium account	**–**	518	518	The share premium account represented the premium paid on the issue of BHP Group Plc shares recognised in accordance with the UK Companies Act 2006. It was transferred to the common control reserve as part of the unification of the Group's corporate structure.
Capital redemption reserve	**–**	177	177	The capital redemption reserve represented the par value of BHP Group Plc shares that were purchased and subsequently cancelled. It was transferred to the common control reserve as part of unification of the Group's corporate structure.
Common control reserves	**(1,603)**	–	–	The common control reserve arose on unification of the Group's corporate structure and represents the residual on consolidation between BHP Group Ltd's investment in BHP Group Plc's and BHP Group Plc's share capital, share premium and capital redemption reserve at the time of unification.
Employee share awards reserve	**174**	268	246	The employee share awards reserve represents the accrued employee entitlements to share awards that have been charged to the income statement and have not yet been exercised. Once exercised, the difference between the accumulated fair value of the awards and their historical on-market purchase price is recognised in retained earnings.
Cash flow hedge reserve	**41**	100	50	The cash flow hedge reserve represents hedging gains and losses recognised on the effective portion of cash flow hedges. The cumulative deferred gain or loss on the hedge is recognised in the income statement when the hedged transaction impacts the income statement, or is recognised as an adjustment to the cost of non-financial hedged items. The hedging reserve records the portion of the gain or loss on a hedging instrument in a cash flow hedge that is determined to be an effective hedge relationship.
Cost of hedging reserve	**(19)**	(54)	(23)	The cost of hedging reserve represents the recognition of certain costs of hedging for example, basis adjustments, which have been excluded from the hedging relationship and deferred in other comprehensive income until the hedged transaction impacts the income statement.
Foreign currency translation reserve	**(14)**	43	39	The foreign currency translation reserve represents exchange differences arising from the translation of non-US dollar functional currency operations within the Group into US dollars.
Equity investments reserve	**(8)**	15	16	The equity investment reserve represents the revaluation of investments in shares recognised through other comprehensive income. Where a revalued financial asset is sold, the relevant portion of the reserve is transferred to retained earnings.
Non-controlling interest contribution reserve	**1,441**	1,283	1,283	The non-controlling interest contribution reserve represents the excess of consideration received over the book value of net assets attributable to equity instruments when acquired by non-controlling interests.
Total reserves	**12**	2,350	2,306	

Summarised financial information relating to each of the Group's subsidiaries with non-controlling interests (NCI) that are material to the Group before any intra-group eliminations is shown below:

	2022			2021		
US$M	**Minera Escondida Limitada**	**Other individually immaterial subsidiaries (incl. intra -group eliminations)**	**Total**	Minera Escondida Limitada	Other individually immaterial subsidiaries (incl. intra -group eliminations)	Total
Group share (per cent)	**57.5**			57.5		
Current assets	**2,929**			2,996		
Non-current assets	**11,636**			11,867		
Current liabilities	**(2,192)**			(1,912)		
Non-current liabilities	**(4,762)**			(4,733)		
Net assets	**7,611**			8,218		
Net assets attributable to NCI	**3,235**	**574**	**3,809**	3,493	848	4,341
Revenue	**9,500**			9,470		
Profit after taxation	**3,522**			3,605		
Other comprehensive income	**11**			27		
Total comprehensive income	**3,533**			3,632		
Profit after taxation attributable to NCI	**1,497**	**658**	**2,155**	1,532	615	2,147
Other comprehensive income attributable to NCI	**5**	**–**	**5**	11	–	11
Net operating cash flow	**4,519**			5,007		
Net investing cash flow	**(860)**			(655)		
Net financing cash flow	**(4,029)**			(4,001)		
Dividends paid to NCI	**1,760**	**780**	**2,540**	1,590	537	2,127

While the Group controls Minera Escondida Limitada, the non-controlling interests hold certain protective rights that restrict the Group's ability to sell assets held by Minera Escondida Limitada, or use the assets in other subsidiaries and operations owned by the Group. Minera Escondida Limitada is also restricted from paying dividends without the approval of the non-controlling interests.

18 Dividends

	Year ended 30 June 2022		Year ended 30 June 2021		Year ended 30 June 2020	
	Per share US cents	**Total US$M**	Per share US cents	Total US$M	Per share US cents	Total US$M
Dividends paid during the period[1]						
Prior year final dividend	**200**	**10,119**	55	2,779	78	3,946
Interim dividend	**150**	**7,601**	101	5,115	65	3,288
	350	**17,720**	156	7,894	143	7,234

1 5.5 per cent dividend on 50,000 preference shares of £1 each determined and paid for financial years 2021 and 2020. No dividend paid for the financial year 2022. These preference shares were cancelled on 31 January 2022.

Dividends paid during the period differs from the amount of dividends paid in the Consolidated Cash Flow Statement as a result of foreign exchange gains and losses relating to the timing of equity distributions between the record date and the payment date. Additional derivative proceeds of US$127 million were received as part of the funding of the interim dividend and is disclosed in Proceeds/(settlements) of cash management related instruments in the Consolidated Cash Flow Statement.

Prior to the corporate structure unification, the Dual Listed Company merger terms required that ordinary shareholders of BHP Group Limited and BHP Group Plc were paid equal cash dividends on a per share basis.

Each American Depositary Share (ADS) represents two ordinary shares of BHP Group Limited. Dividends determined on each ADS represent twice the dividend determined on BHP Group Limited ordinary share.

Dividends are determined after period-end and announced with the results for the period. Interim dividends are determined in February and paid in March. Final dividends are determined in August and paid in September. Dividends determined are not recorded as a liability at the end of the period to which they relate. Subsequent to year-end, on 16 August 2022, BHP Group Limited determined a final dividend of 175 US cents per share (US$8,857 million), which will be paid on 22 September 2022 (30 June 2021: final dividend of 200 US cents per share – US$10,114 million; 30 June 2020: final dividend of 55 US cents per share – US$2,782 million).

BHP Group Limited dividends for all periods presented are, or will be, fully franked based on a tax rate of 30 per cent.

	2022 US$M	2021 US$M	2020 US$M
Franking credits as at 30 June	**7,007**	14,302	10,980
Franking credits arising from the payment of current tax	**2,043**	1,799	471
Total franking credits available[1]	**9,050**	16,101	11,451

1 The payment of the final 2022 dividend determined after 30 June 2022 will reduce the franking account balance by US$3,796 million.

In addition to dividends paid, the Group made an in specie dividend to eligible BHP shareholders during the period by distributing the 914,768,948 Woodside shares it received as consideration for the sale of BHP Petroleum. The closing price of Woodside shares on ASX on 31 May 2022 was A$29.76. The implied value of the in specie dividend was therefore A$27.2 billion (US$19.6 billion). At this valuation, the in specie dividend was approximately A$5.38 (US$3.86), with A$2.30 (US$1.66) of franking credits being distributed, per BHP share. Further detail are detailed in note 27 'Discontinued operations'.

19 Provisions for dividends and other liabilities

The disclosure below excludes closure and rehabilitation provisions (refer to note 15 'Closure and rehabilitation provisions'), employee benefits, restructuring and post-retirement employee benefits provisions (refer to note 26 'Employee benefits, restructuring and post-retirement employee benefits provisions') and provisions related to the Samarco dam failure (refer to note 4 'Significant events – Samarco dam failure').

	2022 US$M	2021 US$M
Movement in provision for dividends and other liabilities		
At the beginning of the financial year	**581**	1,240
Dividends determined	**17,720**	7,894
Charge/(credit) for the year:		
Underlying	**493**	260
Discounting	**1**	2
Exchange variations	**122**	20
Released during the year	**(48)**	(43)
Utilisation	**(96)**	(267)
Dividends paid	**(17,851)**	(7,901)
Divestment and demerger of subsidiaries and operations	**(146)**	–
Transfers and other movements	**(102)**	(624)
At the end of the financial year	**674**	581
Comprising:		
Current	**356**	293
Non-current	**318**	288

Financial management

20 Net debt

The Group seeks to maintain a strong balance sheet and deploys its capital with reference to the Capital Allocation Framework.

The Group monitors capital using the net debt balance and the gearing ratio, being the ratio of net debt to net debt plus net assets.

The net debt definition includes the fair value of derivative financial instruments used to hedge cash and borrowings which reflects the Group's risk management strategy of reducing the volatility of net debt caused by fluctuations in foreign exchange and interest rates.

Under IFRS 16/AASB16 'Leases', vessel lease contracts are required to be remeasured at each reporting date to the prevailing freight index. While these liabilities are included in the Group interest bearing liabilities, they are excluded from the net debt calculation as they do not align with how the Group assesses net debt for decision making in relation to the Capital Allocation Framework. In addition, the freight index has historically been volatile which creates significant short-term fluctuation in these liabilities.

	2022		2021	
US$M	**Current**	**Non-current**	Current	Non-current
Interest bearing liabilities				
Bank loans	**397**	**2,075**	437	1,823
Notes and debentures	**1,690**	**9,673**	1,244	13,525
Lease liabilities	**519**	**2,057**	889	3,007
Bank overdraft and short-term borrowings	**–**	**–**	–	–
Other	**16**	**1**	58	–
Total interest bearing liabilities	**2,622**	**13,806**	2,628	18,355
Less: Lease liability associated with index-linked freight contracts	**113**	**161**	346	679
Less: Cash and cash equivalents				
Cash	**5,728**	**–**	4,408	–
Short-term deposits	**11,508**	**–**	10,838	–
Less: Total cash and cash equivalents	**17,236**	**–**	15,246	–
Less: Derivatives included in net debt				
Net debt management related instruments[1]	**(358)**	**(1,330)**	20	537
Net cash management related instruments[2]	**273**	**–**	34	–
Less: Total derivatives included in net debt	**(85)**	**(1,330)**	54	537
Net debt		**333**		4,121
Net assets		**48,766**		55,605
Gearing		**0.7%**		6.9%

1 Represents the net cross currency and interest rate swaps designated as effective hedging instruments included within current and non-current other financial assets and liabilities.

2 Represents the net forward exchange contracts included within current and non-current other financial assets and liabilities.

Cash and short-term deposits are disclosed in the cash flow statement net of bank overdrafts and interest bearing liabilities at call.

	2022	2021	2020
	US$M	US$M	US$M
Total cash and cash equivalents	**17,236**	15,246	13,426
Bank overdrafts and short-term borrowings	**–**	–	–
Total cash and cash equivalents, net of overdrafts	**17,236**	15,246	13,426

Cash and cash equivalents includes US$127 million (2021: US$159 million) restricted by legal or contractual arrangements.

Recognition and measurement

Cash and short-term deposits in the balance sheet comprise cash at bank and on hand and highly liquid cash deposits with short-term maturities that are readily convertible to known amounts of cash with insignificant risk of change in value. The Group considers that the carrying value of cash and cash equivalents approximate fair value due to their short-term to maturity. Refer to note 21 'Leases' and note 23 'Financial risk management' for the recognition and measurement principles for lease liabilities and other financial liabilities.

Interest bearing liabilities and cash and cash equivalents include balances denominated in the following currencies:

	Interest bearing liabilities		Cash and cash equivalents	
	2022	2021	**2022**	2021
	US$M	US$M	**US$M**	US$M
USD	**8,813**	11,146	**7,654**	12,003
EUR	**3,463**	4,505	**2,656**	4
GBP	**2,621**	3,415	**30**	32
AUD	**783**	1,053	**3,360**	573
CAD	**584**	635	**3,437**	2,455
Other	**164**	229	**99**	179
Total	**16,428**	20,983	**17,236**	15,246

The Group enters into derivative transactions to convert the majority of its exposures above into US dollars. Further information on the Group's risk management activities relating to these balances is provided in note 23 'Financial risk management'.

Liquidity risk

The Group's liquidity risk arises from the possibility that it may not be able to settle or meet its obligations as they fall due and is managed as part of the portfolio risk management strategy. Operational, capital and regulatory requirements are considered in the management of liquidity risk, in conjunction with short-term and long-term forecast information.

Recognising the cyclical volatility of operating cash flows, the Group has defined minimum target cash and liquidity buffers to be maintained to mitigate liquidity risk and support operations through the cycle.

The Group's strong credit profile, diversified funding sources, its minimum cash buffer and its committed credit facilities ensure that sufficient liquid funds are maintained to meet its daily cash requirements.

The Group's Moody's credit rating has remained at A2/P-1 outlook stable (long-term/short-term) throughout FY2022 and Moody's affirmed its credit rating on 2 June 2022. The Group's Standard & Poor's rating changed from A/A-1 outlook stable (long-term/short-term) to A/A-1 CreditWatch negative (long-term/short-term) on 23 August 2021 following the announcement of the proposed merger of our petroleum business with Woodside. Upon completion of the merger, on 1 June 2022 Standard & Poor's lowered the Group's long-term credit rating by one notch, removed the credit rating from CreditWatch, and confirmed a credit rating of A-/A-1 outlook stable (long-term/short-term).

There were no defaults on the Group's liabilities during the period.

Counterparty risk

The Group is exposed to credit risk from its financing activities, including short-term cash investments such as deposits with banks and derivative contracts. This risk is managed by Group Treasury in line with the counterparty risk framework, which aims to minimise the exposure to a counterparty and mitigate the risk of financial loss through counterparty failure.

Exposure to counterparties is monitored at a Group level across all products and includes exposure with derivatives and cash investments.

Investments and derivatives are only transacted with approved counterparties who have been assigned specific limits based on a quantitative credit risk model. These limits are updated at least bi-annually. Additionally, derivatives are subject to tenor limits and investments are subject to concentration limits by rating.

Derivative fair values are inclusive of valuation adjustments that take into account both the counterparty and the Group's risk of default.

Standby arrangements and unused credit facilities

The Group's committed revolving credit facility operates as a back-stop to the Group's uncommitted commercial paper program. The combined amount drawn under the facility or as commercial paper will not exceed US$5.5 billion. As at 30 June 2022, US$ nil commercial paper was drawn (2021: US$ nil). The facility was amended in November 2021 for IBOR transition and is due to mature on 10 October 2026. A commitment fee is payable on the undrawn balance and interest is payable on any drawn balance comprising a reference rate plus a margin. The agreed margins are typical for a credit facility extended to a company with the Group's credit rating.

Maturity profile of financial liabilities

The maturity profile of the Group's financial liabilities based on the undiscounted contractual amounts, taking into account the derivatives related to debt, is as follows:

2022 US$M	**Bank loans, debentures and other loans**	**Expected future interest payments**	**Derivatives related to debentures**	**Other derivatives**	**Obligations under lease liabilities**	**Trade and other payables[1]**	**Total**
Due for payment:							
In one year or less or on demand	**2,109**	**492**	**525**	**221**	**579**	**6,608**	**10,534**
In more than one year but not more than two years	**1,634**	**427**	**300**	**112**	**443**	**–**	**2,916**
In more than two years but not more than five years	**2,609**	**1,032**	**492**	**246**	**936**	**–**	**5,315**
In more than five years	**7,550**	**3,705**	**1,467**	**245**	**1,470**	**–**	**14,437**
Total	**13,902**	**5,656**	**2,784**	**824**	**3,428**	**6,608**	**33,202**
Carrying amount	**13,852**	**–**	**1,824**	**752**	**2,576**	**6,608**	**25,612**

2021 US$M	Bank loans, debentures and other loans	Expected future interest payments	Derivatives related to debentures	Other derivatives	Obligations under lease liabilities	Trade and other payables[1]	Total
Due for payment:							
In one year or less or on demand	1,722	729	61	149	980	6,851	10,492
In more than one year but not more than two years	2,278	661	267	80	680	–	3,966
In more than two years but not more than five years	4,062	1,492	256	240	1,397	–	7,447
In more than five years	7,801	4,136	585	317	1,842	–	14,681
Total	15,863	7,018	1,169	786	4,899	6,851	36,586
Carrying amount	17,087	–	586	690	3,896	6,851	29,110

1 Excludes input taxes of US$79 million (2021: US$176 million) included in other payables. Refer to note 9 'Trade and other payables'.

21 Leases

Movements in the Group's lease liabilities during the year are as follows:

	2022 US$M	2021 US$M
At the beginning of the financial year	**3,896**	3,443
Additions	**866**	1,223
Remeasurements of index-linked freight contracts	**(369)**	(59)
Lease payments[1]	**(1,288)**	(879)
Foreign exchange movement	**(126)**	115
Amortisation of discounting	**125**	109
Divestment and demerger of subsidiaries and operations[2]	**(492)**	–
Transfers and other movements	**(36)**	(56)
At the end of the financial year	**2,576**	3,896
Comprising:		
Current liabilities	**519**	889
Non-current liabilities	**2,057**	3,007

1 Includes US$39 million (2021: US$45 million) related to Discontinued operations.

2 Relates to the divestment of BMC and merger of Petroleum with Woodside. Refer to notes 3 'Exceptional items' and 27 'Discontinued operations' for more information.

A significant proportion by value of the Group's lease contracts relate to plant facilities, office buildings and vessels. Lease terms for plant facilities and office buildings typically run for over 10 years and vessels for four to 10 years. Other leases include port facilities, various equipment and vehicles. The lease contracts contain a wide range of different terms and conditions including extension and termination options and variable lease payments.

The Group's lease obligations are included in the Group's Interest bearing liabilities and, with the exception of vessel lease contracts that are priced with reference to a freight index, form part of the Group's net debt.

The maturity profile of lease liabilities based on the undiscounted contractual amounts is as follows:

Lease liability	2022 US$M	2021 US$M
Due for payment:		
In one year or less or on demand	**579**	980
In more than one year but not more than two years	**443**	680
In more than two years but not more than five years	**936**	1,397
In more than five years[1]	**1,470**	1,842
Total	**3,428**	4,899
Carrying amount	**2,576**	3,896

1 Includes US$707 million (2021: US$878 million) due for payment in more than ten years.

At 30 June 2022, commitments for leases not yet commenced based on undiscounted contractual amounts were US$928 million (2021: US$457 million).

Movements in the Group's right-of-use assets during the year are as follows:

	2022			2021		
	Land and buildings US$M	**Plant and equipment US$M**	**Total US$M**	Land and buildings US$M	Plant and equipment US$M	Total US$M
Net book value						
At the beginning of the financial year	**638**	**2,712**	**3,350**	689	2,358	3,047
Additions	**41**	**825**	**866**	25	1,227	1,252
Remeasurements of index-linked freight contracts	**–**	**(369)**	**(369)**	–	(59)	(59)
Depreciation expensed during the period	**(103)**	**(872)**	**(975)**	(111)	(670)	(781)
Depreciation classified as exploration	**–**	**(3)**	**(3)**	–	(19)	(19)
Impairments for the year	**(7)**	**–**	**(7)**	(30)	(2)	(32)
Divestment and demerger of subsidiaries and operations[1]	**(116)**	**(313)**	**(429)**	–	–	–
Transfers and other movements	**(1)**	**(71)**	**(72)**	65	(123)	(58)
At the end of the financial year	**452**	**1,909**	**2,361**	638	2,712	3,350
– Cost	**745**	**4,307**	**5,052**	897	4,393	5,290
– Accumulated depreciation and impairments	**(293)**	**(2,398)**	**(2,691)**	(259)	(1,681)	(1,940)

1 Relates to the divestment of BMC and merger of Petroleum with Woodside. Refer to notes 3 'Exceptional items' and 27 'Discontinued operations' for more information.

Right-of-use assets are included within the underlying asset classes in Property, plant and equipment. Refer to note 11 'Property, plant and equipment'.

Amounts recorded in the income statement and the cash flow statement for the year were:

	2022 US$M	2021 US$M Restated	2020 US$M Restated	**Included within**
Income statement				
Depreciation of right-of-use assets	**964**	753	623	Profit from operations
Short-term, low-value and variable lease costs[1]	**847**	834	637	Profit from operations
Interest on lease liabilities	**119**	102	82	Financial expenses
Cash flow statement				
Principal lease payments	**1,130**	732	632	Cash flows from financing activities
Lease interest payments	**119**	102	82	Cash flows from operating activities

1 Relates to US$585 million of variable lease costs (2021: US$510 million; 2020: US$415 million), US$222 million of short-term lease costs (2021: US$294 million; 2020: US$201 million) and US$40 million of low-value lease costs (2021: US$30 million; 2020: US$21 million). Variable lease costs include contracts for hire of mining service equipment, drill rigs and transportation services. These contracts contain variable lease payments based on usage and asset performance.

Recognition and measurement

All leases with the exception of short-term (under 12 months) and low-value leases are recognised on the balance sheet, as a right-of-use asset and a corresponding interest bearing liability. Lease liabilities are initially measured at the present value of the future lease payments from the lease commencement date and are subsequently adjusted to reflect the interest on lease liabilities, lease payments and any remeasurements due to, for example, lease modifications or a change to future lease payments linked to an index or rate. Lease payments are discounted using the interest rate implicit in the lease, where this is readily determinable. Where the implicit interest rate is not readily determinable, the interest payments are discounted at the Group's incremental borrowing rate, adjusted to reflect factors specific to the lease, including where relevant the currency, tenor and location of the lease.

In addition to containing a lease, the Group's contractual arrangements may include non-lease components. For example, certain mining services arrangements involve the provision of additional services, including maintenance, drilling activities and the supply of personnel. The Group has elected to separate these non-lease components from the lease components in measuring lease liabilities. Non-lease components are accounted for in accordance with the accounting policies applied to each underlying good or service received.

Low-value and short-term leases continue to be expensed to the income statement. Variable lease payments not dependent on an index or rate are excluded from lease liabilities, and expensed to the income statement.

Right-of-use assets are measured at cost, less any accumulated depreciation and impairment losses, and adjusted for any remeasurement of lease liabilities. The cost will initially correspond to the lease liability, adjusted for initial direct costs, lease payments made prior to lease commencement, capitalised provisions for closure and rehabilitation and any lease incentives received.

The lease asset and liability associated with all index-linked freight contracts, including continuous voyage charters (CVCs), are measured at each reporting date based on the prevailing freight index (generally the Baltic C5 index).

Lease costs are recognised in the income statement over the lease term in the form of depreciation on the right-of-use asset and the unwinding of finance charges on the lease liability.

Where the Group is the operator of an unincorporated joint operation and all investors are parties to a lease, the Group recognises its proportionate share of the lease liability and associated right-of-use asset. In the event the Group is the sole signatory to a lease, and therefore has the sole legal obligation to make lease payments, the lease liability is recognised in full. Where the associated right-of-use asset is sub-leased (under a finance sub-lease) to a joint operation, for instance where it is dedicated to a single operation and the joint operation has the right to direct the use of the asset, the Group (as lessor) recognises its proportionate share of the right-of-use asset and a net investment in the lease, representing amounts to be recovered from the other parties to the joint operation. If the Group is not party to the head lease contract but sub-leases the associated right-of-use asset (as lessee), it recognises its proportionate share of the right-of-use asset and a lease liability which is payable to the operator.

Key judgements and estimates

Judgements: Certain contractual arrangements not in the form of a lease require the Group to apply significant judgement in evaluating whether the Group controls the right to direct the use of assets and therefore whether the contract contains a lease. Management considers all facts and circumstances in determining whether the Group or the supplier has the rights to direct how, and for what purpose, the underlying assets are used in certain mining contracts and other arrangements, including outsourcing and shipping arrangements. Judgement is used to assess which decision-making rights mostly affect the benefits of use of the assets for each arrangement.

Where a contract includes the provision of non-lease services, judgement is required to identify the lease and non-lease components.

Estimates: Where the Group cannot readily determine the interest rate implicit in the lease, estimation is involved in the determination of the weighted average incremental borrowing rate to measure lease liabilities. The incremental borrowing rate reflects the rates of interest a lessee would have to pay to borrow over a similar term, with similar security, the funds necessary to obtain an asset of similar value to the right-of-use asset in a similar economic environment. Under the Group's portfolio approach to debt management, the Group does not specifically borrow for asset purchases. Therefore, the incremental borrowing rate is estimated referencing the Group's corporate borrowing portfolio and other similar rated entities, adjusted to reflect the terms and conditions of the lease (including the impact of currency, credit rating of subsidiary entering into the lease and the term of the lease), at the inception of the lease arrangement or the time of lease modification.

The Group estimates stand-alone prices, where such prices are not readily observable, in order to allocate the contractual payments between lease and non-lease components.

22 Net finance costs

	2022 US$M	2021 US$M Restated	2020 US$M Restated
Financial expenses			
Interest expense using the effective interest rate method:			
Interest on bank loans, overdrafts and all other borrowings	**491**	607	1,093
Interest capitalised at 2.90% (2021: 2.83%; 2020: 4.14%)[1]	**(113)**	(204)	(265)
Interest on lease liabilities	**119**	102	82
Discounting on provisions and other liabilities	**645**	353	343
Other gains and losses:			
Fair value change on hedged loans	**(1,286)**	(779)	721
Fair value change on hedging derivatives	**1,277**	704	(788)
Loss on bond repurchase[2]	**–**	395	–
Exchange variations on net debt	**(99)**	99	(18)
Other	**16**	13	24
Total financial expenses	**1,050**	1,290	1,192
Financial income			
Interest income	**(81)**	(67)	(334)
Net finance costs	**969**	1,223	858

1 Interest has been capitalised at the rate of interest applicable to the specific borrowings financing the assets under construction or, where financed through general borrowings, at a capitalisation rate representing the average interest rate on such borrowings. Tax relief for capitalised interest is approximately US$34 million (2021: US$61 million; 2020: US$80 million).

2 Relates to the additional cost on settlement of two multi-currency hybrid debt repurchase programs and the unwind of the associated hedges, included in a total cash payment of US$3,402 million disclosed in repayment of interest bearing liabilities in the Consolidated Cash Flow Statement.

Recognition and measurement

Interest income is accrued using the effective interest rate method. Finance costs are expensed as incurred, except where they relate to the financing of construction or development of qualifying assets.

23 Financial risk management

23.1 Financial risks

Financial and capital risk management strategy

The financial risks arising from the Group's operations comprise market, liquidity and credit risk. These risks arise in the normal course of business and the Group manages its exposure to them in accordance with the Group's portfolio risk management strategy. The objective of the strategy is to support the delivery of the Group's financial targets, while protecting its future financial security and flexibility by taking advantage of the natural diversification provided by the scale, diversity and flexibility of the Group's operations and activities.

As part of the risk management strategy, the Group monitors target gearing levels and credit rating metrics under a range of different stress test scenarios incorporating operational and macroeconomic factors.

Market risk management

The Group's activities expose it to market risks associated with movements in interest rates, foreign currencies and commodity prices. Under the strategy outlined above, the Group seeks to achieve financing costs, currency impacts, input costs and commodity prices on a floating or index basis.

In executing the strategy, financial instruments are potentially employed in three distinct but related activities. The following table summarises these activities and the key risk management processes:

Activity	Key risk management processes
1 Risk mitigation	
On an exception basis, hedging for the purposes of mitigating risk related to specific and significant expenditure on investments or capital projects will be executed if necessary to support the Group's strategic objectives.	Execution of transactions within approved mandates.
2 Economic hedging of commodity sales, operating costs, short-term cash deposits, other monetary items and debt instruments	
Where Group commodity production is sold to customers on pricing terms that deviate from the relevant index target and where a relevant derivatives market exists, financial instruments may be executed as an economic hedge to align the revenue price exposure with the index target and US dollars.	Measuring and reporting the exposure in customer commodity contracts and issued debt instruments.
Where debt is issued in a currency other than the US dollar and/or at a fixed interest rate, fair value and cash flow hedges may be executed to align the debt exposure with the Group's functional currency of US dollars and/or to swap to a floating interest rate.	Executing hedging derivatives to align the total group exposure to the index target.
Where short-term cash deposits and other monetary items are denominated in a currency other than US dollars, derivative financial instruments may be executed to align the foreign exchange exposure to the Group's functional currency of US dollars.	Execution of transactions within approved mandates.
3 Strategic financial transactions	
Opportunistic transactions may be executed with financial instruments to capture value from perceived market over/under valuations.	Execution of transactions within approved mandates.

Primary responsibility for the identification and control of financial risks, including authorising and monitoring the use of financial instruments for the above activities and stipulating policy thereon, rests with the Financial Risk Management Committee under authority delegated by the Chief Executive Officer.

Interest rate risk

The Group is exposed to interest rate risk on its outstanding borrowings and short-term cash deposits from the possibility that changes in interest rates will affect future cash flows or the fair value of fixed interest rate financial instruments. Interest rate risk is managed as part of the portfolio risk management strategy.

The majority of the Group's debt is issued at fixed interest rates. The Group has entered into interest rate swaps and cross currency interest rate swaps to convert most of its fixed interest rate exposure to floating US dollar interest rate exposure. As at 30 June 2022, 80 per cent of the Group's borrowings were exposed to floating interest rates inclusive of the effect of swaps (2021: 82 per cent).

The fair value of interest rate swaps and cross currency interest rate swaps in hedge relationships used to hedge both interest rate and foreign currency risks are shown in the valuation hierarchy in section 23.4 'Derivatives and hedge accounting'.

Based on the net debt position as at 30 June 2022, taking into account interest rate swaps and cross currency interest rate swaps, it is estimated that a one percentage point increase in the US LIBOR interest rate will increase the Group's equity and profit after taxation by US$29 million (2021: increase of US$7 million). This assumes the change in interest rates is effective from the beginning of the financial year and the fixed/floating mix and balances are constant over the year.

Interest Rate Benchmark Reform

The London Interbank Offered Rate (LIBOR) and other benchmark interest rates are being replaced by alternative risk-free rates (ARR) as part of inter-bank offer rate (IBOR) reform. Sterling LIBOR ceased to be published on 1 January 2022 and USD LIBOR will no longer be published after 30 June 2023. The Group has assessed the implication of IBOR reform and has updated various policies, systems and processes including the adoption of the International Swaps and Derivatives Association (ISDA) IBOR Fallbacks Protocol. In November 2021, the Group amended its US$5.5 billion revolving credit facility to reference ARRs. Furthermore, in March 2022 Escondida executed the Group's first Secured Overnight Financing Rate (SOFR) linked loans.

The amendments to IFRS 9/AASB 9 'Financial Instruments', IFRS 7/AASB 7 'Financial Instruments (IFRS 7): Disclosures' and IFRS 16/AASB 16 'Leases' in relation to IBOR reform early adopted by the Group in previous periods impact the Group's cross currency and interest rate swaps, which reference US LIBOR, and the associated hedge accounting. Refer to section 23.4 'Derivatives and hedge accounting' for further information.

Currency risk

The US dollar is the predominant functional currency within the Group and as a result, currency exposures arise from transactions and balances in currencies other than the US dollar. The Group's potential currency exposures comprise:

- translational exposure in respect of non-functional currency monetary items
- transactional exposure in respect of non-functional currency expenditure and revenues

The Group's foreign currency risk is managed as part of the portfolio risk management strategy.

Translational exposure in respect of non-functional currency monetary items

Monetary items, including financial assets and liabilities, denominated in currencies other than the functional currency of an operation are restated at the end of each reporting period to US dollar equivalents and the associated gain or loss is taken to the income statement. The exception is foreign exchange gains or losses on foreign currency denominated provisions for closure and rehabilitation at operating sites, which are capitalised in property, plant and equipment.

The Group has entered into cross currency interest rate swaps and foreign exchange forwards to convert its significant foreign currency exposures in respect of monetary items into US dollars. Fluctuations in foreign exchange rates are therefore not expected to have a significant impact on equity and profit after tax.

The following table shows the carrying values of financial assets and liabilities at the end of the reporting period denominated in currencies other than the US dollar that are exposed to foreign currency risk:

Net financial (liabilities)/assets - by currency of denomination	**2022**	2021
	US$M	US$M
AUD	**(3,649)**	(4,421)
CLP	**(602)**	(649)
GBP	**388**	535
EUR	**280**	366
Other	**187**	128
Total	**(3,396)**	(4,041)

The principal non-functional currencies to which the Group is exposed are the Australian dollar, the Chilean peso, the Pound sterling and the Euro. Based on the Group's net financial assets and liabilities as at 30 June 2022, a weakening of the US dollar against these currencies (one cent strengthening in Australian dollar, 10 pesos strengthening in Chilean peso, one penny strengthening in Pound sterling and one cent strengthening in Euro), with all other variables held constant, would decrease the Group's equity and profit after taxation by US$16 million (2021: decrease of US$21 million).

Transactional exposure in respect of non-functional currency expenditure and revenues

Certain operating and capital expenditure is incurred in currencies other than an operation's functional currency. To a lesser extent, certain sales revenue is earned in currencies other than the functional currency of operations and certain exchange control restrictions may require that funds be maintained in currencies other than the functional currency of the operation. These currency risks are managed as part of the portfolio risk management strategy. The Group may enter into forward exchange contracts when required under this strategy.

Commodity price risk

The risk associated with commodity prices is managed as part of the portfolio risk management strategy. Substantially all of the Group's commodity production is sold on market-based index pricing terms, with derivatives used from time to time to achieve a specific outcome.

Financial instruments with commodity price risk comprise forward commodity and other derivative contracts with net liabilities at fair value of US$56 million (2021: net assets of US$138 million).

Provisionally priced commodity sales and purchases contracts

Provisionally priced sales or purchases volumes are those for which price finalisation, referenced to the relevant index, is outstanding at the reporting date. Provisional pricing mechanisms within these sales and purchases arrangements have the character of a commodity derivative. Trade receivables or payables under these contracts are carried at fair value through profit or loss using Level 2 valuation inputs based on forecast selling prices in the quotation period. The Group's exposure at 30 June 2022 to the impact of movements in commodity prices upon provisionally invoiced sales and purchases volumes was predominately around copper.

The Group had 289 thousand tonnes of copper exposure as at 30 June 2022 (2021: 254 thousand tonnes) that was provisionally priced. The final price of these sales and purchases volumes will be determined during the first half of FY2023. A 10 per cent change in the price of copper realised on the provisionally priced sales, with all other factors held constant, would increase or decrease profit after taxation by US$162 million (2021: US$166 million).

The relationship between commodity prices and foreign currencies is complex and movements in foreign exchange rates can impact commodity prices.

Liquidity risk

Refer to note 20 'Net debt' for details on the Group's liquidity risk.

Credit risk

Credit risk is the risk that a counterparty will not meet its obligations under a financial instrument or customer contract, leading to a financial loss. The Group is exposed to credit risk from its operating activities (primarily from customer receivables) and from its financing activities, including deposits with banks and financial institutions, other short-term investments, interest rate and currency derivative contracts and other financial instruments.

Refer to note 8 'Trade and other receivables' and note 20 'Net debt' for details on the Group credit risk.

23.2 Recognition and measurement

All financial assets and liabilities, other than derivatives and trade receivables, are initially recognised at the fair value of consideration paid or received, net of transaction costs as appropriate. Financial assets are initially recognised on their trade date.

Financial assets are subsequently carried at fair value or amortised cost based on:

- the Group's purpose, or business model, for holding the financial asset
- whether the financial asset's contractual terms give rise to cash flows that are solely payments of principal and interest

The resulting Financial Statements classifications of financial assets can be summarised as follows:

Contractual cash flows	Business model	Category
Solely principal and interest	Hold in order to collect contractual cash flows	Amortised cost
Solely principal and interest	Hold in order to collect contractual cash flows and sell	Fair value through other comprehensive income
Solely principal and interest	Hold in order to sell	Fair value through profit or loss
Other	Any of those mentioned above	Fair value through profit or loss

Solely principal and interest refers to the Group receiving returns only for the time value of money and the credit risk of the counterparty for financial assets held. The main exceptions for the Group are provisionally priced receivables and derivatives which are measured at fair value through profit or loss under IFRS 9.

The Group has the intention of collecting payment directly from its customers in most cases, however the Group also participates in receivables financing programs in respect of selected customers. Receivables in these portfolios which are classified as 'hold in order to sell', are provisionally priced receivables and are therefore held at fair value through profit or loss prior to sale to the financial institution.

With the exception of derivative contracts and provisionally priced trade payables which are carried at fair value through profit or loss, the Group's financial liabilities are classified as subsequently measured at amortised cost.

The Group may in addition elect to designate certain financial assets or liabilities at fair value through profit or loss or to apply hedge accounting where they are not mandatorily held at fair value through profit or loss.

Fair value measurement

The carrying amount of financial assets and liabilities measured at fair value is principally calculated based on inputs other than quoted prices that are observable for these financial assets or liabilities, either directly (i.e. as unquoted prices) or indirectly (i.e. derived from prices). Where no price information is available from a quoted market source, alternative market mechanisms or recent comparable transactions, fair value is estimated based on the Group's views on relevant future prices, net of valuation allowances to accommodate liquidity, modelling and other risks implicit in such estimates.

The inputs used in fair value calculations are determined by the relevant segment or function. The functions support the assets and operate under a defined set of accountabilities authorised by the Executive Leadership Team. Movements in the fair value of financial assets and liabilities may be recognised through the income statement or in other comprehensive income according to the designation of the underlying instrument.

For financial assets and liabilities carried at fair value, the Group uses the following to categorise the inputs to the valuation method used based on the lowest level input that is significant to the fair value measurement as a whole:

IFRS 13 Fair value hierarchy	Level 1	Level 2	Level 3
Valuation inputs	Based on quoted prices (unadjusted) in active markets for identical financial assets and liabilities.	Based on inputs other than quoted prices included within Level 1 that are observable for the financial asset or liability, either directly (i.e. as unquoted prices) or indirectly (i.e. derived from prices).	Based on inputs not observable in the market using appropriate valuation models, including discounted cash flow modelling.

23.3 Financial assets and liabilities

The financial assets and liabilities are presented by class in the table below at their carrying amounts.

	IFRS 13 Fair value hierarchy Level[1]	IFRS 9 Classification	2022 US$M	2021 US$M
Current cross currency and interest rate swaps[2]	2	Fair value through profit or loss	**–**	20
Current other derivative contracts[3]	2,3	Fair value through profit or loss	**326**	207
Current other financial assets		Amortised cost	**100**	–
Current other investments[5]	1,2	Fair value through profit or loss	**203**	3
Non-current cross currency and interest rate swaps[2]	2	Fair value through profit or loss	**136**	1,123
Non-current other derivative contracts[3]	2,3	Fair value through profit or loss	**16**	152
Non-current other financial assets[4]	3	Fair value through profit or loss	**273**	–
Non-current investment in shares	1,3	Fair value through other comprehensive income	**138**	31
Non-current other investments[5]	1,2	Fair value through profit or loss	**239**	304
Total other financial assets			**1,431**	1,840
Cash and cash equivalents		Amortised cost	**17,236**	15,246
Trade and other receivables[6]		Amortised cost	**1,674**	2,363
Provisionally priced trade receivables	2	Fair value through profit or loss	**3,478**	3,547
Total financial assets			**23,819**	22,996
Non-financial assets			**71,347**	85,931
Total assets			**95,166**	108,927
Current cross currency and interest rate swaps[2]	2	Fair value through profit or loss	**358**	–
Current other derivative contracts[3]	2,3	Fair value through profit or loss	**118**	52
Current other financial liabilities[7]		Amortised cost	**103**	78
Non-current cross currency and interest rate swaps[2]	2	Fair value through profit or loss	**1,466**	586
Non-current other derivative contracts[3]	2,3	Fair value through profit or loss	**31**	–
Non-current other financial liabilities[7]		Amortised cost	**500**	560
Total other financial liabilities			**2,576**	1,276
Trade and other payables[8]		Amortised cost	**5,223**	6,277
Provisionally priced trade payables	2	Fair value through profit or loss	**1,385**	574
Bank loans[9]		Amortised cost	**2,472**	2,260
Notes and debentures[9]		Amortised cost	**11,363**	14,769
Lease liabilities			**2,576**	3,896
Other[9]		Amortised cost	**17**	58
Total financial liabilities			**25,612**	29,110
Non-financial liabilities			**20,788**	24,212
Total liabilities			**46,400**	53,322

1 All of the Group's financial assets and financial liabilities recognised at fair value were valued using market observable inputs categorised as Level 2 unless specified otherwise in the following footnotes.

2 Cross currency and interest rate swaps are valued using market data including interest rate curves (which include the base LIBOR rate and swap rates) and foreign exchange rates. A discounted cash flow approach is used to derive the fair value of cross currency and interest rate swaps at the reporting date.

3 Includes other derivative contracts of US$ nil (2021: US$121 million) categorised as Level 3. Significant items in FY2021 were derivatives embedded in physical commodity purchase and sales contracts of gas in Trinidad and Tobago which were disposed as part of the merger of the Petroleum business during the period.

4 Includes receivables contingent on outcome of future events relating to mining, and regulatory approvals of US$233 million (2021: US$ nil).

5 Includes investments held by BHP Billiton Foundation which are restricted and not available for general use by the Group of US$252 million (2021: US$260 million) of which other investment (mainly US Treasury Notes) of US$119 million categorised as Level 1 (2021: US$72 million).

6 Excludes input taxes of US$427 million (2021: US$486 million) included in other receivables.

7 Includes the discounted settlement liability in relation to the cancellation of power contracts at the Group's Escondida operations.

8 Excludes input taxes of US$79 million (2021: US$176 million) included in other payables.

9 All interest bearing liabilities, excluding lease liabilities, are unsecured.

The carrying amounts in the table above generally approximate to fair value. In the case of US$3,018 million (2021: US$3,018 million) of fixed rate debt not swapped to floating rate, the fair value at 30 June 2022 was US$3,126 million (2021: US$4,052 million). The fair value is determined using a method that can be categorised as Level 2 and uses inputs based on benchmark interest rates, alternative market mechanisms or recent comparable transactions.

For financial instruments that are carried at fair value on a recurring basis, the Group determines whether transfers have occurred between levels in the hierarchy by reassessing categorisation at the end of each reporting period. There were no transfers between categories during the period.

Offsetting financial assets and liabilities

The Group enters into money market deposits and derivative transactions under International Swaps and Derivatives Association master netting agreements that do not meet the criteria in IAS 32 'Financial Instruments: Presentation' for offsetting, but allow for the related amounts to be set-off in certain circumstances. The amounts set out as cross currency and interest rate swaps in the table above represent the derivative financial assets and liabilities of the Group that may be subject to the above arrangements and are presented on a gross basis.

23.4 Derivatives and hedge accounting

The Group uses derivatives to hedge its exposure to certain market risks and may elect to apply hedge accounting.

Hedge accounting

Derivatives are included within financial assets or liabilities at fair value through profit or loss unless they are designated as effective hedging instruments. Financial instruments in this category are classified as current if they are due or expected to be settled within 12 months otherwise they are classified as non-current.

Where hedge accounting is applied, at the start of the transaction, the Group documents the type of hedge, the relationship between the hedging instrument and hedged items and its risk management objective and strategy for undertaking various hedge transactions. The documentation also demonstrates that the hedge is expected to be effective.

The Group applies the following types of hedge accounting to its derivatives hedging the interest rate and currency risks of its notes and debentures:

- Fair value hedges – the fair value gain or loss on interest rate and cross currency swaps relating to interest rate risk, together with the change in the fair value of the hedged fixed rate borrowings attributable to interest rate risk are recognised immediately in the income statement. If the hedge no longer meets the criteria for hedge accounting, the fair value adjustment on the note or debenture is amortised to the income statement over the period to maturity using a recalculated effective interest rate.
- Cash flow hedges – changes in the fair value of cross currency interest rate swaps which hedge foreign currency cash flows on the notes and debentures are recognised directly in other comprehensive income and accumulated in the cash flow hedging reserve. To the extent a hedge is ineffective, changes in fair value are recognised immediately in the income statement.

  When a hedging instrument expires, or is sold, terminated or exercised, or when a hedge no longer meets the criteria for hedge accounting, any cumulative gain or loss existing in equity at that time remains in equity and is amortised to the income statement over the period to the hedged item's maturity.

When hedged, the Group hedges the full notional value of notes or debentures. However, certain components of the fair value of derivatives are not permitted under IFRS 9 to be included in the hedge accounting above. Certain costs of hedging are permitted to be recognised in other comprehensive income. Any change in the fair value of a derivative that does not qualify for hedge accounting, or is ineffective in hedging the designated risk due to contractual differences between the hedged item and hedging instrument, is recognised immediately in the income statement.

The table below shows the carrying amounts of the Group's notes and debentures by currency and the derivatives which hedge them:

- The carrying amount of the notes and debentures includes foreign exchange remeasurement to period-end rates and fair value adjustments when included in a fair value hedge.
- The breakdown of the hedging derivatives includes remeasurement of foreign currency notional values at period-end rates, fair value movements due to interest rate risk, foreign currency cash flows designated into cash flow hedges, costs of hedging recognised in other comprehensive income, ineffectiveness recognised in the income statement and accruals or prepayments.
- The hedged value of notes and debentures includes their carrying amounts adjusted for the offsetting derivative fair value movements due to foreign currency and interest rate risk remeasurement.

2022 US$M	Carrying amount of notes and debentures	Fair value of derivatives: Foreign exchange notional at spot rates	Interest rate risk	Recognised in cash flow hedging reserve	Recognised in cost of hedging reserve	Recognised in the income statement[1]	Accrued cash flows	Total	Hedged value of notes and debentures[2]
	A	B	C	D	E	F	G	B to G	A + B + C
USD	**4,740**	**–**	**(16)**	**–**	**–**	**(7)**	**86**	**63**	**4,724**
GBP	**2,599**	**796**	**(115)**	**(35)**	**13**	**26**	**42**	**727**	**3,280**
EUR	**3,449**	**585**	**112**	**(16)**	**8**	**(4)**	**45**	**730**	**4,146**
CAD	**575**	**167**	**5**	**(8)**	**6**	**(3)**	**1**	**168**	**747**
Total	**11,363**	**1,548**	**(14)**	**(59)**	**27**	**12**	**174**	**1,688**	**12,897**

2021 US$M	Carrying amount of notes and debentures	Fair value of derivatives: Foreign exchange notional at spot rates	Interest rate risk	Recognised in cash flow hedging reserve	Recognised in cost of hedging reserve	Recognised in the income statement[1]	Accrued cash flows	Total	Hedged value of notes and debentures[2]
	A	B	C	D	E	F	G	B to G	A + B + C
USD	6,270	–	(318)	–	–	11	77	(230)	5,952
GBP	3,387	435	(544)	(81)	25	(34)	53	(146)	3,278
EUR	4,486	73	(418)	(33)	27	7	49	(295)	4,141
CAD	626	142	(21)	(28)	25	(2)	(2)	114	747
Total	14,769	650	(1,301)	(142)	77	(18)	177	(557)	14,118

1 Predominantly related to ineffectiveness.

2 Includes US$3,018 million (2021: US$3,018 million) of fixed rate debt not swapped to floating rate that is not in a hedging relationship.

The weighted average interest rate payable is USD LIBOR + 1.74 per cent (2021: USD LIBOR + 2.18 per cent). Refer to note 22 'Net finance costs' for details of net finance costs for the year.

Interest Rate Benchmark Reform

IBOR reform impacts the Group's cross currency and interest rate swaps, which reference 3-month US LIBOR, and the associated hedge accounting. At 30 June 2022, the notional value of hedging instruments that reference 3-month US LIBOR is US$ 15.6 billion (2021: US$16.8 billion). The SOFR benchmark rate is being widely adopted by market participants as the replacement for US LIBOR in new contracts. However, a number of US LIBOR settings, including 3-month US LIBOR, will continue to be published until 30 June 2023. Accordingly, absent of any agreement with counterparties to transition to an alternative risk-free rate before this date, the Group's existing cross currency and interest rate swaps with maturity dates beyond 30 June 2023 will only transition to ARR once US LIBOR publication ceases. As at 30 June 2022, the Group has not transitioned any of its existing cross currency and interest rate swaps to alternative risk-free rates, however it is expecting to commence active transition of the existing cross currency and interest rate swaps portfolio to alternative benchmark rates during FY2023.

The following table shows the notional value of the Group's hedging instruments that are expected to expire before 30 June 2023.

Hedging instrument	Notional currency	Notional value US$M	Notional value to mature before LIBOR expires FY2023 US$M
Interest rate swaps	USD	**10,719**	**748**
Cross-currency interest rate swaps	EUR	**3,187**	**404**
	GBP	**1,673**	**923**
	Total	**15,579**	**2,075**

In addition, the Group has other arrangements which reference 3-month US LIBOR benchmarks and extend beyond 2022. These include USD bank loans of US$1.6 billion (2021: US$2.3 billion). Refer to note 20 'Net debt'.

The Group has previously adopted amendments to IFRS 9 and IFRS 7 in relation to IBOR Reform. These amendments provide reliefs from applying specific hedge accounting requirements to hedging arrangements directly impacted by these reforms. In particular, where changes to the Group's instruments arise solely as a result of IBOR reform and do not change the economic substance of the Group's arrangements, the Group is able to maintain its existing hedge relationships and accounting. The Group has continued to apply these reliefs, resulting in no impact on the Group's hedge accounting. Upon transition to alternative risk-free rates, the Group will seek to apply further reliefs in IFRS 9 and continue to apply hedge accounting to its hedging arrangements.

Movements in reserves relating to hedge accounting

The following table shows a reconciliation of the components of equity and an analysis of the movements in reserves for all hedges. For a description of these reserves, refer to note 17 'Other equity'.

2022 US$M	**Cash flow hedging reserve**			**Cost of hedging reserve**			**Total**
	Gross	**Tax**	**Net**	**Gross**	**Tax**	**Net**	
At the beginning of the financial year	**142**	**(42)**	**100**	**(77)**	**23**	**(54)**	**46**
Add: Change in fair value of hedging instrument recognised in OCI	**(914)**	**274**	**(640)**	**–**	**–**	**–**	**(640)**
Less: Reclassified from reserves to interest expense – recognised through OCI	**831**	**(250)**	**581**	**50**	**(15)**	**35**	**616**
At the end of the financial year	**59**	**(18)**	**41**	**(27)**	**8**	**(19)**	**22**

2021 US$M	Cash flow hedging reserve			Cost of hedging reserve			Total
	Gross	Tax	Net	Gross	Tax	Net	
At the beginning of the financial year	71	(21)	50	(32)	9	(23)	27
Add: Change in fair value of hedging instrument recognised in OCI	863	(259)	604	–	–	–	604
Less: Reclassified from reserves to interest expense – recognised through OCI	(792)	238	(554)	(45)	14	(31)	(585)
At the end of the financial year	142	(42)	100	(77)	23	(54)	46

Changes in interest bearing liabilities and related derivatives resulting from financing activities

The movement in the year in the Group's interest bearing liabilities and related derivatives are as follows:

2022 US$M	**Interest bearing liabilities**					**Derivatives (assets)/ liabilities**	
	Bank loans	**Notes and debentures**	**Lease liabilities**	**Bank overdraft and short-term borrowings**	**Other**	**Cross currency and interest rate swaps**	**Total**
At the beginning of the financial year	**2,260**	**14,769**	**3,896**	**–**	**58**	**(557)**	
Proceeds from interest bearing liabilities	**1,150**	**–**	**–**	**–**	**14**	**–**	**1,164**
Settlements of debt related instruments	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Repayment of interest bearing liabilities[1]	**(941)**	**(1,232)**	**(1,163)**	**–**	**(55)**	**–**	**(3,391)**
Change from Net financing cash flows	**209**	**(1,232)**	**(1,163)**	**–**	**(41)**	**–**	**(2,227)**
Other movements:							
Divestment and demerger of subsidiaries and operations	**–**	**–**	**(492)**	**–**	**–**	**–**	
Interest rate impacts	**–**	**(1,286)**	**–**	**–**	**–**	**1,277**	
Foreign exchange impacts	**3**	**(894)**	**(126)**	**–**	**(2)**	**898**	
Lease additions	**–**	**–**	**866**	**–**	**–**	**–**	
Remeasurement of index-linked freight contracts	**–**	**–**	**(369)**	**–**	**–**	**–**	
Other interest bearing liabilities/derivative related changes	**–**	**6**	**(36)**	**–**	**2**	**70**	
At the end of the financial year	**2,472**	**11,363**	**2,576**	**–**	**17**	**1,688**	

2021 US$M	Interest bearing liabilities					Derivatives (assets)/ liabilities	
	Bank loans	Notes and debentures	Lease liabilities	Bank overdraft and short-term borrowings	Other	Cross currency and interest rate swaps	Total
At the beginning of the financial year	2,492	21,045	3,443	–	68	(433)	
Proceeds from interest bearing liabilities	504	–	–	–	64	–	568
Settlements of debt related instruments	–	–	–	–	–	167	167
Repayment of interest bearing liabilities[1]	(737)	(6,888)	(770)	–	–	–	(8,395)
Change from Net financing cash flows	(233)	(6,888)	(770)	–	64	167	(7,660)
Other movements:							
Loss on bond repurchase	–	579	–	–	–	(184)	
Interest rate impacts	–	(764)	–	–	–	704	
Foreign exchange impacts	(1)	798	115	–	(14)	(796)	
Lease additions	–	–	1,223	–	–	–	
Remeasurement of index-linked freight contracts	–	–	(59)	–	–	–	
Other interest bearing liabilities/derivative related changes	2	(1)	(56)	–	(60)	(15)	
At the end of the financial year	2,260	14,769	3,896	–	58	(557)	

1 Includes US$33 million (2021: US$38 million) of Discontinued operations cash flows.

Employee matters

24 Key management personnel

Key management personnel compensation comprises:

	2022	2021	2020
	US$	US$	US$
Short-term employee benefits	**13,979,139**	14,081,625	12,564,637
Post-employment benefits	**634,363**	744,951	1,172,727
Share-based payments	**11,165,439**	11,601,866	13,514,588
Total	**25,778,941**	26,428,442	27,251,952

Key Management Personnel (KMP) includes the roles which have the authority and responsibility for planning, directing and controlling the activities of BHP. These are Non-executive Directors, the CEO, the Chief Financial Officer, the President Minerals Australia, the President Minerals Americas and the Senior Executive Officer (i.e. President Petroleum until 31 May 2022).

Transactions and outstanding loans/amounts with key management personnel

There were no purchases by key management personnel from the Group during FY2022 (2021: US$ nil; 2020: US$ nil).

There were no amounts payable by key management personnel at 30 June 2022 (2021: US$ nil; 2020: US$ nil).

There were no loans receivable from or payable to key management personnel at 30 June 2022 (2021: US$ nil; 2020: US$ nil).

Transactions with personally related entities

A number of Directors of the Group hold or have held positions in other companies (personally related entities) where it is considered they control or significantly influence the financial or operating policies of those entities. There were no reportable transactions with those entities and no amounts were owed by the Group to personally related entities at 30 June 2022 (2021: US$ nil; 2020: US$ nil).

For more information on remuneration and transactions with key management personnel, refer to the Remuneration Report under Governance.

25 Employee share ownership plans

Awards, in the form of the right to receive ordinary shares in BHP Group Limited have been granted under the following employee share ownership plans: Cash and Deferred Plan (CDP), Short-Term Incentive Plan (STIP), Long-Term Incentive Plan (LTIP), Management Award Plan (MAP), Transitional and Commencement KMP awards and the all-employee share plan, Shareplus. Following unification of our dual listed company structure in January 2022, employees holding unvested BHP Group Plc awards received one BHP Group Limited award per BHP Group Plc award held at the time of unification. Vesting of awards will stay on the original timeframes. Employees holding BHP Group Plc acquired shares under Shareplus received one BHP Group Limited share for each BHP Group Plc share owned.

Some awards are eligible to receive a cash payment, or the equivalent value in shares, equal to the dividend amount that would have been earned on the underlying shares awarded to those participants (the Dividend Equivalent Payment, or DEP). The DEP is provided to the participants once the underlying shares are allocated or transferred to them. Awards under the plans do not confer any rights to participate in a share issue; however, there is discretion under each of the plans to adjust the awards in response to a variation in the share capital of BHP Group Limited.

On completion of the merger between BHP Petroleum and Woodside on 1 June 2022, adjustments were made to unvested awards held under the above mentioned employee share ownership plans to ensure participants continue to be appropriately treated. The number of 'Uplift' awards granted of 1,574,034 shares was calculated based on the number of unvested awards held prior to the merger multiplied by 1.1205 being the USD value of the in specie dividend divided by the closing BHP Group Limited share price on 31 May 2022 (converted into USD on the same date) plus one.

The table below provides a description of each of the plans.

Plan	CDP and STIP	LTIP and MAP	Transitional and Commencement KMP awards	Shareplus
Type	Short-term incentive	Long-term incentive	Long-term incentive	All-employee share purchase plan
Overview	The CDP was implemented in FY2020 as a replacement for the STIP, both of which are generally plans for Executive KMP and members of the Executive Leadership Team who are not Executive KMP. Under the CDP, two thirds of the value of a participant's short-term incentive amount is awarded as rights to receive BHP Group Limited shares at the end of the vesting period (and the remaining one third is delivered in cash). Two awards of deferred shares are granted, each of the equivalent value to the cash award, vesting in two and five years respectively. Under STIP, half of the value of a participant's short-term incentive amount is awarded as rights to receive BHP Group Limited shares at the end of the two-year vesting period.	The LTIP is a plan for Executive KMP and members of the Executive Leadership Team who are not Executive KMP, and awards are granted annually. The MAP is a plan for BHP senior management who are not KMP. The number of share rights awarded is determined by a participant's role and grade.	Awards may be granted to new Executive KMP recruited into or within the Group to bridge the time-based gap between the vesting of awards either granted in their non-KMP roles or to replace awards foregone from a previous company.	Employees may contribute up to US$5,000 to acquire shares in any plan year. On the third anniversary of the start of a plan year, the Group will match the number of acquired shares.
Vesting conditions	CDP: Service conditions only for the two-year award. Vesting of the five-year award is subject to service conditions and also to holistic review of performance at the end of the five-year vesting period, including a five-year view on HSEC performance, profitability, cash flow, balance sheet health, returns to shareholders, corporate governance and conduct. STIP: Service conditions only.	LTIP: Service and performance conditions. BHP's Total Shareholder Return[1] (TSR) performance relative to the Peer Group TSR over a five-year performance period determines the vesting of 67 per cent of the awards, while performance relative to the Index TSR (being the index value where the comparator group is a market index) determines the vesting of 33 per cent of the awards. For awards granted from December 2017 onwards, 25 per cent of the award will vest where BHP's TSR is equal to the median TSR of the relevant comparator group(s), as measured over the performance period. Where TSR is below the median, awards will not vest. Vesting occurs on a sliding scale when BHP's TSR measured over the performance period is between the median TSR of the relevant comparator group(s) up to a nominated level of TSR outperformance over the relevant comparator group(s), as determined by the Committee, above which 100 per cent of the award will vest. MAP: Service conditions only.	Service and performance conditions. The Remuneration Committee has absolute discretion to determine if the performance condition has been met and whether any, all or part of the award will vest (or otherwise lapse), having regard to personal performance and the underlying financial performance of the Group during the performance period. To the extent the performance condition is not achieved, awards will lapse. There is no retesting of the performance condition. Vested awards may be subject to a holding lock.	Service conditions only.

Plan	CDP and STIP	LTIP and MAP	Transitional and Commencement KMP awards	Shareplus
Vesting period	CDP – 2 and 5 years STIP – 2 years	LTIP – 5 years MAP – 1 to 5 years	2 years	3 years
Dividend Equivalent Payment	CDP – Yes STIP – Yes	LTIP – Yes MAP – Varies	Yes	No
Exercise period	None	None	None	None

1 For LTIP awards granted prior to unification and where the five-year performance period ends after unification, the TSR at the start of the performance period is based on the weighted average of the TSRs of BHP Group Limited and BHP Group Plc and the TSR at the end of the performance period is based on the TSR of BHP Group Limited.

Employee share awards

2022	Number of awards at the beginning of the financial year	Number of awards issued during the year	Number of awards vested and exercised	Number of awards lapsed	Number of BHP Group Plc awards transferred to BHP Group Limited on unification[1]	Number of awards at the end of the financial year	Weighted average remaining contractual life (years)	Weighted average share price at exercise date
BHP Group Limited								
CDP awards	**216,340**	**491,654**	**–**	**–**	**–**	**707,994**	**2.2**	**n/a**
STIP awards	**200,785**	**9,014**	**125,989**	**–**	**–**	**83,810**	**0.2**	**A$47.70**
LTIP awards	**3,543,220**	**714,781**	**1,114,524**	**–**	**–**	**3,143,477**	**1.8**	**A$47.70**
MAP awards[2]	**9,953,517**	**3,915,785**	**4,615,318**	**2,321,453**	**161,642**	**7,094,173**	**1.2**	**A$46.62**
Transitional and Commencement KMP awards	**77,000**	**9,279**	**–**	**–**	**–**	**86,279**	**0.2**	**n/a**
Shareplus	**4,539,194**	**3,091,639**	**2,465,378**	**531,479**	**280,494**	**4,914,470**	**1.3**	**A$50.54**
BHP Group Plc								
MAP awards	**176,049**	**72,412**	**70,657**	**16,162**	**161,642**	**–**	**n/a**	**£22.18**
Shareplus	**232,767**	**63,209**	**2,174**	**13,308**	**280,494**	**–**	**n/a**	**£22.11**

1 On unification of the Group's corporate structure on 31 January 2022 (refer note 16 'Share capital' for details) 161,642 of unvested awards over BHP Group Plc shares lapsed and were replaced by equivalent awards over BHP Group Limited on the terms of the MAP awards.

Under the rules of the Shareplus, on unification, holders of acquired BHP Group Plc shares, exchanged them for BHP Group Limited shares on the same terms of other BHP Group Plc shareholders. As participants were not eligible for matching shares in BHP Group Plc, BHP Group Limited made an equivalent offer of rights to match 280,494 unvested awards, which will vest based on their original timeline and will be satisfied with the delivery of BHP Group Limited shares.

Given the unification had no impact on the vesting timelines or the terms and conditions of the MAP awards and Shareplus, the changes did not represent a modification that changed the fair value of the awards.

2 There were 2,761 number of awards vested and exercisable at the end of the financial year.

Fair value and assumptions in the calculation of fair value for awards issued

2022	Weighted average fair value of awards granted during the year US$	Risk-free interest rate	Estimated life of awards	Share price at grant date	Estimated volatility of share price	Dividend yield
BHP Group Limited						
CDP awards	**27.46**	**n/a**	**2 and 5 years**	**A$38.05**	**n/a**	**n/a**
LTIP awards	**13.66**	**1.36%**	**5 years**	**A$38.05**	**30.0%**	**n/a**
MAP awards[1]	**22.10**	**n/a**	**1-5 years**	**A$51.33/A$36.39/ A$46.55/A$50.58/ A$42.52**	**n/a**	**5.0% up to 30 June 2022 and 7.5% per annum thereafter**
Shareplus	**22.80**	**0.12%**	**3 years**	**A$45.66**	**n/a**	**5.51%**
BHP Group Plc						
MAP awards	**20.85**	**n/a**	**3 years**	**£18.62**	**n/a**	**5.0% up to 30 June 2022 and 7.5% per annum thereafter**
Shareplus	**14.53**	**0.15%**	**3 years**	**£20.68**	**n/a**	**6.60%**

1 Includes MAP awards granted on 17 August 2021, 29 September 2021, 1 March 2022, 30 March 2022 and 17 June 2022.

Recognition and measurement

The fair value at grant date of equity-settled share awards is charged to the income statement over the period for which the benefits of employee services are expected to be derived. The fair values of awards granted were estimated using a Monte Carlo simulation methodology and Black-Scholes option pricing technique and consider the following factors:

- exercise price
- expected life of the award
- current market price of the underlying shares
- expected volatility using an analysis of historic volatility over different rolling periods. For the LTIP, it is calculated for all sector comparators and the published MSCI World index
- expected dividends
- risk-free interest rate, which is an applicable government bond rate
- market-based performance hurdles
- non-vesting conditions

Where awards are forfeited because non-market-based vesting conditions are not satisfied, the expense previously recognised is proportionately reversed.

The tax effect of awards granted is recognised in income tax expense, except to the extent that the total tax deductions are expected to exceed the cumulative remuneration expense. In this situation, the excess of the associated current or deferred tax is recognised in equity and forms part of the employee share awards reserve. The fair value of awards as presented in the tables above represents the fair value at grant date.

In respect of employee share awards, the Group utilises the BHP Billiton Limited Employee Equity Trust. The trustee of this trust is an independent company, resident in Jersey. The trust uses funds provided by the Group to acquire ordinary shares to enable awards to be made or satisfied. The ordinary shares may be acquired by purchase in the market or by subscription at not less than nominal value.

26 Employee benefits, restructuring and post-retirement employee benefits provisions

	2022	2021
	US$M	US$M
Employee benefits[1]	**1,351**	1,624
Restructuring[2]	**27**	54
Post-retirement employee benefits[3]	**281**	534
Total provisions	**1,659**	2,212
Comprising:		
Current	**1,319**	1,606
Non-current	**340**	606

2022	Employee benefits	Restructuring	Post-retirement employee benefits[3]	Total
	US$M	US$M	US$M	US$M
At the beginning of the financial year	**1,624**	**54**	**534**	**2,212**
Charge/(credit) for the year:				
Underlying	**1,424**	**24**	**78**	**1,526**
Discounting	**–**	**–**	**30**	**30**
Net interest expense	**–**	**–**	**(9)**	**(9)**
Exchange variations	**(131)**	**(1)**	**(51)**	**(183)**
Released during the year	**(58)**	**(2)**	**(2)**	**(62)**
Remeasurement gains taken to retained earnings	**–**	**–**	**(24)**	**(24)**
Utilisation	**(1,381)**	**(43)**	**(58)**	**(1,482)**
Divestment and demerger of subsidiaries and operations	**(128)**	**(6)**	**(217)**	**(351)**
Transfers and other movements	**1**	**1**	**–**	**2**
At the end of the financial year	**1,351**	**27**	**281**	**1,659**

1 The expenditure associated with total employee benefits will occur in a pattern consistent with when employees choose to exercise their entitlement to benefits.

2 Total restructuring provisions include provisions for terminations and office closures.

3 The net liability recognised in the Consolidated Balance Sheet includes US$165 million present value of funded defined benefits pension obligation (2021: US$377 million) offset by fair value of defined benefit scheme assets US$(169) million (2021: US$(398) million), US$85 million present value of unfunded defined pension and post-retirement medical benefits obligation (2021: US$321 million) and US$200 million unfunded post-employment benefits obligation in Chile (2021: US$234 million).

Recognition and measurement

Provisions are recognised by the Group when:

- there is a present legal or constructive obligation as a result of past events
- it is more likely than not that a permanent outflow of resources will be required to settle the obligation
- the amount can be reliably estimated and measured at the present value of management's best estimate of the cash outflow required to settle the obligation at the reporting date

Provision	Description
Employee benefits	Liabilities for benefits accruing to employees up until the reporting date in respect of wages and salaries, annual leave and any accumulating sick leave are recognised in the period the related service is rendered. Liabilities recognised in respect of short-term employee benefits expected to be settled within 12 months are measured at the amounts expected to be paid when the liabilities are settled. Liabilities for other long-term employee benefits, including long service leave are measured as the present value of estimated future payments for the services provided by employees up to the reporting date. Liabilities that are not expected to be settled within 12 months are discounted at the reporting date using market yields of high-quality corporate bonds or government bonds for countries where there is no deep market for corporate bonds. The rates used reflect the terms to maturity and currency that match, as closely as possible, the estimated future cash outflows. In relation to industry-based long service leave funds, the Group's liability, including obligations for funding shortfalls, is determined after deducting the fair value of dedicated assets of such funds. Liabilities for short and long-term employee benefits (other than unpaid wages and salaries) are disclosed within employee benefits. Liabilities for unpaid wages and salaries are recognised in other creditors.

Provision	Description
Restructuring	Restructuring provisions are recognised when: • the Group has developed a detailed formal plan identifying the business or part of the business concerned, the location and approximate number of employees affected, a detailed estimate of the associated costs, and an appropriate timeline • the restructuring has either commenced or been publicly announced and can no longer be withdrawn Payments that are not expected to be settled within 12 months of the reporting date are measured at the present value of the estimated future cash payments expected to be made by the Group.
Post-retirement employee benefits	**Defined contribution pension schemes and multi-employer pension schemes** For defined contribution schemes or schemes operated on an industry-wide basis where it is not possible to identify assets attributable to the participation by the Group's employees, the pension charge is calculated on the basis of contributions payable. The Group contributed US$324 million during the financial year (2021: US$301 million; 2020: US$243 million) to defined contribution plans and multi-employer defined contribution plans. These contributions are expensed as incurred. **Defined benefit pension and post-retirement medical schemes** The Group operates or participates in a number of defined benefit pension schemes throughout the world, all of which are closed to new entrants. The funding of the schemes complies with local regulations. The assets of the schemes are generally held separately from those of the Group and are administered by trustees or management boards. The Group also operates a number of unfunded post-retirement medical schemes in the United States, Canada and Europe. For defined benefit schemes, an asset or liability is recognised in the balance sheet based at the present value of defined benefit obligations less, where funded, the fair value of plan assets, except that any such asset cannot exceed the present value of expected refunds from and reductions in future contributions to the plan. Full actuarial valuations are prepared by local actuaries for all schemes, using discount rates based on market yields at the reporting date on high-quality corporate bonds or by reference to national government bonds if high-quality corporate bonds are not available. Where funded, scheme assets are invested in a diversified range of asset classes, predominantly comprising bonds and equities.

Group and related party information

27 Discontinued operations

On 22 November 2021, the Group and Woodside signed a binding SSA for the merger of the Group's oil and gas portfolio with Woodside. Woodside has subsequently acquired the entire share capital of BHP Petroleum International Pty Ltd ('BHP Petroleum') in exchange for new Woodside ordinary shares.

While the merger had an economic effective date of 1 July 2021, the Group continued to control the Petroleum assets and carry on business in the normal course for 11 months until 1 June 2022 (Completion Date). As such, the Group recognises its share of revenue, expenses, net finance costs and associated income tax expense related to the Discontinued operation until the Completion Date.

As consideration for the sale of BHP Petroleum, the Group received 914,768,948 newly issued Woodside ordinary shares at Completion Date. On the Completion Date, the Group paid a fully franked in specie dividend in the form of Woodside shares to eligible BHP shareholders. Eligible BHP shareholders received one Woodside share for every 5.5340 BHP shares they held on the Group's register at the record date of 26 May 2022.

As part of completion and in order to reflect the economic effective date, the Group made a net cash payment of US$0.7 billion to Woodside in addition to US$0.4 billion in cash that was left in the BHP Petroleum bank accounts to fund ongoing operations. The total cash transfer of US$1.1 billion reflects the net cash flows generated by BHP Petroleum between 1 July 2021 and Completion Date adjusted for dividends Woodside would have paid on the newly issued Woodside ordinary shares, had the merger completed on 1 July 2021. The net cash completion payment to Woodside is subject to a customary post-completion review, which may result in an adjustment to the amount paid.

BHP Mitsui Coal Pty Ltd (BMC), while being divested on 3 May 2022, is not considered to meet the criteria for classification as a Discontinued operation given its relative size to the Group and the Coal segment. For further information, refer to note 3 'Exceptional items'.

The contribution of Discontinued operations to the Group's profit and cash flows is detailed below:

Income statement – Discontinued operations

	2022 US$M	2021 US$M	2020 US$M
Revenue	**6,404**	3,896	4,007
Other income	**170**	130	57
Expenses excluding net finance costs	**(2,207)**	(3,629)	(3,322)
Loss from equity accounted investments, related impairments and expenses	**(4)**	(6)	(4)
Profit from operations	**4,363**	391	738
Financial expenses	**(165)**	(88)	(70)
Financial income	**6**	6	17
Net finance costs	**(159)**	(82)	(53)
Profit before taxation	**4,204**	309	685
Income tax expense	**(1,471)**	(545)	(492)
Royalty-related taxation (net of income tax benefit)	**(237)**	11	(85)
Total taxation expense	**(1,708)**	(534)	(577)
Profit/(loss) after taxation from operating activities	**2,496**	(225)	108
Net gain on Petroleum merger with Woodside (after tax)	**8,159**	–	–
Profit/(loss) after taxation	**10,655**	(225)	108
Attributable to non-controlling interests	**–**	–	–
Attributable to BHP shareholders	**10,655**	(225)	108
Basic earnings/(loss) per ordinary share (cents)	**210.5**	(4.5)	2.1
Diluted earnings/(loss) per ordinary share (cents)	**210.1**	(4.5)	2.1

The total comprehensive income attributable to BHP shareholders from Discontinued operations was a gain of US$10,596 million (30 June 2021: loss of US$231 million; 30 June 2020: gain of US$118 million).

The conversion of options and share rights would decrease the loss per share for the year ended 30 June 2021, therefore its impact has been excluded from the diluted earnings per share calculation.

Cash flows from Discontinued operations

	2022 US$M	2021 US$M	2020 US$M
Net operating cash flows	**2,889**	1,351	1,021
Net investing cash flows[1]	**(904)**	(1,520)	(1,033)
Net financing cash flows[2]	**(33)**	(38)	(39)
Net increase/(decrease) in cash and cash equivalents from Discontinued operations	**1,952**	(207)	(51)
Net cash completion payment on merger of Petroleum with Woodside	**(683)**	–	–
Cash and cash equivalents disposed	**(399)**	–	–
Total cash impact	**870**	(207)	(51)

1 Includes purchases of property, plant and equipment and capitalised exploration of US$1,144 million related to drilling and development expenditure (30 June 2021: US$1,020 million; 30 June 2020: US$1,079 million), proceeds from sale of subsidiaries, operations and joint operations, net of cash of US$91 million (30 June 2021: investment of US$480 million; 30 June 2020: US$ nil), proceeds from sale of assets of US$151 million (30 June 2021: US$39 million; 30 June 2020: US$78 million) and other investing outflows of US$2 million (30 June 2021: outflow of US$59 million; 30 June 2020: outflow of US$32 million).

2 Represents net repayment of interest bearing liabilities of US$33 million (30 June 2021: US$38 million; 30 June 2020: US$39 million).

Exceptional items – Discontinued operations

Exceptional items are those gains or losses where their nature, including the expected frequency of the events giving rise to them, and impact is considered material to the Financial Statements.

Items related to Discontinued operations included within the Group's profits for the year ended 30 June 2022 are detailed below.

Year ended 30 June 2022	Gross US$M	Tax US$M	Net US$M
Exceptional items by category			
Net gain on Petroleum merger with Woodside[1]	8,167	(8)	8,159
Total	8,167	(8)	8,159
Attributable to non-controlling interests	–	–	–
Attributable to BHP shareholders	8,167	(8)	8,159

1 The tax expense associated with the exceptional item reflects the tax impact of transaction costs and other restructuring related activities undertaken pre-merger. There are no further tax impacts arising on the net gain on merger of our Petroleum business with Woodside as generated tax losses were either offset with capital gains in other entities in the Group, or not recognised on the basis that it is not probable that future capital gains will be available against which the Group can utilise the tax losses.

Net gain on disposal of Discontinued operations

Details of the net gain on Petroleum merger with Woodside is presented below:

	2022 US$M
Assets	
Cash and cash equivalents	399
Trade and other receivables	1,560
Other financial assets	91
Inventories	295
Property, plant and equipment	12,055
Intangible assets	66
Investments accounted for using the equity method	240
Deferred tax assets	1,470
Other	18
Total assets	16,194
Liabilities	
Trade and other payables	913
Interest bearing liabilities	243
Tax payables	300
Provisions	4,518
Deferred income	48
Total liabilities	6,022
Net assets	10,172
Fair value of Woodside shares[1]	19,566
Net cash completion payment on merger of Petroleum with Woodside[2]	(683)
Foreign currency translation reserve transferred to the income statement	54
Other provisions and related indemnities recognised at completion	(353)
Transaction and other directly attributable costs	(245)
Income tax expense	(8)
Net gain on Petroleum merger with Woodside	8,159

1 Represents the consideration received being the fair value of 914,768,948 Woodside ordinary shares received using the closing ASX share price of A$29.76 on 31 May 2022 (US$21.39 equivalent based on an exchange rate of AUD/USD 0.7187).

2 Reflects the net cash flows generated by BHP Petroleum between 1 July 2021 and Completion Date adjusted for dividends Woodside would have paid on the newly issued Woodside ordinary shares, had the merger completed on 1 July 2021.

The Exceptional items related to Discontinued operations included within the Group's profit for the years ended 30 June 2021 and 30 June 2020 are outlined below:

Year ended 30 June 2021	Gross US$M	Tax US$M	Net US$M
Exceptional items by category			
Impairment of Potash assets[1]	–	(278)	(278)
COVID-19 related costs	(47)	8	(39)
Total	(47)	(270)	(317)
Attributable to non-controlling interests	–	–	–
Attributable to BHP shareholders	(47)	(270)	(317)

1 The exceptional item reflects the impairment of tax losses originally expected to be recoverable against taxable profits from the Group's Potash assets. The impairment is included in Discontinued operations as the entity with the losses transferred to Woodside and therefore the losses are no longer available to the Group.

Year ended 30 June 2020	Gross US$M	Tax US$M	Net US$M
Exceptional items by category			
COVID-19 related costs	(6)	2	(4)
Total	(6)	2	(4)
Attributable to non-controlling interests	–	–	–
Attributable to BHP shareholders	(6)	2	(4)

28 Subsidiaries

Significant subsidiaries of the Group are those with the most significant contribution to the Group's net profit or net assets. The Group's interest in the subsidiaries' results are listed in the table below. For a list of the Group's subsidiaries, refer to Exhibit 8.1 - List of Subsidiaries.

			Group's interest	
Significant subsidiaries	**Country of incorporation**	**Principal activity**	**2022 %**	2021 %
Coal				
BHP Mitsui Coal Pty Ltd[1]	Australia	Coal mining	–	80
Hunter Valley Energy Coal Pty Ltd	Australia	Coal mining	**100**	100
Copper				
BHP Olympic Dam Corporation Pty Ltd	Australia	Copper and uranium mining	**100**	100
Compañia Minera Cerro Colorado Limitada	Chile	Copper mining	**100**	100
Minera Escondida Ltda[2]	Chile	Copper mining	**57.5**	57.5
Minera Spence SA	Chile	Copper mining	**100**	100
Iron Ore				
BHP Iron Ore (Jimblebar) Pty Ltd[3]	Australia	Iron ore mining	**85**	85
BHP Iron Ore Pty Ltd	Australia	Service company	**100**	100
BHP (Towage Service) Pty Ltd	Australia	Towing services	**100**	100
Marketing				
BHP Billiton Freight Singapore Pte Limited	Singapore	Freight services	**100**	100
BHP Billiton Marketing AG	Switzerland	Marketing and trading	**100**	100
BHP Billiton Marketing Asia Pte Ltd	Singapore	Marketing support and other services	**100**	100
Group and Unallocated				
BHP Billiton Finance B.V.	The Netherlands	Finance	**100**	100
BHP Billiton Finance Limited	Australia	Finance	**100**	100
BHP Billiton Finance (USA) Limited	Australia	Finance	**100**	100
BHP Canada Inc.	Canada	Potash development	**100**	100
BHP Group Operations Pty Ltd	Australia	Administrative services	**100**	100
BHP Nickel West Pty Ltd	Australia	Nickel mining, smelting, refining and administrative services	**100**	100
WMC Finance (USA) Limited	Australia	Finance	**100**	100

1 The divestment of BHP's 80 per cent interest in BHP Mitsui Coal Pty Ltd (BMC) to Stanmore Resources Limited was completed on 3 May 2022. Refer to note 3 'Exceptional items' for further information.

2 As the Group has the ability to direct the relevant activities at Minera Escondida Ltda, it has control over the entity. The assessment of the most relevant activity in this contractual arrangement is subject to judgement. The Group establishes the mine plan and the operating budget and has the ability to appoint the key management personnel, demonstrating that the Group has the existing rights to direct the relevant activities of Minera Escondida Ltda.

3 The Group has an effective interest of 92.5 per cent in BHP Iron Ore (Jimblebar) Pty Ltd; however, by virtue of the shareholder agreement with ITOCHU Iron Ore Australia Pty Ltd and Mitsui & Co. Iron Ore Exploration & Mining Pty Ltd, the Group's interest in the Jimblebar mining operation is 85 per cent, which is consistent with the other respective contractual arrangements at Western Australia Iron Ore.

29 Investments accounted for using the equity method

Significant interests in equity accounted investments of the Group are those with the most significant contribution to the Group's net profit or net assets. The Group's ownership interest in equity accounted investments results are listed in the table below. For a list of the Group's associates and joint ventures, refer to Exhibit 8.1 - List of Subsidiaries.

Significant associates and joint ventures	Country of incorporation/ principal place of business	Associate or joint venture	Principal activity	Reporting date	Ownership interest 2022 %	Ownership interest 2021 %
Cerrejón[1]	Anguilla/Colombia/Ireland	Associate	Coal mining in Colombia	31 December	–	33.33
Compañía Minera Antamina S.A. (Antamina)	Peru	Associate	Copper and zinc mining	31 December	**33.75**	33.75
Samarco Mineração S.A. (Samarco)	Brazil	Joint venture	Iron ore mining	31 December	**50.00**	50.00

1 At 30 June 2021, the Group's investment in Cerrejón was classified as 'Assets held for sale' and payables owed to Cerrejón was classified as 'Liabilities directly associated with the assets held for sale'. During FY2022 the Group received dividends of US$238 million from Cerrejón and on 11 January 2022, BHP completed the sale of its 33.33 per cent interest in Cerrejón to Glencore. In accordance with the sale agreement, the final sale proceeds was adjusted for the dividends received to a final number of US$50 million.

Voting in relation to relevant activities in Antamina, determined to be the approval of the operating and capital budgets, does not require unanimous consent of all participants to the arrangement, therefore joint control does not exist. Instead, because the Group has the power to participate in the financial and operating policies of the investee, this investment is accounted for as an associate.

Samarco is jointly owned by BHP Billiton Brasil Ltda (BHP Brasil) and Vale S.A. (Vale). As the Samarco entity has the rights to the assets and obligations to the liabilities relating to the joint arrangement and not its owners, this investment is accounted for as a joint venture.

The Group is restricted in its ability to make dividend payments from its investments in associates and joint ventures as any such payments require the approval of all investors in the associates and joint ventures. The ownership interest at the Group's and the associates' or joint ventures' reporting dates are the same. When the annual financial reporting date is different to the Group's, financial information is obtained as at 30 June in order to report on an annual basis consistent with the Group's reporting date.

The movement for the year in the Group's investments accounted for using the equity method is as follows:

Year ended 30 June 2022 US$M	**Investment in associates**	**Investment in joint ventures**	**Total equity accounted investments**
At the beginning of the financial year	**1,742**	–	**1,742**
Loss from equity accounted investments, related impairments and expenses[1,2]	**653**	**(676)**	**(23)**
Investment in equity accounted investments	**52**	–	**52**
Dividends received from equity accounted investments[3]	**(787)**	–	**(787)**
Divestment and demerger of equity accounted investments	**(240)**	–	**(240)**
Other	–	**676**	**676**
At the end of the financial year	**1,420**	–	**1,420**

1 US$(676) million represents US$(663) million movement in the Samarco dam failure provision including US$(747) million change in estimate and US$84 million exchange translation, US$68 million movement in provisions related to the Samarco Germano dam decommissioning provision including US$56 million change in estimate and US$12 million exchange translation and US$(81) million fair value change on forward exchange derivatives. Refer to note 4 'Significant events – Samarco dam failure' for further information.

2 Includes share of operating losses of equity accounted investments from Discontinued operations of US$4 million (2021: US$6 million; 2020: US$4 million). Refer to note 27 'Discontinued operations'.

3 Includes dividends received from equity accounted investments from Discontinued operations of US$10 million (2021: US$10 million; 2020: US$12 million).

The following table summarises the financial information relating to each of the Group's significant equity accounted investments. BHP Brasil's 50 per cent portion of Samarco's commitments, for which BHP Brasil has no funding obligation, is US$350 million (2021: US$350 million).

2022 US$M	**Associates**		**Joint ventures**		
	Antamina	**Individually immaterial[1]**	**Samarco[2]**	**Individually immaterial**	**Total**
Current assets	**1,275**		**499[3]**		
Non-current assets	**5,293**		**5,717**		
Current liabilities	**(847)**		**(10,830)[4]**		
Non-current liabilities	**(1,851)**		**(7,873)**		
Net assets/(liabilities) – 100%	**3,870**		**(12,487)**		
Net assets/(liabilities) – Group share	**1,306**		**(6,244)**		
Adjustments to net assets related to accounting policy adjustments	**–**		**268[5]**		
Investment in Samarco	**–**		**516[6]**		
Impairment of the carrying value of the investment in Samarco	**–**		**(1,041)[7]**		
Additional share of Samarco losses	**–**		**5,326[8]**		
Unrecognised losses	**–**		**1,175[9]**		
Carrying amount of investments accounted for using the equity method	**1,306**	**114**	**–**	**–**	**1,420**
Revenue – 100%	**5,264**		**1,670**		
Profit/(loss) from Continuing operations – 100%	**2,133**		**(528)[10]**		
Share of profit/(loss) of equity accounted investments	**720**		**(276)[11]**		
Impairment of the carrying value of the investment in Samarco	**–**		**–**		
Additional share of Samarco losses	**–**		**290**		
Fair value change on forward exchange derivatives	**–**		**(81)**		
Unrecognised losses	**–**		**(609)[9]**		
Profit/(loss) from equity accounted investments, related impairments and expenses	**720**	**(63)**	**(676)**	**–**	**(19)**
Comprehensive income – 100%	**2,133**		**(528)**		
Share of comprehensive income/(loss) – Group share in equity accounted investments	**720**	**(63)**	**(676)**	**–**	**(19)**
Dividends received from equity accounted investments	**776**	**11**	**–**	**–**	**787**

2021 US$M Restated	Associates			Joint ventures		
	Antamina	Cerrejón	Individually immaterial[1]	Samarco[2]	Individually immaterial	Total
Current assets	1,499	–		509[3]		
Non-current assets	4,885	–		4,380		
Current liabilities	(1,285)	–		(9,222)[4]		
Non-current liabilities	(1,062)	–		(7,627)		
Net assets/(liabilities) – 100%	4,037	–		(11,960)		
Net assets/(liabilities) – Group share	1,362	–		(5,980)		
Adjustments to net assets related to accounting policy adjustments	–	–		280[5]		
Investment in Samarco	–	–		516[6]		
Impairment of the carrying value of the investment in Samarco	–	–		(1,041)[7]		
Additional share of Samarco losses	–	–		4,442[8]		
Unrecognised losses	–	–		1,783[9]		
Carrying amount of investments accounted for using the equity method	1,362	–	380	–	–	1,742
Revenue – 100%	4,822	844		814		
Profit/(loss) from Continuing operations – 100%	1,847	(43)		(2,202)[10]		
Share of profit/(loss) of equity accounted investments	623	(14)		(1,076)[11]		
Impairment of the carrying value of the investment in Cerrejón	–	(466)		–		
Impairment of the carrying value of the investment in Samarco	–	–		(111)[7]		
Additional share of Samarco losses	–	–		85		
Fair value change on forward exchange derivatives	–	–		136		
Unrecognised losses	–	–		(24)[9]		
Profit/(loss) from equity accounted investments, related impairments and expenses	623	(480)	(68)	(990)	–	(915)
Comprehensive income/(loss) – 100%	1,847	(43)		(2,202)		
Share of comprehensive income/(loss) – Group share in equity accounted investments	623	(480)	(68)	(990)	–	(915)
Dividends received from equity accounted investments	714	13	10	–	–	737

2020 US$M Restated	Associates Antamina	 Cerrejón	 Individually immaterial	Joint ventures Samarco[2]	 Individually immaterial	 Total
Revenue – 100%	2,464	1,091		26		
Profit/(loss) from Continuing operations – 100%	629	(182)		(3,617)[10]		
Share of profit/(loss) of equity accounted investments	212	(68)		(1,918)[11]		
Impairment of the carrying value of the investment in Samarco	–	–		(95)[7]		
Additional share of Samarco losses	–	–		93		
Unrecognised losses	–	–		1,412[9]		
Profit/(loss) from equity accounted investments, related impairments and expenses	212	(68)	(144)	(508)	–	(508)
Comprehensive income/(loss) – 100%	629	(182)		(3,617)		
Share of comprehensive income/(loss) – Group share in equity accounted investments	212	(68)	(144)	(508)	–	(508)
Dividends received from equity accounted investments	105	9	12	–	–	126

1 The unrecognised share of gain for the period was US$16 million (2021: unrecognised share of loss for the period was US$40 million), which decreased the cumulative losses to US$217 million (2021: increase to US$233 million).

2 Refer to note 4 ‘Significant events – Samarco dam failure’ for further information regarding the financial impact of the Samarco dam failure in November 2015 on BHP Brasil’s share of Samarco’s losses.

3 Includes cash and cash equivalents of US$106 million (2021: US$134 million).

4 Includes current financial liabilities (excluding trade and other payables and provisions) of US$6,837 million (2021: US$6,567 million).

5 Relates mainly to dividends declared by Samarco that remain unpaid at balance date and which, in accordance with the Group’s accounting policy, are recognised when received not receivable.

6 Working capital funding provided to Samarco during the period is capitalised as part of the Group’s investments in joint ventures and disclosed as an impairment included within the Samarco impairment expense line item.

7 In the year ended 30 June 2016 BHP Brasil adjusted its investment in Samarco to US$ nil (resulting from US$(655) million share of loss from Samarco and US$(525) million impairment). Additional cumulative impairment losses relating to working capital funding of US$(516) million have also been recognised.

8 BHP Brasil has recognised accumulated additional share of Samarco losses of US$(5,326) million resulting from US$(4,539) million provisions relating to the Samarco dam failure, including US$(787) million recognised as net finance costs.

9 Share of Samarco’s losses for which BHP Brasil does not have an obligation to fund.

10 Includes depreciation and amortisation of US$205 million (2021: US$154 million; 2020: US$84 million), interest income of US$19 million (2021: US$1 million; 2020: US$16 million), interest expense of US$628 million (2021: US$492 million; 2020: US$588 million) and income tax (expense)/benefit of US$(7) million (2021: US$(303) million; 2020: US$(256) million).

11 Includes accounting policy adjustments mainly related to the removal of foreign exchange gains on excluded dividends payable.

30 Interests in joint operations

Significant joint operations of the Group are those with the most significant contributions to the Group's net profit or net assets. The Group's interest in the joint operations results are listed in the table below. For a list of the Group's investments in joint operations, refer to Exhibit 8.1 - List of Subsidiaries.

Significant joint operations	Country of operation	Principal activity	Group's interest 2022 %	Group's interest 2021 %
Mt Goldsworthy[1]	Australia	Iron ore mining	**85**	85
Mt Newman[1]	Australia	Iron ore mining	**85**	85
Yandi[1]	Australia	Iron ore mining	**85**	85
Central Queensland Coal Associates	Australia	Coal mining	**50**	50
Atlantis[2]	US	Hydrocarbons production	–	44
Bass Strait[2]	Australia	Hydrocarbons production	–	50
Macedon[2]	Australia	Hydrocarbons production	–	71.43
Mad Dog[2]	US	Hydrocarbons production	–	23.9
North West Shelf[2]	Australia	Hydrocarbons production	–	12.5–16.67
Pyrenees[2]	Australia	Hydrocarbons production	–	40–71.43
ROD Integrated Development[2]	Algeria	Hydrocarbons production	–	28.85
Shenzi[2]	US	Hydrocarbons production	–	72
Trinidad/Tobago[2]	Trinidad and Tobago	Hydrocarbons production	–	45–68.46

1 These contractual arrangements are controlled by the Group and do not meet the definition of joint operations. However, as they are formed by contractual arrangement and are not entities, the Group recognises its share of assets, liabilities, revenue and expenses arising from these arrangements.

2 These joint operations formed part of the Group's oil and gas portfolio that merged with Woodside on 1 June 2022. Refer to note 27 'Discontinued operations' for details.

Assets held in joint operations subject to significant restrictions are as follows:

	Group's share 2022 US$M	Group's share 2021 US$M
Current assets	**1,928**	2,260
Non-current assets	**26,256**	38,725
Total assets[1]	**28,184**	40,985

1 While the Group is unrestricted in its ability to sell a share of its interest in these joint operations, it does not have the right to sell individual assets that are used in these joint operations without the unanimous consent of the other participants. The assets in these joint operations are also restricted to the extent that they are only available to be used by the joint operation itself and not by other operations of the Group.

31 Related party transactions

The Group's related parties are predominantly subsidiaries, associates and joint ventures, and key management personnel of the Group. Disclosures relating to key management personnel are set out in note 24 'Key management personnel'. Transactions between each parent company and its subsidiaries are eliminated on consolidation and are not disclosed in this note.

- All transactions to/from related parties are made at arm's length, i.e. at normal market prices and rates and on normal commercial terms.
- Outstanding balances at year-end are unsecured and settlement occurs in cash. Loan amounts owing from related parties represent secured loans made to associates and joint ventures under co-funding arrangements. Such loans are made on an arm's length basis.
- No guarantees are provided or received for any related party receivables or payables.
- No provision for expected credit losses has been recognised in relation to any outstanding balances and no expense has been recognised in respect of expected credit losses due from related parties.
- There were no other related party transactions in the year ended 30 June 2022 (2021: US$ nil), other than those with post-employment benefit plans for the benefit of Group employees. These are shown in note 26 'Employee benefits, restructuring and post-retirement employee benefits provisions'.
- Related party transactions with Samarco are described in note 4 'Significant events – Samarco dam failure'.

Further disclosures related to related party transactions are as follows:

Transactions with related parties

	Joint ventures		Associates	
	2022	2021	**2022**	2021
	US$M	US$M	**US$M**	US$M
Sales of goods/services	**–**	–	**–**	–
Purchases of goods/services	**–**	–	**1,852.132**	1,564.073
Interest income	**–**	–	**0.398**	2.241
Interest expense	**–**	–	**0.005**	–
Dividends received	**–**	–	**787.208**	737.250
Net loans made to/(repayments from) related parties	**–**	–	**(23.554)**	(12.108)

Outstanding balances with related parties

	Joint ventures		Associates	
	2022	2021	**2022**	2021
	US$M	US$M	**US$M**	US$M
Trade amounts owing to related parties	**–**	–	**351.607**	316.269
Loan amounts owing to related parties	**–**	–	**–**	17.097
Trade amounts owing from related parties	**–**	–	**6.855**	0.004
Loan amounts owing from related parties	**–**	–	**–**	40.651

Unrecognised items and uncertain events

32 Contingent liabilities

	2022	2021
	US$M	US$M
Associates and joint ventures[1]	**1,541**	1,532
Subsidiaries and joint operations[1]	**925**	1,615
Total	**2,466**	3,147

1 There are a number of matters, for which it is not possible at this time to provide a range of possible outcomes or a reliable estimate of potential future exposures, and for which no amounts have been included in the table above.

A contingent liability is a possible obligation arising from past events and whose existence will be confirmed only by occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the Group. A contingent liability may also be a present obligation arising from past events but is not recognised on the basis that an outflow of economic resources to settle the obligation is not viewed as probable, or the amount of the obligation cannot be reliably measured.

When the Group has a present obligation, an outflow of economic resources is assessed as probable and the Group can reliably measure the obligation, a provision is recognised.

The Group has entered into various counter-indemnities of bank and performance guarantees related to its own future performance, which are in the normal course of business. The likelihood of these guarantees being called upon is considered remote.

The Group presently has tax matters, litigation and other claims, for which the timing of resolution and potential economic outflow are uncertain. Obligations assessed as having probable future economic outflows capable of reliable measurement are provided at reporting date and matters assessed as having possible future economic outflows capable of reliable measurement are included in the total amount of contingent liabilities above. Individually significant matters, including narrative on potential future exposures incapable of reliable measurement, are disclosed below, to the extent that disclosure does not prejudice the Group.

Uncertain tax and royalty matters

The Group is subject to a range of taxes and royalties across many jurisdictions, the application of which is uncertain in some regards. Changes in tax law, changes in interpretation of tax law, periodic challenges and disagreements with tax authorities, and legal proceedings result in uncertainty of the outcome of the application of taxes and royalties to the Group's business. Areas of uncertainty at reporting date include the application of taxes and royalties to the Group's cross-border operations and transactions.

To the extent uncertain tax and royalty matters give rise to a contingent liability, an estimate of the potential liability is included within the table above, where it is capable of reliable measurement.

Samarco contingent liabilities

The table above includes contingent liabilities related to the Group's equity accounted investment in Samarco to the extent they are capable of reliable measurement. Details of contingent liabilities related to Samarco are disclosed in note 4 'Significant events – Samarco dam failure'.

Divestments and demergers

Where the Group divests or demerges entities, it is generally agreed to provide certain indemnities to the acquiring or demerged entity. Such indemnities include those provided as part of the demerger of South 32 Ltd in May 2015, divestment of Group's Onshore US assets in September 2018 and October 2018, divestment of BMC in May 2022 and the merger of the Group's Petroleum business with Woodside in June 2022. No material claims have been made pursuant to these indemnities as at 30 June 2022.

33 Subsequent events

Other than the matters outlined elsewhere in the Financial Statements, no matters or circumstances have arisen since the end of the financial year that have significantly affected, or may significantly affect, the operations, results of operations or state of affairs of the Group in subsequent accounting periods.

Other items

34 Auditor's remuneration

	2022 US$M	2021 US$M	2020 US$M
Fees payable to the Group's auditors for assurance services			
Audit of the Group's Annual Report	**9.816**	10.642	11.196
Audit of the accounts of subsidiaries, joint ventures and associates	**0.605**	1.234	1.262
Audit-related assurance services required by legislation to be provided by the auditor	**1.933**	1.770	1.815
Other assurance and agreed-upon procedures under legislation or contractual arrangements	**7.938**	1.867	2.003
Total assurance services	**20.292**	15.513	16.276
Fees payable to the Group's auditors for non-assurance services			
Other services	**–**	–	0.400
Total other services	**–**	–	0.400
Total fees	**20.292**	15.513	16.676

All amounts were paid to EY or EY affiliated firms with fees determined, and predominantly billed, in US dollars.

Fees payable to the Group's auditors for assurance services

Audit of the Group's Annual Report comprises fees for auditing the statutory financial report of the Group and includes audit work in relation to compliance with section 404 of the US Sarbanes-Oxley Act.

Audit-related assurance services required by legislation to be provided by the auditors mainly comprises review of half-year reports.

Other assurance services comprise assurance in respect of the Group's sustainability reporting and economic contribution report, in addition to the audits of the financial reports prepared in connection with the merger of BHP's oil and gas portfolio with Woodside and the unification of BHP's dual listed corporate structure.

Fees payable to the Group's auditors for other services

No amounts were payable for other services in FY2022 or FY2021. Amounts for other services in FY2020 comprised tax compliance services (US$0.269 million) and tax advisory services (US$0.131 million).

35 Not required for US reporting

36 Not required for US reporting

37 New and amended accounting standards and interpretations and changes to accounting policies

New and amended accounting pronouncements adopted in the current year

The adoption of new and amended accounting pronouncements applicable from 1 July 2021 did not result in a significant impact on the Group's Financial Statements. This includes the Interest Rate Benchmark (IBOR) Reform – Phase 2 (Amendments to IFRS 9/AASB 9 'Financial Instruments', IAS 39/AASB139 'Financial Instruments: Recognition and Measurement'; IFRS 7/AASB 7 'Financial Instruments: Disclosures'; IFRS 4/AASB 4 'Insurance Contracts' and IFRS 16/AASB 16 'Leases') early adopted in the prior year.

New and amended accounting pronouncements on issue but not yet effective

From 1 July 2022, the Group will adopt an amendment to IAS 16/AASB 116 'Property, Plant and Equipment' that requires an entity to recognise the sales proceeds from selling items produced while preparing property, plant and equipment for its intended use, and the related cost, in profit or loss, instead of deducting the amounts received from the cost of the asset.

The amendment is applied retrospectively, but only to items of property, plant and equipment that became ready for its intended use on or after 1 July 2020.

The impact of the amendment on the Group is not expected to be significant and the Group has not identified any material amounts deducted from the cost of assets since 1 July 2020.

A number of other accounting standards and interpretations have been issued and will be applicable in future periods. While these remain subject to ongoing assessment, no significant impacts have been identified to date.

These pronouncements have not been applied in the preparation of these Financial Statements.

1A Reports of Independent Registered Public Accounting Firm

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of BHP Group Limited

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of BHP Group Limited (the "Company") as of 30 June 2022 and 2021, the related consolidated income statements, consolidated statements of comprehensive income, consolidated statements of changes in equity, and consolidated cash flow statements for each of the three years in the period ended 30 June 2022, and the related notes (collectively referred to as the "consolidated financial statements").

In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at 30 June 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended 30 June 2022, in conformity with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of 30 June 2022, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organisations of the Treadway Commission (2013 framework) and our report dated 6 September 2022 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether to due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the Risk and Audit Committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective or complex judgements. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Carrying value of property, plant and equipment

Description of the Matter

As disclosed in Note 11 to the consolidated financial statements the Company recorded US$61,295 million in property plant and equipment as of 30 June 2022. The Company performs an assessment of indicators of impairment and impairment reversal for all cash generating units (CGU) at the end of each reporting period.

Auditing management’s assessment of indicators of impairment and impairment reversal was complex due to the high degree of estimation uncertainty in forecasting the future cash flows for each CGU. Specifically, the indicators of impairment or impairment reversal and forecasted cash flows are sensitive to changes in significant assumptions, such as forecast commodity prices, reserve quantities, discount rates and the possible impacts related to climate change and the transition to a low carbon economy, which includes carbon price assumptions and the Company’s operational emissions reduction strategy.

How We Addressed the Matter in Our Audit

We obtained an understanding, evaluated the design, and tested the operating effectiveness of the controls over the Company’s process to identify indicators of impairment or impairment reversal.

We performed an analysis for indicators of impairment and impairment reversal. Our procedures involved assessing the key inputs such as forecast commodity prices, reserve quantities, discount rates and the impact of climate change and the transition to a low carbon economy used in the assessment of indicators of impairment or impairment reversal.

We involved our valuation and climate change specialists to assist in assessing the reasonableness of commodity prices by comparing the forecasted commodity and carbon price assumptions to analyst and broker forecasts and those used by other market participants.

In addition, our valuation specialists assisted in testing the discount rates used, including a comparison to external market data and evaluating whether the valuation methodology used was consistent with industry practice.

To test the reserve quantities, we examined the information provided by the Company’s experts and we involved our mining reserve specialists to assist in the assessment of the reserve estimation methodology against the relevant industry and regulatory guidance.

With the assistance of our climate change specialists, we tested that the Company’s forecast cash flows incorporated the Company’s operational emissions reduction strategy.

In addition, we assessed the competence, qualifications, and objectivity of management’s internal and external specialists. Finally, we assessed the adequacy of the disclosures within Notes 11 and 13 of the consolidated financial statements.

Closure and rehabilitation provisions

Description of the Matter	As disclosed in Note 15 to the consolidated financial statements, the Company recorded US$8,689 million in closure and rehabilitation provisions as at 30 June 2022. Provisions for closure and rehabilitation are recognised by the Company when there is a present legal or constructive obligation, it is more likely than not that an outflow of resources will be required to settle the obligation, and the amount can be reliably estimated. The Company estimates the individual site provisions using the expected value of future cash flows required to close and rehabilitate the relevant site using current restoration standards and techniques and taking into account risks and uncertainties. Individual site provisions are discounted to the present value using currency specific risk-free discount rates aligned to the estimated timing of cash outflows. Auditing management's closure and rehabilitation provisions was complex and highly judgemental due to the significant estimation uncertainty within the key assumptions. Specifically, there was significant judgement in determining the expected life of sites including the impact of the Company's climate related strategies, estimated cost and extent of rehabilitation activities, timing of activities, and the discount rates used. As a result of these inputs the provisions have a significant estimation uncertainty and a wide range of potential outcomes.
How We Addressed the Matter in Our Audit	We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over the Company's closure and rehabilitation provision estimate process. Specifically, our procedures involved testing the controls around the significant assumptions used within the estimate, such as the estimated cost and extent of rehabilitation activities, in addition to the timing of activities. Our procedures included evaluation of the Company's process for identifying legal and regulatory obligations for closure and rehabilitation, and the completeness and accuracy of data used within management's estimate. We tested that the future rehabilitation costs were consistent with the closure plans prepared by management's internal specialists. We compared the expected life of sites and resulting timing of closure activities used in the provision to the life of asset plans prepared by management's internal specialists. With the assistance of our environmental specialists, we evaluated a sample of closure and rehabilitation provisions for operating and closed sites. Our testing included evaluating the closure and rehabilitation plan based on the relevant legal and regulatory requirements. In addition, we compared the timing of future cash flows and cost estimates against the closure and rehabilitation plan, environmental studies, and industrial practices. We evaluated the discount rates used against market data. With the assistance of our climate change and environmental specialists, we evaluated the Company's consideration of physical risks, estimates related to post closure monitoring and maintenance and the timing of closure activities impacted by mine operating lives within the closure and rehabilitation provision. We tested the mathematical accuracy of the closure and rehabilitation provision calculations and assessed the competence, qualifications, and objectivity of management's internal and external specialists. Finally, we assessed the adequacy of the disclosures within Note 15 to the consolidated financial statements.

	Samarco dam failure provisions recognised, including the Germano dam decommissioning and contingent liabilities disclosed
Description of the Matter	As described in Notes 3, 4, and 32 to the consolidated financial statements, the Company recorded a loss of US$1,032 million (pre-tax) for the year ended 30 June 2022 and recognised provisions of US$3,237 million for the Samarco dam failure and US$184 million for the Germano dam decommissioning as of 30 June 2022. The Company recognises a provision when it has a present obligation, and an outflow of economic resources is probable, and the obligation can be reliably measured. Auditing management's estimate of the Samarco dam failure provisions and contingent liabilities disclosure was complex and highly judgemental due to the significant estimation uncertainty in determining the measurement and completeness of future cash outflows, as well as the extent of the Company's legal obligations to fund the costs under the Framework and Governance Agreements. There was significant judgement in determining the nature and extent of remediation activities, the cost estimates for remediation and the number and categorisation of impacted people entitled to compensation. As a result of these inputs the provision has a significant estimation uncertainty and a wide range of potential outcomes.
How We Addressed the Matter in Our Audit	We obtained an understanding, evaluated the design and tested the operating effectiveness of the Company's controls in determining the Samarco dam failure provisions. Specifically, we tested management's controls over the significant assumptions as described above and the completeness and accuracy of data used within management's estimates. To test the provisions, we performed audit procedures that included, amongst others, assessing methodologies and testing the significant assumptions discussed above and underlying data used by the Company in its analysis. We tested a sample of cost estimates used to source documents such as court decisions outlining compensation levels. We compared the nature and extent of activities included in the forecasted cash flows to the Framework Agreement. We also tested the mathematical accuracy of the models used to calculate the provisions. To assess management's ability to forecast, we compared the prior years forecasted cash flows to actual results and understood key differences. To assess the status of claims we held discussions with internal and external legal counsel regarding ongoing Samarco dam failure litigation matters. In addition, we obtained legal confirmations and inspected communications with the Company's external legal counsel. We evaluated the competence, qualifications and objectivity of the Company's experts who assisted management in estimating the provision by considering the scope of work, their professional qualifications and remuneration structure. We also assessed the adequacy and completeness of the disclosures within Note 4 and 32 to the consolidated financial statements.

/s/ Ernst & Young

We have served as BHP Group Limited's auditor since 2019

Melbourne, Australia
6 September 2022

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of BHP Group Limited

Opinion on Internal Control Over Financial Reporting

We have audited BHP Group Limited and its subsidiaries' internal control over financial reporting as of 30 June 2022, based on criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 Framework) (the "COSO criteria"). In our opinion, BHP Group Limited and its subsidiaries (the "Company") maintained, in all material respects, effective internal control over financial reporting as of 30 June 2022, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of 30 June 2022 and 2021, the related consolidated income statements, consolidated statements of comprehensive income, consolidated statements of changes of equity, and consolidated cash flow statements for each of the three years in the period ended 30 June 2022, and the related notes (collectively referred to as the "consolidated financial statements") and our report dated 6 September 2022 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying section 7.2 Corporate Governance Report / Management's assessment of internal control over financial reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorisations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorised acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Ernst & Young

Melbourne, Australia
6 September 2022

2 Directors' declaration

In accordance with a resolution of the Directors of BHP Group Limited, the Directors declare that:

(a) in the Directors' opinion the Financial Statements and notes are in accordance with the Australian Corporations Act 2001 (Cth), including:

  (i) complying with the applicable Accounting Standards and the Australian Corporations Regulations 2001 (Cth); and

  (ii) giving a true and fair view of the assets, liabilities, financial position and profit or loss of BHP Group Limited and the Group as at 30 June 2022 and of their performance for the year ended 30 June 2022

(b) the Financial Statements also comply with International Financial Reporting Standards, as disclosed in the Basis of preparation to the Financial Statements

(c) to the best of the Directors' knowledge, the management report (comprising the Operating and Financial Review and Directors' Report) includes a fair review of the development and performance of the business and the position of the Group and the undertakings included in the consolidation taken as a whole, together with a description of the principal risks and uncertainties that the Group faces

(d) in the Directors' opinion there are reasonable grounds to believe that BHP Group Limited will be able to pay its debts as and when they become due and payable

(e) as at the date of this declaration, there are reasonable grounds to believe that BHP Group Limited and each of the Closed Group entities identified in Exhibit 8.1 – List of Subsidiaries will be able to meet any liabilities to which they are, or may become, subject because of the Deed of Cross Guarantee between BHP Group Limited and those group entities pursuant to ASIC Corporations (Wholly-owned Companies) Instrument 2016/785

(f) the Directors have been given the declarations required by Section 295A of the Australian Corporations Act 2001 (Cth) from the Chief Executive Officer and Chief Financial Officer for the financial year ended 30 June 2022

Signed in accordance with a resolution of the Board of Directors.

Ken MacKenzie
Chair

Mike Henry
Chief Executive Officer

Dated this 16th day of August 2022

3 Not required for US reporting

4 Included as section 1A

Exhibit 1.1

Constitution of BHP Group Limited
ABN 49 004 028 077

Incorporating the amendments approved by shareholders at the 2005, 2007, 2008, 2010, 2015 Annual General Meetings and 2022 General Meeting.

The Company is a public company limited by shares.

1. Replaceable Rules not to apply

The replaceable rules in the Act do not apply to the Company.

2. Definitions and Interpretation

(1) In this Constitution unless the context requires otherwise:

Act means the *Corporations Act 2001* (Cth) and includes a reference to the Corporations Regulations made under that Act;

Action means any distribution or any action affecting the amount or nature of issued share capital, including any dividend, distribution in specie, offer by way of rights, bonus issue, repayment of capital, sub- division or consolidation, buy-back or amendment of the rights of any shares or a series of one or more of such actions;

American Depository Shares means the American Depository Receipts listed on the New York Stock Exchange (NYSE) by the Company;

Applicable Regulation means:

(a) applicable law and regulations;

(b) directives, notices or requirements of any Governmental Agency having jurisdiction over the Company; and

(c) the rules, regulations, and guidelines of:

(i) any stock exchange on which either the Ordinary Shares or the American Depositary Shares are listed or quoted;

(ii) any other body with which entities with securities listed or quoted on such exchanges customarily comply,

(but, if not having the force of law, only if compliance with such directives, notices, requirements, rules, regulations or guidelines is in accordance with the general practice of persons to whom they are intended to apply) in each case for the time being in force and taking account of all exemptions, waivers or variations from time to time applicable (in particular situations or generally) to the Company;

ASPL means ASX Settlement Pty Limited (ABN 49 008 504 532);

ASX Listing Rules means the Listing Rules of the ASX;

ASX Settlement Operating Rules means the operating rules of ASPL and, to the extent that they are applicable, the operating rules of ASX and the operating rules of ASX Clear Pty Limited (ABN 48 001 314 503);

ASX means ASX Limited (ABN 98 008 624 691) or such other body corporate that is declared by the Board to be the Company's primary stock exchange for the purposes of this definition;

Australian dollars means the lawful currency from time to time of Australia;

Board means all or some of the Directors from time to time acting as a board (or a duly appointed committee of the board);

business day means a day which is a business day for the purposes of the ASX Listing Rules;

call includes any instalment of a call and any amount due on issue of any share;

Chairman means the Chairman of the Board under Rule 93 or any person acting as chairman of a meeting of members or a meeting of the Board;

Committee means a Committee to which powers have been delegated by the Board under Rule 101;

Company means BHP Group Limited (ABN 49 004 028 077);

Constitution means this constitution;

Deputy Chairman means any Director appointed as Deputy Chairman of the Board under Rule 93;

Director means a person appointed or elected to the office of Director of the Company in accordance with this Constitution;

Dividend Plan means any dividend plan as referred to in Rule 130 and includes the bonus share plan as regulated under Rule 128 of the Company's Constitution as at 1 January 1999, as amended in each case;

FCA Listing Rules means the listing rules made under the Financial Services and Markets Act 2000 by the Financial Conduct Authority (or its successor from time to time) and contained in the Financial Conduct Authority's publication of the same name, as amended from time to time;

Governmental Agency means any government or representative of a government or any governmental, semi-governmental, supra-national, statutory, administrative, fiscal, regulatory or judicial body, department, commission, authority, tribunal, agency or entity or trade agency, and shall include competition authorities, the UK Panel on Takeovers and Mergers, the Corporations and Securities Panel of Australia, the ASX, the Australian Securities and Investments Commission, the London Stock Exchange, the Financial Conduct Authority, the South African Reserve Bank, the South African Financial Services Board, the Johannesburg Stock Exchange and the South African Takeover Regulation Panel;

Group means the Company and its subsidiaries from time to time and a member of the Group means any one of them;

Johannesburg Stock Exchange means the JSE Limited, registration number 2005/022939/06, a public company incorporated in South Africa, licensed as a securities exchange in terms of the South African Securities Services Act 36 of 2004;

JSE Listings Requirements means the listings requirements of the Johannesburg Stock Exchange;

London Stock Exchange means the London Stock Exchange plc;

LSE Rules means the rules of the London Stock Exchange made by the London Stock Exchange from time to time;

Month means a calendar month;

Ordinary Share means the ordinary shares of the Company from time to time;

Office means the registered office of the Company;

person and words importing persons include partnerships, associations and corporations as well as individuals;

proper ASTC transfer has the same meaning given to that term in the Corporations Regulations 2001 (Cth);

Register means the register of holders of securities issued by the Company;

registered address means the address of a shareholder specified on a transfer or any other address of which the shareholder notifies the Company as a place at which the shareholder will accept service of notices;

retiring Director means a Director who retires under Rule 83 and a Director who ceases to hold office under Rule 88;

Secretary means a person appointed as, or to perform the duties of, secretary of the Company;

securities includes shares, rights to shares, options to acquire shares, instalment receipts and other securities with rights of conversion to equity;

shareholders present means shareholders present at a general meeting of the Company in person or by properly appointed representative, proxy or attorney;

Statutes means the Act and every other statute, statutory instrument, regulation or order for the time being in force concerning companies regulated under the Act and affecting the Company;

Substantive Resolutions means all resolutions (other than resolutions of a procedural nature);

writing and **written** includes printing, typing, lithography and other modes of reproducing words in a visible form, whether electronic or otherwise;

words and phrases which are given a special meaning by the Act have the same meaning in this Constitution;

words in the singular include the plural and vice versa; words importing a gender include each other gender.

(2) A reference to the Act or any other statute or regulations is to be read as though the words "as modified or substituted" were added to the reference.

(3) A reference to the ASX Listing Rules is to the ASX Listing Rules as are in force in relation to the Company after taking into account any waiver or exemption which is in force either generally or in relation to the Company.

(4) The headings and sidenotes do not affect the construction of this Constitution.

(5) The expression shareholders' meeting shall include both a general meeting and a meeting of the holders of any class of shares of the Company.

(6) A special resolution shall be effective for any purpose for which an ordinary resolution is expressed to be required under any provision of this Constitution.

(7) A reference to any agreement or document is to that agreement or document as amended, novated, supplemented, varied or replaced from time to time.

(8) A reference to a document being "signed" or to "signature" includes the document being executed under hand or under seal or by any other method and, in the case of a communication in electronic form, includes the document being authenticated in accordance with the Act.

(9) A reference to a body (including, an institute, association, authority or Governmental Agency), whether statutory or not:

(i) which ceases to exist; or

(ii) whose powers or functions are transferred to another body, is a reference to the body which replaces it or which substantially succeeds to its powers or functions.

(10) References to offers by way of rights are to any offers (whether renounceable or non-renounceable) to the existing ordinary shareholders of the Company as nearly as may be in proportion to their holdings at the relevant time on a pre-emptive basis which may be subject to such exclusions or other arrangements as the Board, may deem necessary or expedient in relation to fractional entitlements or legal or practical difficulties with making the offer under the laws of, or the requirements of any Applicable Regulation in, any jurisdiction.

Unless the context otherwise permits, terms defined in the Act have the same meaning when used in this Constitution.

3. Not used

4. Not used

5. Fractional entitlements

If, as the result of a consolidation and division, a sub-division or a pro rata issue of shares, a member becomes entitled to a fraction of a share, the Board may on behalf of that member deal with that fractional entitlement as the Board thinks fit. In particular, the Board may:

(a) issue a whole share in place of that fractional entitlement;

(b) disregard that fractional entitlement;

(c) issue a fractional share certificate;

(d) make a cash payment in satisfaction of that fractional entitlement;

(e) vest cash in trustees on trust for that member as the Board thinks fit; or

(f) make (or authorise any person to make) an agreement for the issue to a third person of shares (credited as fully paid up) representing that fractional entitlement and any other fractional entitlements which the Board is empowered to deal with. Such agreement may provide for the sale of those shares by that third person and the payment of the proceeds of sale to the members concerned.

6. Not used

7. Preference shares

If the Company at any time proposes to create and issue any preference shares:

(a) the preference shares may be issued, on the terms that they are to be redeemed or, at the option of either or both the Company and the holder, are liable to be redeemed, whether out of share capital, profits or otherwise;

(b) the preference shares confer on the holders the right to convert the preference shares into ordinary shares if and on the basis the Board determines at the time of issue of the preference shares;

(c) (i) the preference shares confer on the holders a right to receive out of the profits of the Company available for dividend a preferential dividend at the rate (which may be subject to an index) and on the basis determined by the Board at the time of issue of the preference shares;

(ii) in addition to the preferential dividend, the preference shares may participate with the ordinary shares in dividends declared by the Board if and to the extent the Board determines at the time of issue of the preference shares; and

(iii) the preferential dividend may be cumulative if and to the extent the Board determines at the time of issue of the preference shares;

(d) the preference shares are to confer on the holders:

(i) the right on redemption and in a winding up to payment in cash in priority to any other class of shares of:

(A) the amount paid or agreed to be considered as paid on each of the preference shares; and

(B) the amount (if any) equal to the aggregate of any dividends accrued (whether determined or not) but unpaid and of any arrears of dividends; and

(ii) the right, in priority to any payment of dividend on any other class of shares, to the preferential dividend;

(e) the preference shares do not confer on the holders any further rights to participate in assets or profits of the Company;

(f) the holders of the preference shares have the same rights as the holders of ordinary shares to receive notices, reports and accounts and to attend and be heard at all general meetings, but are not to have the right to vote at general meetings except as follows:

(i) on any question considered at a general meeting if, at the date of the meeting, the dividend or part of the dividend on the preference shares is in arrears;

(ii) at a general meeting on a proposal:

(A) to reduce the share capital of the Company;

(B) to approve the terms of a buy-back agreement;

(C) that affects rights attached to the preference shares;

(D) to wind up the Company;

(E) for the disposal of the whole of the property of the Company; and

(iii) on any question considered at a general meeting held during the winding up of the Company; and

(g) the Company may issue further preference shares ranking pari passu in all respects with (but not in priority to) other preference shares already issued and the rights attaching to the preference shares on issue are not to be taken to have been varied by the further issue.

8. Issue of securities

Without affecting any special rights conferred on the holders of any shares, any shares or other securities may be issued by the Company (including redeemable shares) with preferred, deferred or other special rights, obligations or restrictions, whether in regard to dividends, voting, return of share capital, payment of calls, rights of conversion, rights of redemption (whether at the option of the holder or of the Company) or otherwise, as and when the Board may determine and on any other terms the Board considers appropriate provided that the rights attaching to a class other than Ordinary Shares shall be expressed at the date of issue.

9. Not used

10. Commissions on issue of shares

The Company may exercise the powers of paying commissions conferred by the Act to the full extent thereby permitted. The Company may also on any issue of shares pay such brokerage as may be lawful.

11. Not used

12. Non-recognition of equitable or other interests

Except as required by law, the Company is entitled to treat the registered holder of any share as the absolute owner of the share and is not bound to recognise (even when having notice) any equitable or other claim to or interest in the share on the part of any other person.

FORM OF HOLDING OF SHARES

13. Certificates

The Board may determine to issue certificates for shares or other securities of the Company, to cancel any certificates in issue and to replace lost, destroyed or defaced certificates in issue on the basis and in the form it thinks fit.

14. Computerised share transfer system

Without limiting Rule 13, if the Company participates, or to enable the Company to participate, in any computerised or electronic share transfer system, the Board may:

(a) provide that shares may be held in certificated or uncertificated form and make any provision it thinks fit, including for the issue or cancellation of certificates, to enable shareholders to hold shares in uncertificated form and to convert between certificated and uncertificated holdings;

(b) provide that some or all shareholders are not to be entitled to receive a share certificate in respect of some or all of the shares which the shareholders hold in the Company;

(c) accept any instrument of transfer, transfer document or other method of transfer in accordance with the requirements of the share transfer system; and

(d) despite any other provision in this Constitution, do all things it considers necessary, required or authorised by the Act, the ASX Listing Rules, the ASX Settlement Operating Rules, FCA Listing Rules, LSE Rules or the JSE Listings Requirements in connection with the share transfer system.

15. Not used

JOINT HOLDERS

16. Joint holders

Where two or more persons are registered as the holders of any share, they hold the share subject to the following provisions:

(a) (**Number of holders**) the Company is not bound to register more than four persons as the holders of the share (except in the case of personal representatives);

(b) (**Liability for payments**) the joint holders of the share are liable severally as well as jointly in respect of all payments which ought to be made in respect of the share;

(c) (**Death of joint holder**) on the death of any one of the joint holders, the remaining joint holders are the only persons recognised by the Company as having any title to the share but the Board may require evidence of death and the estate of the deceased holder is not released from any liability in respect of the share;

(d) (**Power to give receipt**) any one of the joint holders may (and, in any case where two or more persons are jointly entitled to a share in consequence of the death or bankruptcy of the holder or otherwise by operation of law, any one of those persons jointly entitled may) give a receipt for any dividend, bonus or return of capital payable to the joint holders;

(e) (**Notices and certificates**) only the person whose name appears first in the Register as one of the joint holders of the share is entitled, if the Company determines to issue certificates for shares, to delivery of a certificate relating to the share or to receive notices from the Company and any notice given to that person is notice to all the joint holders;

(f) (**Votes of joint holders**) any one of the joint holders may vote at any meeting of the Company either personally or by properly authorised representative, proxy or attorney, in respect of the share as if that joint holder was solely entitled to the share. If more than one of the joint holders are present at any meeting personally or by properly authorised representative, proxy or attorney, the joint holder who is present whose name appears first in the Register in respect of the share is entitled alone to vote in respect of the share.

CALLS ON SHARES

17. Power to make calls

(1) Subject to the terms on which any shares may have been issued, the Board may make calls on the shareholders in respect of all moneys unpaid on their shares. Each shareholder (subject to receiving at least 14 days' notice specifying the time or times and place of payment) is liable to pay the amount of each call in the manner, at the time and at the place specified by the Board. Calls may be made payable by instalments.

(2) A call is considered to have been made at the time when the resolution of the Board authorising the call was passed. The call may be revoked or postponed at the discretion of the Board at any time prior to the date on which payment in respect of the call is due. The non-receipt of a notice of any call by, or the accidental omission to give notice of any call to, any shareholder does not invalidate the call.

18. Voting restrictions - unpaid calls

No shareholder shall, unless the Directors otherwise determine, be entitled in respect of any share held by him to vote either personally or by proxy at a shareholders' meeting or to exercise any other right conferred by membership in relation to shareholders' meetings if any call or other sum presently payable by him to the Company in respect of that share remains unpaid.

19. Interest on overdue amounts

If any sum payable in respect of a call is not paid on or before the date for payment, the shareholder from whom the sum is due is to pay interest on the unpaid amount from the due date to the date of payment at the rate the Board determines. The Board may waive the whole or part of any interest paid or payable under this Rule.

20. Power to differentiate between holders

The Board may make arrangements on the allotment of shares for a difference between the holders of those shares in the amount of calls to be paid and the time of payment of the calls.

21. Instalments; Payment of calls in advance

(1) Any sum which by the terms of issue of a share becomes payable upon issue or at any fixed date shall for all the purposes of this Constitution be deemed to be a call duly made and payable on the date on which by the terms of allotment the same becomes payable. In case of non-payment all the relevant provisions of this Constitution as to payment of interest and expenses, forfeiture or otherwise shall apply as if such sum had become payable by virtue of a call duly made and notified.

(2) The Board may if it thinks fit receive from any member willing to advance the same all or any part of the moneys uncalled and unpaid upon the shares held by him and such payment in advance of calls shall extinguish pro tanto the liability upon the shares in respect of which it is made and upon the money so received (until and to the extent that the same would but for such advance become payable) the Company may pay interest at such rate as the member paying such sum and the Board may agree.

22. Notice requiring payment of sums payable

(1) If any shareholder fails to pay any sum payable on or in respect of any shares (including money payable on issue, calls or instalments) on or before the day for payment, the Board may serve a notice on the shareholder requiring that shareholder to pay the sum together with interest accrued and all expenses incurred by the Company by reason of the non-payment. The notice may be served at any time whilst any part of the sum remains unpaid.

(2) The notice referred to in Rule 22(1) must state a day on or before which the sum, interest and expenses (if any) are to be paid and the place where payment is to be made. The notice is also to state that, if payment is not made by the time and at the place specified, the shares in respect of which the sum is payable are liable to be forfeited.

23. Forfeiture on non-compliance with notice

(1) If there is non-compliance with the requirements of any notice given under Rule 22(1), any shares in respect of which the notice has been given may be forfeited by a resolution of the Board passed at any time after the time specified in the notice for payment. The forfeiture is to include all dividends, interest and other moneys payable by the Company in respect of the forfeited shares and not actually paid before the forfeiture.

(2) When any share is forfeited, notice of the resolution of the Board is to be given to the shareholder in whose name it stood immediately prior to the forfeiture, and an entry of the forfeiture and the date of forfeiture is to be made in the Register. Failure to give notice or make the entry as required by this Rule does not invalidate the forfeiture.

24. Surrender of shares

Subject to the Act, the Board may, in its discretion, accept the surrender of any share. Any shares surrendered may be sold or re-issued in the same manner as forfeited shares.

25. Disposal of forfeited shares

Any forfeited share is considered to be the property of the Company and the Board may sell or otherwise dispose of or deal with the share in any manner it thinks fit and with or without any money paid on the share by any former holder being credited as paid up. At any time before any forfeited share is sold or otherwise disposed of, the Board may annul the forfeiture of the share on any condition it thinks fit.

26. Liability despite forfeiture

Any shareholder whose shares have been forfeited is, despite the forfeiture, liable to pay and must immediately pay to the Company all sums of money, interest and expenses owing on or in respect of the forfeited shares at the time of forfeiture, together with expenses and interest from that time until payment at the rate the Board determines. The Board may enforce the payment or waive the whole or part of any sum paid or payable under this Rule as it thinks fit.

27. Company’s lien

The Company has a first and paramount lien on every share (not being a fully paid share) for unpaid calls, instalments, interest due in relation to any calls or instalments and any amounts the Company is required by law to pay on the share. The lien extends to the proceeds of sale of the share and to all dividends and bonuses declared in respect of the share but, if the Company registers a transfer of any share on which it has a lien without giving the transferee notice of any claim it may have at that time, the share is discharged from the lien of the Company in respect of that claim. The Board may do all things it considers appropriate under the ASX Settlement Operating Rules and the ASX Listing Rules to protect or enforce any lien.

28. Sale of shares to enforce lien

For the purpose of enforcing a lien, the Board may sell the shares which are subject to the lien (and in respect of which an amount is due to the Company but unpaid) in any manner it thinks fit and with or without giving any notice to the shareholder in whose name the shares are registered.

29. Title of shares forfeited or sold to enforce lien

(1) In a sale or a re-issue of forfeited shares or in the sale of shares to enforce a lien, an entry in the Board's minute book that the shares have been forfeited, sold or re-issued in accordance with this Constitution is sufficient evidence of that fact as against all persons entitled to the shares immediately before the forfeiture, sale or re-issue of the shares. The Company may receive the purchase money or consideration (if any) given for the shares on any sale or re-issue.

(2) In a sale or re-issue, a certificate signed by a Director or the Secretary to the effect that the shares have been forfeited and the receipt of the Company for the price of the shares constitutes a good title to them.

(3) In a sale, the Board may appoint a person to execute, or may otherwise effect, a transfer in favour of the person to whom the shares are sold.

(4) On the issue of the receipt or the transfer being executed or otherwise effected the person to whom the shares have been re-issued or sold is to be registered as the holder of the shares, discharged from all calls or other money due in respect of the shares prior to the re-issue or purchase and that person is not bound to see to the regularity of the proceedings or to the application of the purchase money or consideration; nor is that person's title to the shares affected by any irregularity or invalidity in the proceedings relating to the forfeiture, sale or re-issue.

(5) The net proceeds of any sale or re-issue are to be applied first in payment of all costs of or in relation to the enforcement of the lien or the forfeiture (as the case may be) and of the sale or re-issue, next in satisfaction of the amount in respect of which the lien exists as is then payable to the Company (including interest) and the residue (if any) paid to, or at the direction of, the person registered as the holder of the shares immediately prior to the sale or re-issue or to the person's executors, administrators or assigns on the production of any evidence as to title required by the Board.

30. Payments by the Company

(1) Rule 30(2) applies if any law of any place imposes or purports to impose any immediate or future or possible liability on the Company to make any payment or empowers any government or authority to require the Company to make any payment in respect of any securities held either jointly or solely by any holder or in respect of any transfer of those securities or in respect of any interest, dividends, bonuses or other moneys due or payable or accruing due or which may become due or payable to the holder by the Company on or in respect of any securities or for or on account or in respect of any holder of securities, whether because of:

- (a) the death of the holder;
- (b) the non-payment of any income tax or other tax by the holder;
- (c) the non-payment of any estate, probate, succession, death, stamp or other duty by the holder or the trustee, executor or administrator of that holder or by or out of the holder's estate;
- (d) any assessment of income tax against the Company in respect of interest or dividends paid or payable to the holder; or

(e) any other act or thing.

(2) In each case referred to in Rule 30(1):

(a) the Company is to be fully indemnified from all liability by the holder or the holder's personal representative and by any person who becomes registered as the holder of the securities on the distribution of the deceased holder's estate;

(b) the Company has a lien on the securities for all moneys paid by the Company in respect of the securities under or in consequence of any law;

(c) the Company has a lien on all dividends, bonuses and other moneys payable in respect of the securities registered in the Register as held either jointly or solely by the holder for all moneys paid or payable by the Company in respect of the securities under or in consequence of any law, together with interest at a rate the Board may determine from the date of payment to the date of repayment, and may deduct or set off against any dividend, bonus or other moneys payable any moneys paid or payable by the Company together with interest;

(d) the Company may recover as a debt due from the holder or the holder's personal representative or any person who becomes registered as the holder of the securities on the distribution of the deceased holder's estate, any moneys paid by the Company under or in consequence of any law which exceed any dividend, bonus or other money then due or payable by the Company to the holder together with interest at a rate the Board may determine from the date of payment to the date of repayment; and

(e) if any money is paid or payable by the Company under any law, the Company may refuse to register a transfer of any securities by the holder or the holder's personal representative until the money and interest is set off or deducted or, where the money and interest exceeds the amount of any dividend, bonus or other money then due or payable by the Company to the holder, until the excess is paid to the Company. The power to refuse to register a transfer does not extend to a proper ASTC transfer except a proper ASTC transfer which is purported to be effected whilst a holding lock is in place as referred to in Rule 33(3).

Nothing in this Rule affects any right or remedy which any law confers on the Company and any right or remedy is enforceable by the Company against the holder or the holder's personal representative.

VARIATION OF RIGHTS

31. Variation of class rights

(1) Whenever the capital of the Company is divided into different classes of shares, the special rights attached to any class (unless otherwise provided by the terms of issue of the shares of that class) may be varied or abrogated by a special resolution approving the proposed variation or abrogation passed by the Company and:

(a) a special resolution passed at a separate meeting of the holders of the issued shares of the class affected; or

(b) with the written consent of members with at least 75% of the votes in the class affected.

(2) No approval or consent shall be required in respect of the redemption of any redeemable preference shares in accordance with the terms of issue.

(3) All the provisions of this Constitution as to general meetings of the Company shall, with any necessary amendments, apply to any such separate meeting, but so that:

(a) the necessary quorum shall be two or more persons entitled to vote and holding or representing by proxy in aggregate not less than one-third in nominal value of the issued shares of the class, except at an adjourned meeting where one holder entitled to vote and present in person or by proxy shall be a quorum (irrespective of the number of shares held);

(b) subject to any rights or restrictions attached to any class of shares, every holder of shares of the class present in person or by proxy and entitled to vote shall be entitled on a poll to one vote for every share of the class held; and

(c) any holder of shares of the class present in person or by proxy and entitled to vote may demand a poll.

(4) This Rule 31 shall apply to the variation of the special rights attached to some only of the shares of any class as if each group of shares of the class differently treated formed a separate class and their special rights were to be varied.

32. Matters not constituting variation of rights

The special rights attached to any class of shares having preferential rights shall not unless otherwise expressly provided by the terms of issue thereof be deemed to be varied by (a) the issue of further shares ranking as regards participation in the profits or assets of the Company in some or all respects pari passu therewith but in no respect in priority thereto or (b) the purchase by the Company of any of its own shares.

TRANSFER OF SECURITIES

33. Transfers; proper ASTC transfers

(1) A transfer of any securities may be effected by:

(a) a written transfer in the usual or common form or in any form the Board may prescribe or in a particular case accept, properly stamped (if necessary) being delivered to the Company;

(b) a proper ASTC transfer, which is to be in the form required or permitted by the Act or the ASX Settlement Operating Rules; or

(c) any other electronic system in which the Company participates in accordance with the rules of that system.

(2) Except in the case of a proper ASTC transfer, the transferor is deemed to remain the holder of the securities transferred until the name of the transferee is entered on the Register. A proper ASTC transfer is taken to be recorded in the Register and the name of the transferee to be registered as the holder of the securities comprised in the proper ASTC transfer, as provided in the ASX Settlement Operating Rules.

(3) The Board may take any action it thinks fit to comply with the ASX Settlement Operating Rules and may request ASPL to apply a holding lock to prevent a transfer of securities the subject of the ASX Settlement Operating Rules if the Board thinks fit.

34. Not used

35. Refusal of registration

(1) The Board may refuse to register any transfer of securities:

(a) if the registration of the transfer would result in a contravention of or failure to observe the provisions of any applicable law or the ASX Listing Rules;

(b) on which the Company has a lien or which are subject to forfeit; or

(c) if permitted to do so under the ASX Listing Rules.

(2) The decision of the Board relating to the registration of a transfer is absolute. Failure to give notice of refusal to register any transfer as may be required under the Act or the ASX Listing Rules does not invalidate the decision of the Board.

(3) The Board may also refuse to register an allotment or a transfer of shares (whether fully paid or not) in favour of more than four persons jointly.

36. Transfer and certificate to be left at Office

(1) Every transfer must be left for registration at the Office or any other place the Board determines. If the Board determines either generally or in a particular case, the transfer is to be accompanied by the certificate (if any) for the securities to be transferred. In addition, the transfer is to be accompanied by any other evidence which the Board may require to prove the title of the transferor, the transferor's right to transfer the securities, proper execution of the transfer or compliance with any law relating to stamp duty. The requirements of this Rule do not apply in respect of a proper ASTC transfer.

(2) Subject to Rule 36(1), on each application to register the transfer of any securities or to register any person as the holder of any securities transmitted to that person by operation of law or otherwise, the certificate (if any) specifying the securities in respect of which registration is required must be delivered to the Company for cancellation and on registration the certificate is considered to have been cancelled.

(3) Each transfer which is registered may be retained by the Company for any period determined by the Board after which the Company may destroy it.

37. Not used

38. Not used

39. Not used

40. Not used

TRANSMISSION OF SECURITIES

41. Transmission on death

The personal representative of a deceased shareholder (who is not one of several joint holders) is the only person recognised by the Company as having any title to securities registered in the name of the deceased shareholder.

Subject to compliance by the transferee with this Constitution, the Board may register any transfer effected by a shareholder prior to the shareholder's death despite the Company having notice of the shareholder's death.

42. Election of persons entitled by transmission

A person (a transmittee) who satisfies the Board that the right to any securities has devolved on the transmittee by will or by operation of law may be registered as a shareholder in respect of the securities or may (subject to the provisions in this Constitution relating to transfers) transfer the securities. The Board has the same right to refuse to register the transmittee as if the transmittee was the transferee named in an ordinary transfer presented for registration.

43. Rights of persons entitled by transmission

Save as otherwise provided by or in accordance with this Constitution, a person becoming entitled to a share in consequence of the death or bankruptcy of a member or otherwise by operation of law shall (upon supplying to the Company such evidence as the Directors may reasonably require to show his title to the share) be entitled to the same dividends and other advantages as those to which he would be entitled if he were the registered holder of the share.

UNTRACED SHAREHOLDERS

44. Not used

GENERAL MEETINGS

45. Calling of general meetings

(1) The Board may, and shall on requisition in accordance with the Act, call a general meeting of the Company to be held at the time and place or places and in the manner determined by the Board. No shareholder may convene a general meeting of the Company except where entitled under the Act to do so. By resolution of the Board any general meeting may be cancelled or postponed prior to the date on which it is to be held, except where the cancellation or postponement would be contrary to the Act. The Board may give notice of a cancellation or postponement as it thinks fit but any failure to give notice of cancellation or postponement does not invalidate the cancellation or postponement or any resolution passed at a postponed meeting.

(2) Any Director may convene a general meeting whenever the Director thinks fit. A Director may cancel by notice in writing to all members any meeting convened by that Director under this Rule 45(2).

46. Not used

47. Contents of notice of general meeting

(1) Where the Company has called a general meeting, notice of the meeting may be given in the form and manner in which the Board thinks fit. The non-receipt of a notice of any general meeting by, or the accidental omission to give notice to, any person entitled to notice, does not invalidate any resolution passed at that meeting.

(2) For the purposes of determining which persons are entitled to attend or vote at a meeting and how many votes such a person may cast, the Company may specify in the notice of meeting a time, not more than 48 hours before the time fixed for the meeting, by which a person must be entered on the Register in order to have the right to attend or vote at the meeting.

PROCEEDINGS OF MEETINGS

48. Chairman

(1) The Chairman of the Board is entitled to chair every general meeting.

(2) If at any general meeting:

(a) the Chairman of the Board is not present at the specified time for holding the meeting; or

(b) the Chairman of the Board is present but is unwilling to chair the meeting,

the Deputy Chairman of the Board is entitled to chair the meeting.

(3) If at any general meeting:

(a) there is no Chairman of the Board or Deputy Chairman of the Board;

(b) the Chairman of the Board and Deputy Chairman of the Board are not present at the specified time for holding the meeting; or

(c) the Chairman of the Board and the Deputy Chairman of the Board are present but each is unwilling to chair the meeting,

the Directors present may choose another Director as Chairman of the meeting and if no Director is present or if each of the Directors present is unwilling to chair the meeting, a shareholder chosen by the shareholders present is entitled to chair the meeting.

(4) If during any general meeting the Chairman acting under the preceding paragraphs of this Rule 48 is unwilling to chair any part of the proceedings, the Chairman may withdraw as Chairman during the relevant part of the proceedings and may nominate any person who immediately before the general meeting was a Director or who has been nominated for election as a Director at the meeting to be Acting Chairman of the meeting during the relevant part of the proceedings. On the conclusion of the relevant part of the proceedings the Acting Chairman is to withdraw and the Chairman is to resume to chair the meeting.

49. Quorum

Five shareholders present in person or by proxy constitute a quorum for a general meeting. No business may be transacted at any meeting except the election of a Chairman and the adjournment of the meeting unless the requisite quorum is present at the commencement of the business.

50. Lack of quorum

If there is not a quorum at a general meeting within 15 minutes after the time specified in the notice of the meeting, the meeting is dissolved unless the Chairman adjourns the meeting to a date, time and place determined by the Chairman. If no quorum is present at any adjourned meeting within 15 minutes after the time for the meeting, the meeting is dissolved.

51. Adjournment

(1) The Chairman may and shall if so directed by the meeting, adjourn the meeting from time to time and from place to place.

(2) Not used

(3) If the Chairman elects to adjourn the meeting under paragraph (1), the Chairman may decide whether to seek the approval of the meeting.

(4) No business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place.

(5) It is not a requirement of this Constitution to give notice of an adjournment or of the business to be transacted at an adjourned meeting.

(6) Not used.

(7) Without prejudice to any other power which the chair may have under the provisions of this Constitution or at law, the Chairman may, without the consent of the meeting, interrupt or adjourn a meeting from time to time and from place to place or for an indefinite period if the Chairman decides that it has become necessary to do so in order to:

(a) secure the proper and orderly conduct of the meeting;

(b) give all persons entitled to do so a reasonable opportunity of speaking and voting at the meeting; or

(c) ensure that the business of the meeting is properly disposed of.

52. Not used

53. Conduct of General Meetings

(1) The conduct of each general meeting of the Company and the procedures to be adopted at the meeting are as determined at, during or prior to the meeting by the Chairman.

(2) The Chairman or a person acting with the Chairman's authority may require any person who wishes to attend the meeting to comply with searches, restrictions or other security arrangements the Chairman or a person acting with the Chairman's authority considers appropriate.

The Chairman or a person acting with the Chairman's authority may refuse entry to any person who does not comply with the arrangements, any person who possesses a recording or broadcasting device without the consent of the Chairman or a person acting with the Chairman's authority, or any person who possesses an article which the Chairman or person acting with the Chairman's authority considers to be dangerous, offensive or liable to cause disruption. At any time the Chairman considers it necessary or desirable for the proper and orderly conduct of the meeting, the Chairman may demand the cessation of debate or discussion on any business, question, motion or resolution being considered by the meeting and if the Chairman considers it appropriate require the business, question, motion or resolution to be put to a vote of the shareholders present.

(3) The Chairman may require the adoption of any procedures which are in the Chairman's opinion necessary or desirable for the proper and orderly casting or recording of votes at any general meeting of the Company, whether on a show of hands or on a poll.

(4) Any determination by the Chairman in relation to matters of procedure (including any procedural motions moved at or put to any meeting) is final.

(5) If it appears to the Chairman that the place of the meeting specified in the notice convening a general meeting is inadequate to accommodate all persons entitled and wishing to attend, the meeting is duly constituted and its proceedings are valid if the Chairman is satisfied that adequate facilities are available, whether at the place of the meeting or elsewhere, to ensure that each such person who is unable to be accommodated at the place of the meeting is able to participate in the business for which the meeting has been convened and to hear and see all persons present who speak (and be heard and be seen), whether by use of microphones, loud-speakers, audio-visual communications equipment or otherwise (whether in use when this Constitution is adopted or developed subsequently).

(6) A Director shall be entitled to attend and speak at any general meeting of the Company and at any separate meeting of the holders of any class of shares of the Company.

54. Amendments to Substantive Resolutions

(1) The business of an annual general meeting is to consider the accounts and reports required by the Act to be laid before each annual general meeting, to elect Directors, when relevant to appoint an auditor and fix the auditor's remuneration, and to transact any other business which, under this Constitution, is required to be transacted at any annual general meeting. All other business transacted at an annual general meeting and all business transacted at other general meetings is deemed to be special. Except with the approval of the Board, with the permission of the Chairman or under the Act, no person may move at any meeting either any resolution or any amendment of any resolution of which notice has not been given under Rule 47 or this Rule 54 (as the case may be).

(2) If an amendment is proposed to any resolution under consideration but is in good faith ruled out of order by the Chairman of the meeting, the proceedings on the Substantive Resolution shall not be invalidated by any error in such ruling.

(3) In the case of a Substantive Resolution duly proposed as a special resolution, no amendment to that resolution (other than a mere clerical amendment to correct a patent error) may in any event be considered or voted upon.

(4) Not used.

GENERAL VOTING AND POLL PROCEDURES

55. Voting

(1) The Chairman may determine that any question to be submitted to a general meeting be determined by a poll without first submitting the question to the meeting to be decided by a show of hands.

(2) A poll may be demanded by:

(a) any shareholder under the Act (and not otherwise); or

(b) the Chairman.

No poll may be demanded on the election of a chairman of a meeting or, unless the Chairman otherwise determines, the adjournment of a meeting. A demand for a poll may be withdrawn. A demand so withdrawn shall not be taken to have invalidated the result of a show of hands declared before the demand was made.

(3) Not used.

(4) Unless the Chairman makes the determination referred to in Rule 55(1) or unless a poll is properly demanded or required pursuant to Rules 55(2) and (3), each question submitted to a general meeting is to be decided in the first instance by a show of hands. Unless a poll is demanded, a declaration by the Chairman that a resolution has been passed or lost is conclusive, without proof of the number or proportion of the votes recorded in favour of or against the resolution.

56. Taking a poll

(1) If a poll is determined, demanded or otherwise required as provided in Rules 55(1) or (2), it is to be taken in the manner and at the time (not being more than thirty days from the date of the meeting) and place as the Chairman directs. Any poll may, as the Chairman shall direct, close at different times for different classes of shareholders or for different shareholders of the same class entitled to vote on the relevant resolution. The result of the poll is deemed to be the resolution of the meeting at which the poll was demanded. In the case of any dispute as to the admission or rejection of a vote, the Chairman's determination in respect of the dispute is final.

(2) A demand for a poll does not prevent the continuance of a meeting for the transaction of any business other than the question on which a poll has been demanded. A poll demanded on a question of adjournment is to be taken at the meeting and without adjournment.

(3) The result of a poll may be announced in the manner the Chairman determines and at the time (whether during the relevant meeting or afterwards) as the Chairman considers appropriate.

57. Special meetings

All the provisions of this Constitution as to general meetings apply, with any necessary modifications, to any special meeting of any class of shareholders which may be held under the operation of this Constitution or the Act.

58. Not used

59. Not used

60. Not used

VOTES OF SHAREHOLDERS

61. Votes attaching to shares

Subject to restrictions on voting affecting any class of shares and to Rules 3, 4, 7, 16(f), 31 and 72:

(a) on a show of hands:

- (i) subject to paragraph (iii), each shareholder present in person or by proxy, representative or attorney has one vote;
- (ii) Not used
- (iii) where a person is entitled to vote in more than one capacity, that person is entitled only to one vote; and

(b) subject to Rule 61(c), on a poll:

- (i) each holder of Ordinary Shares:
  - (A) has one vote for each fully paid Ordinary Share held; and
  - (B) for each other Ordinary Share held, has a vote in respect of the share which carries the same proportionate value as the proportion of the amount paid up or agreed to be considered as paid up on the total issue price of that share at the time the poll is taken bears to the total issue price of the share; and

(c) on a poll, votes may be given either personally or by proxy (unless, consistently with the Act, the Board has approved other means (including electronic) for the casting and recording of votes by shareholders) and a person entitled to more than one vote need not use all that person's votes or cast all the votes in the same way.

62. Not used

63. Not used

64. Not used

65. Not used

66. Voting by guardian

Where a guardian, receiver or other person (by whatever name called) has been appointed by any court claiming jurisdiction in that behalf to exercise powers with respect to the property or affairs of any member on the ground (however formulated) of mental disorder, the Directors may in their absolute discretion, upon or subject to production of such evidence of the appointment as the Directors may require, permit such guardian, receiver or other person on behalf of such member to vote in person or by proxy at any shareholders' meeting or to exercise any other right conferred by membership in relation to shareholders' meetings.

67. Validity and result of vote

(1) No objection shall be raised as to the admissibility of any vote except at the meeting or adjourned meeting at which the vote objected to is or may be given or tendered and every vote not disallowed at such meeting shall be valid for all purposes. Any such objection shall be referred to the chairman of the meeting whose decision shall be final and conclusive.

(2) Unless a poll is taken, a declaration by the chairman of the meeting that a resolution has been carried, or carried unanimously, or by a particular majority, or lost, and an entry to that effect in the minute book, shall be conclusive evidence of that fact without proof of the number or proportion of the votes recorded for or against such resolution.

PROXIES

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68. Proxies

(1) A shareholder who is entitled to attend and cast a vote at a general meeting of the Company may appoint a person as a proxy to attend and vote for the shareholder in accordance with the Act but not otherwise. A proxy appointed to attend and vote in accordance with the Act may exercise the rights of the shareholder on the basis and subject to the restrictions provided in the Act but not otherwise.

(2) A form of appointment of a proxy is valid if it is in accordance with the Act or in any form (including electronic) which the Board may prescribe or accept.

(3) An instrument appointing a proxy shall, unless the contrary is stated thereon, be valid as well for any adjournment of the meeting as for the meeting to which it relates. An instrument of proxy relating to more than one meeting (including any adjournment thereof) having once been so delivered for the purposes of any meeting shall not require again to be delivered for the purposes of any subsequent meeting to which it relates.

(4) Where the Company receives an appointment of proxy within the time specified in the notice of meeting for receipt of proxies and the Company considers that the instrument has not been duly executed, the Company may in its discretion:

(a) return the instrument appointing the proxy to the appointing shareholder; and

(b) request that the shareholder duly execute the appointment and return it to the Company before a nominated time (which may be later than the cut-off time specified in the notice of meeting for receipt of proxies).

The appointment of proxy will be valid if the duly executed instrument is returned to the Company before the time determined under Rule 68(4)(b).

(5) Where the Company receives an appointment of proxy that is unclear or incomplete (other than in the circumstances contemplated in Rule 68(4)):

(a) the Company may clarify with a shareholder by written or verbal communication any instruction on the appointment of the proxy and may, at its discretion, amend or complete the contents of the appointment of the proxy to reflect any clarification in instruction;

(b) the shareholder is taken to have appointed the Company as its attorney for the purpose of making any insertion or amendment in accordance with this Rule 68(5); and

(c) the appointment of proxy will be valid if received by the Company within the time specified for receipt of proxies in the notice of meeting, notwithstanding that it was completed or amended under this Rule 68(5) after that time.

(6) Voting instructions given by a shareholder to a Director or employee of the Company who is held out by the Company in material sent to shareholders as willing to act as proxy and who is appointed as proxy (Company Proxy) are valid only if contained in the form of appointment of the Company Proxy. If a shareholder wishes to give a Company Proxy appointed by the shareholder new instructions or variations to earlier instruction, the new instructions or variations are only valid if received at the Office at least 24 hours before the meeting or adjourned meeting by a notice in writing signed by the shareholder or validated by the shareholder in a form acceptable to the Board.

69. Validity, revocation

(1) The validity of any resolution is not affected by the failure of any proxy, attorney or corporate representative to vote in accordance with instructions (if any) of the appointing shareholder and the Company shall be under no obligation to check any vote so given is in accordance with any such instructions.

(2) A vote given in accordance with the terms of a proxy or power of attorney is valid despite the previous death or mental incapacity of the appointing shareholder, revocation of the proxy or power of attorney or transfer of the shares in respect of which the vote is given, unless notice in writing of the death, mental incapacity, revocation or transfer has been received at the Office at least 48 hours before the relevant meeting or adjourned meeting.

(3) A proxy is not rendered ineffective by reason only of the adjournment of the meeting in respect of which the proxy is appointed.

(4) A proxy is not revoked by the appointing shareholder attending and taking part in the meeting, unless the appointing shareholder votes at the meeting on the resolution for which the proxy is proposed to be used.

70. Not used

71. Board to issue forms of proxy

The Board must issue with any notice of general meeting of shareholders or any class of shareholders forms of proxy for use by the shareholders. Each form may include the names of any of the Directors or of any other persons as suggested proxies. The forms must be worded so that a proxy may be directed to vote either for or against each or any of the resolutions to be proposed.

72. Attorneys of shareholders

By properly executed power of attorney, any shareholder may appoint an attorney to act on the shareholder’s behalf at all or certain specified meetings of the Company and such attorney shall be recognised as a person present at that meeting. Before the attorney is entitled to act under the power of attorney, the power of attorney or proof of the power of attorney to the satisfaction of the Board must be produced for inspection at the Office or any other place the Board may determine together, in each case, with evidence of the due execution of the power of attorney as required by the Board. The attorney may be authorised to appoint a proxy for the shareholder granting the power of attorney.

73. Not used

DIRECTORS

74. Number of Directors

Unless and until otherwise decided by ordinary resolution, the number of Directors (not including alternate Directors) shall be not less than eight and not more than twenty. All Directors are required to be natural persons.

75. Not used

76. Remuneration of non-executive Directors

As remuneration for services each non-executive Director (other than an alternate Director) is to be paid out of the funds of the Company a sum determined by the Board payable at the time and in the manner determined by the Board but the aggregate remuneration paid to all the non-executive Directors in any year may not exceed an amount fixed by the Company in general meeting. The expression remuneration in this Rule does not include any amount which may be paid by the Company under Rules 77, 78, 79, or 146.

77. Remuneration of Directors for extra services

Any Director who serves on any committee, or who devotes special attention to the business of the Company, or who otherwise performs services which in the opinion of the Board are outside the scope of the ordinary duties of a Director or who, at the request of the Board, engages in any journey on the business of the Company, may be paid extra remuneration as determined by the Board.

78. Travelling and other expenses

Every Director is, in addition to any other remuneration provided for in this Constitution, entitled to be paid from Company funds all reasonable travel, accommodation and other expenses incurred by the Director in attending meetings of the Company or of the Board or of any Committees or while engaged on the business of the Company.

79. Retirement benefits

The Directors shall have power to pay and agree to pay gratuities, pensions or other retirement, superannuation, death or disability benefits to (or to any person in respect of) any person who is or has been at any time a Director of the Company or in the employment or service of the Company or of any company which is or was a subsidiary of or associated with the Company, provided that such payment or agreement is made in accordance with the Act. For the purpose of providing such gratuities, pensions or other benefits, the Company may contribute to any scheme or fund or pay such premiums as the Directors think fit.

80. Appointment and remuneration of executive Directors

(1) The Directors or any committee authorised by the Board may from time to time appoint any Director to be the holder of any executive office on such terms and for such period as they may determine and, without prejudice to any claim for damages for breach of any contract entered into in any particular case, may at any time revoke or vary the terms of any such appointment.

(2) Subject to the Act and the ASX Listing Rules, a Director appointed to hold employment or executive office with the Company shall be appointed on such terms as to remuneration (whether by salary, commission or participation in profits or otherwise) as may be determined by the Board or any committee authorised by the Board.

81. Powers of Directors

The Board may entrust to and confer upon any Director any of the powers exercisable under this Constitution by the Board as it thinks fit and upon such terms and conditions and with such restrictions as it thinks appropriate but the conferring of powers by the Board on a Director does not exclude the exercise of those powers by the Board, and the Board may from time to time revoke, withdraw, alter or vary all or any of such powers.

APPOINTMENT AND RETIREMENT OF DIRECTORS

82. Not used

83. Term of appointment

(1) At every annual general meeting, one-third of the Directors or, if their number is not a multiple of three, then the number nearest to but not less than one-third must retire from office.

(2) A Director who is required to retire under Rule 83(1) retains office until the end of the meeting at which the Director retires.

(3) Subject to Rule 88, the Directors to retire under Rule 83(1) are those longest in office since last being elected. As between Directors who were elected on the same day the Directors to retire are (in default of agreement between them) determined by lot. The length of time a Director has been in office is calculated from the Director's last election or appointment. A retiring Director is eligible for re-election.

(4) Not used.

(5) Without prejudice to the foregoing, a Director must retire from office at the conclusion of the third annual general meeting after which the Director was elected or re-elected.

84. Not used

85. Re-election of retiring Director

(1) At the meeting at which a Director retires under any provision of this Constitution, the Company may by ordinary resolution fill the office being vacated by electing to that office the retiring Director or some other person eligible for election.

(2) Notwithstanding Rule 83(2), if a retiring Director is re-elected in accordance with Rule 85(1) the retiring Director will continue in office without a break.

(3) If:

(a) prior to the commencement of any general meeting the office of a Director has become vacant;

(b) that office remains vacant at the commencement of that general meeting; and

(c) that Director would have been taken into account in determining the number of Directors who are to retire by rotation under Rule 83(1),

then the Company may by ordinary resolution fill that office by electing as a Director any person eligible for election.

86. Not used

87. Nomination of Directors

(1) No person (other than a retiring Director) is eligible for election to the office of Director at any general meeting unless:

(a) a shareholder intending to nominate the person has given notice in writing signed by the shareholder; and

(b) the person nominated has given notice in writing signed by the person of his willingness to be elected as a Director of the Company and satisfies candidature for the office.

(2) To be valid, the notice required under Rule 87(1) is to be delivered to the Office not less than 40 business days before the date appointed for the meeting unless the nominee has been recommended by the Board for election, in which case the notice is required to be delivered to the Office at least 28 days before the meeting.

88. Election or appointment of additional Directors

The Company may by ordinary resolution elect, and without prejudice thereto the Board shall have the power at any time to appoint, any person as a Director, either to fill a casual vacancy or as an addition to the Board but so that the number of Directors does not exceed the maximum number determined under Rule 74. Any Director appointed under this Rule:

(a) holds office only until the dissolution or adjournment of the next general meeting at which the Board proposes or this Constitution requires that an election be held;

(b) is eligible for election at that general meeting; and

(c) where the general meeting is an annual general meeting, is not to be taken into account in determining the number of Directors who are to retire by rotation at the meeting.

89. Vacation of office

(1) The office of a Director is vacated:

(a) Not used;

(b) on the Director being absent from greater than two consecutive meetings of the Board without leave of absence from the Board;

(c) on the Director resigning office by notice in writing to the Company;

(d) Not used;

(e) Not used

(f) on the Director being prohibited from being a Director by reason of the operation of Applicable Regulation;

(g) if the Director has been appointed for a fixed term – when the term expires;

(h) if, in Australia or elsewhere, an order is made by any court on the ground (however formulated) of mental disorder for the Director's detention or for the appointment of a guardian of the Director or for the appointment of a receiver or other person (by whatever name called) to exercise powers with respect to the Director's property or affairs ; or

(i) on the Director being removed from office under the Act.

(2) The office of a Director who is an employee of any member of the Group is terminated on the Director ceasing to be employed within the Group but the person concerned is eligible for reappointment or re-election as a Director of the Company.

90. Removal of Directors

(1) The Company may, in accordance with and subject to the provisions of the Act, by ordinary resolution remove any Director from office. The Company may do so notwithstanding any provision of this Constitution or of any agreement between the Company and such Director, but without prejudice to any claim he may have for damages for breach of any such agreement.

(2) The Company may by ordinary resolution elect another person in place of a Director removed from office under Rule 90(1). Any person so elected shall be treated for the purpose of determining the time at which he or any other Director is to retire by rotation as if he had become a Director on the day on which the Director in whose place he is elected was last elected a Director. In default of such election the vacancy arising upon the removal of a Director from office may be filled as a casual vacancy.

PROCEEDINGS OF DIRECTORS

91. Procedures relating to Directors' meetings

(1) The Board may meet together, adjourn and otherwise regulate its meetings as it thinks fit.

(2) The Board may at any time and the Secretary, on the request of the Chairman or any two Directors, must convene a meeting of the Board. Notice of meeting of the Board may be given by mail (electronic or otherwise), personal delivery or facsimile transmission to the usual place of business or residence of the Director or to any other address given to the Secretary by the Director or by any technology agreed by all the Directors.

92. Quorum

The quorum necessary for the transaction of business of the Directors shall be three unless otherwise determined by the Board. A meeting of the Directors at which a quorum is present shall be competent to exercise all powers and discretions for the time being exercisable by the Directors.

93. Chairman

The Board may elect a Chairman and one or more Deputy Chairman of its meetings and determine the period for which each is to hold office. If no Chairman or Deputy Chairman is elected or if at any meeting the Chairman and the Deputy Chairmen are not present at the time specified for holding the meeting, the Directors present may choose one of their number to be Chairman of the meeting.

94. Votes at meetings

Questions arising at any meeting of the Board are decided by a majority of votes and, in the case of an equality of votes, the Chairman (except when only two Directors are present or except when only two Directors are competent to vote on the question then at issue) has a second or casting vote.

95. Number of Directors below minimum

If the number of Directors is reduced below the minimum number fixed under this Constitution, the continuing Directors may act for the purpose of increasing the number of Directors to that number or of calling a general meeting of the Company but for no other purpose.

96. Resolutions in writing / Meetings by technology

(1) A resolution in writing signed by all the Directors or a resolution in writing of which notice has been given to all Directors and which is signed by a majority of the Directors entitled to vote on the resolution (not being less than the number required for a quorum at a meeting of the Board) is a valid resolution of the Board. The resolution may consist of several documents in the same form each signed by one or more of the Directors. A facsimile transmission or other document produced by mechanical or electronic means under the name of a Director with the Director's authority is considered to be a document in writing signed by the Director.

(2) The Board may meet either in person or by telephone, audio visual link or by using any other technology:

(a) which allows each Director who participates:

(i) to hear each of the other participating Directors addressing the meeting; and

(ii) if he so wishes, to address all of the other participating Directors simultaneously; and

(b) which has been consented to by all Directors.

A consent may be a standing one. A meeting conducted by telephone or other means of communication is deemed to be held at the place from where the Chairman of the meeting participates.

97. Validity of actions

All actions at any meeting of the Board or by a Committee or by any person acting as a Director are, despite the fact that it is afterwards discovered that there was some defect in the appointment of any of the Directors or the Committee or the person acting as a Director or that any of them were disqualified, as valid as if every person had been properly appointed and was qualified and continued to be a Director or a member of the Committee.

DIRECTORS' INTERESTS

98. Directors may have interests

Subject to the provisions of the Act, and provided that he has disclosed to the Directors the nature and extent of any interest of his, a Director notwithstanding his office:

(a) may be a party to, or otherwise interested in, any contract, transaction or arrangement with the Company or in which the Company is otherwise interested;

(b) may be a director or other officer of, or employed by, or a party to any contract, transaction or arrangement with, or otherwise interested in, any body corporate promoted by the Company or in which the Company is otherwise interested;

(c) may (or any firm of which he is a partner, employee or member may) act in a professional capacity for the Company (other than as Auditor) and be remunerated therefor; and

(d) shall not, save as otherwise agreed by him, be accountable to the Company for any benefit which he derives from any such contract, transaction or arrangement or from any such office or employment or from any interest in any such body corporate or for such remuneration and no such contract, transaction or arrangement shall be liable to be avoided on the grounds of any such interest or benefit.

99. Restrictions on voting

(1) Except as set out below, a Director shall not vote in respect of any contract or arrangement or any other proposal whatsoever in which the Director has a material personal interest. A Director shall not be counted in the quorum in relation to any resolution on which he is not entitled to vote.

(2) Subject to the provisions of the Act, a Director shall (in the absence of some other material personal interest than is indicated below) be entitled to vote (and be counted in the quorum) in respect of any resolution concerning any of the following matters, namely, where the material personal interest:

(a) arises because the Director is a shareholder of the Company and is held in common with the other shareholders of the Company; or

(b) arises in relation to the Director's remuneration as a Director of the Company; or

(c) relates to a contract the Company is proposing to enter into that is subject to approval by the shareholders and will not impose any obligation on the Company if it is not approved by the shareholders; or

(d) arises merely because the Director is a guarantor or has given an indemnity or security for all or part of a loan (or proposed loan) to the Company; or

(e) arises merely because the Director has a right of subrogation in relation to a guarantee or indemnity referred to in subparagraph (d); or

(f) relates to a contract that insures, or would insure, the Director against liabilities the Director incurs as an officer of the Company (but only if the contract does not make the Company or a related body corporate the insurer); or

(g) relates to:

(i) any payment by the Company or a related body corporate in respect of an indemnity permitted by law; or

(ii) any contract relating to or containing an indemnity permitted by law; or

(h) is in a contract, or proposed contract, with, or for the benefit of, or on behalf of, a related body corporate and arises merely because the Director is a director of the related body corporate.

(3) Where proposals are under consideration concerning the appointment (including fixing or varying the terms of appointment) of two or more Directors to offices or employments with the Company or any body corporate in which the Company is interested, the proposals may be divided and considered in relation to each Director separately and in such case each of the Directors concerned (if not debarred from voting under this Rule) shall be entitled to vote (and be counted in the quorum) in respect of each resolution except that concerning his own appointment.

(4) If a question arises at any time as to the materiality of a Director's interest or as to his entitlement to vote and such question is not resolved by his voluntarily agreeing to abstain from voting, such question shall be referred to the Chairman of the meeting and his ruling in relation to any Director other than himself shall be final and conclusive except in a case where the nature or extent of the interest of such Director has not been fairly disclosed. If any question shall arise in respect of the Chairman of the meeting and is not resolved by his voluntarily agreeing to abstain from voting, the question shall be decided by a resolution of the Directors (for which purpose the Chairman shall be counted in the quorum but shall not vote on the matter) and the resolution shall be final and conclusive except in a case where the nature or extent of the interest of the Chairman, so far as known to him, has not been fairly disclosed.

(5) Despite having an interest in any contract or arrangement a Director may participate in the execution of any document evidencing or connected with the contract or arrangement, whether by signing, sealing or otherwise.

(6) A Director or any person who is an associate of a Director under the ASX Listing Rules may participate in any issue by the Company of securities unless the Director is precluded from participating by Applicable Regulation.

100. Directors' interests - general

(1) For the purposes of the two preceding Rules:

(a) a general notice given to the Directors that a Director is to be regarded as having an interest of the nature and extent specified in the notice in any contract, transaction or arrangement in which a specified person or class of persons is interested shall be deemed to be a disclosure that the Director has an interest in any such contract, transaction or arrangement of the nature and extent so specified;

(b) an interest (whether of his or of such a connected person) of which a Director has no knowledge and of which it is unreasonable to expect him to have knowledge shall not be treated as an interest of his;

(c) in the case of an alternate director, an interest of his appointor shall be treated as an interest of the alternate in addition to any interest which the alternate otherwise has; and

(d) references to a contract include reference to any proposed contract and to any transaction or arrangement whether or not constituting a contract.

(2) The Board may exercise the voting power conferred by the shares in any corporation held or owned by the Company as the Board thinks fit (including the exercise of the voting power in favour of any resolution appointing the Directors or any of them directors of that corporation or voting or providing for the payment of remuneration to the directors of that corporation) and a Director of the Company may vote in favour of the exercise of those voting rights despite the fact that the Director is, or may be about to be appointed, a director of that other corporation and may be interested in the exercise of those voting rights.

(3) Any Director may lend money to the Company at interest with or without security or may, for a commission or profit, guarantee the repayment of any money borrowed by the Company and underwrite or guarantee the subscription of shares or securities of the Company or of any corporation in which the Company may be interested without being disqualified in respect of the office of Director and without being liable to account to the Company for the commission or profit.

COMMITTEES

101. Committees

The Board may delegate any of its powers or discretions (including without prejudice to the generality of the foregoing all powers and discretions whose exercise involves or may involve the payment of remuneration to or the conferring of any other benefit on all or any of the Directors) to Committees consisting of Directors or any other person or persons as the Board thinks fit. In the exercise of the powers or discretions delegated, any Committee formed or person or persons appointed to the Committee must conform to any regulations that may be imposed by the Board. A Committee or other delegate of the Board may be authorised to sub-delegate any of the powers or discretions for the time being vested in it.

102. Proceedings of Committee meetings

The meetings and proceedings of any Committee are to be governed by the provisions of this Constitution for regulating the meetings and proceedings of the Board so far as they are applicable and are not inconsistent with any regulations made by the Board under Rule 101.

103. General powers of the Board

The management and control of the business and affairs of the Company are vested in the Board, which (in addition to the powers and authorities conferred on them by this Constitution) may exercise all powers of the Company except any powers which, by this Constitution or by law, are required to be exercised or done by the Company in general meeting.

104. Not used

105. Not used

106. Appointment of attorney

The Directors may from time to time and at any time by power of attorney or otherwise appoint any company, firm or person or any fluctuating body of persons, whether nominated directly or indirectly by the Directors, to be the attorney or attorneys of the Company for such purposes and with such powers, authorities and discretions (not exceeding those vested in or exercisable by the Directors under this Constitution) and for such period and subject to such conditions as they may think fit, and any such appointment may contain such provisions for the protection and convenience of persons dealing with any such attorney as the Directors may think fit, and may also authorise any such attorney to sub-delegate all or any of the powers, authorities and discretions vested in him.

107. Not used

108. Not used

109. Not used

110. Borrowing powers

Subject to the provisions of the Act, the Directors may exercise all the powers of the Company to borrow money, and to mortgage or charge its undertaking, property, assets (both present and future) and uncalled capital or any part or parts thereof and to issue debentures and other securities, whether outright or as collateral security for any debt, liability or obligation of the Company or of any third party.

111. Not used

112. Not used

113. Not used

AUTHENTICATION OF DOCUMENTS

114. Authentication of Documents

Any Director, Secretary, Assistant Secretary or Deputy Secretary or any person appointed by the Directors for the purpose shall have power to authenticate:

(a) any document affecting the constitution of the Company;

(b) any resolution passed at a shareholders' meeting or at a meeting of the Directors or of any committee;

(c) any book, record, document or account relating to the business of the Company,

and to certify copies thereof or extracts therefrom as true copies or extracts; and where any book, record, document or account is elsewhere than at the Office the local manager or other officer of the Company having the custody thereof shall be deemed to be a person appointed by the Directors as aforesaid. A document purporting to be a copy of any such resolution, or an extract from the minutes of any such meeting, which is certified as aforesaid shall be conclusive evidence in favour of all persons dealing with the Company upon the faith thereof that such resolution has been duly passed or, as the case may be, that any minute so extracted is a true and accurate record of proceedings at a duly constituted meeting.

115. Not used

116. Not used

DIVIDENDS

117. Not used

118. Power of Board to pay dividends

(1) The Board may determine that a dividend (including an interim dividend on account of the next forthcoming dividend) is payable and fix the amount, time for payment and method of payment. Where permitted by the Statutes, the methods of payment may include the payment of cash, the issue of shares, the grant of options and the transfer of assets.

(2) Without limiting Rule 8, where the terms of any new issue of shares provide for the new shares to have different dividend rights to other shares then in issue, the new shares have those different dividend rights.

(3) Provided the Directors act in good faith they shall not incur any liability to the holders of any shares for any loss they may suffer by the lawful payment, on any other class of shares having rights ranking after or pari passu with those shares, of any such fixed or interim dividend as aforesaid.

119. Distribution otherwise than in cash

(1) When determining to pay a dividend under Rule 118 or to undertake a reduction of capital, the Board may determine that payment of the dividend or the reduction of capital be effected wholly or in part by the distribution of specific assets or documents of title and in particular of paid up shares, debentures, debenture stock or grant of options or other securities of the Company or any other corporation or entity (whether owned or controlled by the Company or not).

(2) The Board may appoint any officer of the Company to sign on behalf of each shareholder entitled to participate in the dividend or reduction of capital any document in the Board's opinion desirable or necessary:

(a) to vest in the shareholder title to assets; and

(b) in the case of a distribution of shares in any corporation, to constitute the shareholder's agreement to become a member of the corporation,

and, in executing the document, the officer acts as agent and attorney for the shareholder.

(3) Where, in the opinion of the Board, any difficulty arises in regard to such distribution or any aspect of the distribution is considered impracticable, the Directors may settle the same as they think expedient and in particular may issue fractional certificates, may fix the value for distribution of such specific assets or any part thereof, may determine that cash shall be paid to any member upon the footing of the value so fixed in order to adjust the rights of members and may vest any assets in trustees.

120. Not used

121. Ranking of shares for dividends

(1) Any dividend or interim dividend is (subject to the rights of, or any restrictions on, the holders of shares created or raised under any special arrangement as to dividend) payable on each share on the basis of the proportion which the amount paid (or agreed to be considered to be paid) bears to the total issue price of the share. The dividend may be fixed at a rate per annum in respect of a specified period but no amount paid on a share in advance of calls is to be treated as paid on the share.

(2) The rights attached to the shares of the Company, as regards the participation in the profits available for distribution and resolved to be distributed, are as follows:

(a) the holders of the preference shares shall be entitled, in priority to any payment of dividend to the holders of any other class of shares, to a preferred right to participate as regards dividends up to but not beyond a specified amount in distribution; and

(b) any surplus remaining after payment of the distributions under Rule 121(a) or (b) shall be payable to the holders of the Ordinary Shares in equal amounts per share.

(3) For the purpose of Rule 121:

(a) “cash dividend” means any dividend (including any amount of the dividend in respect of which a holder of an Ordinary Share elects to participate in any dividend plan or offer, such as a dividend reinvestment plan or scrip dividend plan) other than a dividend effected wholly or in part by the distribution of specific assets or documents of title;

(b) “ordinary cash dividend” means any cash dividend paid on Ordinary Shares which is designated as an interim or final dividend; and

(c) “special cash dividend” means any cash dividend which is not an ordinary cash dividend.

122. Manner of payment of dividends

(1) Payment of any dividend may be made in any manner, by any means and in any currency determined by the Board.

(2) Without limitation of Rule 122(1), Directors may also determine the foreign currency equivalent of any sums payable as a dividend by reference to such market rate or rates or the mean of such market rates prevailing at such time or times or on such date or dates, in each case falling on or before the record date for the dividend, as the Directors may in their discretion select.

(3) Without affecting any other method of payment which the Board may adopt, payment of any dividend may be made to the shareholder entitled to the dividend or, in the case of joint holders, to the shareholder whose name appears first in the Register in respect of the joint holding.

123. Not used

124. Not used

125. No interest on dividends

No dividend or other moneys payable on or in respect of a share shall bear interest as against the Company.

126. Retention of dividends

(1) The Directors may retain any dividend or other moneys payable on or in respect of a share on which the Company has a lien and may apply the same in or towards satisfaction of the moneys payable to the Company in respect of that share.

(2) The Directors may retain the dividends payable upon shares to which any person is entitled under Rule 41 or 42 until that person becomes a member in respect of those shares or transfers those shares.

127. Unclaimed dividend

All unclaimed dividends may be invested or otherwise made use of by the Board for the benefit of the Company until claimed or otherwise disposed of according to law.

128. Waiver of dividend

The waiver in whole or in part of any dividend on any share by any document (whether or not executed as a deed) shall be effective only if such document is signed by the shareholder (or the person entitled to the share in consequence of the death or bankruptcy of the holder or otherwise by operation of law) and delivered to the Company and if or to the extent that the same is accepted as such or acted upon by the Company.

CAPITALISATION OF PROFITS AND RESERVES

129. Capitalisation of profits and reserves

(1) The Board may capitalise any sum forming part of the undivided profits, any reserve or other account of the Company and which is available for distribution.

(2) Such capitalisation shall be effected by:

(a) appropriating such sum to shareholders on the Register at the close of business on the date of the resolution (or such other date as may be specified therein or determined as therein provided) in the same proportions in those holders would be entitled to receive such sum if distributed by way of dividend or in accordance with either the terms of issue of any shares or the terms of any employee share plan; and

(b) applying such sum, in the proportions specified above, on behalf of those holders either in paying up the amounts for the time being unpaid on any issued shares held by them, or in paying up in full new shares or other securities of the Company to be issued to them accordingly, or partly in one way and partly in the other.

(3) The Board may specify the manner in which any fractional entitlements and any difficulties relating to distribution are to be dealt with and, without limiting the generality of the foregoing, may specify that fractions are to be disregarded or that any fractional entitlements are to be increased to the next whole number or that payments in cash instead of fractional entitlements be made.

(4) The Board may make all necessary appropriations and applications of the amount to be capitalised under Rule 129(1) and all necessary issues of fully paid shares or debentures.

(5) Where required, the Board may appoint a person to sign a contract on behalf of the shareholders entitled on a capitalisation to any shares or debentures, which provides for the issue to them, credited as fully paid, of any further shares or debentures or for the payment by the Company on their behalf of the amounts or any part of the amounts remaining unpaid on their existing shares by the application of their respective proportions of the sum resolved to be capitalised.

DIVIDEND PLANS

130. Dividend Plans

The Board may establish, maintain, suspend, reinstate and amend one or more Dividend Plans (including the establishment of rules) including without limitation any Dividend Plan under which shareholders may elect with respect to some or all of their shares (subject to the rules of the relevant plan):

(a) to reinvest in whole or in part dividends paid or payable or which may become payable by the Company to the shareholder in cash by subscribing for shares in the capital of the Company;

(b) to be issued with shares instead of being paid a dividend;

(c) that dividends from the Company not be declared or paid and that instead a payment or distribution other than a dividend (including without limitation an issue of bonus shares, with no amount credited to the share capital account in connection with the issue of those shares) be made by the Company; and

(d) that cash dividends from the Company not be paid and that instead a cash dividend or payment or other distribution (including without limitation an issue or transfer of securities) be received from the Company, or a Related Corporation of the Company, or any other entity determined by the Board.

ACCOUNTS AND RECORDS

131. Accounts and records

(1) Accounting records sufficient to show and explain the Company's transactions and otherwise complying with the Statutes shall be kept at the Office, or at such other place as the Directors think fit, and shall always be open to inspection by the Directors and other officers of the Company.

(2) Without limitation to paragraph (1) of this Rule, where the Board considers it appropriate, the Company may:

- (a) give a Director or former Director access to certain papers, including documents provided or available to the Board and other papers referred to in those documents; and
- (b) bind itself in any contract with a Director or former Director to give the access.

(3) Subject to paragraphs (1) and (2) of this Rule, no member of the Company or other person shall have any right of inspecting any account or book or document of the Company except as conferred by statute or ordered by a court of competent jurisdiction or authorised by the Directors.

132. Not used

133. Not used

134. Not used

NOTICES

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135. Service of notices

(1) A notice may be given by the Company to any shareholder, or in the case of joint holders to the shareholder whose name appears first in the Register, personally, by leaving it at the shareholder's registered address, by sending it by prepaid post or facsimile transmission to the shareholder's registered address, by other electronic means determined by the Board and previously notified to shareholders, or by any other means authorised in writing by the shareholder or by Applicable Regulation.

(2) For the purposes of determining the time at which a notice is served:

(a) Any notice sent by post is taken to have been served at 10.00am on the day after the date on which it is posted. A certificate signed by a Secretary or officer of the Company to the effect that a notice was duly posted is conclusive evidence of that fact;

(b) Any notice served on a shareholder personally or left at the shareholder's registered address is taken to have been served when delivered;

(c) Any notice served on a shareholder by facsimile or other electronic transmission is taken to have been served when the transmission is sent; and

(d) Where the Company gives notice to a shareholder by making the notice accessible electronically, the notice is taken as given at 10.00am on the day after the date on which the shareholder is informed that the notice is available.

(3) The accidental failure to send, or the non-receipt by any person entitled to, any notice of or other document relating to any meeting or other proceeding shall not invalidate the relevant meeting or other proceeding.

(4) Where a shareholder does not have a registered address or where the Company has reason to believe that a shareholder is not known at the shareholder's registered address, all future notices are taken to be given to the shareholder if the notice is exhibited in the Office for a period of 48 hours (and is taken to be served at the commencement of that period) unless and until the shareholder informs the Company of a registered place of address.

136. Notice to transferor binds transferee

Every person who, by operation of law, transfer or any other means becomes entitled to be registered as the holder of any shares is bound by every notice which, prior to the person's name and address being entered in the Register in respect of those shares, was properly given to the person from whom the person derives title to those shares.

137. Deceased and bankrupt members

A notice served in accordance with this Constitution is (despite the fact that the shareholder is then dead, bankrupt or in liquidation and whether or not the Company has notice of the shareholder's death, bankruptcy or liquidation) taken to have been properly served in respect of any registered shares, whether held solely or jointly with other persons by the shareholder, until another person is registered in the shareholder's place as the holder or joint holder. The service is sufficient service of the notice or document on the shareholder's personal representative, trustee in bankruptcy or liquidator and any person jointly interested with the shareholder in the shares.

138. **Not used**

139. **Not used**

140. **Not used**

WINDING UP OF THE COMPANY

141. **Not used**

142. **Not used**

143. **Not used**

144. **Rights on winding-up**

(1) Subject to Rule144(4), if the Company is wound up, whether voluntarily or otherwise, the liquidator may divide among all or any of the contributories as the liquidator thinks fit in specie or kind any part of the assets of the Company, and may vest any part of the assets of the Company in trustees on any trusts for the benefit of all or any of the contributories as the liquidator thinks fit.

(2) If thought expedient, any division may be otherwise than in accordance with the legal rights of the contributories and, in particular, any class may be given preferential or special rights or may be excluded altogether or in part, but in case any division otherwise than in accordance with the legal rights of the contributories is determined, any contributory who would be prejudiced by the division has a right to dissent and ancillary rights as if the determination were a special resolution passed under the Act relating to the sale or transfer of the Company's assets by a liquidator in a voluntary winding up.

(3) If any shares to be divided in accordance with Rule 144(1) involve a liability to calls or otherwise, any person entitled under the division to any of the shares may by notice in writing within ten business days after the passing of the special resolution, direct the liquidator to sell the person's proportion and pay the person the net proceeds and the liquidator is required, if practicable, to act accordingly.

(4) On a return of assets on liquidation, the assets of the Company remaining available for distribution among members, after giving effect to the payment of all prior ranking amounts owed to the creditors of the Company and prior ranking statutory entitlements and after giving effect to preferential rights attached to any preference shares issued by the Company and to the rights of other shares having a preferred right to participate as regards capital up to but not beyond a specified amount in a distribution and to any provision of the Act shall, pari passu with any amount paid to the holders of Ordinary Shares, and any surplus remaining shall be applied in making payments solely to the holders of Ordinary Shares in accordance with their entitlements.

DESTRUCTION OF DOCUMENTS

145. Not used

INDEMNITY AND INSURANCE

146. Indemnity and insurance

(1) To the relevant extent:

(a) the Company is to indemnify each officer of the Company out of the assets of the Company against any liability incurred by the officer in or arising out of the conduct of the business of the Company or in or arising out of the discharge of the duties of the officer;

(b) where the Board considers it appropriate, the Company may execute a documentary indemnity in any form in favour of any officer of the Company; and

(c) where the Board considers it appropriate, the Company may:

(i) make payments of amounts by way of premium in respect of any contract effecting insurance on behalf or in respect of an officer of the Company against any liability incurred by the officer in or arising out of the conduct of the business of the Company or in or arising out of the discharge of the duties of the officer; and

(ii) bind itself in any contract or deed with any officer of the Company to make the payments.

(2) In this Rule:

(a) officer means a director, secretary or executive officer of the Company or a person who formerly held one of those positions.

(b) duties of the officer includes, in any particular case where the Board considers it appropriate, duties arising by reason of the appointment, nomination or secondment in any capacity of an officer by the Company or, where applicable, a subsidiary of the Company to any other corporation.

(c) to the relevant extent means:

(i) to the extent the Company is not precluded by Applicable Regulation from doing so;

(ii) to the extent and for the amount that the officer is not otherwise entitled to be indemnified and is not actually indemnified by another person (including, in particular, an insurer under any insurance policy); and

(iii) where the liability is incurred in or arising out of the conduct of the business of another corporation or in the discharge of the duties of the officer in relation to another corporation, to the extent and for the amount that the officer is not entitled to be indemnified and is not actually indemnified out of the assets of that corporation.

(d) liability means all costs, charges, losses, damages, expenses, penalties and liabilities of any kind including, in particular, legal costs incurred in defending any proceedings (whether criminal, civil, administrative or judicial) or appearing before any court, tribunal, government authority or otherwise.

147. Partial Takeover Plebiscites

(1) Where offers have been made under a proportional takeover bid in respect of shares included in a class of shares in the Company:

(a) the registration of a transfer giving effect to a contract resulting from the acceptance of an offer made under the bid is prohibited unless and until a resolution (in this Rule 147(1) referred to as a prescribed resolution) to approve the bid is passed in accordance with the provisions of this Constitution;

(b) (i) a person (other than the offeror or a person associated with the offeror) who, as at the end of the day on which the first offer under the proportional takeover bid was made, held shares included in that class is entitled to vote on a prescribed resolution and, for the purposes of so voting, is entitled to one vote for each of the last mentioned shares; and

(ii) the offeror or a person associated with the offeror is not entitled to vote on a prescribed resolution;

(c) a prescribed resolution is to be voted on at a meeting, convened and conducted by the Company, of the persons entitled to vote on the resolution; and

(d) a prescribed resolution, being a resolution that has been voted on, is to be taken to have been passed if the proportion that the number of votes in favour of the resolution bears to the total number of votes on the resolution is greater than one- half, and otherwise is taken to have been rejected.

(2) The provisions of this Constitution that apply in relation to a general meeting of the Company apply, with modifications as the circumstances require, in relation to a meeting that is convened under this Rule 147 as if the last mentioned meeting was a general meeting of the Company.

(3) Where takeover offers have been made under a proportional takeover bid then the Board is to ensure that a resolution to approve the proportional takeover bid is voted on in accordance with this Rule 147 before the approving resolution deadline.

(4) This Rule 147 ceases to have effect on the third anniversary of the date of the adoption or last renewal of this Rule 147.

148. Not used

Exhibit 2.1

Description of rights of each class of securities
registered under Section 12 of the Securities Exchange Act of 1934 (the "Exchange Act")

American Depositary Shares ("ADSs") representing two ordinary shares (the "shares") of BHP Group Limited ("BHP") are listed and traded on the New York Stock Exchange and, in connection with this listing (but not for trading), the shares are registered under Section 12(b) of the Exchange Act. This exhibit contains a description of the rights of (i) the holders of shares and (ii) ADS holders. Shares underlying the ADSs are held by Citibank N.A., as depositary, and holders of ADSs will not be treated as holders of the shares.

Shares

Type and Class of Securities (Item 9.A.5 of Form 20-F)

BHP's shares are of no par value. The number of shares that have been issued as of the last day of the financial year ended June 30, 2022 is given in Note 16 'Share capital' in the Financial Statements of the Form 20-F for the financial year ended June 30, 2022 (the "Form 20-F"). BHP's shares are uncertificated registered shares, and may be transferred electronically through trading on the stock exchanges on which they are listed. Under BHP's constitution, the Board of Directors has a power to refuse to register any transfer of securities where the registration would result in a contravention of (or failure to observe) any applicable law or the listing rules of the Australian Securities Exchange Limited ("ASX Listing Rules"), where BHP has a lien over the securities, where the securities are subject to forfeit, where the transfer would be in favor of more than four persons jointly, or where otherwise permitted under the ASX Listing Rules.

Preemptive Rights (Item 9.A.3 of Form 20-F)

Not applicable.

Limitations or Qualifications (Item 9.A.6 of Form 20-F)

A description of how the constitution of BHP limits or qualifies the rights of the shares is provided in sections "Additional information – 9.4 Constitution – Rights attaching to shares" and "Additional information – 9.4 Constitution – Redemption of preference shares" of the Form 20-F.

Other Rights (Item 9.A.7 of Form 20-F)

Not applicable.

Rights of the Shares (Item 10.B.3 of Form 20-F)

See sections "Additional information – 9.4 Constitution", "Additional information – 9.5 Share ownership" and "Additional information – 9.6 Dividends" of the Form 20-F.

Requirements for Amendments (Item 10.B.4 of Form 20-F)

See section "Additional information – 9.4 Constitution – Variation of class rights" of the Form 20-F.

Limitations on the Rights to Own Shares (Item 10.B.6 of Form 20-F)

See sections "Additional information – 9.4 Constitution – Limitations of rights to own securities" and "Additional information – 9.8 Governmental regulations – Shareholding limits" of the Form 20-F.

Provisions Affecting Any Change of Control (Item 10.B.7 of Form 20-F)

Not applicable.

Ownership Threshold (Item 10.B.8 of Form 20-F)

There are no provisions in BHP's constitution governing the ownership threshold above which shareholder ownership must be disclosed. Shareholders will, however, be required to disclose shareholder ownership in accordance with the Australian Corporations Act 2001 (Cth), the Australian Corporations Regulations 2001 (Cth), and the Disclosure Guidance and Transparency Rules of the UK Financial Conduct Authority.

Differences Between the Law of Different Jurisdictions (Item 10.B.9 of Form 20-F)

See "Rights of the Shares" and "Limitations on the Rights to Own Shares" above.

Changes in Capital (Item 10.B.10 of Form 20-F)

Not applicable.

American Depositary Shares (Items 12.D.1 and 12.D.2 of Form 20-F)

Citibank, N.A., as depositary, will issue the ADSs representing shares. Citibank, N.A., has been appointed as the depositary pursuant to the deposit agreement among the depositary, the holders the ADSs thereunder, and BHP (as amended, the "deposit agreement"). Each ADS represents two shares. The depositary's principal office at which the ADSs will be administered is located at 388 Greenwich Street, New York, New York 10036.

You may hold ADSs either directly or indirectly through your broker or other financial institution. If you hold ADSs directly, by having ADSs registered in your name on the books of the depositary, you are an ADS holder. This description assumes you hold your ADSs directly. If you hold the ADSs indirectly, you must rely on the procedures of your broker or other financial institution to assert the rights of ADS holders described in this section. You should consult with your broker or financial institution to find out what those procedures are. Your ADSs may be issued on the books of the depositary in book-entry form, in which case your ADSs will be held through the depositary's direct registration system reflecting your ownership of these ADSs, or your ADSs may be evidenced by one or more American Depositary Receipts ("ADRs").

As an ADS holder, BHP will not treat you as one of its shareholders and you will not have shareholder rights. The depositary or its nominee will be the holder of record of the shares underlying your ADSs. As a holder of ADSs, you will have ADS holder rights. The deposit agreement entered into among BHP, the depositary, you, as an ADS holder, and the other holders and beneficial owners of ADSs sets out ADS holder rights as well as the rights and obligations of the depositary. New York law governs the deposit agreement and the ADRs. Because the depositary or its nominee will actually be the record owner of the shares, you must rely on it to exercise the rights of a shareholder on your behalf.

The following is a summary of the material provisions of the deposit agreement. For more complete information, you should read the deposit agreement and form of ADR. The deposit agreement has been filed with the SEC as an exhibit to a Registration Statement on Form F-6 (File No. 333-259259) on September 2, 2021 and as amended on July 29, 2022. The form of ADR has been filed with the SEC on July 29, 2022 as an exhibit to that Registration Statement.

Voting Rights

How do you vote?

You may instruct the depositary to vote the shares underlying your ADSs, but only if BHP requests the depositary to ask for your instructions. Otherwise, you will be unable to exercise your right to vote unless you withdraw the shares. However, you may not have sufficient advance notice of the meeting in order to withdraw the shares in time to exercise your right to vote.

If BHP requires the depositary to ask for your instructions, the depositary will notify you of the upcoming vote and, upon receipt of voting materials from BHP, will arrange to deliver BHP voting materials to you. The materials will (1) describe the matters to be voted on and (2) explain how you may instruct the depositary to vote the shares or other deposited securities underlying your ADSs as you direct. For instructions to be valid, the depositary must receive them on or before the date specified in the voting materials. The depositary has agreed that it will try to vote or to have its agents vote the shares or other deposited securities as you instruct, insofar as it is practicable and permitted under applicable law, the deposit agreement, the provisions of the deposited securities and BHP's constitution. The depositary will only vote or attempt to vote as you instruct.

If no voting instructions are received by the depositary from you with respect to any of the deposited securities represented by the ADSs on or before the date established by the depositary for submission of such instructions, the depositary will not vote such deposited securities. Voting instructions received from ADS holders will be aggregated and the depositary will try to vote or cause to be voted the deposited securities in accordance with these voting instructions.

BHP cannot assure you that you will receive the voting materials in time to ensure that you can instruct the depositary to vote the shares underlying your ADSs. In addition, the depositary and its agents are not responsible for failing to carry out voting instructions or for the manner of carrying out voting instructions, provided that such nonaction or action is in good faith. This means that you may not be able to exercise your right to vote and there may be nothing you can do if the shares underlying your ADSs are not voted as you requested.

Dividends and Other Distributions

How will you receive dividends and other distributions on the shares?

The depositary has agreed to pay to you the cash dividends or other distributions it or the custodian receives on shares or other deposited securities, after converting any cash received into U.S. dollars, and, in all cases, deducting its fees and expenses and any taxes required to be withheld. You will receive these distributions in proportion to the number of shares your ADSs represent.

Cash. The depositary will convert any cash dividend or other cash distribution BHP pays on the shares into U.S. dollars, if it can do so on a reasonable basis and can transfer the U.S. dollars to the United States. If that is not possible or if any government approval is needed and cannot be obtained, the deposit agreement allows the depositary to distribute the foreign currency only to those ADS holders to whom it is possible to do so. It will hold the foreign currency it cannot convert for the account of the ADS holders who have not been paid. It will not invest the foreign currency and it will not be liable for any interest.

Before making a distribution, any withholding taxes that must be paid will be deducted. In addition, before any distribution, the fees and expenses of the depositary will be deducted. It will distribute only whole U.S. dollars and cents. If the exchange rates fluctuate during a time when the depositary cannot convert the foreign currency, you may lose some or all of the value of the distribution.

Shares. The depositary may distribute additional ADSs representing any shares BHP distributes as a dividend or free distribution of shares. The depositary will only distribute whole ADSs. In lieu of delivering fractional ADSs, the depositary will sell shares or ADSs by public or private sale and distribute the net proceeds in the same way as it does with cash. If the depositary does not distribute additional ADSs, the outstanding ADSs will also represent the new shares.

Rights to purchase additional shares. If BHP offers holders of its securities any rights to subscribe for additional shares, the depositary will make these rights available to you if (i) BHP has timely requested such rights be made available to you, (ii) BHP shall have delivered to the depositary satisfactory documentation in accordance with the deposit agreement and (iii) the depositary shall have determined such distribution is reasonably practicable. If the depositary decides it is not reasonably practicable to make the rights available, BHP does not meet the requirements of (i) or (ii) above, or any rights are not exercised and appear to be about to lapse, but that it is legal and practical to sell the rights, the depositary will sell the rights and distribute the proceeds in the same way as it does with cash. The depositary will allow rights that are not distributed or sold to lapse. In that case, you will receive no value for them.

Other distributions. The depositary will distribute to you any property distributed on deposited securities, other than cash, shares and rights, provided that (i) BHP has timely requested such distribution be made available to you, (ii) BHP shall have delivered satisfactory documentation in accordance with the deposit agreement and (iii) the depositary shall have determined such distribution to be reasonably practicable. The depositary will make any such distribution in such manner it deems practicable. If it cannot make the distribution BHP determines to be distributed to you, it will sell such property in whatever means it deems practicable and distribute the net proceeds, in the same way as it does with cash.

Neither BHP nor the depositary is responsible if it decides that it is unlawful or impracticable to make a distribution available to any ADS holders. BHP has no obligation to register ADSs, shares, rights or other securities under the Securities Act. BHP also has no obligation to take any other action to permit the distribution of ADSs, ADRs, shares, rights or anything else to ADS holders. This means that you may not receive the distributions BHP makes on the shares or any value for them if it is illegal or impractical for BHP to make them available to you. There can be no assurance that the depositary will be able to convert any currency at a specified exchange rate or sell any property, rights or shares or the securities at a specified price, nor that any such transaction can be completed in a specified time.

Notices and Reports

The depositary will make available for ADS holders' inspection at its principal office any notices, reports and communications, including any proxy soliciting material, that it receives from BHP, if those notices, reports and communications are both (a) received by the depositary as the holder of the deposited securities and (b) made generally available by BHP to the holders of the deposited securities. The depositary will also make available to ADS holders copies of such reports when furnished by BHP pursuant to the deposit agreement. In addition, BHP is subject to the periodic reporting requirements of the Exchange Act and, accordingly, file certain reports with the SEC. Such reports and documents can be retrieved from the SEC's website (www.sec.gov).

Reclassifications, Recapitalizations and Mergers

If BHP takes certain actions that affect the deposited securities, including (i) any change in par value, split up, cancellation, consolidation or other reclassification of deposited securities or (ii) any recapitalization, reorganization, merger, consolidation or sale of assets affecting BHP or to which it is a party, then the depositary may choose to:

- issue and deliver additional ADSs as in the case of a share dividend;
- amend the deposit agreement and the ADRs;
- amend the applicable Registration Statement on Form F-6 filed with the SEC in respect of the ADSs;
- call for the surrender of outstanding ADRs to be exchanged for new ADRs; and
- take any other actions as are reasonably requested by BHP or as the depositary, in consultation with BHP, considers appropriate to reflect the transaction.

Amendment and Termination

How may the deposit agreement be amended?

BHP may agree with the depositary to amend the deposit agreement and the form of the ADRs without your consent if BHP and the depositary deem it necessary or desirable. If an amendment adds or increases fees or charges (other than charges in connection with foreign exchange control regulations, and taxes and other governmental charges, delivery and other such expenses), or materially prejudices a substantial right of ADS holders, it will not become effective for outstanding ADRs until 30 days after the ADS holders have been given notice of the amendment. At the time an amendment becomes effective, you are considered, by continuing to hold your ADSs, to agree to the amendment and to be bound by the form of the ADRs and the deposit agreement as amended.

How may the deposit agreement be terminated?

The depositary will terminate the deposit agreement at BHP's direction by distributing notice of termination to the ADS holders then outstanding at least 90 days prior to the date fixed in such notice for such termination. If, at any time, 90 days shall have expired after the depositary shall have delivered to BHP a written notice of its election to resign or BHP has delivered to the depositary written notice of BHP's election to remove the depositary, and a successor depositary shall not have been appointed and have accepted its appointment, the depositary may also terminate the deposit agreement by providing notice of termination at least 90 days prior to the date of termination to BHP and the holders of ADSs then outstanding.

After termination, the depositary and its agents will do the following under the deposit agreement but nothing else: collect dividends and distributions on the deposited securities, sell rights and other property received in respect of deposited securities, deliver shares and other deposited securities upon cancellation of ADSs and take such actions as may be required under applicable law in connection with its role as depositary. At any time after termination, the depositary may sell any remaining deposited securities by public or private sale. After that, the depositary will hold the money it received from the sale, as well as any other cash it is holding under the deposit agreement for the pro rata benefit of the ADS holders that have not surrendered their ADSs. The depositary will not invest the money and has no liability for interest. The depositary's only obligations will be to account for the money and other cash, and other obligations as may be required under applicable law in connection with the termination of the deposit agreement. After termination, BHP's only obligations will be to indemnify the depositary and to pay fees and expenses of the depositary that BHP agreed to pay.

Inspection of Transfer Books

The depositary will keep books at its principal office for the registration and transfer of ADSs, which will be open for your inspection at all reasonable times. However, such inspection shall not be for the purpose of communicating with other owners of ADSs in the interest of a business or object other than BHP's business or other than a matter related to the deposit agreement or the ADSs.

Deposit, Withdrawal and Cancellation

How are ADSs issued?

The depositary will issue ADSs if you or your broker deposit shares or evidence of rights to receive shares with the custodian and pay fees and expenses and any taxes or charges, such as share transfer registration fees owing to the depositary under the deposit agreement. Shares deposited with the custodian must be accompanied by certain delivery documentation, including documentation showing confirmation of the book-entry transfer and recordation of the shares to the custodian or that such irrevocable instructions have been given and any necessary governmental approvals have been obtained. Upon each deposit of shares, receipt of related delivery documentation and compliance with the other provisions of the deposit agreement, including the payment of the fees and charges of the depositary and any taxes or other fees or charges owing, the depositary will issue ADSs in the name or upon the order of the person entitled thereto.

All of the ADSs issued will be part of the depositary's direct registration system, and a registered holder will receive periodic statements from the depositary which will show the number of ADSs registered in such holder's name. An ADS holder can request that the ADSs not be held through the depositary's direct registration system and that an ADR be issued. The custodian will not accept a deposit of fractional shares or a number of shares which would give rise to fractional ADSs.

The custodian will hold all deposited shares for the account of the depositary. ADS holders thus have no direct ownership interest in the shares and only have such rights as are contained in the deposit agreement. The custodian will also hold any additional securities, property and cash received on or in substitution for the deposited shares. The deposited shares and any such additional items are referred to as "deposited securities".

How do ADS holders cancel an ADS and obtain shares?

You may turn in your ADRs at the depositary's principal office or, in the case of direct registration ADS, provide proper instructions and documentation for cancellation of ADSs. Upon payment of its fees and expenses and of any taxes or charges, such as share transfer registration fees, the depositary will deliver the shares represented by the corresponding amount of ADSs or ADRs and any other deposited securities underlying the ADSs or ADRs to you or a person you designate in accordance with your order. Any dividends or other cash held in respect of the deposited securities so delivered shall be delivered to you at the office of the custodian, or, at your request, risk and expense, the depositary will direct the custodian to forward (to the extent permitted by law) any cash or other property (other than securities) for delivery at its principal office.

The depositary shall not accept for surrender ADSs representing less than one share. In the case of delivery to it of ADSs representing a number other than a whole number of shares, the depositary shall cause ownership of the appropriate whole number of shares to be delivered in accordance with the deposit agreement, and shall, at the discretion of the depositary, either (i) return to the person surrendering such ADSs the number of ADSs representing any remaining fractional share, or (ii) sell or cause to be sold the fractional share represented by the ADSs so surrendered and remit the proceeds of such sale (net of (a) applicable fees and charges of, and expenses incurred by, the depositary and (b) taxes withheld) to the person surrendering the ADSs.

Requirements for Depositary Actions

Before the depositary will take certain actions, including deliver or register a transfer of an ADS, make a distribution on an ADS, or permit withdrawal of shares, the depositary may require:

- payment for any tax or other governmental charges and share transfer or registration fee with respect thereto and payment of any applicable fees and charges of the depositary;
- satisfactory proof of the identity and genuineness of any signature or any other matters contemplated by the deposit agreement; and
- compliance with any laws or governmental regulations, or such reasonable regulations that the depositary and BHP may establish consistent with the deposit agreement.

The depositary may refuse to deliver ADSs or register transfers of ADSs generally when the transfer books of the depositary or BHP's transfer books are closed or if any such action is deemed necessary or advisable by the depositary or BHP, in good faith, at any time or from time to time because of any requirement of law or regulation, any government or governmental body or commission or any securities exchange on which shares or ADSs are listed, or under any provision of the deposit agreement or ADRs, if applicable, or under any provision of, or governing, the deposited securities, or because of a meeting of BHP's shareholders or for any other reason, subject, in all cases to compliance with U.S. securities laws.

Your Right to Receive the Shares Underlying Your ADSs

You have the right to cancel your ADSs and withdraw the underlying shares at any time except:

- when temporary delays arise because: (i) the depositary has closed its transfer books or BHP has closed its transfer books; (ii) the transfer of shares is blocked to permit voting at a shareholders' meeting; or (iii) BHP is paying a dividend on its shares;
- when you or other ADS holders seeking to withdraw shares owe money to pay fees, taxes and similar charges; or
- when it is necessary to prohibit withdrawals in order to comply with any laws or governmental regulations that apply to ADSs or to the withdrawal of shares or other deposited securities.

Limitations on Obligations and Liability

The deposit agreement expressly limits BHP's obligations and the obligations of the depositary. It also limits BHP's liability and the liability of the depositary. BHP and the depositary:

- are not liable if either of them is prevented or delayed by law, regulation, any other governmental authority or regulatory authority or stock exchange, BHP's constitution, any provision of or governing any deposit securities or any act of god or war or other circumstances beyond BHP's control from performing BHP's obligations under the deposit agreement;
- are not liable if either of them exercises or fails to exercise discretion permitted under the deposit agreement, the provisions of or governing the deposited securities or BHP's constitution;

- are not liable for any action or inaction in reliance upon the advice of or information from legal counsel, any person presenting shares for deposit, any holder, any beneficial owner or authorized representative thereof, or accountants, or any other person believed by it in good faith to be competent to give such advice;
- are not liable for the inability of any ADS holder to benefit from any distribution, offering, right or other benefit which is made available to holders of deposited securities but is not under the terms of the deposit agreement made available to holders of ADSs;
- are not liable for consequential or punitive damages for any breach of the terms of the deposit agreement;
- are only obligated to take the actions specifically set forth in the deposit agreement or the ADRs; and
- have no obligation to become involved in a lawsuit or other proceeding related to the deposited securities, the ADSs or the deposit agreement on your behalf or on behalf of any other party.

BHP and the depositary are protected in acting in reliance upon any written notice, request or other document believed by it to be genuine and to have been signed or presented by the proper party or parties.

Neither BHP nor the depositary will be liable for any failure to carry out any instructions to vote any of the deposited securities, or for the manner in which any vote is cast or the effect of any vote, provided that any such action or omission is in good faith and in accordance with the terms of the deposit agreement or incur any liability for any failure to determine that any distribution or action may be lawful or reasonably practicable, for any investment risk associated with acquiring an interest in the deposited securities, for the validity or worth of the deposited securities or for any tax consequences that may result from the ownership of ADSs, shares or deposited securities, or for the credit worthiness of any third party. The depositary will not be liable for the content of any information submitted to it by BHP for distribution to the holders or for any inaccuracy of any translation thereof, for allowing any rights to lapse upon the terms of the deposit agreement or for the failure or timeliness of any notice of BHP.

In the deposit agreement, BHP and the depositary agree to indemnify each other under certain circumstances.

Exhibit 4.1

Summary of terms of employment for Mike Henry – Chief Executive Officer, BHP

1. Term

Mr Henry is employed under a single employment agreement with the BHP Group with no fixed term. The contract is applicable with effect from the date of Mr Henry's appointment as Chief Executive Officer (CEO) on 1 January 2020. Mr Henry's performance and remuneration will be reviewed at the end of each financial year.

The Group retains the right to terminate the contract by giving 12 months' notice or by making payment in lieu of notice of 12 months' base salary plus the relevant contribution to a superannuation or pension scheme. Mr Henry is also entitled to any accrued entitlements such as earned but untaken leave. Mr Henry has a right to terminate the contract by giving 12 months' notice.

2. Fixed Salary and Retirement Benefits

Mr Henry is paid a base salary of US$1,700,000 per annum. He is entitled to an additional sum equal to 10 per cent of base salary (which at the commencement of the contract will be US$170,000 per annum) which he may pay into a superannuation or pension scheme, defer receipt of until retirement under the retirement savings plan, or take as a cash payment in lieu of retirement benefits.

Where Mr Henry elects to allocate the retirement contribution to a superannuation or pension scheme, or the retirement savings plan, the rules of the relevant plans will apply.

3. Benefits

Mr Henry receives additional benefits including the cost of private health, life and disability insurance, business-related spouse/partner travel, car parking, fringe benefits tax and the preparation of multi-jurisdictional taxation returns.

4. Incentive arrangements

Mr Henry is eligible to participate in incentive arrangements offered by BHP from time to time. Initially, Mr Henry will participate in the Cash and Deferred Plan (CDP) and the Long Term Incentive Plan (LTIP). The CDP and LTIP are part of BHP's remuneration policy which was approved by shareholders at the 2019 Annual General Meetings.

CDP

Under the rules of the CDP, Mr Henry is entitled to incentive awards calculated by reference to his base salary. For performance at the target level, which requires Mr Henry to meet the rigorous performance hurdles set by the Board, including delivery of the budget, Mr Henry would receive a cash bonus worth 80 per cent of base salary. For performance at the maximum level, Mr Henry would receive a cash bonus of 120 per cent of base salary. Two tranches of deferred shares will be awarded to Mr Henry, each to the equivalent value of the actual cash bonus received. These two tranches of deferred shares will vest in two years and five years, respectively.

The grant of deferred shares will be subject to the approval of shareholders where required by applicable listing rules.

LTIP

Long-term incentives are issued under the terms of the LTIP. The number of LTIP awards allocated will be, on a face value basis, a maximum of 200 per cent of Mr Henry's base salary, and based on the 12-month average share price and exchange rate up to and including the 30 June preceding the date of grant. LTIP awards are subject to performance hurdles, which are measured five years after the effective date of the grant. Performance hurdles are not subject to re-testing.

The performance hurdle requires BHP's total shareholder return (TSR) over a five-year performance period to be measured against the TSR of a sector peer group (67 per cent of awards) and the TSR of a global company index (33 per cent of awards). No LTIP awards vest if BHP's TSR is below the relevant comparator group TSR and the LTIP awards will be forfeited. 25 per cent of LTIP awards vest if BHP's TSR is at the relevant comparator group TSR. For all LTIP awards to vest, BHP's TSR must be at or above the 80th percentile TSR of the relevant comparator group. For performance between the relevant comparator group TSR and the 80th percentile TSR of the relevant comparator group, vesting occurs on a sliding scale.

The grant of LTIP awards will be subject to the approval of shareholders where required by applicable listing rules.

Dividends

A dividend equivalent payment (DEP) is provided on vested CDP deferred shares and vested LTIP awards. No payment is made in respect of unvested or lapsed CDP deferred shares and LTIP awards. DEPs are paid in the form of shares.

Entitlements on termination

The rules of the CDP and LTIP and BHP's remuneration policy provide that where employment is terminated by the resignation of the executive, or by the Group for cause, Mr Henry is not entitled to any cash incentive for the year in question and all CDP deferred shares or LTIP awards will lapse.

If Mr Henry retires or his employment terminates by mutual agreement:

- he may, at the Remuneration Committee's discretion, be considered for a prorata incentive under the CDP for the period of service during that year based on performance;
- CDP two-year deferred shares would vest in full on the original vesting date;
- CDP five-year deferred shares would vest on the original vesting date, with the number of deferred shares to vest reduced prorata to reflect the period of service; and
- he would have a right to retain entitlements to LTIP awards, which would vest on the original vesting date, only if, and to the extent, the performance hurdles are ultimately met. The number of entitlements Mr Henry would be permitted to retain would be reduced prorata to reflect the period of service.

Special provisions relate to events described as "uncontrollable" such as death and serious injury. In those circumstances, all of the CDP deferred shares and LTIP awards that have been awarded but which have not vested or are not exercisable vest immediately to and/or become immediately exercisable by Mr Henry or his estate.

5. Minimum shareholding requirement (MSR)

The Board and Remuneration Committee has determined that during his term as CEO, Mr Henry will be required to hold BHP securities with a value at least equal to five times one year's pre-tax (gross) base salary, and this applies for two years post-retirement. The value of the securities for the purposes of this requirement is the market value of the underlying shares. Unvested awards do not qualify.

The CEO is expected to grow his holdings to the MSR from the scheduled vesting of his employee awards over time. The MSR is tested at the time that shares are to be sold. Shares may be sold to satisfy tax obligations arising from the granting, holding, vesting, exercise or sale of the employee awards or the underlying shares whether the MSR is satisfied at that time or not.

6. Leave entitlements

Mr Henry will be entitled to the following leave entitlements:

- Annual leave – in accordance with applicable Australian law, currently four weeks per annum.
- Other leave – in accordance with applicable law.

7. Post-employment restraints

Mr Henry will be subject to non-competition and non-solicitation restraints that operate for 12 months after the cessation of his employment.

Exhibit 4.2

BHP Billiton Limited
Long Term Incentive Plan
Approved by shareholders at the AGMs on 24.10.13 and 21.11.13

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BHP Billiton Limited
Long Term Incentive Plan

1. Purpose

(a) The LTIP is an integral part of the Company's overall approach to competitive performance-based remuneration.

(b) The LTIP is designed to develop a clear line of sight between business objectives and reward. It is intended to bind members of the senior management team at BHP Billiton through a global performance reward arrangement which ensures his or her focus on the achievement of the global business strategy of BHP Billiton, while providing equity in employee reward throughout the global business.

(c) The LTIP is a long term incentive aimed at creating a stronger link between employee performance and reward and increasing shareholder value by enabling Participants to have a greater involvement with, and share in the future growth and profitability of, the Company.

2. Definitions and interpretation

2.1 Definitions

In this LTIP the following terms have the following meanings:

Allocate means:

(a) the issue of a Share for the benefit of;

(b) procuring the transfer of a Share (via the purchase on-market or via an off-market transfer) to or for the benefit of; or

(c) procuring the holding of a Share as bare nominee for and on behalf of,

a Participant (or his or her personal representative).

ASX means ASX Limited (ABN 98 008 624 691) or the exchange operated by ASX Limited, as the context requires.

Award means the grant of a Performance Share to a Participant under the LTIP, including any entitlement to a Dividend Equivalent Payment under clause 7.3.

Board means the board of directors of the Company from time to time.

Business Day means any day on which the ASX is open for trading.

Close Period has the meaning set out in the Securities Dealing Code.

Company means BHP Billiton Limited (ABN 49 004 028 077) whose registered office is at 171 Collins Street, Melbourne, Victoria, Australia.

Companies Act 2006 means the United Kingdom Companies Act 2006.

Competitor means any business that competes with the Group or Plc Group during the vesting period of Performance Shares.

Constitution means the constitution of the Company.

Control Event means:

(a) either:

(i) a change of control of the Company within the meaning of section 50AA of the Corporations Act; or

(ii) transactions have occurred or will occur which have resulted in or will or are highly likely to result in:

(A) changes in the identity of more than one half of the existing Board members; or

(B) the appointment of new Board members such that more than one half of the Board is newly appointed; or

(C) persons who were entitled to cast more than one half of the votes that could be cast at a Board meeting prior to the changes occurring not being entitled to cast more than one half of the votes after the changes have occurred,

which the Board determines in its discretion, acting reasonably, to constitute or be equivalent to a change of control for the purposes of the LTIP;

(b) when a Court sanctions a compromise or arrangement (other than in relation to Plc) pursuant to Part 5.1 of the Corporations Act; or

(c) when the Company passes a resolution for voluntary winding up or if an order is made for the compulsory winding up of the Company.

Corporations Act means the Corporations Act 2001 (Cth).

Current Market Price means the volume weighted average price of Shares on the ASX over the 5 Business Days as shown on the Official List of the ASX commencing on the date on which Shares would otherwise have been Allocated to a Participant.

Dismissal means termination of a Participant's employment with a Group Company for cause, including unlawful or serious misconduct, as determined by the Remuneration Committee in its absolute discretion.

Dividend Equivalent Payment means an amount to which a Participant becomes entitled under clause 7.3, which will be satisfied through the Allocation of Shares or payment of an equivalent cash amount.

Eligible Employee means an Employee whom the Remuneration Committee determines in its absolute discretion is to participate in the LTIP.

Employee means any person who is in full-time or part-time employment of a Group Company.

Expected Value means the anticipated value of the Performance Shares at the time of Award, taking into account all relevant factors including any entitlement to a Dividend Equivalent Payment under clause 7.3, as determined by the Remuneration Committee.

Financial Year means the financial year of the Company (being at the time of adoption of these Rules a period of 12 months starting on 1 July in one year and ending on 30 June in the following year).

Gross Salary means an Employee's gross annual base salary as determined by the Remuneration Committee in its discretion.

Group means the Company and its Subsidiaries from time to time and a ***Group Company*** means any one of them.

Invitation means an invitation to an Eligible Employee made under clause 3.1.

Joint Electorate Action has the meaning given in the DLC Structure Sharing Agreement between the Company and Plc dated 29 June 2001.

Law means the laws of Australia and any applicable legislation of the jurisdiction in which an Eligible Employee is located at the time of receipt of an Invitation.

Listing Rules means the listing rules of the ASX as in force from time to time.

LTIP means the Long Term Incentive Plan of the Company as established under these Rules.

Market Value means the market value of a Share on the relevant date as determined by the Remuneration Committee in its discretion, but will not be less than the volume weighted average price of Shares over the 5 Business Days immediately prior to the relevant date and as shown on the Official List of the ASX. The calculation of the Market Value must not occur at any time when the Group is in a Close Period.

Participant means an Eligible Employee who accepts an Invitation and to whom an Award is made under the LTIP.

Performance Hurdle means a condition set by the Remuneration Committee under clause 4.

Performance Share means an option or a conditional right to acquire a Share on the terms set out in the LTIP and a Participant's Invitation.

Performance Year means the Financial Year in respect of which Performance Shares are Awarded.

Plc means BHP Billiton Plc, a company incorporated in England and Wales with registered number 3196209, whose registered office is at Neathouse Place, London SW1V 1BH, England.

Plc Group means Plc and its subsidiaries from time to time as determined in accordance with English law and ***Plc Group Company*** means any one of them.

Post Cessation Covenant means, in respect of a Participant:

(a) a restriction or undertaking owed to the Group or a Group Company in connection with the Participant's former employment; or

(b) any compromise or contractual arrangement in relation to the cessation of the Participant's former employment with the Group.

Pro Rata means a calculation in accordance with the following formula and rounded down to the nearest whole number of Performance Shares:

$RP = PS \times M.D \div 60$

where:

(a) RP is the number of Performance Shares retained by the Participant;

(b) PS is the number of Performance Shares Awarded to the Participant in a Performance Year;

(c) M, in any vesting period, is the number of full months that have passed since the beginning of the vesting period during which the Participant has been employed by a Group Company; and

(d) D is the proportion of days that have passed in the month that employment ceases (that is, the number of days passed divided by the total number of days in that calendar month).

Remuneration Committee means the Remuneration Committee of the Board as constituted from time to time, or its delegate.

Rules means the terms and conditions set out in this document as amended from time to time.

Securities Dealing Code means the Company's Securities Dealing Group Level Document, as amended from time to time.

Security Interest means a mortgage, charge, pledge, lien or other encumbrance of any nature.

Shares means fully paid ordinary shares in the capital of the Company.

Subsidiary means a body corporate which is a subsidiary of the Company within the meaning of section 9 of the Corporations Act.

Tax includes any tax, levy, impost, deduction, charge, rate, contribution, duty or withholding which is assessed (or deemed to be assessed), levied, imposed or made by any government or any governmental, semi-governmental or judicial entity or authority together with any interest, penalty, fine, charge, fee or other amount assessed (or deemed to be assessed), levied, imposed or made on or in respect of any or all of the foregoing.

Trustee means the trustee or trustees for the time being of any employee share ownership scheme or plan trust established by the Company, the beneficiaries of which include the Participants.

2.2 Interpretation

Headings are for convenience only and do not affect interpretation. The following rules of interpretation apply unless the context requires otherwise.

(a) The singular includes the plural and conversely.

(b) A gender includes all genders.

(c) Where a word or phrase is defined, its other grammatical forms have a corresponding meaning.

(d) A reference to a person includes a body corporate, an unincorporated body or other entity and conversely.

(e) A reference to a clause is to a clause of the Rules.

(f) A reference to any agreement or document is to that agreement or document as amended, novated, supplemented, varied or replaced from time to time, except to the extent prohibited by the Rules.

(g) A reference to any legislation or to any provision of any legislation includes any modification or re-enactment of it, any legislative provision substituted for it and all regulations and statutory instruments issued under it.

(h) A reference to ***conduct*** includes any omission and any statement or undertaking, whether or not in writing.

(i) A reference to ***writing*** includes a facsimile transmission and any means of reproducing words in a tangible and permanently visible form.

(j) Mentioning anything after ***include***, ***includes*** or ***including*** does not limit what else might be included.

3. Invitation to participate

3.1 Invitations

(a) The Remuneration Committee may in its absolute discretion issue or cause to be issued Invitations on behalf of the Company to Eligible Employees. That Invitation will be in such form as the Remuneration Committee determines from time to time and will include the following minimum information:

(i) the date of the Invitation;

(ii) the name of the Eligible Employee to whom the Invitation is made;

(iii) the number of Performance Shares being offered, or the method by which the number will be calculated;

(iv) whether the Performance Shares are in the form of options or conditional rights;

(v) the Performance Hurdle(s) and any other conditions of vesting determined by the Remuneration Committee;

(vi) the period or periods during which the Performance Shares may vest;

(vii) the exercise price for a Performance Share granted as an option;

(viii) the period(s) in which a Performance Share granted as an option may be exercised;

(ix) the circumstances in which Performance Shares may lapse;

(x) whether the Performance Shares carry an entitlement to a Dividend Equivalent Payment;

(xi) the circumstances in which Shares Allocated to the Participant may be forfeited; and

(xii) any restrictions (including the period of restriction) on dealing in relation to a Share Allocated to the Participant.

(b) Invitations may be made by the Remuneration Committee on a differential basis to different Eligible Employees.

(c) The maximum number of Performance Shares that may be Awarded to a Participant in any Performance Year is the number achieved by multiplying the Participant's Gross Salary by two and dividing that amount by the Expected Value.

3.2 Acceptance of Invitation

(a) Acceptance of an Invitation must be made in accordance with the instructions that accompany the Invitation, or in any other way the Remuneration Committee determines.

(b) The Remuneration Committee may at any time up until the Award of Performance Shares refuse the participation of an Eligible Employee where that Eligible Employee ceases to satisfy any relevant conditions imposed by the Remuneration Committee.

(c) Nothing limits the Remuneration Committee's ability to treat the conduct of an Eligible Employee in respect of an Invitation (including the failure of an Eligible Employee to lodge an election not to participate within the time specified in the instructions accompanying the Invitation) as valid acceptance of that Invitation under these Rules.

4. Performance Hurdles

(a) The Remuneration Committee will make each Award of Performance Shares subject to one or more Performance Hurdles, and may impose other conditions of vesting in its absolute discretion.

(b) Notwithstanding that a Performance Hurdle and any other conditions of vesting (as advised to the Participant) have been satisfied, the Remuneration Committee may in its absolute discretion determine that, having regard to:

(i) the personal performance of a Participant;

(ii) the performance of the division or function in which the Participant is employed or for which they have accountability, or which is relevant in relation to the Participant's role;

(iii) the performance of the Group and the Plc Group; or

(iv) any other factor (relating to such other different consideration or criteria) which the Remuneration Committee reasonably determines to be appropriate to take into account in relation to the Participant's Award,

vesting of some or all of the Performance Shares is not justifiable or supportable, in which case the Remuneration Committee may determine that all or some of the Performance Shares which would otherwise have vested will not vest and will instead lapse.

5. Performance Shares

5.1 Award of Performance Shares

(a) The Company will Award to each Participant the number of Performance Shares set out in the Invitation.

(b) In the normal course, Awards may only be made within 42 days starting on any of the following:

(i) the date of shareholder approval of a grant of Performance Shares;

(ii) the day after the announcement of the Company's results for any period;

(iii) the date of the Company's annual general meeting or any special general meeting; or

(iv) any day on which the Remuneration Committee determines that exceptional circumstances exist which justify the Award of Performance Shares and which may include but is not limited to changes to the legislation or regulations materially affecting the LTIP, an executive recruitment or the lifting of dealing restrictions preventing the making of an Award in the normal course.

(c) A Participant will not pay anything for the Award of Performance Shares.

5.2 Vesting of Performance Shares

(a) Subject to these Rules, a Performance Share will only vest where and to the extent that:

(i) the Performance Hurdles have been satisfied;

(ii) any additional terms specified in the Invitation pursuant to clause 3.1 have been satisfied; and

(iii) the Remuneration Committee makes a determination not to exercise its discretion to lapse some or all of the Performance Shares under clause 4(b).

(b) If the vesting of a Performance Share would arise in a period where dealings by a Participant would be prohibited, vesting will be delayed until such time as dealings are permitted. For the avoidance of doubt, the Remuneration Committee may determine that vesting will be delayed only in relation to the affected Participant or in relation to some or all of Participants who hold Performance Shares under the LTIP (irrespective of whether they are subject to the dealing restriction).

5.3 Exercise of Performance Shares

(a) Performance Shares may only be exercised (where applicable) to the extent they have vested.

(b) Notwithstanding any other provision of these Rules, no Performance Share will be exercisable for a period which is greater than 10 years from the date of the Award of the Performance Share.

5.4 Satisfaction of entitlements

(a) Subject to clause 5.4(b), the vesting or exercise (as applicable) of a Performance Share will be satisfied by the Company, at the Remuneration Committee's discretion, either:

(i) Allocating a Share to the Participant; or

(ii) making a cash payment in lieu of an Allocation of Shares, and delivering any Dividend Equivalent Payment that a Participant becomes entitled to under clause 7.3.

(b) The Remuneration Committee may determine, prior to making an Award, that the vesting or exercise (as applicable) of Performance Shares will only be satisfied through an Allocation of Shares to the Participant.

(c) Where the Remuneration Committee exercises its discretion under clause 5.4(a) to make a cash payment to a Participant in lieu of an Allocation of Shares, the Company must pay to the Participant an amount (in any currency determined by the Remuneration Committee in its absolute discretion) equivalent to the value of Performance Shares that have vested or been exercised (as applicable).

(d) The amount of the cash payment referred to in clause 5.4(c) will be calculated by multiplying the number of Performance Shares that have vested or been exercised (as applicable) by the Current Market Price (less any exercise price where applicable).

6. Restrictions on dealing

6.1 Prohibited dealings

(a) Any dealing in respect of a Performance Share between Award and vesting is prohibited unless the dealing:

(i) is with the consent of the Remuneration Committee; or

(ii) occurs by force of law upon death to the Participant's legal personal representative or upon bankruptcy to the Participant's trustee in bankruptcy.

(b) Unless the Remuneration Committee determines otherwise, where a Participant deals with a Performance Share in contravention of clause 6.1(a), the Performance Share will lapse.

6.2 Security Interest

Subject to clause 6.3(c), Participants will not grant any Security Interest in or over or otherwise dispose of or deal with any Performance Shares or any interest in them until the relevant Shares are Allocated to that Participant, and any such Security Interest or disposal or dealing will not be recognised in any manner by the Company.

6.3 Additional restrictions on dealing

(a) The Remuneration Committee may at its discretion impose restrictions on dealing in respect of any Shares that are Allocated upon vesting or exercise of a Performance Share.

(b) The Remuneration Committee may implement any procedure it considers appropriate to enforce the restrictions under this clause 6.3.

(c) The Remuneration Committee may, in any circumstances and from time to time, on request from a Participant, approve at its discretion the release of a Participant's Performance Shares or Shares from any restriction.

6.4 Securities Dealing Code

All Awards of Performance Shares, vesting of Performance Shares, any exercise of Performance Shares and all Allocations of Shares pursuant to these Rules must be in accordance with, and will be subject to, the Securities Dealing Code.

7. Other provisions

7.1 New issues

A Performance Share does not confer on a Participant the right to participate in new issues of Shares by the Company, including by way of bonus issue, rights issue or otherwise.

7.2 Lapse

All Performance Shares which have not been exercised at the expiry of the relevant exercise period will lapse. If more than one such period applies, then the provision which results in the earliest lapse will prevail.

7.3 Dividend Equivalent Payment

(a) The Remuneration Committee may determine at the time an Invitation is made that a Participant who becomes entitled under clause 5.4(a) to receive an Allocation of Shares (or equivalent cash amount) following vesting or exercise of Performance Shares will also be entitled to receive a Dividend Equivalent Payment.

(b) The Market Value of the Dividend Equivalent Payment:

(i) will be approximately equal to the amount of dividends that would have been payable to a Participant had he or she been the owner of the Shares referred to in clause 7.3(a) from the first day of the Financial Year in which the Performance Shares are Awarded (excluding any dividends actually paid in respect of those Shares after their Allocation to the Participant); and

(ii) will not be grossed up or otherwise adjusted to account for any Tax consequences which would have applied if the Participant had actually been paid a dividend.

(c) The Dividend Equivalent Payment will be delivered to the Participant as soon as reasonably practicable following the Allocation of the Shares (or payment of an equivalent cash amount) referred to in clause 7.3(a).

8. Leaver Provisions

8.1 Resignation and Dismissal

(a) Where a Participant leaves the employment of a Group Company because of resignation or Dismissal, then the Participant's unvested Performance Shares will lapse.

(b) Any Performance Shares which had vested but not been exercised at the time of the resignation or Dismissal will not lapse and will remain exercisable for the remainder of the exercise period applying to those Performance Shares, unless the Remuneration Committee determines that they should lapse with effect from the date the Participant ceases employment or such other date determined by the Remuneration Committee.

8.2 Death, illness or disablement

Where a Participant leaves the employment of a Group Company due to:

(a) death;

(b) serious injury, disability or illness that prohibits continued employment; or

(c) total and permanent disablement,

then all of the Participant's unvested Performance Shares will immediately vest and, where applicable, become exercisable.

8.3 Other Leavers

(a) If a Participant leaves the employment of a Group Company for any reason other than as specified in clauses 8.1 or 8.2 and the Remuneration Committee does not determine otherwise under clause 8.3(b), a Pro Rata portion of the Participant's Performance Shares will continue to be held by the Participant subject to these Rules and the relevant conditions advised to the Participant, notwithstanding the cessation of the Participant's employment.

(b) The Remuneration Committee may determine at any time up to 60 days after the Participant ceases employment, that some or all of a Participant's Performance Shares, as applicable:

(i) lapse; and/or

(ii) are, in the case of vested but unexercised Performance Shares, only exercisable for a prescribed period and will otherwise lapse,

with effect from the date of the Participant ceasing employment or such other date specified by the Remuneration Committee.

(c) Where this clause 8.3 applies, any Performance Shares held by the Participant that would otherwise become eligible for vesting under clause 5.2 will be suspended until the earlier of:

(i) the Remuneration Committee notifying the Participant that it has either exercised, or decided not to exercise, its discretion under clause 8.3(b); or

(ii) the expiry of the 60-day period specified in clause 8.3(b).

8.4 Post cessation discretion

Notwithstanding anything else in this rule 8 or any other provision of these Rules, where:

(a) a Participant who has ceased to be employed by a Group Company continues to hold Performance Shares which are unvested; and

(b) the Remuneration Committee determines in good faith that:

(i) the Participant has breached a Post Cessation Covenant;

(ii) the Participant commences employment with a Competitor at any time prior to the Performance Shares vesting; or

(iii) a change in the Participant's circumstances since he or she ceased to be employed by a Group Company mean it is no longer appropriate for the Participant to retain his or her unvested Performance Shares,

the Remuneration Committee may in its absolute discretion determine that some or all of such unvested Performance Shares will lapse with immediate effect.

8.5 Global Mobility

Where a Participant transfers employment to a Plc Group Company or any other company in which either the Company or Plc or both have an interest and which the Remuneration Committee designates for this purpose (***Connected Company***), the Participant will, unless the Remuneration Committee determines otherwise:

(a) not be treated for the purposes of the LTIP as leaving the employment of a Group Company until he or she is no longer employed by a Group Company, Plc, a subsidiary of Plc or the Connected Company; and

(b) maintain any unvested or unexercised Performance Shares Awarded under the LTIP and remain eligible to receive an Award in respect of the current Performance Year in accordance with the LTIP.

8.6 Amounts owing by Participants

Where a Participant owes any amount or amounts a Group Company or a Plc Group Company, including without limitation the outstanding balance of any loan account, any overpayment of holiday pay or wages, or any loss suffered by a Group Company or Plc Group Company as a result of any breach of contract, statutory duty or tort committed by the Participant, the Remuneration Committee may, in respect of any Performance Shares Awarded to the Participant:

(a) prevent the exercise of some or all of the Performance Shares;

(b) determine that some or all of the Performance Shares lapse; or

(c) reduce the number of Performance Shares which vest,

to take into account of and in settlement of any such amounts.

9. Preventing inappropriate benefits

(a) If, in the opinion of the Remuneration Committee:

(i) an Eligible Employee or Participant acts fraudulently or dishonestly or is in material breach of his or her obligations to any Group Company (or a Plc Group Company);

(ii) the Company becomes aware of a material misstatement or omission in the financial statements in relation to a Group Company (or a Plc Group Company); or

(iii) any circumstances occur that the Remuneration Committee determines in good faith to have resulted in an unfair benefit to the Participant,

then the Remuneration Committee may, in its absolute discretion, determine that:

(iv) some or all the Participant’s Performance Shares will lapse;

(v) some or all of the Shares that were Allocated under the LTIP which are held by, or on behalf of, the Participant, will be forfeited; and/or

(vi) a Participant be required to reimburse a Group Company all or part of the cash already paid to the Participant under the LTIP or repay all or part of the net proceeds of the sale of any Shares Allocated under the LTIP.

(b) Without limiting clause 9(a), where a Participant has received or may receive remuneration (whether under the LTIP or otherwise) and the Remuneration Committee determines in good faith that, in order to ensure that no inappropriate benefit is obtained by the Participant:

(i) the remuneration should be reduced by an amount; or

(ii) an amount of the remuneration should be repaid,

the Remuneration Committee may, subject to applicable laws, determine any treatment in relation to one or more of:

(iii) the Participant’s Performance Shares;

(iv) Shares Allocated to the Participant under the LTIP; or

(v) cash received by the Participant in connection with the LTIP (including the proceeds of sale of a Share Allocated under the LTIP),

in order to offset the relevant amount.

(c) Nothing in this clause 9 limits the ability of the Remuneration Committee and a Participant to agree to different or additional forfeiture, repayment or offset arrangements.

(d) The Remuneration Committee's decision under this clause 9 will be final and binding.

10. Forfeiture

(a) Where Shares are forfeited in accordance with these Rules and the Shares are held by the Participant, the Participant is deemed to have agreed to dispose of his or her legal and/or beneficial interest (as appropriate) in such Shares for no consideration and the Shares will be transferred into the name of the Company's nominee.

(b) Where Shares are forfeited in accordance with these Rules and the Shares are held by a trustee, the Participant's rights in the Shares will be extinguished for no consideration and the Remuneration Committee may, at any time in the future, direct the trustee to hold the Shares for the benefit of a different or new Participant (and, pending such direction, the Shares shall comprise general trust property).

(c) Where Shares are forfeited pursuant to these Rules, the Company will repay to the Participant any exercise price paid in relation to those Shares by the Participant.

11. Takeover, Reconstruction and Winding Up

Upon a Control Event occurring, then:

(a) all Shares held by a Participant under the LTIP which are subject to a dealing restriction pursuant to clause 6 will be released; and

(b) unvested Performance Shares will either, at the determination of the Remuneration Committee:

(i) be Pro Rated and vest to the extent to which the Remuneration Committee determines appropriate having regard to performance against the applicable Performance Hurdles up to the date of the Control Event and expectations regarding future performance. Any Performance Shares that vest will, where applicable, become exercisable for a period of six months or such shorter window period determined by the Remuneration Committee in its discretion. Those Performance Shares that do not vest, or are not exercised within the prescribed period, will lapse; or

(ii) lapse or be cancelled if the Remuneration Committee determines in its absolute discretion that a term of the Control Event is that holders of those Performance Shares will participate in an acceptable alternative employee share incentive scheme which is reasonably acceptable to the Remuneration Committee in its absolute discretion.

12. Variation of Awards

12.1 Adjustments

Subject to all applicable laws and the Listing Rules, the Remuneration Committee may make such adjustments as it considers appropriate, if any, to one or more of the following:

(a) the number of Shares subject to any Performance Share;

(b) the exercise price for a Performance Share;

(c) where a Performance Share has been exercised but no Shares have been Allocated following the exercise (and no equivalent cash amount paid), the number of Shares which may be Allocated; or

(d) the terms of a Performance Hurdle,

in the event of any of the circumstances set out in clause 12.2 below.

12.2 Circumstances

The circumstances in which the Remuneration Committee may make the adjustments under clause 12.1 are:

(a) if there are certain variations in the share capital of the Company, including a capitalisation or rights issue, sub-division, consolidation or reduction of share capital, a demerger (in whatever form) or other distribution in specie; or

(b) in relation to a Performance Hurdle, other events not in the ordinary course (and not related solely to the performance of the Group) which cause the Remuneration Committee to consider that the original terms of the Performance Hurdle are no longer measurable, meaningful and/or likely to incentivise Participants appropriately, provided that the varied Performance Hurdle is no less difficult to satisfy than the original Performance Hurdle as at the time the Award was made.

12.3 Notice of Variation

As soon as reasonably practicable after making any adjustment under clause 12.1, the Remuneration Committee will give notice in writing of the adjustment to any Participant affected by it.

13. Administration of the LTIP

(a) The LTIP will be administered by the Remuneration Committee. The Remuneration Committee will have power to:

    (i) delegate the exercise of its powers or discretions arising under the LTIP to any one or more persons (including, but not restricted to, a sub-committee of the Remuneration Committee) for such period and on such conditions as the Remuneration Committee may determine;

(ii) decide on appropriate procedures for administering the LTIP, including the forms and notices to be issued under the LTIP, and appoint or engage specialist service providers for the operation and administration of the LTIP;

(iii) resolve conclusively all questions of fact or interpretation concerning the LTIP and these Rules and any dispute of any kind that arises under the LTIP, and the decision of the Remuneration Committee is final and binding upon all persons; and

(iv) waive any breach of a provision of the LTIP.

(b) The LTIP may be administered in conjunction with an employee share ownership scheme or plan trust and for these purposes the Company may Allocate Shares or grant options to the Trustee to facilitate the awards made under the LTIP.

(c) Where the Remuneration Committee is required to make a determination or is entitled to exercise discretion in respect of the LTIP, that determination or discretion shall be exercised reasonably and in good faith.

14. Amendments

14.1 Amendments to LTIP

(a) The Board, on advice from the Remuneration Committee, may at any time and from time to time by resolution alter the LTIP subject to the provisions of this clause 14.

(b) The Board may create sub-schemes based on the terms and conditions set out in the LTIP to apply to Eligible Employees employed in, resident in, or who are citizens of, countries other than Australia in order to take account of securities, exchange control, taxation or employment laws or regulations, or similar factors, in countries in which the LTIP is to be implemented, provided that:

(i) the basis on which Eligible Employees may participate in such sub- schemes shall not be materially more favourable overall than the terms of participation in this LTIP; and

(ii) the limits set out in clause 15 will apply to Awards made under the sub-scheme.

14.2 Shareholder approval

(a) Subject to clauses 14.4 and 14.5, any alteration to the LTIP which is to the material advantage of Participants or Eligible Employees and which amends: (i) the definition of “Eligible Employee”;

(i) the definition of “Eligible Employee”;

(ii) any limit on benefits or any category of benefit that may be granted under the LTIP to any one Participant or the overall limit specified in clause 15 below;

(iii) the basis for determining a Participant's entitlements to, and the material terms of, Awards of Performance Shares;

(iv) the provisions relating to the variation of Awards under clause 12; or

(v) the terms of this clause 14.2,

will require the prior approval by ordinary resolution of the members of the Company and Plc as a Joint Electorate Action, provided that this does not relate to the creation of sub-schemes in accordance with clause 14.1.

(b) For the avoidance of doubt, an ordinary resolution of the members of the Company and Plc as a Joint Electorate Action which approves a directors' remuneration policy report in accordance with section 439A of the Companies Act 2006 will be deemed to constitute approval for the purposes of clause 14.2 in respect of any alterations to the LTIP required to effect such directors' remuneration policy report.

14.3 Power of amendment – limitations

Subject to clauses 14.4 and 14.5, no change may be made that would adversely affect any of the subsisting rights of a Participant in relation to Performance Shares that have been Awarded except with the approval of at least 50% of the Participants holding Performance Shares affected by the change.

14.4 Alterations

(a) Clause 14.2 and 14.3 will not apply to any deletions, amendments or additions to the LTIP to benefit the administration of the LTIP, or which the Remuneration Committee considers necessary or desirable to take account of a change in legislation, exchange control, securities laws or other regulatory requirement or to obtain or maintain favourable tax treatment for Participants or any Group Company, provided such deletions, amendments or additions do not affect the basic principles of the LTIP.

(b) For the avoidance of doubt, any exercise by the Remuneration Committee of a discretion contemplated by these Rules or the terms of an Invitation will not constitute an amendment pursuant to this clause 14.

14.5 Listing Rules

(a) Any amendment to the LTIP is subject to any restrictions or procedural requirements relating to the amendment of the rules of an employee incentive scheme imposed by the Listing Rules.

(b) Clauses 14.2 and 14.3 will not apply in respect of any amendments to the LTIP that reflect changes to the Listing Rules or the listing rules of the UK Listing Authority relating to the amendment of the rules of an employee incentive scheme.

15. Issue limitations

15.1 10% in 10 years

The number of Shares which may be issued in settlement of Awards under the LTIP on any day must not exceed 10% of the combined issued ordinary share capital of the Company and Plc immediately before that day, when added to the total number of Shares and Plc shares which have been issued in the previous 10 years under the LTIP and any other employee share scheme operated by the Company or Plc.

15.2 5% in 10 years

The number of Shares which may be issued in settlement of Awards under the LTIP on any day must not exceed 5% of the combined issued ordinary share capital of the Company and Plc immediately before that day, when added to the total number of Shares and Plc shares which have been issued in the previous 10 years under the LTIP and any other discretionary share scheme adopted by the Company or Plc. This limit may be exceeded where vesting is dependent on the achievement of stretching performance criteria.

15.3 Exclusions and inclusions

For the purpose of the limits in this clause 15:

(a) where the right to acquire Shares is released or lapses without vesting or being exercised, the Shares concerned are ignored when calculating the limits in this clause 15;

(b) Shares delivered from treasury will be treated as newly issued; and

(c) Shares that are issued to any employee benefit trust for the purpose of settlement of Awards shall be counted as newly issued.

16. No interest or right until Award, vesting or exercise

(a) An Eligible Employee has no entitlement to be Awarded any Performance Shares unless and until such Performance Shares are Awarded.

(b) Unless and until Shares are Allocated to a Participant following vesting or exercise (as applicable), the Participant has no interest in those Shares.

17. Ranking and Listing

(a) All Shares Allocated to a Participant under this LTIP will, from the date of Allocation, rank equally with all other issued Shares. If necessary, the Company will apply for official quotation of these shares on each stock exchange on which Shares are quoted.

(b) None of the Performance Shares will be listed for quotation on any stock exchange.

18. Law, Listing Rules and the Constitution

The LTIP and all offers and Awards of Performance Shares and Allocations of Shares under the LTIP are subject to the Law, the Listing Rules and the Constitution, each as in force from time to time.

19. Rights of Participants

Nothing in this LTIP or participation in the LTIP:

(a) confers on any Eligible Employee or Participant the right to continue as an employee of any Group Company;

(b) confers on any Employee the right to become or remain an Eligible Employee or Participant or to participate under the LTIP;

(c) will be taken into account in determining a Participant's salary or remuneration for the purposes of superannuation or other pension arrangements;

(d) affects the rights and obligations of any Eligible Employee or Participant under the terms of their office or employment with any Group Company;

(e) affects any rights which a Group Company may have to terminate the employment of an Eligible Employee or Participant or will be taken into account in determining an Eligible Employee's or Participant's termination or severance pay;

(f) may be used to increase damages in any action brought against any Group Company in respect of any such termination; and

(g) confers any responsibility or liability on any Group Company or its directors, officers, employees, representatives or agents in respect of any taxation liabilities of the Eligible Employee or Participant.

20. Termination and suspension

(a) Awards under this LTIP may only be made for a period of 10 years commencing on the date on which the LTIP is approved by the Company's shareholders.

(b) The Remuneration Committee may at any time, and at its complete discretion, suspend or terminate the LTIP without notice to Participants. The suspension or termination of the LTIP will not affect any existing Performance Shares Awarded under the LTIP and the terms of the LTIP will continue to apply to such Awards provided that, in the case of termination, all Shares then subject to a dealing restriction pursuant to clause 6 will be released from the restriction on the date of termination or on such other date specified by the Remuneration Committee.

21. General

21.1 Costs and Expenses

The Company will pay all expenses, costs and charges in relation to the establishment, implementation and administration of the LTIP, including all costs incurred in or associated with the issue or purchase of Shares (except for Taxes which are payable by Participants and the exercise or Award price (if any) for the Performance Shares) for the purposes of the LTIP. Each Group Company will, if required by the Remuneration Committee, reimburse the Company for any such costs and charges to the extent that they relate to its employees or former employees.

21.2 Withholding

(a) If any person (not being the Participant) or their representative is obliged, or reasonably believes they have an obligation, as a result of or in connection with:

(i) the Award, vesting or exercise of any Performance Shares;

(ii) the payment of any cash payment (including under clauses 5.4 and 7.3); or

(iii) the Allocation of Shares (including under clauses 5.4 and 7.3),

to account for income tax or employment taxes under any wage, withholding or other arrangements or for any other tax, social security contributions or levy or charge of a similar nature (***Tax Liability***), then that person or their representative is entitled to, at their election:

(iv) withhold such amounts and make such arrangements as it considers necessary; or

(v) be reimbursed by the Participant,

for the amounts so paid or payable.

(b) Where clause 21.2(a) applies, the Company is not obliged to pay the relevant amount or Allocate the relevant Shares to the Participant unless the relevant person or their representative is satisfied that arrangements have been made for withholding, payment or reimbursement of the Tax Liability. Those arrangements may include, without limitation, at the person's or their representative's election:

(i) the Participant foregoing their entitlement to an equivalent number of Shares that would otherwise be Allocated to the Participant;

(ii) a reduction in any amount that is otherwise payable to the Participant; or

(iii) the sale, on behalf of the Participant, of Shares Allocated or otherwise to be Allocated to the Participant and where this happens, the Participant will also meet the costs of any such sale (e.g. stamp duty, brokerage, etc.) in addition to the Tax Liability.

(c) The Remuneration Committee may require any Participant, as a condition of vesting or exercise of any Performance Shares, to enter into an agreement transferring any liability of any Group Company to social security contributions in respect of those Performance Shares.

21.3 Appointment of agent

Each Participant appoints the company secretary of the Company (or any other officer of the Company authorised by the Remuneration Committee for this purpose) as his or her agent to do anything necessary to:

(a) Allocate Shares to the Participant in accordance with these Rules;

(b) effect a forfeiture of Shares in accordance with these Rules; and

(c) execute transfers of Shares in accordance with these Rules.

21.4 Data protection

(a) From time to time the personal data of a Participant will be collected, used, stored, transferred and otherwise processed in order to allow the Company and any other relevant Group Company to incentivise their officers and employees and to operate and administer the LTIP and to fulfil its or their obligations to the Participant under the LTIP, and for other purposes relating to or which may become related to the Participant's office or employment, the operation of the LTIP or the business of the Group or to comply with legal obligations. Such processing will principally be for, but will not be limited to, personnel, administrative, financial, regulatory or payroll purposes as well as for the purposes of introducing and administering the LTIP.

(b) The personal data to be processed as referred to in this clause 21.4 may be disclosed or transferred to, and/or processed by:

(1) any professional advisors of any Group Company;

(2) any revenue, regulatory or governmental authorities;

(3) a trustee of an employee benefit trust established for the benefit of directors and/or employees of any Group Company; any registrars, brokers, payroll providers or other third party administrators (or similar) appointed in connection with any employee share or incentive plans operated by any Group Company; or any other person appointed (whether by the Participant or any Group Company) to act as nominee or custodian on behalf of (or provide a similar service to) the Participant;

(4) subject to appropriate confidentiality undertakings, any prospective purchasers of, and/or any person who obtains control of or acquires, the Company or the whole or part of the business of the Group; or

(5) any Group Company and officers, employees or agents of such Group Company.

(c) To the extent that the processing of the personal data of a Participant is not subject to EU Regulation 2016/679, each Participant consents to the holding and processing of personal data as referred to in this clause 21.4.

(d) Clause 21.4(c) shall not apply in respect of any Participant the processing of whose personal data is subject to EU Regulation 2016/679, and the legal grounds for the processing of the personal data of such Participant will (depending on the nature and purpose of any specific instance of processing) be one of:

(i) such processing being necessary for the purposes of the legitimate interests of the Company and each other Group Company in incentivising their officers and employees and operating the LTIP;

(ii) such processing being necessary for the purposes of any relevant data controller in respect of such personal data complying with its legal obligations; and

(iii) such processing being necessary for the performance of the contractual obligations arising under the LTIP.

The collection and processing of such personal data for such purposes is a contractual requirement of participation in the LTIP. Details in relation to the processing of such personal data referred to in this clause 21.4(d), and of the Participant's rights in connection with such processing, are available in the Global Employee Privacy Notice (or any similar provisions of any employee privacy policy or employee handbook) operated from time to time by any Group Company in respect of such Participant, and any such Participant may obtain such notice or policy from their employing company. In this clause 21.4(d), "personal data" and "data controller" each have the meaning given in EU Regulation 2016/679.

21.5 Error in Allocation

(a) If any Performance Share is provided under this LTIP in error or by mistake to a person (***Mistaken Recipient***) who is not the intended recipient, the Mistaken Recipient shall have no right or interest, and shall be taken never to have had any right or interest in that Performance Share and those Performance Shares will immediately lapse.

(b) If any cash payment is paid under this LTIP in error or by mistake to a person who is not the intended recipient (***Mistaken Recipient***), the Mistaken Recipient shall have no right to retain that cash payment and the Company may take whatever steps it deems reasonably necessary to seek repayment of that cash payment.

21.6 Dispute

Any disputes or differences of any nature arising under the LTIP will be referred to the Remuneration Committee and its decision will be final and binding in all respects.

21.7 Notices

Any notice or other communication under or in connection with the LTIP may be given by personal delivery or by sending it by post or fax or email, in the case of a company to its registered office (or any other address notified by that company from time to time (***Notified Address***)) or the fax number (if any) of that registered office (or Notified Address), and in the case of an individual to their last known address, fax number, email address or, if they are a director or employee of a Group Company, either to their last known address, fax number or to the address of the place of business at which they carry out all or most of their duties, or to the fax number or email address relating to that address.

21.8 Governing Law

This LTIP and the rights of Eligible Employees and Participants under the LTIP are governed by the laws in force in the State of Victoria, Australia.

Exhibit 8.1

List of Subsidiaries

#	Company Name	Country
	Wholly owned subsidiaries	
1.	141 Union Company	United States of America
2.	Agnew Pastoral Company Pty Ltd	Australia
3.	Albion Downs Pty Limited	Australia
4.	Araguaia Participaçóes Ltda	Brazil
5.	BHP (AUS) DDS Pty Ltd	Australia
6.	BHP (Towage Services) Pty Ltd (a)(b)	Australia
7.	BHP Aluminium Australia Pty Ltd	Australia
8.	BHP Billiton (UK) DDS Limited	United Kingdom
9.	BHP Billiton (UK) Limited	United Kingdom
10.	BHP Billiton Brasil Ltda	Brazil
11.	BHP Billiton Company B.V.	Netherlands
12.	BHP Billiton Finance (USA) Limited	Australia
13.	BHP Billiton Finance B.V.	Netherlands
14.	BHP Billiton Finance Limited	Australia
15.	BHP Billiton Finance Plc	United Kingdom
16.	BHP Billiton Freight Singapore Pte Limited	Singapore
17.	BHP Billiton Group Limited	United Kingdom
18.	BHP Billiton Holdings Limited	United Kingdom
19.	BHP Billiton International Metals B.V.	Netherlands
20.	BHP Billiton International Services Limited	United Kingdom
21.	BHP Billiton International Trading (Shanghai) Co. Ltd	China
22.	BHP Billiton Marketing AG	Switzerland
23.	BHP Billiton Marketing Asia Pte Ltd	Singapore
24.	BHP Billiton Marketing UK Limited	United Kingdom
25.	BHP Billiton Petroleum Great Britain Limited	United Kingdom
26.	BHP Billiton Services Jersey Limited	Jersey
27.	BHP Billiton SSM Development Pty Ltd	Australia
28.	BHP Billiton SSM Indonesia Pte Ltd	Indonesia
29.	BHP Billiton Sustainable Communities	United Kingdom
30.	BHP Billiton Technology (Shanghai) Co Ltd	China
31.	BHP Billiton UK Holdings Limited	British Virgin Islands
32.	BHP Billiton UK Investments Limited	British Virgin Islands
33.	BHP BK Limited	United Kingdom
34.	BHP Canada Inc.	Canada
35.	BHP Capital No. 20 Pty Limited	Australia
36.	BHP Chile Inc.	United States of America
37.	BHP Chile Inversiones Limitada	Chile
38.	BHP Coal Pty Ltd (a)(b)	Australia
39.	BHP Copper Inc.	United States of America
40.	BHP Direct Reduced Iron Pty Limited (a)	Australia
41.	BHP Energy Coal Australia Pty Ltd	Australia
42.	BHP Escondida Inc.	United States of America
43.	BHP Exploration Chile SpA	Chile
44.	BHP Finance (International) Inc.	United States of America
45.	BHP Finance Limited	United Kingdom

46.	BHP Foreign Holdings Inc.	United States of America
47.	BHP Foundation	United States of America
48.	BHP Freight Pty Ltd [(a)]	Australia
49.	BHP Group (UK) Ltd	United Kingdom
50.	BHP Group Holdings Limited	United Kingdom
51.	BHP Group Operations Pty Ltd [(a)(b)]	Australia
52.	BHP Holdings (International) Inc.	United States of America
53.	BHP Holdings (USA) Inc.	United States of America
54.	BHP Holdings International (Investments) Inc.	United States of America
55.	BHP Holdings Limited	United Kingdom
56.	BHP Innovation Pty Ltd [(a)]	Australia
57.	BHP Internacional Participações Ltda	Brazil
58.	BHP International Finance Corp	United States of America
59.	BHP International Services Limited	United Kingdom
60.	BHP Investments Canada Inc	Canada
61.	BHP IO Mining Pty Ltd	Australia
62.	BHP IO Workshop Pty Ltd	Australia
63.	BHP Iron Ore Holdings Pty Ltd	Australia
64.	BHP Iron Ore Pty Ltd [(a)(b)]	Australia
65.	BHP Japan Limited	Japan
66.	BHP Lonsdale Investments Pty Ltd [(a)]	Australia
67.	BHP Manganese Australia Pty Ltd	Australia
68.	BHP Marine & General Insurances Pty Ltd	Australia
69.	BHP Marketing North America Inc.	United States of America
70.	BHP Marketing Services India Pvt Ltd	India
71.	BHP Marketing UK Limited	United Kingdom
72.	BHP Metals Exploration Pty Ltd	Australia
73.	BHP MetCoal Holdings Pty Ltd [(a)(b)]	Australia
74.	BHP Mineral Resources Inc.	United States of America
75.	BHP Minerals (Shanghai) Co., Ltd	China
76.	BHP Minerals Europe Limited	United Kingdom
77.	BHP Minerals Exploration Inc.	United States of America
78.	BHP Minerals Holdings Proprietary Limited [(a)(b)]	Australia
79.	BHP Minerals India Private Limited	India
80.	BHP Minerals International Exploration Inc.	United States of America
81.	BHP Minerals International LLC	United States of America
82.	BHP Minerals Pty Ltd [(a)(b)]	Australia
83.	BHP Minerals Service Company	United States of America
84.	BHP New Mexico Coal Inc.	United States of America
85.	BHP Nickel Operations Pty Ltd	Australia
86.	BHP Nickel West Pty Ltd [(a)(b)]	Australia
87.	BHP Olympic Dam Corporation Pty Ltd [(a)(b)]	Australia
88.	BHP Peru Holdings Inc.	United States of America
89.	BHP Pty Ltd	Australia
90.	BHP Queensland Coal Investments Pty Ltd	Australia
91.	BHP Queensland Coal Limited	United States of America
92.	BHP Resolution Holdings LLC	United States of America
93.	BHP Shared Business Services Pty Ltd	Australia
94.	BHP Shared Services Malaysia Sdn. Bhd.	Malaysia
95.	BHP SSM Indonesia Holdings Pty Ltd	Australia
96.	BHP SSM International Pty Ltd	Australia

97.	BHP Titanium Minerals Pty Ltd	Australia
98.	BHP Towage Services (Boodarie) Pty Ltd	Australia
99.	BHP Towage Services (Iron Brolga) Pty Ltd	Australia
100.	BHP Towage Services (Iron Corella) Pty Ltd	Australia
101.	BHP Towage Services (Iron Ibis) Pty Ltd	Australia
102.	BHP Towage Services (Iron Kestrel) Pty Ltd	Australia
103.	BHP Towage Services (Iron Osprey) Pty Ltd	Australia
104.	BHP Towage Services (Iron Whistler) Pty Ltd	Australia
105.	BHP Towage Services (Mallina) Pty Ltd	Australia
106.	BHP Towage Services (Mount Florance) Pty Ltd	Australia
107.	BHP Towage Services (RT Atlantis) Pty Ltd	Australia
108.	BHP Towage Services (RT Clerke) Pty Ltd	Australia
109.	BHP Towage Services (RT Darwin) Pty Ltd	Australia
110.	BHP Towage Services (RT Discovery) Pty Ltd	Australia
111.	BHP Towage Services (RT Endeavour) Pty Ltd	Australia
112.	BHP Towage Services (RT Enterprise) Pty Ltd	Australia
113.	BHP Towage Services (RT Imperieuse) Pty Ltd	Australia
114.	BHP Towage Services (RT Inspiration) Pty Ltd	Australia
115.	BHP Towage Services (RT Rotation) Pty Ltd	Australia
116.	BHP Towage Services (RT Sensation) Pty Ltd	Australia
117.	BHP Towage Services (RT Tough) Pty Ltd	Australia
118.	BHP WAIO Pty Ltd (a)(b)	Australia
119.	BHP Western Mining Resources International Pty Ltd	Australia
120.	BHP World Exploration Inc.	Canada
121.	BHP Yakabindie Nickel Pty Ltd (a)(b)	Australia
122.	Billiton Australia Finance Pty Ltd	Australia
123.	Billiton Development B.V.	Netherlands
124.	Billiton Executive Pension Scheme Trustee Limited	United Kingdom
125.	Billiton Guinea B.V.	Netherlands
126.	Billiton Investment 3 B.V.	Netherlands
127.	Billiton Investment 8 B.V.	Netherlands
128.	Billiton Investments Ireland Limited	Ireland
129.	Billiton Marketing Holding B.V.	Netherlands
130.	Billiton Suriname Holdings B.V.	Netherlands
131.	Broadmeadow Mine Services Pty Ltd (a)	Australia
132.	Carson Hill Gold Mining Corporation	United States of America
133.	Central Queensland Services Pty Ltd (a)	Australia
134.	Cerro-Quebrado S.A.	Ecuador
135.	Coal Mines Australia Pty Ltd	Australia
136.	Compañía Minera Cerro Colorado Limitada	Chile
137.	Consolidated Nominees Proprietary Limited	South Africa
138.	Global BHP Copper Ltd	Cayman Islands
139.	Hay Point Services Pty Limited (a)	Australia
140.	Hunter Valley Energy Coal Pty Ltd	Australia
141.	Jenipapo Recursos Naturais Ltda	Brazil
142.	Marcona International S.A.	Panama
143.	Minera Spence SA	Chile
144.	Mt Arthur Coal Pty Limited	Australia
145.	Mt Arthur Underground Pty Ltd	Australia
146.	OS ACPM Pty Ltd (a)(b)	Australia
147.	OS MCAP Pty Ltd (a)	Australia

148. Phoenix Mining Finance Company Proprietary Limited	South Africa
149. Pilbara Gas Pty Limited [a]	Australia
150. PT BHP Billiton Indonesia	Indonesia
151. PT Billiton Indonesia	Indonesia
152. RAL Cayman Inc.	Cayman Islands
153. Rio Algom Exploration Inc.	Canada
154. Rio Algom Investments (Chile) Inc.	Canada
155. Rio Algom Limited	Canada
156. Rio Algom Mining LLC	United States of America
157. Riocerro Inc.	Cayman Islands
158. Riochile Inc.	Cayman Islands
159. Stein Insurance Company Limited	Guernsey
160. Tamakaya Energia SpA	Chile
161. The Broken Hill Proprietary Company Pty Ltd [a][b]	Australia
162. UMAL Consolidated Pty Ltd [a][b]	Australia
163. United Iron Pty Ltd	Australia
164. Westminer Insurance Pte Ltd	Singapore
165. WMC (Argentina) Inc.	United States of America
166. WMC Corporate Services Inc.	United States of America
167. WMC Finance (USA) Limited	Australia
168. WMC Mineracao Ltda.	Brazil
Subsidiaries where effective interest is less than 100 per cent	
169. BHP Billiton (Philippines) Inc. (99.99%)	Philippines
170. BHP Iron Ore (Jimblebar) Pty Ltd (85%)	Australia
171. BHP Shared Services Philippines Inc. (99.99%)	Philippines
172. Cerro-Yatsur S.A. (51%)	Ecuador
173. Consórcio Santos Luz de Imóveis Ltda (90%)	Brazil
174. Kelti S.A. (57.5%)	Chile
175. Minera Escondida Ltda (57.5%)	Chile
176. QNI Philippines Inc. (99.99%)	Philippines
Joint operations	
177. Mt Goldsworthy (85%)	Australia
178. Mt Newman (85%)	Australia
179. Posmac (65%)	Australia
180. Yandi (85%)	Australia
181. Central Queensland Coal Associates (50%)	Australia
182. Gregory (50%)	Australia
183. BHP SaskPower Carbon Capture and Storage (CCS) Knowledge Centre Inc. (50%)	Canada
184. BM Alliance Coal Marketing Pty Limited (50%)	Australia
185. BM Alliance Coal Operations Pty Limited (50%)	Australia
186. BM Alliance Marketing Pte Ltd (50%)	Singapore
187. BMA Japan KK (50%)	Japan
188. South Blackwater Coal Pty Limited (50%)	Australia
189. SolGold Plc (13.56%)	United Kingdom
Joint ventures and associates	
190. Compañía Minera Antamina S.A. (33.75%)	Peru
191. Global HubCo B.V. (33.33%)	Netherlands
192. NCIG Holdings Pty Ltd (27.98%)	Australia
193. Resolution Copper Mining LLC (45%)	United States of America
194. RightShip Pty Limited (33.33%)	Australia
195. Samarco Mineração S.A. (50%)	Brazil
Minority Investments	
196. Commonwealth Steamship Insurance Company Pty Limited (29.72%)	Australia
197. Interstate Steamship Insurance Company Pty Ltd (24.91%)	Australia
198. Pilbara Pastoral Company Pty Limited (25%)	Australia
199. Ponta Ubu Agropecuária Ltda. (49%)	Brazil

[a] These companies are parties to the Limited Deed of Cross Guarantee (Deed) and members of the Closed Group as at 30 June 2022.

[b] These companies are parties to the Deed and are relieved from the Corporations Act 2001 requirements for preparation, audit and lodgement of financial reports and Directors' reports.

Exhibit 12.1

SECTION 302 CERTIFICATION

CEO Certification

I, Mike Henry, certify that:

1. I have reviewed this annual report on Form 20-F of BHP Group Limited (the "company");

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements and other financial information included in this report fairly present in all material respects the financial condition, results of operations and cash flows of the company as of, and for, the periods presented in this report;

4. The company's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d–15(f)) for the company and have:

    a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c) Evaluated the effectiveness of the company's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d) Disclosed in this report any change in the company's internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the company's internal control over financial reporting; and

5. The company's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the company's auditors and the audit committee of the company's board of directors (or persons performing the equivalent functions):

    a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the company's ability to record, process, summarise and report financial information; and

    b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the company's internal control over financial reporting.

/s/ Mike Henry

Name: Mike Henry
Title: Chief Executive Officer
Date: 6 September 2022

Exhibit 12.2

SECTION 302 CERTIFICATION

CFO Certification

I, David Lamont, certify that:

1. I have reviewed this annual report on Form 20-F of BHP Group Limited (the “company”);

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements and other financial information included in this report fairly present in all material respects the financial condition, results of operations and cash flows of the company as of, and for, the periods presented in this report;

4. The company’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d–15(f)) for the company and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the company’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the company’s internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the company’s internal control over financial reporting; and

5. The company’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the company’s auditors and the audit committee of the company’s board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the company’s ability to record, process, summarise and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the company’s internal control over financial reporting.

/s/ David Lamont

Name: David Lamont
Title: Chief Financial Officer
Date: 6 September 2022

Exhibit 13.1

SECTION 906 CERTIFICATION

Pursuant to section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of section 1350, chapter 63 of title 18, United States Code) in connection with the annual report on Form 20-F of BHP Group Limited, (the "Company") for the annual period ended 30 June 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned officer of the Company hereby certifies, to such officer's knowledge, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Mike Henry

Name: Mike Henry
Title: Chief Executive Officer
Date: 6 September 2022

This certification accompanies the Report pursuant to § 906 of the Sarbanes-Oxley Act of 2002 and shall not, except to the extent required by the Sarbanes-Oxley Act of 2002, be deemed "filed" by the Company for purposes of §18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liability of that section.

Exhibit 13.2

SECTION 906 CERTIFICATION

Pursuant to section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of section 1350, chapter 63 of title 18, United States Code) in connection with the annual report on Form 20-F of BHP Group Limited, (the "Company") for the annual period ended 30 June 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned officer of the Company hereby certifies, to such officer's knowledge, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ David Lamont

Name: David Lamont
Title: Chief Financial Officer
Date: 6 September 2022

This certification accompanies the Report pursuant to § 906 of the Sarbanes-Oxley Act of 2002 and shall not, except to the extent required by the Sarbanes-Oxley Act of 2002, be deemed "filed" by the Company for purposes of §18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liability of that section.

Exhibit 15.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

(1) Registration Statement (Form S-8 No. 333-227431) pertaining to the BHP Billiton Limited Executive Incentive Plan and the BHP Billiton Limited Global Employee Share Plan,

(2) Registration Statement (Form S-8 No. 333-100496) pertaining to the BHP Billiton Ltd Executive Incentive Plan and Group Short Term Incentive Plan,

(3) Registration Statement (Form S-8 No. 333-141531) pertaining to the BHP Billiton Limited Global Employee Share Plan, and

(4) Registration Statement (Form S-8 No. 333-160636) pertaining to the BHP Billiton Limited Group Incentive Scheme;

of our reports dated 6 September 2022, with respect to the consolidated financial statements of BHP Group Limited, and the effectiveness of internal control over financial reporting of BHP Group Limited included in this Annual Report (Form 20-F) of BHP Group Limited for the year ended 30 June 2022.

/s/ Ernst & Young
Melbourne, Australia
6 September 2022

Exhibit 15.2

CONSENT OF QUALIFIED PERSON

I, Rodrigo Maureira, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary – Minera Escondida Limitada" (the "Technical Report Summary"), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333-100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 17, 2022

/s/ Rodrigo Maureira

Name: Rodrigo Maureira, MAusIMM
Title: Senior Geologist
Minera Escondida Limitada

CONSENT OF QUALIFIED PERSON

I, Francisco Barrera, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary – Minera Escondida Limitada" (the "Technical Report Summary"), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333-100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 18, 2022

/s/ Francisco Barrera

Name: Francisco Barrera, MAusIMM
Title: Superintendent Long Term Planning
Minera Escondida Limitada

CONSENT OF QUALIFIED PERSON

I, Andres Naranjo, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary – Minera Escondida Limitada" (the "Technical Report Summary"), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 17, 2022

/s/ Andres Naranjo

Name: Andres Naranjo, MAusIMM
Title: Superintendent Asset Resource Management
Minera Escondida Limitada

CONSENT OF QUALIFIED PERSON

I, Andrés Salazar, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary – Minera Escondida Limitada" (the "Technical Report Summary"), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 17, 2022

/s/ Andrés Salazar

Name: Andrés Salazar, MAusIMM
Title: Senior Geologist
Minera Escondida Limitada

CONSENT OF QUALIFIED PERSON

I, Carlos Delgado, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary – Minera Escondida Limitada" (the "Technical Report Summary"), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 17, 2022
/s/ Carlos Delgado

Name:	Carlos Delgado, MAusIMM
Title:	Superintendent Geometallurgy
	Minera Escondida Limitada

CONSENT OF QUALIFIED PERSON

I, Fernando Villegas, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the “Form 20-F”), consent to:

- the filing and use of the technical report summary titled “Technical Report Summary – Minera Escondida Limitada” (the “Technical Report Summary”), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or “qualified person” (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 17, 2022
/s/ Mr. Fernando Villegas

Name:	Fernando Villegas, AusIMM REF:0087215
	Asset Practice Lead – Geotechnical
Title:	Hydrogeology & Tailings
	Minera Escondida Limitada

Exhibit 15.3

CONSENT OF QUALIFIED PERSON

I, Fleur Muller, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary – Western Australia Iron Ore" (the "Technical Report Summary"), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 22, 2022
/s/ Fleur Muller

Name:	Fleur Muller, MAusIMM
Title:	Superintendent Strategic Modelling Western Australia Iron Ore BHP

CONSENT OF QUALIFIED PERSON

I, Ashley Grant, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary – Western Australia Iron Ore" (the "Technical Report Summary"), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarized, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular section[s] identified in the Technical Report Summary as having been prepared by me and the corresponding section[s] of the Executive Summary.

Date: August 18, 2022
/s/ Ashley Grant

Name: Ashley Grant, MAusIMM
Title: Superintendent Geophysics and Geochemistry
Western Australia Iron Ore
BHP

CONSENT OF QUALIFIED PERSON

I, Alex Greaves, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary – Western Australia Iron Ore" (the "Technical Report Summary"), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarized, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular section[s] identified in the Technical Report Summary as having been prepared by me and the corresponding section[s] of the Executive Summary.

Date: August 23, 2022
/s/ Alex Greaves

Name: Alex Greaves, MAusIMM
Title: Superintendent Mine Planning
Western Australia Iron Ore
BHP

CONSENT OF QUALIFIED PERSON

I, Chris Burke, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary – Western Australia Iron Ore" (the "Technical Report Summary"), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarized, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 17, 2022
/s/ Chris Burke

Name: Chris Burke, MAusIMM (CP)
Title: Superintendent Mine Planning
Western Australia Iron Ore
BHP

CONSENT OF QUALIFED PERSON

I, Anastasia Balueva, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the “Form 20-F”), consent to:

- the filing and use of the technical report summary titled “Technical Report Summary – Western Australia Iron Ore” (the “Technical Report Summary”), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or “qualified person” (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarized, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular section[s] identified in the Technical Report Summary as having been prepared by me and the corresponding section[s] of the Executive Summary.

Date: August 23, 2022
/s/ Anastasia Balueva

Name: Anastasia Balueva, MAusIMM
Title: Superintendent Mine Planning
Western Australia Iron Ore
BHP

Exhibit 15.4

CONSENT OF QUALIFIED PERSON

I, Balázs Németh, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary – Jansen" (the "Technical Report Summary"), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 19, 2022

/s/ Balázs Németh

Name: Balazs Németh, MAusIMM
Title: Principal Geophysicist
BHP

CONSENT OF QUALIFIED PERSON

I, Ozen Turkekul, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the “Form 20-F”), consent to:

- the filing and use of the technical report summary titled “Technical Report Summary – Jansen” (the “Technical Report Summary”), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or “qualified person” (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 22, 2022

/s/ Ozen Turkekul

Name: Ozen Turkekul, APEGS
Title: Principal Geologist
BHP

CONSENT OF QUALIFIED PERSON

I, Johannes Sondergaard, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the “Form 20-F”), consent to:

- the filing and use of the technical report summary titled “Technical Report Summary – Jansen” (the “Technical Report Summary”), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or “qualified person” (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 22, 2022

/s/ Johannes Sondergaard

Name: Johannes Sondergaard, MAusIMM
Title: Manager Resource Engineering
BHP

CONSENT OF QUALIFIED PERSON

I, Bibek Shrestha, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the “Form 20-F”), consent to:

- the filing and use of the technical report summary titled “Technical Report Summary – Jansen” (the “Technical Report Summary”), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or “qualified person” (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 19, 2022

/s/ Bibek Shrestha

Name: Bibek Shrestha, MAusIMM
Title: Specialist Hydrogeology
BHP

CONSENT OF QUALIFIED PERSON

I, Cameron McKinnon, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary – Jansen" (the "Technical Report Summary"), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 19, 2022

/s/ Cameron McKinnon

Name: Cameron McKinnon, APEGS
Title: Manager Process Engineering
BHP

CONSENT OF QUALIFIED PERSON

I, Darren Madsen, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary – Jansen" (the "Technical Report Summary"), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 18, 2022

/s/ Darren Madsen

Name: Darren Madsen, APEGS
Title: Principal Mining Engineer
BHP

CONSENT OF QUALIFIED PERSON

I, Greg Gauld, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary – Jansen" (the "Technical Report Summary"), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 22, 2022

/s/ Greg Gauld

Name: Greg Gauld, APEGS
Title: Head of Production
BHP

CONSENT OF QUALIFIED PERSON

I, Jacques Ouellet, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the “Form 20-F”), consent to:

- the filing and use of the technical report summary titled “Technical Report Summary – Jansen” (the “Technical Report Summary”), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or “qualified person” (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 22, 2022

/s/ Jacques Ouellet

Name: Jacques Ouellet, APEGS
Title: Principal Shaft & Hoisting
BHP

CONSENT OF QUALIFIED PERSON

I, Manjula Dissanayake, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the “Form 20-F”), consent to:

- the filing and use of the technical report summary titled “Technical Report Summary – Jansen” (the “Technical Report Summary”), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or “qualified person” (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 20, 2022

/s/ Manjula Dissanayake

Name: Manjula Dissanayake, Ph.D., MRICS
Title: Manager Project Controls & Analysis
BHP

CONSENT OF QUALIFED PERSON

I, Melanie Failler, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary – Jansen" (the "Technical Report Summary"), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarised, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333- 100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: August 29, 2022

/s/ Melanie Failler

Name: Melanie Failler, ASPB
Title: Superintendent Environment
BHP

CONSENT OF QUALIFIED PERSON

We, SNC-Lavalin, in connection with the annual report on Form 20-F for the year ended June 30, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary – Jansen" (the "Technical Report Summary"), with an effective date of June 30, 2022, as an exhibit to and referenced in the Form 20-F;
- the use of and references to our name, including our status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarized, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by us, that we supervised the preparation of and/or that was reviewed and approved by us, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statements on Form S-8 (File Nos. 333-227431, 333-100496, 333-141531 and 333-160636) of the above items as included in the Form 20-F.

We are responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by us.

Date: August 24, 2022

/s/ SNC-Lavalin

SNC-Lavalin

Exhibit 96.1

BHP

Title: Technical Report Summary – Minera Escondida Limitada

SEC S-K 229.1300 Technical Report Summary

Stage of Property: Production/Pre-Feasibility Study

Property: Minera Escondida Limitada

Location: Antofagasta Region, Chile

Report Prepared for

BHP Group Limited

(ABN 49 004 028 077)

171 Collins Street, Melbourne
VICTORIA 3000, AUSTRALIA

Report Prepared by:

Qualified Person	Specific Type of Activity and Area of Accountability	Signature	Date
Rodrigo Maureira	Mineral Resources – Chapter 8, 9 and 11 in full, Chapter 7 excluding Sections 7.3 and 7.4, and Chapter 1-5 and 20-25 jointly with Mineral Reserve QP	/s/Rodrigo Maureira	June 30, 2022
Francisco Barrera	Mineral Reserves – Chapter 12, 15, 16, 18 and 19 in full, Chapter 13 excluding 13.3.1 and 13.3.2, and Chapter 1- 5 and 20-25 jointly with Mineral Resources QP	/s/Francisco Barrera	June 30, 2022
Andres Salazar	Geology – Chapter 6 in full	/s/Andres Salazar	June 30, 2022
Fernando Villegas	Geotechnical & Hydrogeology (Sections 7.3 and 7.4), Hydrogeology (Section 13.3.2), Pit Geotechnical (Section 13.3.1), Tailings Management (Section 17.2.1)	/s/Fernando Villegas	June 30, 2022
Carlos Delgado	Mineral Processing and Metallurgical Testing – Chapter 10 in full Processing and Recovery Methods - Chapter 14 in full	/s/Carlos Delgado	June 30, 2022
Andres Naranjo	Infrastructure Chapter 15 in full Environmental Studies, Permitting, Plans and Agreements – Chapter 17 excluding Section 17.2.1	/s/Andres Naranjo	June 30, 2022

Note regarding Forward-Looking Statements

This Technical Report Summary (TRS) contains forward-looking statements, including: statements regarding trends in commodity prices and currency exchange rates; demand for commodities; reserves, resources and production forecasts; plans, strategies and objectives of management; climate scenarios; approval of certain projects and consummation of certain transactions; closure or divestment of certain assets, operations or facilities (including associated costs); anticipated production or construction commencement dates; capital costs and scheduling; operating costs and supply of materials and skilled employees; anticipated productive lives of projects, mines and facilities; provisions and contingent liabilities; and tax and regulatory developments.

Forward-looking statements may be identified by the use of terminology including, but not limited to, 'intend', 'aim', 'project', 'see', 'anticipate', 'estimate', 'plan', 'objective', 'believe', 'expect', 'commit', 'may', 'should', 'need', 'must', 'will', 'would', 'continue', 'forecast', 'guidance', 'trend' or similar words. These statements discuss future expectations concerning the results of assets or financial conditions, or provide other forward-looking information.

Forward-looking statements are based on current expectations and reflect judgments, assumptions, estimates and other information available as at the date of this TRS. These statements do not represent guarantees or predictions of future financial or operational performance and involve known and unknown risks, uncertainties and other factors, many of which are beyond Minera Escondida Ltda's control and which may cause actual results to differ materially from those expressed in the statements contained in this TRS. Readers are cautioned against reliance on any forward-looking statements or guidance, including in light of the current economic climate and the significant volatility, uncertainty and disruption arising in connection with COVID-19. Other factors that may affect actual results are set out in BHP's reports that are filed with, and furnished to, the U.S. Securities and Exchange Commission, including BHP's latest Annual Report on Form 20-F for the period ended June 30, 2022.

Except as required by applicable regulations or by law, BHP does not undertake to publicly update or review any forward-looking statements, whether as a result of new information or future events.

The production schedule data included in Sections 13 and 19 of this TRS has been prepared to demonstrate the economic viability of the mineral reserves of the Minera Escondida Limitada property only and may differ from production guidance published by BHP from time to time in accordance with the relevant ASX Listing Rules. See Sections 11, 12, 16, 17, 18 and 19 for more information on the pricing and cost assumptions utilised to produce Minera Escondida Limitada production schedule data in this TRS.

Specifically, the production schedule data for the entire life of mineral reserves included in Sections 13 and 19 of this TRS has been prepared utilising the median of historical monthly average commodity prices and the average of annual costs for the preceding three financial years (1 July 2018 to 30 June 2021), whereas BHP's forward production and cost guidance published in accordance with the ASX Listing Rules are prepared utilising BHP's internally generated projected long-term commodity prices and cost assumptions. Therefore, the production schedule data included in this TRS may differ from BHP's production guidance published in accordance with the ASX Listing Rules.

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List of Abbreviations

The metric system has been used throughout this Report. Tonnes are metric of 1,000 kg, or 2,204.6 lb. All currency is in U.S. dollars (US$) unless otherwise stated.

Abbreviation	Unit or Term
#	Mesh
%	percent
°	degree (degrees)
°C	degrees Centigrade
°F	degrees Fahrenheit
µm	micron or microns
A	ampere
A/m2	amperes per square metre
AAS	atomic absorption
Ag	silver
amsl	above mean sea level
ANFO	ammonium nitrate fuel oil
Ar / Ar	Argon / Argo dating
ARG	Argillic
As	Arsenic
ATV	Acoustic Televiewer
Au	gold
AuEq	gold equivalent grade
BHP	BHP
BIO	Biotite
BK_NN	Nearest Neighbour block model
BK_OK	Ordinary kriging block model
BWi	Bond Work Index
bwi	Bond Work Index (Kwh/ton)
CCD	counter-current decantation
CF	Physical Composites
cfm	cubic feet per minute
CIL	carbon-in-leach
cm	centimetre
cm^2	square centimetre
cm^3	cubic centimetre
CoG	cut-off grade
ConfC	confidence code
CRec	core recovery
CRM	certified reference material
CSA	copper sulphide abundance
cspcc	Copper grade from Chalcocite (%)
cspcpy	Copper grade from Chalcopyrite (%)
cspcv	Copper grade from Covellite (%)
CSS	closed-side setting
CTW	calculated true width
DDH	diamond drill hole
densidad	Dry Density
dia.	diameter
ED	Estimation Domain
EDXRF	energy-dispersive X-ray fluorescence
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
FA	fire assay
FCAB	Ferrocarril de Antofagasta a Bolivia
Fe	Iron
Ferronor	Empresa de Ferrocarriles del Norte Grande
FF	Frequency Fracture

Abbreviation	Unit or Term
ft	foot (feet)
ft^2	square foot (feet)
ft^3	cubic foot (feet)
FY	fiscal year
g	gram
g/L	gram per litre
g/t	grams per tonne
gal	gallon
g-mol	gram-mole
gpm	gallons per minute
ha	hectares
HDPE	Height Density Polyethylene
HE	High Enrichment
hp	horsepower
HTW	horizontal true width
ICP	induced couple plasma
ID2	inverse-distance squared
ID3	inverse-distance cubed
IFC	International Finance Corporation
ILS	Intermediate Leach Solution
IRS	Intact Rock Strength
IT	Indirect Traction
kA	kiloamperes
kg	kilograms
km	kilometre
km^2	square kilometre
koz	thousand troy ounce
kt	thousand tonnes
ktpd	thousand tonnes per day
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hour
kWh/t	kilowatt-hour per metric tonne
L	litre
L/s	litres per second
L/s/m	litres per second per metre
lb	pound
LE	Low Enrichment
LHD	Long-Haul Dump truck
Lix	Leach
LLDDP	Linear Low Density Polyethylene Plastic
LOA	Life of Asset
LOI	Loss On Ignition
LOM	Life-of-Mine
m	metre
m.y.	million years
M1	ore type
M2	ore type
m^2	square metre
m^3	cubic metre
Ma	Million years ago
MARN	Ministry of the Environment and Natural Resources
MDA	Mine Development Associates
MEL	Minera Escondida Ltda.
mg/L	milligrams/litre
mm	millimetre
mm^2	square millimetre
mm^3	cubic millimetre

Abbreviation	Unit or Term
MME	Mine & Mill Engineering
Mo	Molybdenum
Moz	million troy ounces
MRC	moisture retention characteristics
Mt	million tonnes
MTW	measured true width
MW	million watts
N	North
NGO	non-governmental organisation
NI 43-101	Canadian National Instrument 43-101
OC	Open cut mining method
OK	Ordinary Kriging
OSC	Ontario Securities Commission
oz	troy ounce
P80	Milling product size product size 150 microns
PLC	Programmable Logic Controller
PLS	Pregnant Leach Solution
PMF	probable maximum flood
POT	Potassic
PPAs	Power Purchase Agreements
ppb	parts per billion
ppm	parts per million
PtXt	Partial Extraction
Py	Pyrite (%)
QA/QC	Quality Assurance/Quality Control
QP	Qualified Person
QSC	Quartz sericite clay
RC	Reverse circulation drilling
rec	Recovery
rec_flc	Flotation recovery for Los Colorados concentrator (%)
rec_fls	Flotation recovery for Laguna Seca concentrator (%)
rec_lixaci	Acid leach recovery (%)
rec_sl_350	Sulphide leach recovery (%)
ROM	Run-of-Mine
RQD	Rock Quality Description
RRR&R	Risk Review Resources and Reserves
RS	Oxidation Ratio
s2	Sulphur (%)
SAG	Semi-autogenous grinding mills
SCC	Sericite chlorite clay
SCu	Soluble copper (%)
SEC	U.S. Securities & Exchange Commission
sec	second
SG	specific gravity
SGV	Green grey sericite
SMU	Selective Mine Unit
SPI	SAG Power Index
spi	Sag Power Index (min)
SPT	standard penetration testing
st	short ton (2,000 pounds)
t	tonne (metric ton) (2,204.6 pounds)
TCS	Triaxial Compression
TCu	Total Copper
TCu	Total Copper (%)
tpd	tonnes per day
tph	tonnes per hour
TPH	Tonnes per hour
TRS	Technical Report Summary

Abbreviation	Unit or Term
TSF	tailings storage facility
TSP	total suspended particulates
UCS	Uniaxial Compression
UG	Underground mining method
UG DUR	Hardness estimation domain
UG REC	Recovery estimation domain
U-Pb	Uranium Lead dating
US$ M	United States Dollars (millions)
UTM	Universal Transverse Mercator coordinates
U.T.M.	Unidad Tributaria Mensual - a Chilean state tax unit being valued in Chilean Pesos (CLP)
V	volts
VFD	variable frequency drive
W	watt
XRD	x-ray diffraction
y	year

1 Executive Summary

This report was prepared as a Pre-Feasibility Study-level Technical Report Summary (TRS) in accordance with the Securities and Exchange Commission (SEC) S-K regulations (Title 17, Part 229, Sections 601 and 1300 until 1305) for BHP Group Limited (BHP) on the Minera Escondida Ltda. property (MEL).

BHP Group Limited has a 57.5% ownership of MEL, a joint venture with Rio Tinto (30%) and Japan-based JECO Corp (12.5%). MEL is the operator of the Escondida property which comprises two open pits, three sulphide concentrator plants, two leaching plants and associated infrastructure. The Escondida property has been in operation continuously since production start-up in late 1990 and its capacity has since been increased through a number of phased expansions.

1.1 Property Description

The Escondida property mine site is located in the Atacama Desert of northern Chile approximately 170 km south-east of Antofagasta at a general elevation of 3,100 m above mean sea level (amsl). The mine site and associated infrastructure is located within Chile's II (Second) Region. Antofagasta is the regional capital city and an important port city for the mining industry located in the region.

The Escondida property currently mines two copper deposits of very similar characteristics, Escondida and Escondida Norte, being mined by open pit mining methods. Escondida is significantly larger than Escondida Norte and the two deposits are separated by less than 10 km: Escondida is located at approximately latitude 24°16' south / longitude 69° 04' west and Escondida Norte at approximately latitude 24°13' south / longitude 69° 03' west (Figure 1-1).

1.2 Geology and Mineralization

Both Escondida and Escondida Norte are porphyry copper deposits, being the deposit type typical of the majority of Chilean/Andean copper deposits. The deposits lie in the Escondida-Sierra de Varas shear lens of the Domeyko Fault System. The deposits are supergene-enriched copper porphyries with primary mineralisation associated with multiple phase intrusions of monzonite to granodiorite composition into host volcanics. The deposits are related geographically and geologically to porphyry bodies intruded along a regional lineament which exerts strong control over the regional distribution of deposits of this age and type.

An important aspect of the MEL deposits is the "supergene enrichment" which has concentrated copper in the upper parts of the mineralised system as a result of natural uplift and weathering processes resulting from the geological evolution of the Atacama Desert region. This process both concentrated copper into certain zones (supergene enrichment), whilst also locally oxidising sulphide minerals to oxide minerals (oxidation) and resulted in the Escondida district presenting both elevated copper grades and a zone nature presenting a range of different copper mineralized zones. This resulting zonation presents a general layered nature with a localised discontinuous "secondary oxide" zone overlying a more continuous enriched or "supergene sulphide" zone which in turn overlies a thicker "hypogene sulphide" zone extending to depth. Pre-mining, the start of copper mineralisation was generally located at approximately 150 to 200 m depth below surface.

Copper oxide minerals are principally brochantite, antlerite, and chrysocolla along with iron oxides. Supergene zone minerals are dominated by the copper mineral chalcocite with lesser covellite and chalcopyrite occurring with the ubiquitous iron sulphide mineral pyrite. The hypogene sulphide zone is dominated by chalcopyrite and pyrite, with lesser bornite. The hypogene zone copper grades range between 0.2% and 1% copper. The enrichment zone presented copper grade of up to 4% as a result of the supergene enrichment.

Source: MEL (2022)

Figure 1-1: Location of MEL Mine with Road Access

1.3 Existing Infrastructure

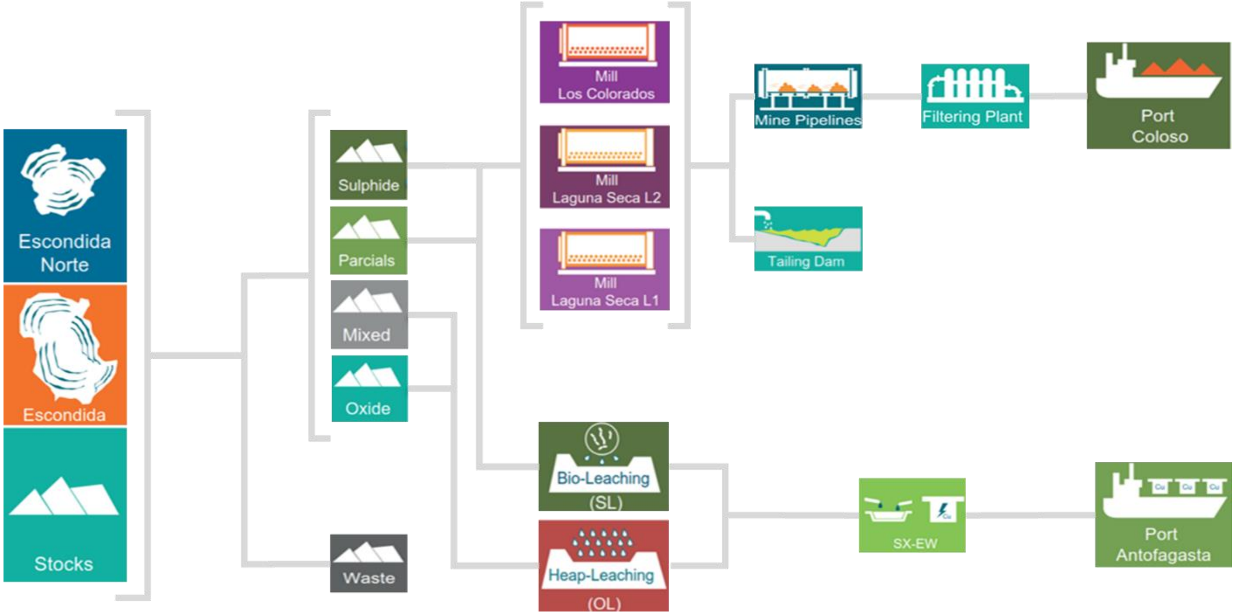
MEL has company-owned infrastructure distributed over a large area of the Antofagasta region reflecting the magnitude of its operational activities. This includes mineral extraction from two open pits, three sulphide concentrator plants, two leaching plant processes which feed a copper cathode production plant, two seawater desalination plants, a tailings storage facility, along with support and service facilities. These are summarised schematically in Figure 1-2.

The concentrator plants are similar in terms of installed process technology and consist of primary grinding using semi autogenous mills (SAG), secondary milling using ball mills, rougher flotation circuits using conventional cells and cleaner flotation circuits using column cells. Details of the installed equipment can be found in Chapter 14.

The leaching plants employ conventional solvent extraction-electrowinning (SX-EW) technology to produce cathode copper metal from copper bearing leach solutions from each of the sulphide leach and oxide leach operations. Oxide ore is crushed and graded for sulphuric acid heap leaching on a dynamic ("on-off") leaching pad. Sulphide ore is hauled from the open pits and deposited as run of mine (ROM) for acid bioleaching on permanent leach pads.

Copper concentrates are pumped from the MEL operation via two pipelines each approximately 170 km length to Coloso port for filtering, stockpiling, and shipping.

The facilities at Coloso port are dedicated to dewatering using six pressurized filters, which reduce the moisture content to an average of 9% after arrival at the pipeline discharge. Effluent is treated and pumped to the mine site for reutilization. Copper cathode is transported by rail to public ports at Antofagasta.



Source: MEL (2022)

Figure 1-2: Schematic of MEL Operations and Infrastructure

1.4 Mineral Tenure

MEL holds mining concessions in accordance with the current mining laws and national constitution of Chile. A mining concession allows the concession holder to mine the area indefinitely, dependent upon an annual payment of the corresponding license fees. All leases were obtained through the legally established process in which judicial requests are presented to the Chilean state. This legal framework gives MEL exclusive exploration and exploitation rights for all minerals in these concessions and therefore the ability to declare ownership of the mineral resources and mineral reserves reported herein.

MEL holds 764 mining concessions, covering a total area of 406,018 hectares (ha). There are 18 principal mining concessions that provide MEL with the right to explore and mine. These principal concessions, including both the Escondida and Escondida Norte deposits, are listed in Table 1-1. The location and boundaries of these mining concessions are shown in Figure 3-1 of Chapter 3.

In addition to mining concessions, Chilean law regulates the rights to use the land surface. These rights allow physical occupation and transit and are required in order to facilitate mining activity such as: the excavation of pits, accumulation of dumps, construction and use of leaching pads, deposition of tailings storage facilities and the construction of metallurgical processing plants, amongst others. MEL owns 155,000 ha of surface rights and these are also renewable on an annual basis which cover both current and foreseeable requirements for the operation. These rights are also obtained through legal process presented to the Chilean state and potentially to other third party owners, including the Chilean "*Consejo* *de Defensa del Estado*" as required. Surface rights are also renewed by the existing holder on an annual basis. The surface rights considered to be most significant to MEL's operations are listed in Table 1-2.

Table 1-1: MEL Main Mining Concessions

Number	Lease Name	Company Name	Expiry Date	Surface Area (hectares)	Annual Rent and Rate1 (U.T.M.)2
1	Alexis 1/1424	Minera Escondida Ltda.	Permanent	7,059	705.9
2	Amelia 1/1049	Minera Escondida Ltda.	Permanent	5,235	523.5
3	Catita 1/376	Minera Escondida Ltda.	Permanent	1,732	173.2
4	Claudia 1/70	Minera Escondida Ltda.	Permanent	557	55.7
5	Colorado 501/977	Minera Escondida Ltda.	Permanent	2,385	238.5
6	Costa 1/1861	Minera Escondida Ltda.	Permanent	9,159	915.9
7	Donaldo 1/612	Minera Escondida Ltda.	Permanent	3,060	306.0
8	Ela 1/100	Minera Escondida Ltda.	Permanent	500	50.0
9	Gata 1 1/100	Minera Escondida Ltda.	Permanent	400	40.0
10	Gata 2 1/50	Minera Escondida Ltda.	Permanent	200	20.0
11	Guillermo 1/368	Minera Escondida Ltda.	Permanent	1,785	178.5
12	Hole 14	Minera Escondida Ltda.	Permanent	1	0.1
13	Naty 1/46	Minera Escondida Ltda.	Permanent	230	23.0
14	Paola 1/3000	Minera Escondida Ltda.	Permanent	15,000	1,500.0
15	Pista 1/22	Minera Escondida Ltda.	Permanent	22	2.2
16	Pistita 1/5	Minera Escondida Ltda.	Permanent	9	0.9
17	Ramón 1/640	Minera Escondida Ltda.	Permanent	3,200	320.0
18	Rola 1/1680	Minera Escondida Ltda.	Permanent	8,400	840.0
TOTAL				**58,934**	**5,893**

[1] The 2022 rate is 0.1 U.T.M. (Unidad Tributaria Mensual - which is a Chilean state tax unit being valued in Chilean Pesos (CLP) per ha.

[2] Annual payments are made at end of the Chilean tax year (end March) for mining concession in U.T.M. The total annual payment for 2022 which supports this this group of concessions in March 2022 was equivalent to MCLP $327 (million Chilean Pesos) or approximately US$ 400,000 (U.T.M./CLP 55,537 and USD/CLP 787 as of 31st March 2022 (Source: Central Bank of Chile). This payment is that which confirms mining and extraction rights as of 30 June 2022.

Table 1-2: MEL Main Surface Rights

Infrastructure items covered	Unique Surface Rights Identifier1					Area (hectares)
	Folio	Number	Year	Register	Regional Office	
Pits, Waste Dumps, Leach Pads, Plants	619 V	964	1984	Hipotecas y Gravámenes	Bienes Raíces Antofagasta	22,084
Energy Transmission Lines, Aqueducts, Mineral Pipelines, Roads	1121 V	1117	2018	Hipotecas y Gravámenes	Bienes Raíces Antofagasta	26,988

[1] As defined by Chilean legal requirements

MEL also holds maritime concessions for the Coloso Port facilities. These concessions are requested through submission of the proposed project to the Chilean Ministry of Defence and are awarded by legal decree.

1.5 Royalties

BHP does not hold any royalty in the MEL property in addition to its economic interest of 57.5%. Likewise no royalty streams exist for any of the other shareholders.

1.6 Present Condition of the Property

The MEL property is a production stage property actively operating two open cut pits, Escondida and Escondida Norte. Surface mining is by drilling and blasting along with shovel/excavator loading and truck haulage from each of the two open pits. Extracted sulphide ore undergoes crushing prior to processing in one of three concentrators with concentrate piped to the Coloso Port for export. Lower grade sulphide ore is directly deposited onto run of mine (ROM) leach pads and is processed by acid bioleaching. Oxide and minor mixed ore are processed using acid heap leaching. Copper cathode from the leaching processes is transported by rail to third party operated ports.

Resource definition activities are continuous and ongoing to upgrade the geological characterisation that informs mineral resources estimation which in turns underpins the annual planning processes and mineral reserves estimation. The area around the current MEL operation has been extensively mapped, sampled, and drilled during over three decades of exploration work.

Construction commenced on the Escondida property in 1988 with first production in 1990. There then followed a number of expansion phases from 1993 onwards which included the development of additional infrastructure to increase production. Initially these were expansions to the single Los Colorados concentrator, but subsequently to other production infrastructure when in 1998 production of cathodes from the leaching of oxide ore was commenced. The Phase 4 concentrator and tailings storage facility were then inaugurated in 2002. Key milestones subsequent to first production in 1990 regarding the development of the operations were:

- 1998 Acid heap leaching of oxides commenced
- 2002 Second concentrator (Phase 4) inaugurated
- 2005 Mining commenced at Escondida Norte
- 2006 Dump bio-leaching of sulphides commenced
- 2007 First desalination plant commenced pumping
- 2016 Third concentrator (OGP1) inaugurated
- 2017 Second desalination plant commenced pumping
- 2020 Operation converted to 100% use of desalination water

The operations undertake planned maintenance programs and implement scheduled replacement of mine fleet and infrastructure components that is intended to maintain the continued reliable operation of equipment, facilities and infrastructure to meet operational requirements.

1.7 History of previous operations

Minera Escondida Limitada (MEL) operates the Escondida property. Current ownership, which has been stable since 2010 is BHP (57.5%), Rio Tinto (30%), JECO Corporation (10%) and JECO 2 Limited (2.5%).

Utah International Inc. (Utah) and Getty Oil Co. (Getty) commenced geochemical exploration in the region in 1978 which led to the discovery of Escondida deposit in 1981. In 1984 through corporate acquisitions, BHP acquired the Escondida property. Ownership changed in 1985 to a joint venture between BHP (57.5%), Rio Tinto Zinc (30%), JECO Corporation (10%) and World Bank (2.5%).

The current joint venture undertook all the subsequent exploration and development work to bring MEL into operation at the end of 1990.

1.8 Significant Encumbrances to the Property

The QP is not aware of any significant encumbrances that would impact the current mineral resources or mineral reserves disclosure as presented herein in any material respect.

1.9 Summary of All Mineral Resources and Mineral Reserves

The mineral resources estimate has been prepared using industry accepted practice and conforms to the disclosure requirements of the SEC S-K 1300 Regulations. Although all the technical and economic issues likely to influence the prospect of economic extraction of the resource are anticipated to be resolved under the stated assumed conditions, no assurance can be given that the estimated mineral resources will become proven and probable mineral reserves. The mineral resources estimate includes both the Escondida and Escondida Norte deposits.

The mineral reserves estimates are based on a Life of Mine (LoM) plan that has been developed according to SEC S-K 1300 Regulations and has been developed using industry accepted strategic planning approaches which defined the life of the mines on the Escondida property. Inferred mineral resources have been treated as waste. The final reserves plan is the outcome of the application of appropriate modifying factors in order to establish an economically viable and operational mine plan. At the Escondida property a variable cut-off grade strategy is applied to develop the mine plan. The mineral reserves estimate includes both the Escondida and Escondida Norte deposits.

The details of the relevant modifying factors included in the estimation of mineral resources and mineral reserves are discussed in Chapter 11 and Chapter 12 respectively.

- Mineral resources estimates for MEL at the end of the Fiscal Year Ended 30 June 2022 are provided in Table 1-3.
- Mineral reserves estimates for MEL at the end of the Fiscal Year Ended 30 June 2022 are provided in Table 1-4.

Table 1-3: Escondida Property BHP Ownership Basis (57.5%) – Summary of Mineral Resources Exclusive of Mineral Reserves as of 30th June 2022

Copper Chile Escondida	Mining Method	Measured Resources		Indicated Resources		Measured + Indicated Resources		Inferred Resources	
		Tonnage	Quality	Tonnage	Quality	Tonnage	Quality	Tonnage	Quality
		Mt	%Cu	Mt	%Cu	Mt	%Cu	Mt	%Cu
Oxide	OC	4.0	0.48	5.0	0.47	9.0	0.48	2.0	0.75
Mixed	OC	4.0	0.53	9.0	0.44	13	0.47	11	0.49
Sulphide	OC	596	0.49	1,020	0.49	1,620	0.49	5,370	0.53
Escondida Total		**604**	**0.49**	**1,030**	**0.49**	**1,640**	**0.49**	**5,380**	**0.53**

Notes:

1 The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

2 Mineral resources are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals.

3 Mineral resources are presented exclusive of mineral reserves.

4 Escondida, in which BHP has a 57.5% interest, is considered a material property for purposes of Item 1303 of S-K 1300.

5 Escondida point of reference for the mineral resources was mine gate.

6 Escondida mineral resources estimates were based on a copper price of US$3.04/lb.

7 Escondida mineral resources cut-off criteria used was Oxide ≥ 0.20% soluble Cu; Mixed ≥ 0.30% Cu; Sulphide ≥ 0.25% Cu for mineralisation assigned to be processed via leaching or ≥ 0.30% Cu for mineralisation assigned to be processed via the concentrator.

8 Escondida metallurgical recoveries for Oxide 62%; Mixed 42%; Sulphide 42% for material processed by leaching or 83% for material processed via the concentrator.

Table 1-4: Escondida Property BHP Ownership Basis (57.5%) - Summary of Mineral Reserves as at 30th June 2022

Copper Chile Escondida	Mining Method	Proven Reserves		Probable Reserves		Total Reserves	
		Tonnage	Quality	Tonnage	Quality	Tonnage	Quality
		Mt	%Cu	Mt	%Cu	Mt	%Cu
Oxide	OC	75	0.57	31	0.51	106	0.55
Sulphide	OC	1,560	0.70	939	0.56	2,500	0.65
Sulphide Leach	OC	755	0.46	197	0.40	952	0.45
Escondida Total		**2,390**	**0.62**	**1,170**	**0.53**	**3,560**	**0.59**

Notes:
1 The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
2 Mineral reserves are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals.
3 Escondida, in which BHP has a 57.5% interest, is considered a material property for purposes of Item 1303 of S-K 1300.
4 Escondida point of reference for the mineral reserves was mine gate.
5 Escondida mineral reserves estimates were based on a copper price of US$2.79/lb.
6 Escondida mineral reserves cut-off criteria used was Oxide ≥ 0.20% soluble Cu. For Sulphide ≥ 0.30% Cu and where greater than the variable cut-off of the concentrator. Sulphide ore is processed in the concentrator plants as a result of an optimised mine plan with consideration of technical and economic parameters in order to maximise net present value. Sulphide Leach ≥ 0.25% Cu and 70% or less of copper contained in chalcopyrite and lower than the variable cut-off grade. Sulphide leach ore is processed in the leaching plant as an alternative to the concentrator process.
7 Escondida metallurgical recoveries for Oxide 62%; Sulphide Leach 42%; Sulphide 42% for material processed by leaching or 83% for material processed via the concentrator.

1.10 Changes to Mineral Resources and Reserves between 30 June 2021 and 2022

Mineral resources are being reported for the first time under the new S-K 1300 Regulation for the fiscal year ending 30 June 2022. There are no comparable estimates for the preceding year ending 30 June 2021.

Similarly, mineral reserves are also being reported for the first time under the new S-K 1300 Regulation for the fiscal year ending 30 June 2022. In the preceding year ending 30 June 2021 BHP had reported Ore Reserves for MEL in accordance with the US SEC Industry Guide 7 and are not directly comparable as the assumptions for the estimates are different.

With the aforementioned established, it may be commented that the S-K 1300 Regulation declaration as of 30 June 2022 is 3,570 Mt versus the preceding Guide 7 declaration which was 6,970 Mt. The primary driver of this reduction is the change in methodology under the S-K 1300 Regulations, which require mineral reserves to be reported on an ownership basis whereas previously under Guide 7 reporting was this was made based upon a 100% basis.

1.11 Material Assumptions and Criteria

Material assumptions in the estimation of mineral resources are the estimation methodology applied based on Ordinary Kriging, the sample data preparation including data capping and the pit optimisation to determine the resources that have reasonable prospects of economic extraction and associated commodity price. The monthly third quartile three-year historic prices for copper are used to define the mineral resources estimate, shown in Table 1-5. Material assumptions are discussed in detail in Chapter 11.

Material assumptions in the estimation of mineral reserves are the classified resource model, variable cut-off grade strategy, mining dilution and mining recovery, processing plant throughput and yields, exchange rate, geotechnical parameters commodity prices, operating and capital costs. These are discussed in detail in Chapter 12.

Table 1-5: Mineral Resources Price Assumptions

Assumption	Value	Unit
COPPER - LME-Copper, Grade A Cash - A.M. OFFICIAL – Third Quartile	3.04	US$/lb

Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

The monthly median three-year historic prices for copper are used to define the Mineral reserves estimate, shown in Table 1-6.

Table 1-6: Mineral Reserves Price Assumptions

Assumption	Value	Unit
COPPER - LME-Copper, Grade A Cash - A.M. OFFICIAL - Median	2.79	US$/lb

Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

1.12 Qualified Person's Conclusions and Recommendations

MEL has mineral resources and mineral reserves supported by drilling programmes, all within the boundaries of MEL's mining concessions and surface rights and close to existing infrastructure. The vertically integrated nature of the mining and processing facilities, located proximal to the ore body, provides the flexibility to add and optimise growth tonnes to existing infrastructure.

Mineral resources confidence is reflected in the applied classifications in accordance with the SEC S-K 1300 Regulations with factors influencing classification including but not limited to data density, data quality, geological continuity and/or complexity, estimation quality and weathering zones. Reconciliation data from the existing operation supports the confidence of resource estimates. There has been over 30 years of production history at the Escondida property that has been used to validate and calibrate the mineral resources estimate and modifying factors employed. The high proportion of indicated/measured mineral resources and the reconciliation history give high confidence in the estimation and reporting of the mineral resources.

Future work planned within the annual planning cycle is expected to continue to acquire data to both improve the local estimate within all mineral resources categories and extend this level of understanding to new volumes for the deposit as required.

Confidence in the mineral reserves is reflected in the applied mineral reserves classifications in accordance with the SEC S-K 1300 Regulations with factors influencing classification including but not limited to mining methods, processing methods, economic assessment and other life of asset and closure assessments. Reconciliation data from the existing operation supports the confidence of reserve estimates.

Uncertainties that affect the reliability or confidence in the mineral reserves estimate include but are not limited to:

- Future macro-economic environment, including metal prices and foreign exchange rate

- Revised capital estimates of major infrastructure projects as they move into definition phase studies, including two-stage smelter and materials handling system
- Changes to operating cost assumptions, including labour costs
- Ability to continue sourcing water
- Changes to mining, hydrological, geotechnical parameters, and assumptions
- Ability to maintain environmental and social license to operate

The economic sensitivity analysis presented in Chapter 19 demonstrate that mineral reserves estimate is not materially sensitive to variations in the input assumptions. Economic value is most sensitive to the commodity price however still remains positively economic for the life of mineral reserves.

Based on the confidence in the modifying factors and the information presented in this TRS, the QP is of opinion that the mineral reserves estimate is supported by adequate technical data and assumptions.

2 Introduction

2.1 Registrant for Whom the Technical Report Summary was Prepared

This Technical Report Summary (TRS) was prepared in accordance with the SEC S-K 1300 Regulations for BHP Group Limited to support its declaration of mineral resources and mineral reserves on the MEL property, comprising the Escondida and Escondida Norte deposits, for the fiscal year ended on 30 June 2022.

2.2 Terms of Reference and Purpose of the Report

This TRS was prepared to support the disclosure of mineral resources and mineral reserves for the Escondida Property (MEL), for the fiscal year ended on 30 June 2022 in compliance with the SEC S-K 1300 Regulations. This report does not include any exploration results that are not part of MEL's mineral resources or mineral reserves.

Mineral resources and mineral reserves are reported herein at a Preliminary Feasibility Study-level. The effective date of this Technical Report Summary is 30 June 2022.

It should be noted that reference is made in this report to the BHP financial years using the prefix "FY". For example FY22 means the BHP Fiscal year 2022 ending as of 30th June 2022.

2.3 Sources of Information

Most of the information and data used in the development of this TRS was provided by Minera Escondida Ltda. and associated MEL entities as well as sourced from publicly available information. Any key references are provided, where applicable, in Chapter 24, available at the time of writing this TRS.

Unless otherwise stated, all figures and images were prepared by MEL. Units of measurement referenced in this TRS are based on local convention in use at the property and currency is expressed in US dollars unless otherwise stated.

Maps and plans contained within the document are reported using different coordinate systems. The following are used in the document:

- Latitude and Longitude
- UTM Projection PSAD56 (Provisional South American Datum 1956)
- UTM Projection WGS84 (World Geodetic System 1984)

Local mine coordinates. Local mine coordinates are based off UTM Projection PSAD56.

Reliance upon information provided by the registrant is listed in Chapter 25 when applicable.

2.4 Details of Inspection

BHP has relied on the Qualified Persons listed in Table 2-1 to prepare the information and this report supporting its disclosure of mineral resources and mineral reserves, with the sections noted for which each Qualified Person is responsible. All Qualified Persons are full time employees of MEL.

All Qualified Persons would normally undertake regular site visits to the MEL mine site on at least a monthly basis. The COVID-19 pandemic and associated restrictions on movement caused some Qualified Persons to be unable to visit the Escondida property in the 12 months prior to the effective date of this report. It is noted that Qualified Persons that were not able to undertake site visits in the last 12 months had fulfilled their site visits previously and have maintained extensive contact with site based staff through their routine remote work activities.

Table 2-1: List of Qualified Persons

QP Name	Relation to Registrant and their Role	Qualification	Professional Organisation and Membership level	Years of Relevant Experience	Responsible for disclosure of
Rodrigo Maureira	Full-time employee / Senior Geologist	Bachelor of Geology (Chile)	AusIMM Member (#327820)	18 years in copper projects and operations	Mineral Resources – Chapter 8, 9 and 11 in full, Chapter 7 excluding Sections 7.3 and 7.4, and Chapter 1-5 and 20-25 jointly with Mineral Reserve QP
Francisco Barrera	Full-time employee / Superintendent Long Term Planning	Industrial Civil Mining Engineer	AusIMM Member (#324752)	17 years in copper projects and operations within the mining industry	Mineral Reserves – Chapter 12, 15, 16, 18 and 19 in full, Chapter 13 excluding 13.3.1 and 13.3.2, and Chapter 1- 5 and 20-25 jointly with Mineral Resources QP
Andrés Salazar	Full-time employee / Senior Geologist	Bachelor of Geology (Chile)	AusIMM Member (#332364)	17 years in copper projects and operations of total 25 years in the mining industry	Geology – Chapter 6 in full
Carlos Delgado	Full-time employee / Superintendent Geometallurgy	B. Sc. Chemical Engineering (Chile) Degree Metallurgical Engineering (Chile)	AusIMM Member (#3046359)	22 years in copper projects and operations of total 24 years in mineral industry	Mineral Processing and Metallurgical Testing – Chapter 10 in full Processing and Recovery Methods - Chapter 14 in full
Andres Naranjo	Full-time employee / Superintendent Asset Resource Management	Metallurgical Engineer; Master in Engineering Sciences (Chile)	AusIMM Member (#3002271)	22 years in copper projects and operations	Infrastructure Chapter 15 in full Environmental Studies, Permitting, Plans and Agreements – Chapter 17 excluding Section 17.2.1
Fernando Villegas	Full-time employee / Asset Practice Lead Geotechnical Hydrogeology & Tailings	PhD Mining & Earth System (USA)	AusIMM Member (#3055969)	26 years in copper, 1 year in zinc/silver, projects and operations of total 27 years in mining industry.	Geotechnical & Hydrogeology (Sections 7.3 and 7.4), Hydrogeology (Section 13.3.2), Pit Geotechnical (Section 13.3.1), Tailings Management (Section 17.2.1)

2.5 Report Version Update

BHP has previously reported mineral reserves for Minera Escondida Ltda. under US SEC Guide 7, but has not previously filed a TRS with the SEC. This document is not an update of a previously filed TRS. BHP has not previously reported mineral resources for Minera Escondida Ltda. in a filing with the SEC.

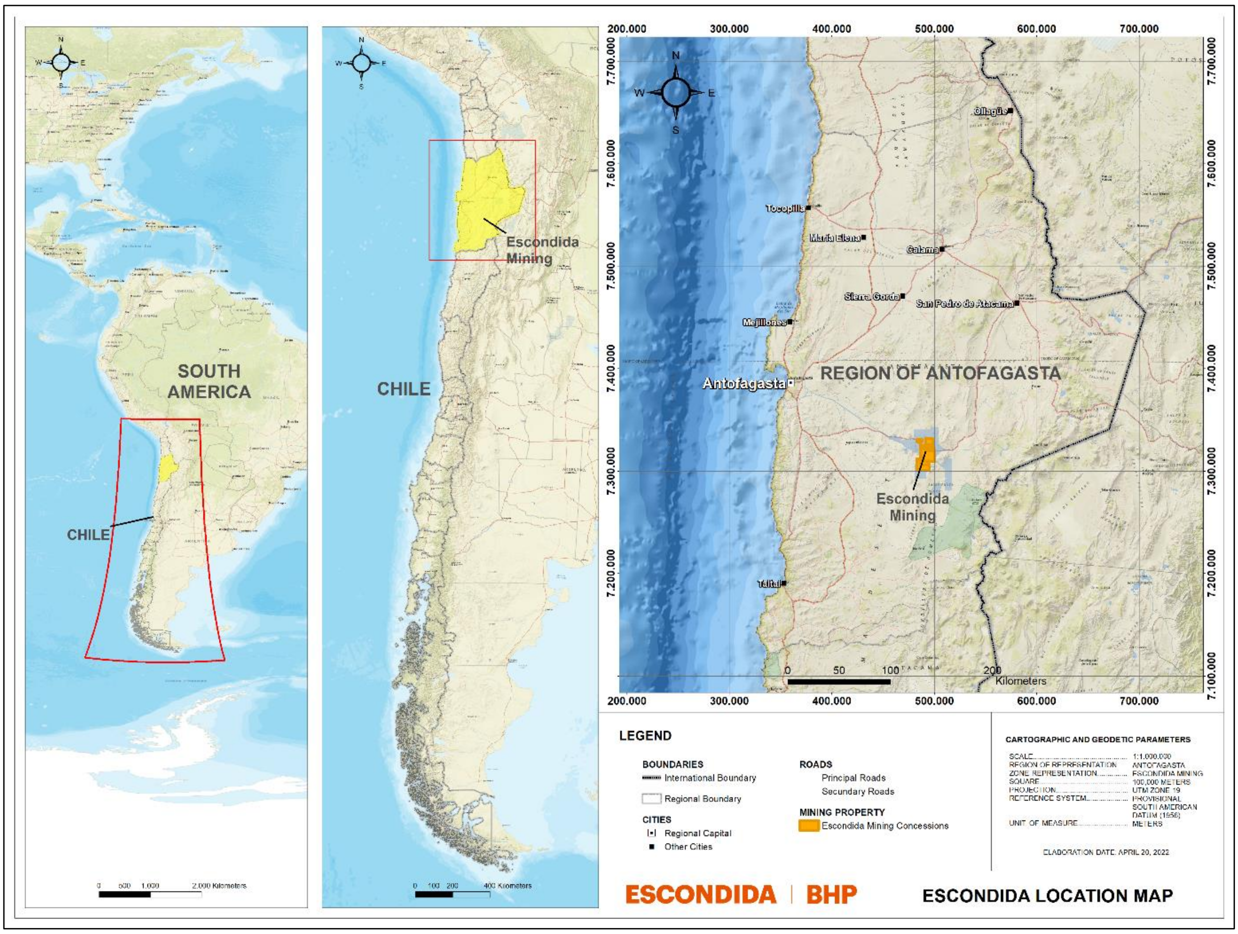
3 Property Description

3.1 Property Location

Escondida and Escondida Norte are in the Atacama Desert in the eastern foothills of the Atacama Desert and the Domeyko Mountain Range, about 170 kilometres (km) southeast of the city of Antofagasta, Chile, which is the capital city of the II Region (Figure 3-1).

The average elevation is 3,100 m above mean sea level (amsl). The geographical location of the Escondida and Escondida Norte mining district, using UTM coordinate system, is 7,314,270N and 7,317,667N, 490,284E and 494,281E for Escondida, and 7,320,665N and 7,322,663N, 493,281E and 496,279E for Escondida Norte.

Maps presented in this chapter use UTM PSAD56 coordinates.



Source: MEL (2022)

Figure 3-1: Escondida Location Map

The total area with mineral rights held by MEL is approximately 178 km^2 and is held under a mining lease. Areas of the active mining are located on various parcels of land within the local Municipality and leased or owned by MEL for operation support activities (e.g. industrial areas, accommodation villages, airport etc.). In addition to various freehold properties, MEL has other occupation licenses to operate.

3.2 Mineral Tenure

MEL operations are fully covered by 764 mining concessions, totalling 406,018 ha. All concessions are in good legal standing.

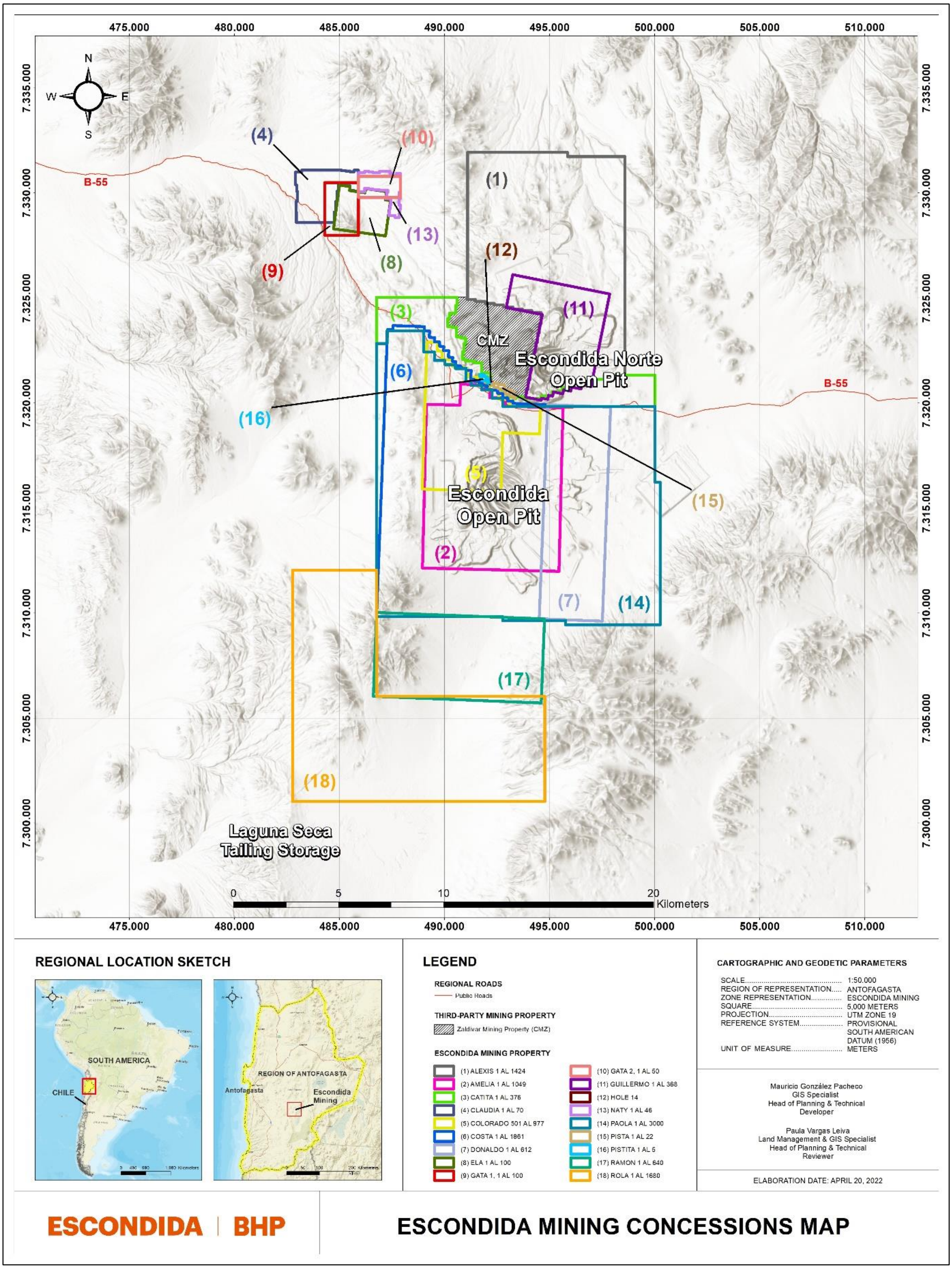
Of this total, Table 3-1 details the 18 principal mining concessions (Figure 3-2) where the mineral resources and reserves are located with their corresponding surface area in hectares (ha) and the annual payment which was made as of 31st March 2022 (as per Chilean requirements). The annual payments are valued in "Unidad Tributaria Mensual" (U.T.M.) which is a Chilean state tax unit being valued in Chilean Pesos (CLP). As reported by MEL, the total annual payment for 2022 paid for this group of concessions in March 2022 with a surface area of 58,934 ha, was equivalent to MCLP$327 (million Chilean Pesos) or approximately US$400,000[1] as of 30 June 2022.

Table 3-1: MEL Mining Concessions

Lease Number	Lease Name	Company Name / Joint Venture	Expiry Date	Surface Area (hectares)	Annual Payment (U.T.M.)
1	Alexis 1/1424	Minera Escondida Ltda.	Permanent	7,059	705.9
2	Amelia 1/1049	Minera Escondida Ltda.	Permanent	5,235	523.5
3	Catita 1/376	Minera Escondida Ltda.	Permanent	1,732	173.2
4	Claudia 1/70	Minera Escondida Ltda.	Permanent	557	55.7
5	Colorado 501/977	Minera Escondida Ltda.	Permanent	2,385	238.5
6	Costa 1/1861	Minera Escondida Ltda.	Permanent	9,159	915.9
7	Donaldo 1/612	Minera Escondida Ltda.	Permanent	3,060	306.0
8	Ela 1/100	Minera Escondida Ltda.	Permanent	500	50.0
9	Gata 1 1/100	Minera Escondida Ltda.	Permanent	400	40.0
10	Gata 2 1/50	Minera Escondida Ltda.	Permanent	200	20.0
11	Guillermo 1/368	Minera Escondida Ltda.	Permanent	1,785	178.5
12	Hole 14	Minera Escondida Ltda.	Permanent	1	0.1
13	Naty 1/46	Minera Escondida Ltda.	Permanent	230	23.0
14	Paola 1/3000	Minera Escondida Ltda.	Permanent	15,000	1,500.0
15	Pista 1/22	Minera Escondida Ltda.	Permanent	22	2.2
16	Pistita 1/5	Minera Escondida Ltda.	Permanent	9	0.9
17	Ramón 1/640	Minera Escondida Ltda.	Permanent	3,200	320.0
18	Rola 1/1680	Minera Escondida Ltda.	Permanent	8,400	840.0
			TOTAL	**58,934**	**5,893.0**

Source: MEL (2022)

[1] U.T.M./CLP 55,537. USD/CLP 787. As of 31st March 2022 (Source: Central Bank of Chile)



Source: MEL (2022)

Figure 3-2: Minera Escondida Ltda. Mining Concessions

3.3 Mineral Rights Description and How They Were Obtained

All the mining leases are registered in the Antofagasta Mining Registry, and their current domain registers are held entirely (100%) in the name of Minera Escondida Ltda. These rights were acquired to a greater extent through a mining concession granted by the Government of Chile, and to a lesser extent, were purchased from other mining concessionaires.

Mining leases are granted for an indefinite duration; however, the mining legislation requires the annual payment of a mining patent in March, those that are paid to the Government of Chile, through the General Treasury of the Republic. In case of non-payment, the concession is subject to be auctioned at public auction. To avoid the loss of mining rights, the owner must pay the annual patent within the legal terms established by the Chilean Mining Code.

All significant permitting requirements that support the current mineral resources and mineral reserves estimates are either all in place or are expected to be renewed as required within the Chilean mining industry practice.

3.4 Encumbrances

The QP is not aware of any material encumbrances that would impact the current mineral resources or mineral reserves disclosure as presented herein.

During calendar year 2022, an update of the Chilean Mining Code was published, in which the cost of mining patents is increased from 0.1 U.T.M. per hectare to 0.4 U.T.M. per hectare, applicable from 2023, which increases the annual payment for maintenance of the portfolio of mining concessions. Other Significant Factors and Risks

All permits and approvals required to extract mineral resources and mineral reserves on the BHP leases are currently in place, but in the QP's opinion, should the plan be modified in the future, additional permits may be required.

There is a currently ongoing legal process against Minera Escondida Ltda. regarding a demand through the Chilean High Court concerning unplanned impacts upon ground water levels within the Salar de Atacama from historical operations. Since December 31, 2019, MEL has ceased water extraction from the Salar de Atacama, and currently operates on 100% desalinated water. MEL maintains that at no time did it exceed the limits set in the Resolucion de Claification Ambiental (Environmental Qualification Resolution). In the opinion of the QP this legal process does not impact the validity of this mineral resources and mineral reserves disclosure and is expected to be resolved through due legal process.

3.5 Royalties or Similar Interest

There are no royalties associated with MEL that are leased. BHP is majority owner of the property and does not hold any royalty other than its economic interest.

4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

The Escondida and Escondida Norte mining district is located 170 km southeast of Antofagasta, Chile, in the Atacama Desert. The mine site is connected to the city by the Camino Escondida, a well maintained asphalted road, which is open year-round.

Antofagasta is the regional capital of Chile's second region, with a population of approximately 362,000 inhabitants, according to the 2017 Census. Approximately 44.6% of MEL workforce lives in the Antofagasta Region (MEL, 2022).

4.1 Topography, Elevation, and Vegetation

The Escondida district is in the Atacama Desert in the II Region of Antofagasta. The deposit lies at an altitude of 3,100 m amsl in the eastern foothills of the Atacama Desert and the Domeyko Mountain Range.

The area is characterised by its extreme aridity due to a general absence of rainfall, high solar radiation and elevated saline concentration in the soil. These environmental conditions cause an almost total absence of vegetation. The limited vegetation that exists tends to occur in limited areas of water accumulation, temporary surface run-off, and/or the presence of underground water bodies. No permanent surface flows in the area have been identified.

The soils correspond to depositional materials without a pedogenetic development. Given its characteristics, it does not present suitable conditions for the development of forestry and ranching activities.

4.2 Means of Access

The MEL mine site is connected to the city of Antofagasta by the paved road Camino Escondida, with a travel time of approximately four hours to by vehicle (car, lorry or bus) and is open year-round. This route also connects with Route 1 (main coastal route) and Route 5 (main route that connects Chile from north to south), as shown in Figure 3-1. The city of Antofagasta hosts the Andres Sabella airport that handles local and occasional international flights. The airport is located 26 km north of Antofagasta.

The railway lines that connect the city of Antofagasta with the MEL mine site are owned by Empresa de Ferrocarriles del Norte Grande (Ferronor) and Ferrocarril de Antofagasta a Bolivia (FCAB). The railway lines connect the MEL mine site with the ports of Antofagasta and Mejillones and are primarily used for the transfer of supplies.

4.3 Climate and Length of Operating Season

The Escondida and Escondida Norte mine site is located in the Atacama Desert, in an Andean desert climate, presenting extreme weather conditions such as: high solar radiation, thermal oscillation, strong winds, and low atmospheric humidity. This climate has the highest amount of rainfall in the summer months, and receives on average between 20 and 60 millimetres (mm) per year. It has a large, thermal oscillation between day and night, which averages 10°C (50°F). During the summer months, the mean maximum temperature is close to 26°C (79°F); and during the winter months, the mean minimum temperature is -0.8°C (17°F). Relative humidity between July and October does not exceed 30%; while between November and March, the average is 60%.

The average wind speed fluctuates between 10 and 40 kilometres per hour (km/h), with maximum wind speed gusts exceeding 60 km/h. Winds typically present a predominant east-west orientation.

Despite these conditions, and with the exception of certain extreme weather events, operational continuity is not affected, and mining operations occur year-round.

4.4 Local Resources

Antofagasta is the regional capital and is a modern city with all regular services and a population of approximately 362,000 inhabitants as of 2017. Numerous mining-related companies are based in the city and operate in surrounding areas. Antofagasta has all the necessary services of an industrial port city, such as potable water, public transportation, and electric power. It also has numerous shopping centres and good electronic communications.

4.5 Infrastructure and Availability

4.5.1 Water

Currently, most of the industrial water supply for operational needs comes from seawater, which is desalinated in specially designed and purpose-built plants located on the Antofagasta coastline at the Punta Coloso site. There, there are two desalination plants, whose production is pumped to the mine 170 km away and at a difference in elevation of 3,000 m. The water is carried by three aqueducts, one with a 24-inch (61 cm) diameter and two with 42-inch (106.7 cm) diameter.

4.5.2 Electricity

From FY23, all of MEL's energy demand is expected to be supplied via Kayros renewable Power Purchase Agreements (PPAs), replacing Power Angamos coal-based PPA and Tamakaya, an energy mix from BHP's Kelar Power Plant (Natural Gas) and the Spot Market for energy The Kayros renewable energy contract contributes to reduce MEL BHP's total Scope 2 emissions from FY23 and to achieve BHP's commitments by 2030. This contract has two providers, Enel Generation (60%) and Colbun (40%).

4.5.3 Personnel

As at 30 June 2022, MEL had 3,800 employees within which the proportion of female representation was 26.5%. Approximately 1.5% of the MEL workforce was made up of employees with disabilities, about 8% of MEL's employees were members of indigenous communities, and 44.6% of its workforce lived in the Antofagasta Region in which MEL is located (excluding contractors). In addition, as at 30 June 2022, MEL had engaged nearly 14,000 contractors, distributed among nearly 350 collaborating companies.

4.5.4 Supplies

The majority of supplies used at the MEL operation are sourced from within Chile. The principal strategic raw materials used in the operation, being those that without which the continuity of production could be affected, are shown in Table 4-1.

Table 4-1: Principal Strategic Raw Materials Used in the Operation

Key Supplies	Origin
Diesel	United States
Acid	Chile, Perú
Lime	Chile
Grinding Balls	Chile, Perú, China
Mill Liners	Chile
Blasting Supplies	Chile
Tyres	United States, Japan

Source: MEL (2022)

5 History

5.1 Previous Operations

In 1978, Utah International Inc. and Getty Oil Co. formed a temporary partnership called the Atacama Project for the purpose of exploring porphyry copper deposits beneath the sedimentary and volcanic cover in northern Chile, between Calama and Copiapó. Between 1978 and 1981, an extensive surface geochemical exploration campaign was carried out that identified different exploration targets, including the Escondida area.

In 1981, a drilling campaign was carried out that led to the discovery of the Escondida deposit. Subsequently, a drilling campaign was carried out to delineate the deposit. Prior to its discovery, there was no evidence of significant mining activities in the area. Key steps in the history of the ownership of MEL are the following:

- In 1984, Utah and Getty were jointly acquired by BHP and Texaco, which subsequently sold its shares to BHP.
- In 1985, the ownership of MEL was formalised to be BHP (57.5%); Rio Tinto Zinc (30%); JECO (10%), and World Bank (2.5%).
- In 2001, BHP merged with Billiton to form BHP Billiton.
- In 2010, JECO ltd. acquired the part of the World Bank that belonged to BHP Billiton.
- In 2017, BHP Billiton was renamed BHP.

Currently, MEL's owners are: BHP (57.5%), Rio Tinto (30%), JECO Corporation (10%), and JECO 2 Ltd. (2.5%).

In 1989, construction began on the first concentrator plant (Los Colorados) with an ore processing capacity of 35,000 tonnes per day (tpd). In mid-1993, MEL started its Phase 1 expansion, increasing the ore processing capacity from 35,000 to 37,500 tpd. In August 1994, Phase 2 began, increasing the processing capacity to 55,000 tpd. A year later, in August 1995, Phase 3 began, increasing processing capacity to 105,000 tpd. In 1997, Phase 3.5 increased from 105,000 to 127,500 tpd. Table 5-1 shows the historical MEL milestones.

Table 5-1: Key MEL Milestones

Milestone	Year
Escondida deposit discovery	1981
BHP acquires Utah.	1984
Official inauguration of Minera Escondida Ltda.	1991
Start-up of Phase 1 Escondida expansion	1993
Start-up of Phase 2 Escondida expansion	1994
Start-up of Phase 3 Escondida expansion	1996
Start-up of Phase 3.5 expansion add leaching of oxides at Escondida,	1998
Start-up of Phase 4 Escondida expansion. Los Colorados plant and Laguna Seca increase production to 236,000 kilotonnes per day (ktpd).	2002
Start-up Escondida Norte mine	2005
Sulphide leaching process are inaugurated	2006
Desalination plant (P0) is completed – 500l/s capacity	2007
Begin construction of the Organic Growth Project 1 (OGP1) and Oxide Leach Area Project (OLAP) projects is announced	2012
Escondida Ore Access starts production	2012
Construction of MEL's second desalination plant is announced	2013
BHP assigns the construction contract for the Kelar power plant	2013

Milestone	Year
Start-up Oxide Leach Area Project (OLAP)	2014
Construction of the Kelar power plant begins	2014
Escondida's OGP1 project starts operation	2015
Inauguration of OGP1, third copper concentrator,	2016
The Kelar gas-fired power plant, built to supply Minera Escondida and other BHP mines	2016
Completion of water extraction from Punta Negra	2017
Second desalination plant, EWS, starts with a capacity 2,500 l/s	2017
EWS expansion adding 833l/s	2019
100% use of desalinated water for processes	2020
Renewable power purchase agreements announced with 100% of MEL's energy to come from renewable energy from FY23	2020

Source: MEL (2022)

5.2 Exploration and Development by Previous Owners or Operators

From 1981 to 2022, multiple exploration drilling programmes targeting copper mineralisation on the project have been undertaken. In recent years the overall drilling program has stabilised in terms of the total annual drilling required to support the ongoing annual mine planning cycle. All drilling has been completed by MEL either under its current holding, or via previous holdings (prior to 1984).

Several different drilling techniques have been implemented by MEL, including diamond core drilling (DDH), percussion drilling (DTH), reverse circulation drilling (RC), and minor conventional rotary drilling. From 1981 to 2022, 8,596 drill holes, totalling 2,691,948 m, were drilled across the combined Escondida and Escondida Norte deposits. Table 5-2 summarizes the drilling by type and year of drilling. Rotary drill information is minimal and not material to geological evaluation and resource estimation.

MEL has not used data from early DTH drilling for resource modelling due to the low confidence in the sampling associated with this older drilling technique potentially resulting in downhole contamination and poor quality data. In the QP's opinion this drilling technique is not appropriate for mineral resources estimation purposes. It is the QP's opinion that the exclusion of DTH from the estimate is not material.

Additional details on the exploration history can be found in Chapter 7.

Table 5-2: Drilling by Type and Year (Total Escondida and Escondida Norte combined)

Year	DDH	RC	RC-DDH	Total Metres
EXP81-86	55,059	-	61,527	116,587
FY90	-	2,461	-	2,461
FY91-92	1,339	2,962	5,168	9,469
FY93	-	2,999	-	2,999
FY93-94	8,106	14,815	28,098	51,018
FY95	1,323	250	30,565	32,138
FY96	-	3,462	-	3,462
FY97	11,152	4,012	600	15,763
FY98	805	2,570	7,975	11,350
FY99	4,513	9,554	5,104	19,171
FY00	18,197	42,388	40,792	101,377
FY01	33,169	103,572	95,956	232,697
FY02	16,015	60,708	16,925	93,648
FY03	22,727	39,366	15,008	77,100
FY04	23,933	30,368	27,277	81,578

Year	DDH	RC	RC-DDH	Total Metres
FY05	27,375	55,135	24,886	107,396
FY06	21,092	33,056	47,255	101,403
FY07	9,315	36,138	45,625	91,078
FY08	20,340	60,800	72,996	154,137
FY09	46,251	54,358	70,880	171,490
FY10	55,621	40,390	262,791	358,802
FY11	62,121	36,844	165,807	264,773
FY12	83,492	24,596	102,921	211,009
FY13	33,566	11,564	45,042	90,172
FY14	24,462	12,158	32,231	68,851
FY15	38,683	12,652	18,138	69,473
FY16	20,335	6,676	8,489	35,499
FY17	27,030	4,746	2,900	34,676
FY18	24,841	2,594	3,654	31,089
FY19	14,529	3,194	4,580	22,303
FY20	14,141	3,756	760	18,657
FY21	6,712	3,610	—	10,322
Total	**726,244**	**721,754**	**1,243,949**	**2,691,948**

Note: This table excludes DTH drill holes.

6 Geological Setting, Mineralisation, and Deposit

6.1 Regional Geology

The Escondida district, which principally comprises the Escondida and Escondida Norte deposits, is located in northern Chile in the Antofagasta Region, forming part of the Upper Eocene - Oligocene age (43 - 31 million years (Ma)) copper porphyry belt that forms one of the most important regional copper districts in the world. Numerous Cu-Mo deposits and prospects have been identified within this belt, including the Chuquicamata and Escondida deposits (Figure 6-1A).

The Upper Eocene-Oligocene porphyry belt extends for more than 1,400 km along the Domeyko Range from the Peruvian border (18°S) to latitude 31°S (Figure 6-1A). The Domeyko Range is the result of compressional deformation processes that started at the beginning of the Upper Cretaceous and culminated during the Inca compressional phase in the Upper Eocene - Lower Oligocene. These events gave rise to the Domeyko Fault System (Mpodozis et al., 1993) that played a fundamental role in the emplacement of the porphyry systems.

The Escondida district can be defined as a north-south trending structural belt 70 km wide and 120 km long (Wong, C., 2013), composed of a series of structural elements developed under an east-west shortening regime, normal to the convergence zone and low evidence of north-south transcurrent deformation. In this deformational scenario, the copper deposits of the Escondida cluster are preferentially located on the eastern edge of the Escondida - Sierra de Varas shear lens of the Domeyko Fault System.

Figure 6-1 shows a Regional Geologic Map (Mpodozis, C. and Cornejo, P., 2012), where the shear lenses delimited by the Sierra de Varas Fault to the west and La Escondida Fault to the east (locally correlated with the Portezuelo - Panadero Fault) are observed.

The lithological units present in the Escondida District correspond mainly to sedimentary, volcanic, and intrusive units, whose ages range from Upper Palaeozoic to Eocene (Figure 6-1). These lithological units are described according to their ages discussed below.

Maps presented in this chapter use local mine coordinates unless otherwise stated

6.1.1 Palaeozoic

Palaeozoic rocks are characterised by a series of isolated basement blocks (300-270 Ma), which form the core of the Domeyko Cordillera (Mpodozis, C. and Cornejo, P., 2012) (Figure 6-1). These blocks are limited to the west by the Escondida shear lens.

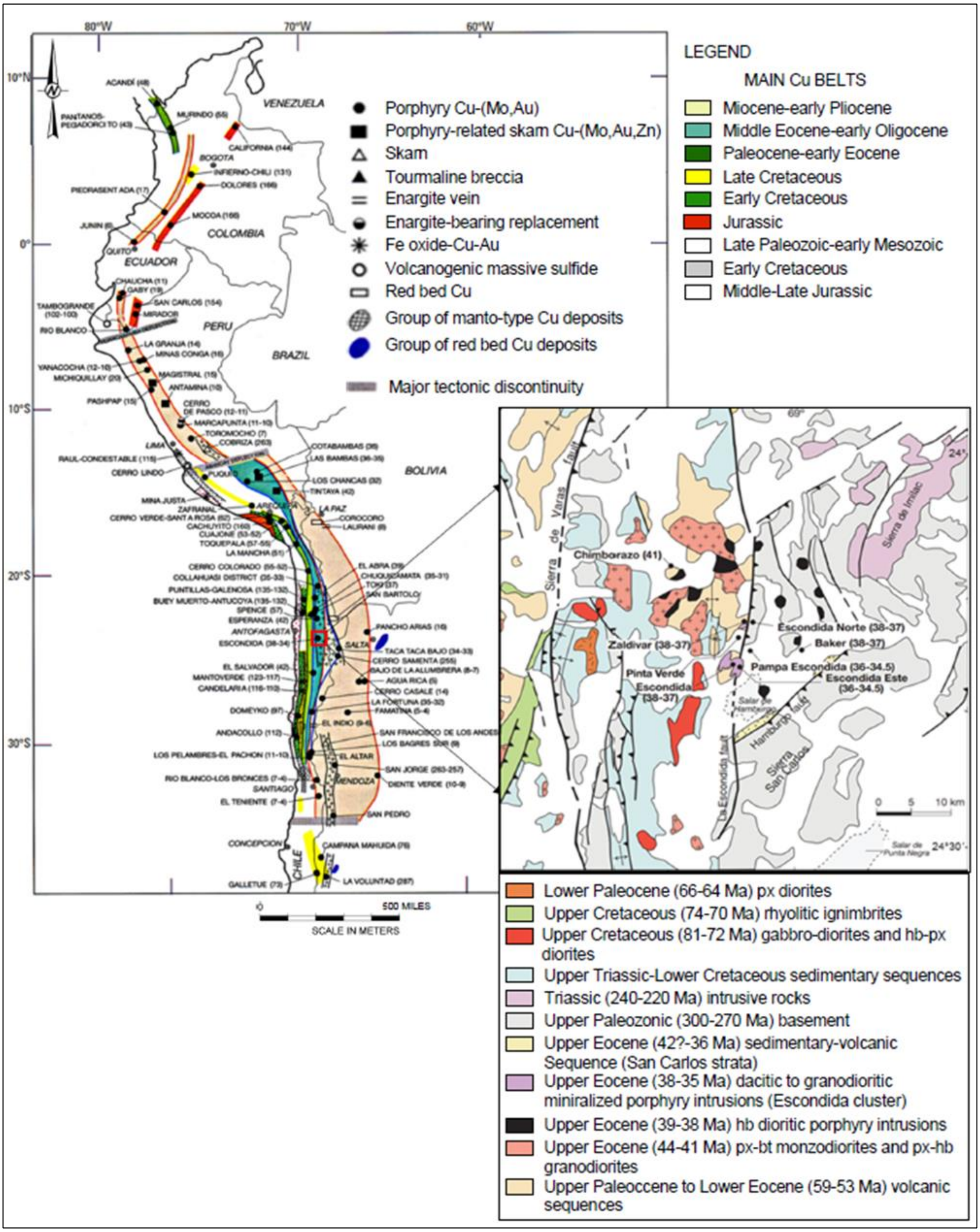
6.1.2 Mesozoic

Mesozoic rocks are represented by continental sedimentary and intrusive rocks, which are located mainly in the Escondida-Sierra de Varas shear lens. The continental sedimentary rocks have been assigned to the Upper Triassic-Lower Cretaceous and are more than 9 km thick in the Salar de Atacama depression.

The intrusive rocks are pyroxene gabbro, diorites, and hornblende-pyroxene monzodiorites, which are related to a Late Cretaceous (81-71 Ma) intrusion. These units intruded continental sedimentary strata (Figure 6-1).

6.1.3 Cenozoic

The Cenozoic rocks are mainly volcanic and intrusive rocks. The volcanic rocks have been assigned to the Palaeocene-Early Eocene (59-53 Ma) (Marinovic et al., 1995; Richards et al., 2001; Urzúa, 2009), and represent the localised and recurrent magmatic activity east of the frontal arc of the Andes (Figure 6-1B) during the Late Cretaceous-Early Palaeocene (85-50 Ma).



Source: A) Sillitoe and Perelló, 2005, B) Mpodozis and Cornejo, 2012.
Coordinate system: Latitude – Longitude

Figure 6-1: A) Metallogenic Belts of the Andes and their Main Copper-bearing Porphyries, B) Regional Geology Escondida District

The earliest Eocene magmatism event in the Escondida district is represented by Monzodiorites and Granodiorites (44-41 Ma) emplaced in the Escondida-Sierra de Varas shear lens north of Escondida (Marinovic et al., 1995; Richards et al., 2001; Urzúa, 2009) (Figure 6-1).

The second episode of Eocene-Oligocene magmatism began with the intrusion of a group of small bodies along the Escondida Fault. These rocks correspond mainly to dioritic stocks with U-Pb ages of 39-38 Ma (Richards et al., 2001; Urzúa, 2009), which intruded the volcanic rocks of the Escondida-Sierra de Varas shear lens (late Palaeocene-Early Oligocene) and the Palaeozoic basement of the Imilac block (Figure 6-1B) (Mpodozis, C. and Cornejo, P., 2012). The distribution of these bodies indicates that probably are apophyses of a larger pluton (Mpodozis, C. and Cornejo, P., 2012). A slightly younger group, 38-37 Ma, of NE to N-NE oriented porphyries were emplaced near the Escondida Fault. These porphyries are recognised at Zaldívar, Escondida, Escondida Norte, Pinta Verde and Baker (Richards et al., 2001; Urzúa, 2009; Hervé et al., 2012) (Figure 6-1B).

The last magmatism in the Escondida district was related to the intrusion, immediately east of the Escondida fault, of the Escondida East and Pampa Escondida porphyries between 36-34.5 Ma, (Hervé et al., 2012) (Figure 6-1).

6.2 Local Geology

The local geology comprises two major geological environments (Figure 6-2); the first, located to the east, is characterised by basement rocks of the Palaeozoic La Tabla Formation. The second, located to the west, is characterised by the Mesozoic sedimentary sequence of El Profeta Formation, Santa Ana Formation and Augusta Victoria Formation, (Figure 6-2).

The La Tabla Formation is formed by andesitic and rhyolitic volcanic rocks. Their intrusive contemporaneous rocks (Monzogranites, Tonalites, Quartz Diorites) have a calc-alkaline composition (Richards et al., 2001; Urzúa, 2009). Ages range from Late Carboniferous to Early Permian and represent the host rock of the Escondida Este, Escondida Norte-Zaldívar, and Pampa Escondida deposits.

El Profeta and Santa Ana Formations (Maksaev et al., 1991), are a marine carbonate and continental clastic sequence, with ages between the Upper Triassic and Lower Cretaceous. These units were accumulated in the back arc-basin upon the Palaeozoic-Triassic basement.

The Augusta Victoria Formation is characterised by calc-alkaline andesitic flows, dated by zircon U-Pb at ~ 58 to 53 Ma (Urzúa, 2009).

The oldest post-Palaeozoic intrusive rocks in the Escondida district are Alkaline Gabbro and Diorites, Monzodiorites, Monzonite and Granite of Late Cretaceous age (~ 77-72 Ma; U-Pb zircon). Two additional gabbro to granite complexes of Late Cretaceous to Early Palaeocene are also recognised along the western side of the Escondida district (Urzúa, 2009).

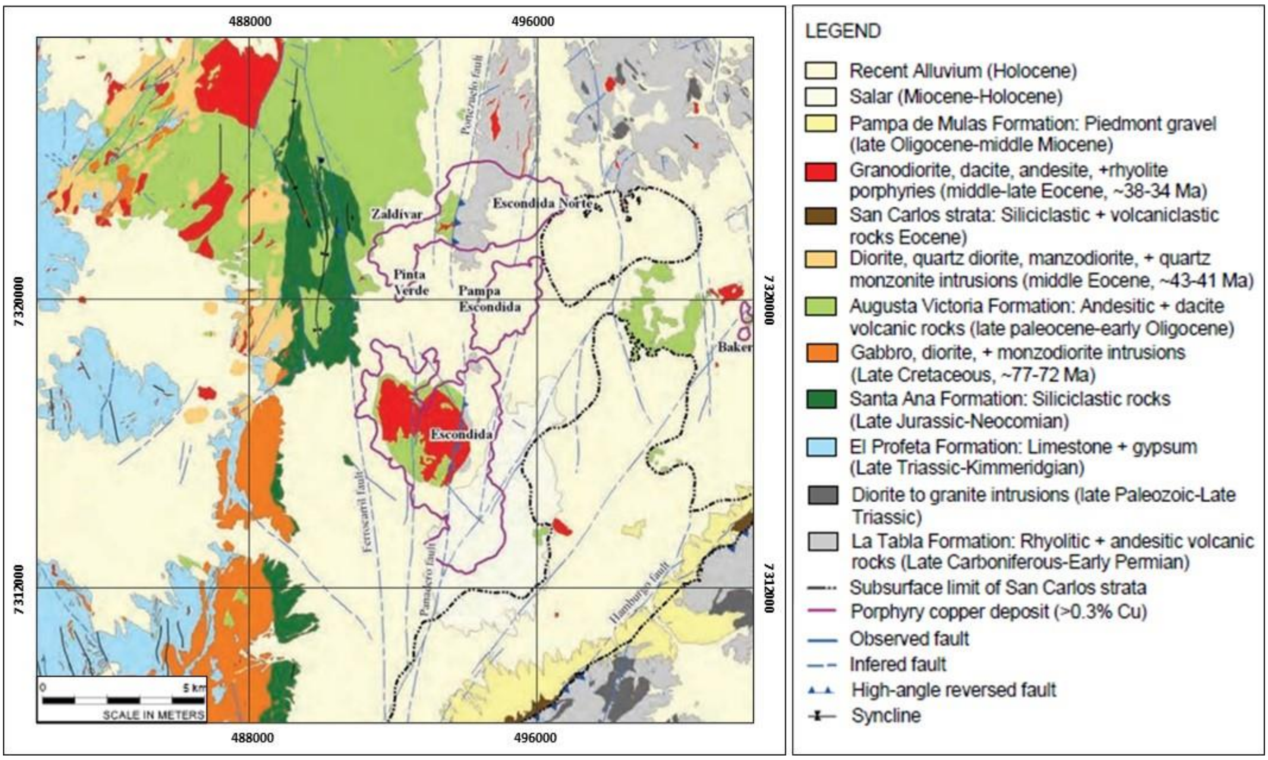
The next intrusive activity in the district resulted in epizonal complexes associated with the porphyry copper deposits (Hervé et al, 2012). It started with stocks of fine-grained hornblende diorite and hornblende monzodiorites, covering an area of 45 km^2 in the north-western part of the district (Figure 6-2). U-Pb zircon dates indicate ages ranging between ~ 43 to 41 Ma (Urzúa, 2009) and ~ 38-36 Ma Ar / Ar ages (Richards et al., 2001). The ore-related intrusions in the Escondida deposit are multiphase biotite granodiorite porphyries, with zircon U-Pb ages between ~ 38 and 34.5 Ma (Hervé et al 2012). The last intrusion was the rhyolite porphyry at Escondida Este dated at ~ 34 Ma (Hervé et al, 2012). Escondida Este is a deeper extension to the southeast of the Escondida deposit, overlapping each other in space, but distinguished by distinctly later intrusive pulses.

Immediately east of Escondida and Escondida Norte, a thick sequence of sedimentary and andesitic rocks can be identified (Figure 6-2). These rocks outcrop in the foothills immediately adjacent to the Hamburg reverse fault with NW convergence (Figure 6-2), where they were identified as “San Carlos strata” by Urzúa, 2009. This unit has a maximum thickness of 1,200 m and includes greenish-grey and red sandstones and conglomerates, which in their upper parts are intercalated with a cumulative thickness of up to 500 m of andesitic laharic breccia, ignimbrite, and subsidiary flows, which reported two U-Pb zircon Ages of 38.0 ± 2.1 and 37.7 ± 0.6 Ma (Urzúa, 2009).

The final stratigraphic unit in the district is the Pampa de Mulas Formation, which corresponds to an extended, flat and stratified, poorly consolidated, piedmont gravel sequence of mass flow origin, which is up to 240 m thick. Near the deposits, the sequence contains abundant clasts of altered rocks, especially advanced argillic lithocaps. It is assigned to the Oligocene to middle Miocene interval by Marinovic et al. (1995) and Urzúa (2009), which agreed well with ages of 8.7 ± 0.4 to 4.2 ± 0.2 Ma for the overlying felsic air-fall tuff horizons at Escondida and Zaldívar (Alpers and Brimhall, 1988; Morales, 2009).

The major faults and associated fold axes in the Escondida district are parallel and N to NNE-trending structures (Mpodozis et al., 1993b; Marinovic et al., 1995; Richards et al., 2001; Urzúa, 2009; Figure 6-2). These faults constitute the eastern portion of a shear lens ~ 180 km long and up to 20 km wide (Mpodozis et al., 1993). In the Escondida district, the most prominent fault is Portezuelo-Panadero, this is a reverse structure with a dip of 65 ° E that contacts the La Tabla Formation over the Augusta Victoria Formation units (Navarro et al., 2009; Urzúa, 2009; Figure 6-2).

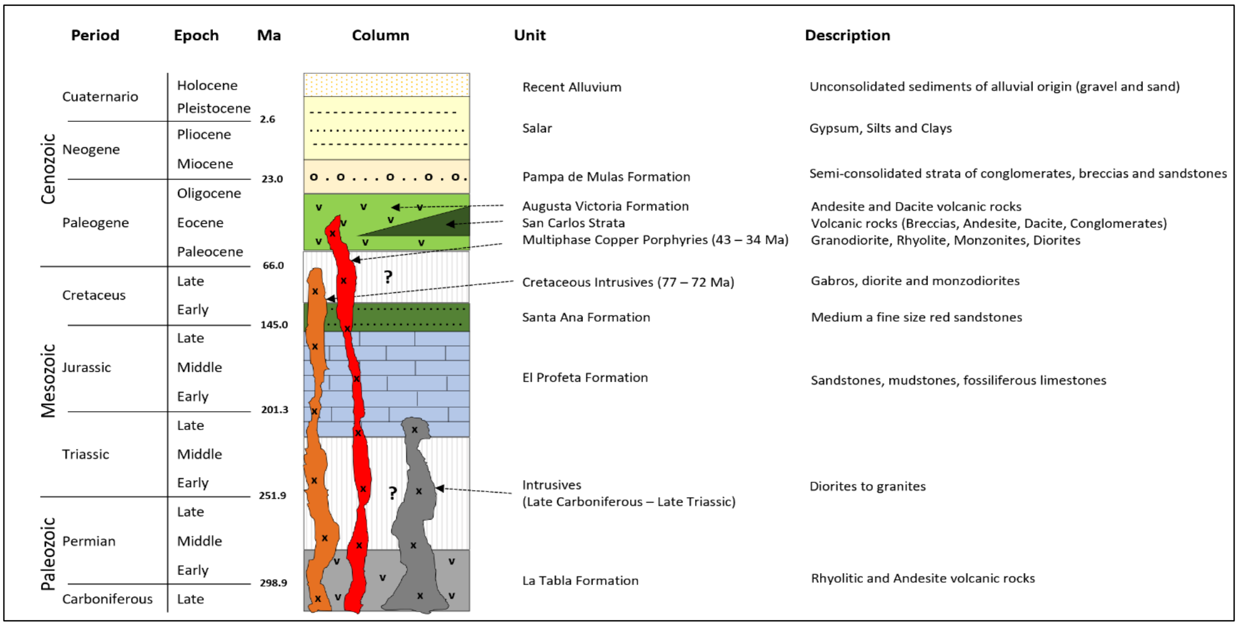
Geological descriptions for each deposit (or group of deposits) are summarised below.



Source: Hervé et al, 2012)
Coordinate system: UTM WGS84

Figure 6-2: Local Geology Map

Figure 6-3 details the stratigraphic column and presents the relationships between the different units and their correlation with the formations and complexes described.



Source: MEL (2022)

Figure 6-3: Stratigraphic Column for Escondida District

6.3 Property Geology

All mineral deposits in the Escondida cluster are related to multiphase biotite Granodiorite Porphyry stocks, which were preceded by diorite to monzodiorite intrusives, closely associated with magmatic-hydrothermal breccias typically of high Cu grade (Hervé et al, 2012)..

The early porphyry phases consistently host the highest-grade Cu mineralisation. Alteration-mineralisation events at Escondida are distributed from a zone at depth with a potassic association and grey sericite alteration overlain by chalcopyrite and bornite. Then, more pyritic zones of chlorite-sericite and sericite are recognised at intermediate levels and superficially shallow advanced argillic shallow developments with remnants of old lithocap that may have reached a total extent of 200 square kilometres (km^2), associated with high sulphidation copper sulphide mineralisation, much of it in enargite-rich massive sulphide veins.

Hervé et al, 2012, indicate that the Escondida and Escondida Norte deposits, formed between ~ 38 to 36 Ma, and have a deep telescoping process, while the earlier Chimborazo (~ 41 Ma), and later mineralised bodies, such as Escondida Este and Pampa Escondida (~ 36-34 Ma), show only minor telescoping, suggesting that uplift and erosion of the maximum Inca deformation, occurred between 38 and 36 Ma.

The Portezuelo-Panadero and subsidiary longitudinal faults in the district were subjected to sinistral transpression prior to the formation of the deposit (before 41 Ma), which resulted in clockwise block rotation that was responsible for the initial synorogenic generation and filling of the San Carlos depocenter. The Escondida district was then subjected to transient dextral transpression during the emplacement of NNE to NE oriented porphyry copper intrusions with associated alteration and mineralisation (~38 - 34.5 Ma). The dextral regime had disappeared by the time of emplacement of a late N-trending mineralised rhyolite porphyry at Escondida Este and was replaced by transient sinistral transpression during the final stage of formation of NW-trending high and intermediate sulphidation, massive sulphide veins and phreatic breccia dikes. Since 41 Ma, faults in the district have not undergone appreciable displacement, because none of the porphyry copper deposits show significant lateral, or vertical, displacement.

Uplift and erosion characterised the late Oligocene to early Miocene, during which the extensive earlier lithocap was largely stripped and incorporated as detritus into a sequence of coarse piedmont gravel

(Wong, 2013). Development of leached hematitic horizons and chalcocite-enriched zones, along with subsidiary copper oxide ore, was active beneath the topographic highs at Escondida, Escondida Norte-Zaldívar, and to a lesser extent, Chimborazo from ~ 18 to 14 Ma. It is noted, however, that this supergene activity was much less important in the gravel-covered and topographically lower Pampa Escondida deposit. After ~ 14 Ma, supergene processes were restricted by the occurrence of hyper aridity in much of northern Chile.

6.4 Mineral Deposit

The Escondida cluster is formed by the Escondida (including Escondida Este) and Escondida Norte - Zaldívar porphyry copper deposits (Figure 6-2). The latter corresponds to the same ore body mined by two different companies and operations. Additionally, the porphyry copper deposits of Chimborazo and Pampa Escondida, as well as Pinta Verde, have been recognised.

6.4.1 Escondida Deposit

Lithology

Escondida includes two porphyry copper mineralised centres. Escondida, which is hosted in andesitic flows and subordinate breccias of the Augusta Victoria Formation (Ojeda, 1986), and Escondida Este, which is hosted in andesitic volcanic rocks of the La Tabla Formation and coeval intrusions. The Escondida mineralisation is large, comprising an area 100s of metres wide and over 1km is length. It is one of the largest known porphyry systems in the world.

At Escondida, the Augusta Victoria volcanic sequence is cut by a biotite granodiorite porphyry, within which the early phases have a NE trend, known locally as Feldspathic Porphyry, dated at 37.9 ± 1.1, 37.7 ± 0.8 and 37.2 ± 0.8 Ma (Richards et al., 1999; Padilla-Garza et al., 2004). At Escondida, this unit measures 3.3 x 1.5 km with an average thickness of ~ 1.5 km and is recognize at least down to 1.8 km below the surface. To the west and south, early granodiorite porphyries are cut by many late intermineral porphyries; to the west a biotite granodiorite named as Granodiorite Verde dated to 35.4 ± 0.7 Ma (Hervé et al, 2012) is recognised and in the southern sector a lithological sequence ranging from diorite to quartz monzodiorite with different degrees of alteration, named Intermineral Porphyry, is recognised (Technical Note, SI Geology, 2021). The Feldspathic Porphyry stock and copper mineralisation are cut to the north by a biotite rhyolite dome with quartz phenocrysts > 10% by volume, known locally as Quartziferous Porphyry and has been dated at 37.5 ± 0.6 Ma.

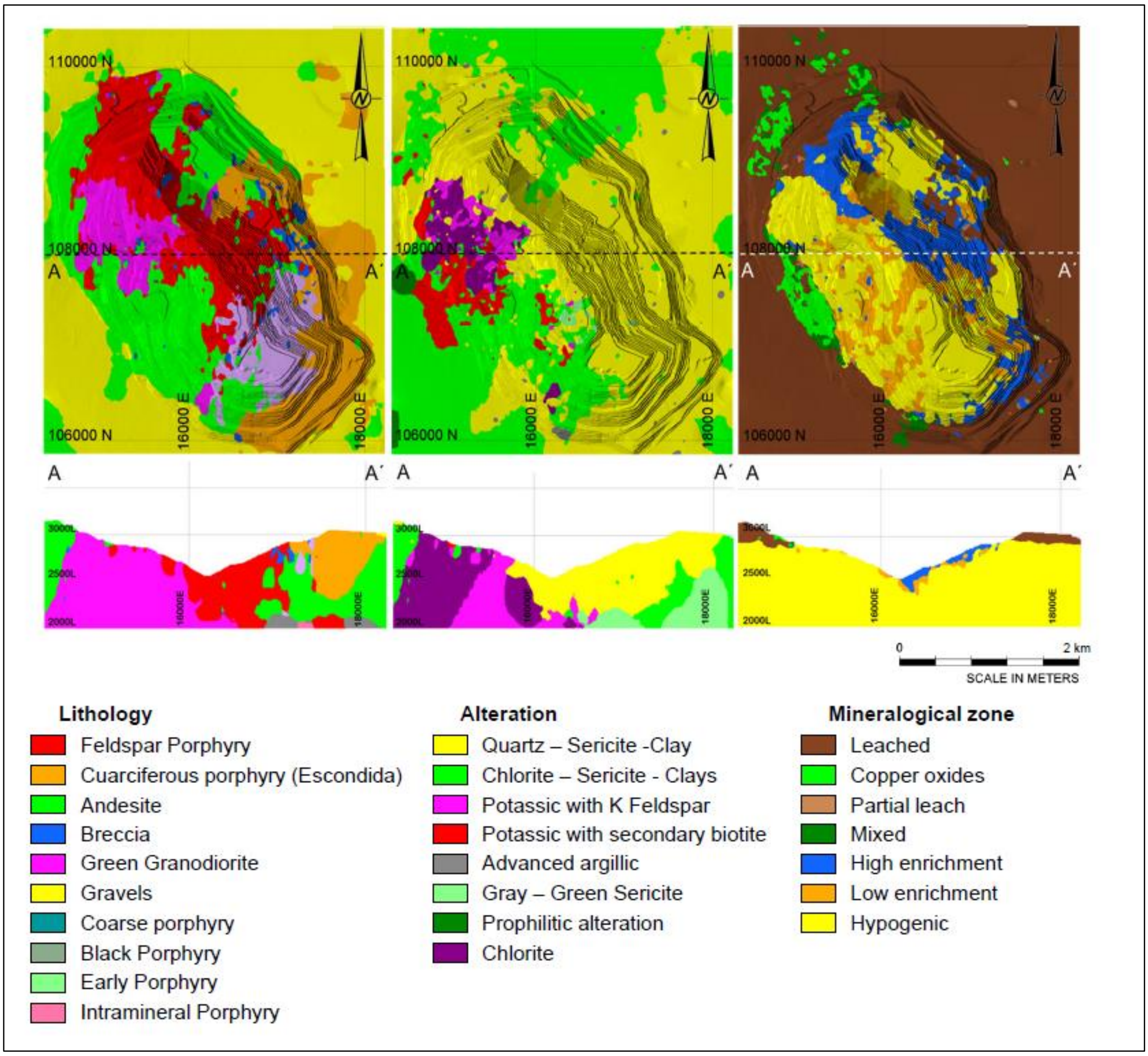
Numerous bodies of Magmatic-Hydrothermal Breccias, which constitute approximately 5% of the Escondida deposit, host the highest grade hypogene and supergene copper mineralisation (Ojeda, 1986, 1990; Véliz, 2004). The breccia clasts, commonly polymictic in nature, are surrounded by varying proportions of sulphide and quartz cement with rock dust matrix (Ojeda, 1986, 1990; Véliz, 2004).

The Escondida deposit, is limited to the east by a late biotite rhyolite porphyry affected by a high sulphidation event, known locally as Quartziferous Porphyry dated at 34.7 ± 1.7 Ma (Richards et al. 1999). This unit measures 3 × 1.5 km at the surface and follows the direction of the North trending Portezuelo - Panadero fault.

Alteration and Hypogene Mineralisation

Much of the feldspathic porphyry shows sericitic alteration in shallow levels already exploited an advanced argillic zone and at deeper only along fault zones. Quartz, pyrophyllite and subordinate alunite, diaspore, and svanbergite are reported (Brimhall et al., 1985; Alpers and Brimhall, 1988). At depth and as remnants in the sericitic zone, patches of chlorite-sericite alteration exist, which give way downward to biotite in andesitic volcanic rocks and k-feldspar > biotite in the porphyries (Padilla-Garza et al., 2001). The superimposed potassic and sericitic alteration contains abundant A and B type quartz veinlets. The

Granodiorita Verde unit shows a weak potassic alteration in veinlets with a generalised chlorotic overprint within which the remaining hydrothermal k-feldspar stands out. The Intermineral Porphyry unit presents diverse alteration associations with variable intensities and showing as a characteristic element, the truncation of veinlets. In some sectors of the pit, there is a marked superimposition of hydrothermal events that originate an intense obliteration on the primary texture, leaving only some quartz relics, which evidence the presence of the intermineral unit (Technical Note, SI Geology, 2021). This unit can be presented primarily with a Chlorite - Sericite - Illite association (Event 1) or affected by superimposition of hydrothermal events such as Sericite - Quartz (Event 2), Sericite (Event 3) and Pyrophyllite - Alunite or Pyrophyllite (Event 4).



Source: MEL (2022)

Figure 6-4: Pit Shell and Vertical Section for Lithology, Alteration, and Mineralogical Zone for Escondida

The hypogene sulphide mineralisation at Escondida is obliterated by the effects of the supergene enrichment. However, chalcopyrite and bornite are identified in relict potassic zones along with chalcopyrite and pyrite from the overprinted chlorite-sericite and sericite zones. The high sulphidation mineralisation occur in the advanced argillic zone. In the underlying Green Granodiorite intrusion, pyrite dominates over chalcopyrite and copper grades are 0.05 to 0.25%, decreasing at depth.

Supergene Mineralisation

Escondida is characterised by a mature supergene profile with high kaolinite contents, which include a hematitic leaching layer, with an average thickness of ~ 200 m, but locally, can reach 400 m. This leaching zone is supported by a NW-trending enrichment zone that covers an area of 4.5 × 1.8 km with a maximum thickness of ~ 400 m. NW-trending faults, fractures, and veins intersecting the NW trend combined with higher hypogene copper contents appear to have been the main controls on both the shape and depth of the enrichment zone (Ojeda, 1986, 1990; Padilla-Garza et al., 2001). The zone is dominated by chalcocite-group minerals in its higher grade upper part with lower-grade covellite and hypogene sulphides remaining that become dominant at depth. The supergene event is dated between ~ 18 to 14 Ma (Alpers and Brimhall, 1988) in supergene alunite at the limit of the leaching and enrichment zone.

Copper oxide mineralisation at Escondida is mainly found in andesitic volcanic rocks altered with biotite and chlorite-sericite in which brochantite and antlerite are the main minerals along with minor chrysocolla, atacamite, various copper phosphate minerals, cuprite, and native copper with the last two being concentrated in the upper part of the enrichment zone (Ojeda, 1986; Véliz and Camacho, 2003).

6.4.2 Escondida Norte Deposit

Lithology

Escondida Norte is hosted by volcanic rocks of the La Tabla Formation and coeval intrusive phases. To the east and at depth, the La Tabla Formation include andesitic rocks, dated at 294.4 ± 4.6 Ma (Jara et al., 2009), which are overlain to the west by a rhyolitic sequence, mainly welded ignimbrites, known locally as Rhyolitic Porphyry, which has been dated at 290.0 ± 4.0, 294.2 ± 2.4 and 298.2 + 5.5 /-4.9 Ma (Richards et al., 1999; Jara et al., 2009).

The intrusives are coarse-grained monzogranites, Coarse Porphyry (298.8 ± 2.6, 293.0 ± 6.0, 291.1 ± 2.3, 289.9 ± 3.5 Ma; Morales, 2009), granodiorite porphyry (287.1 ± 4.4 Ma; Jara et al.; 2009) and diorite. The western part, west of the Portezuelo-Panadero reverse fault, is in contact with andesitic volcanic rocks of the Augusta Victoria Formation and at depth with andesites of the La Tabla Formation.

The units described above, are intruded by a series of NE oriented dikes and larger bodies of biotite granodiorite porphyry granodiorite, which include early phases locally referred to as Feldspathic Porphyry, intermineral and late phases referred to as Dacitic Porphyry (Figure 6-5). At Escondida Norte, the Feldspathic Porphyry measures 1.7 x 1 km and is recognized at least down to 1.2 km below the surface (Figure 6-5). The early and intermineral phases, are dated at 38.0 ± 0.5, and 37.5 ± 0.5 Ma (Hervé et al 2012), while the late mineral phase yielded ages of 36.0 ± 0.8, 35.7 ± 0.7, and 35.5 ± 0.8 Ma (Jara et al., 2009).

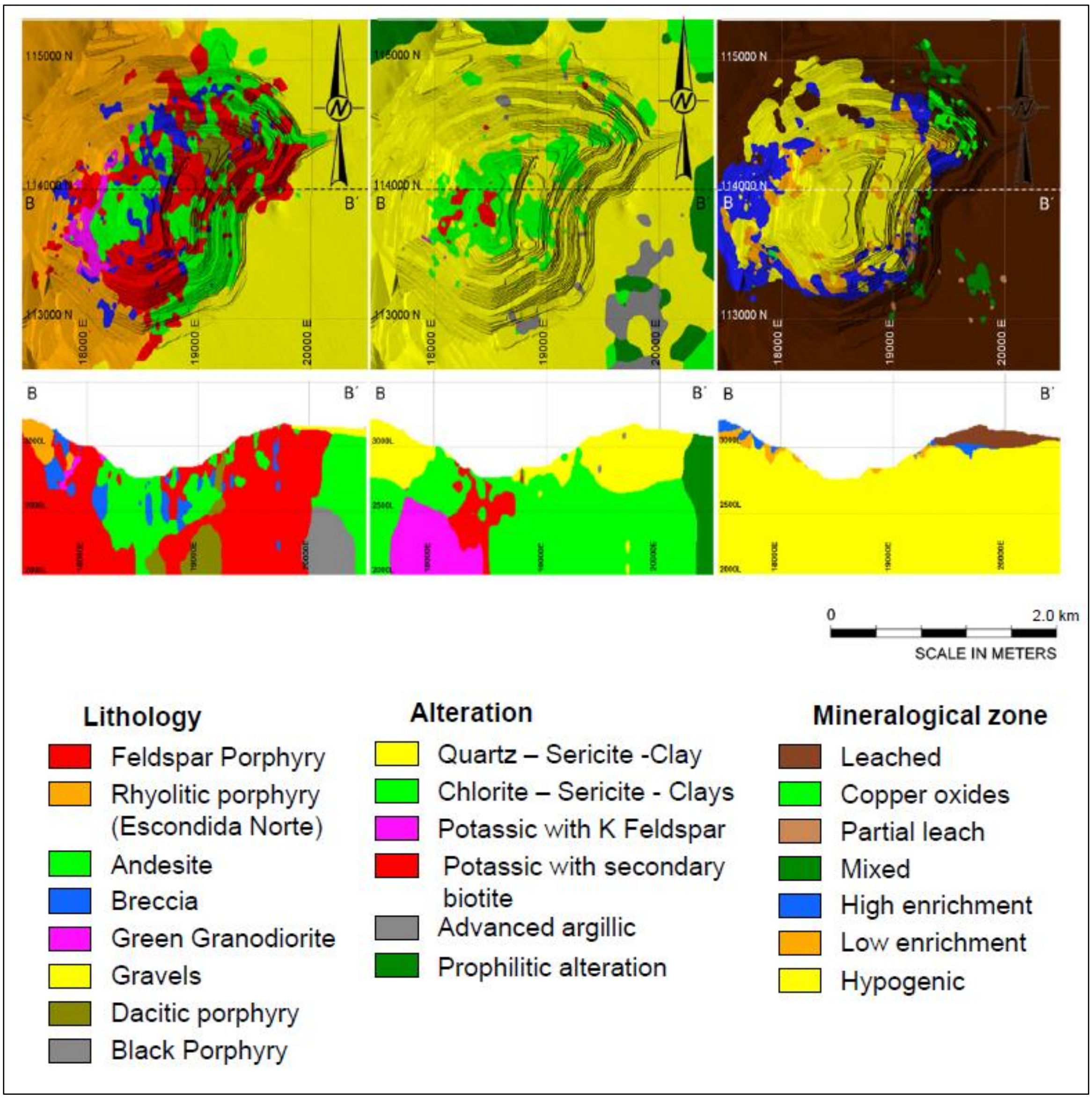
Limited bodies of polymictic magmatic-hydrothermal breccias are associated with early and intermineral porphyries. These breccias show sericitic alteration or sericite chlorite and are cemented by quartz, pyrite, and varying amounts of chalcopyrite at shallow depth, and by quartz-biotite-anhydrite ± feld-K ± magnetite together with chalcopyrite and bornite at depth.

It is one of the largest porphyry systems in the world.

Alteration and Hypogene Mineralisation

Potassic alteration is present at depth throughout the deposit, with biotite-feldspar-K association in the felsic rocks and biotite and minor magnetite predominate in the andesitic volcanic rocks and diorites. The potassic alteration have biotite and magnetite veinlets and abundant feld-K and quartz-feldspar-K veinlets, the latter of A-type. Grey sericite veinlets overlie the potassic zone.

At shallower levels, the generalised alteration is chlorite-sericite, which is characterised by the occurrence of chlorite-sulphide veinlets overlaying and destroying the potassic association. This is covered by a sericitic zone, which is locally overlain by quartz-pyrophyllite ± alunite alteration, closely associated with the NW-directed high sulphidation vein zones. Most of the hypogene sulphide mineralisation at Escondida Norte consists of chalcopyrite and pyrite with the development of only localised centres of chalcopyrite - bornite ± chalcocite mineralisation in the potassic zone.



Source: Escondida (2022)

Figure 6-5: Pit shell and Vertical Section for Lithology, Alteration and Mineralogical Zone for Escondida Norte

Supergene Mineralisation

A well-developed supergene profile is present at Escondida Norte, which include a leached hematitic surface, averaging 100 to 200 m (up to 350 m) thick, and a 20 to 250 m thick enrichment zone. The enrichment zone has a surface of 2 × 1.5 km, trending NE; it is divided into a high-grade, chalcocite-dominated upper zone (High Enriched), and a lower-grade basal part with covellite and lower chalcocite (Low Enriched). Supergene kaolinite is present throughout the zone and supergene alunite is dated to be ~ 17 to 14 Ma (Morales, 2009).

Copper oxide mineralisation is irregularly developed above the enrichment zone, mainly with antlerite and brochantite in the higher-grade central parts (Maturana and Saric, 1991; Monroy, 2000; Williams, 2003), and chrysocolla and atacamite peripherally.

7 Exploration

As presented in Chapter 5.2 of this TRS, the Project area has been the subject of various historical and recent exploration drilling campaigns, mainly targeting Cu mineralisation at the Project site.

In the 1980s, Utah Corporation generated a plan to explore for metal deposits in northern Chile. Using a methodology of geochemical exploration, an area of interest was identified, and a drilling campaign was carried out that led to the discovery of the Escondida deposit. These early exploration campaigns were carried out by different mining companies, and for the oldest campaigns, there is no detailed document available describing how the historical information was collected. A total of 2,691,948 m of exploration drilling has been completed (up until December 2021), distributed across 5,764 drill holes for Escondida and distributed across 2,832 drill holes for Escondida Norte.

The main objective of the exploration programmes implemented at MEL has been the exploration of new deposits, as well as to improve mineral resources classification to support the annual planning cycle. The results of these programmes serve as the basis to support planning and growth strategies as well as investment programmes for the modernisation of the mining unit.

Maps presented in this chapter use local mine coordinates derived from the PSAD-56 UTM projection.

7.1 Exploration Work (Other Than Drilling)

Limited non-drilling surface exploration work has been conducted at MEL. At the beginning of the exploration, surface geochemical and geophysical techniques were used. At present, given that this is an operating deposit with an adequate level of geological knowledge, no other non-drilling exploration work is being carried out within the mine's area of operation.

In the opinion of the QP, this information isn't relevant as it only supported the initial planning of exploration.

7.2 Exploration Drilling

7.2.1 Drilling Type and Extent

Since the 1980s, drilling has been the primary sampling method for estimating mineral resources and mineral reserves at MEL. Extensive drilling activities have been carried out at different scales and in multiple phases in line with business planning cycles

Exploration drilling has been undertaken almost yearly at MEL since 2000. Total drilling available for resource estimate at Escondida and Escondida Norte is approximately 8,600 drill holes totalling approximately 2,690,000 m. Since the initial exploration drilling campaigns several different drilling techniques have been implemented, including:

- Conventional open rotary holes: 96 drill holes mainly from the early exploration of the deposit and were excluded from the mineral resources estimation process due to the low confidence in their sampling.
- RC drill holes: 5½ inch to 5¾ inch (139.7 mm to 146.05 mm) for geological sample recovery.
- DDH: Mainly HQ (63.5 mm diameter) with reduction to NQ (47.6 mm) and BQ (36.4 mm) as required. PQ holes (85 mm) for metallurgical purposes.
- Combination of RC and DDH: The combined drill holes (RC-DDH) have been used mainly to save cost by using RC to drill through barren overburden and switching to DDH method shortly above mineralised rock.

Table 7-1 and Table 7-2 shows the number of holes and cumulative length of drilling for each drilling method for Escondida and Escondida Norte. The differences between drilled and analysed metres are due to non-mineralised intervals that have not been assayed.

Table 7-1: Summary of Metres Drilled, Escondida

Type of Drilling	Number of Drill Holes	Metres Drilled	Metres Assayed
	(#)	(m)	(m)
DDH	1,688	503,329	476,116
RC	2,459	417,569	405,060
RC-DDH	1,617	847,840	797,439
Total	**5,764**	**1,768,738**	**1,678,615**

Source: MEL (2022)

Table 7-2: Summary of Metres Drilled, Escondida Norte

Type of Drilling	Number of Drill Holes	Metres Drilled	Metres Assayed
	(#)	(m)	(m)
DDH	702	222,916	218,795
RC	1,218	304,185	300,244
RC-DDH	912	396,110	389,042
Total	**2,832**	**923,211**	**908,081**

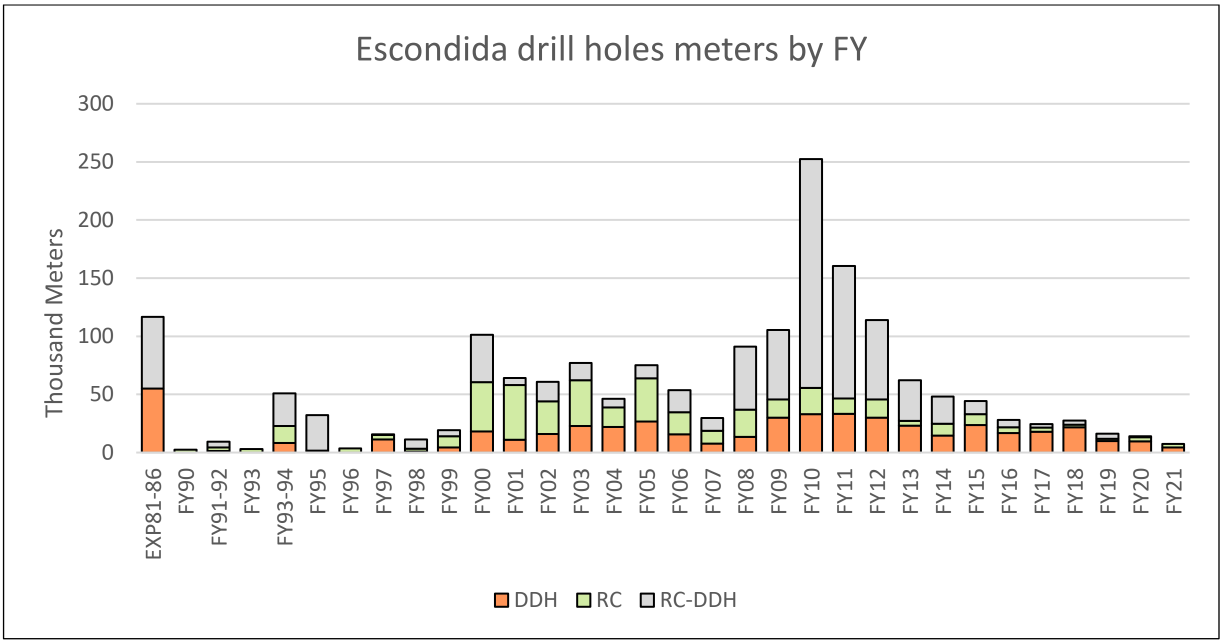
Source: MEL (2022)

The annual infill drilling campaigns were intended to confirm the mineral resources based on the mining plan. From FY2000 to FY2008, an average of 80,000 m were drilled annually, except in 2001, when the number of metres drilled was increased to support the then Escondida Norte Project.

Between FY2008 and FY2012, drilling was increased to support the estimates of mineral resources for MEL's growth projects. Since 2013, the guidelines for determining the metres to be drilled require a minimum of 90% measured mineral resource for the first two years of production and a minimum of 80% measured mineral resource to complete the 5-year plan.

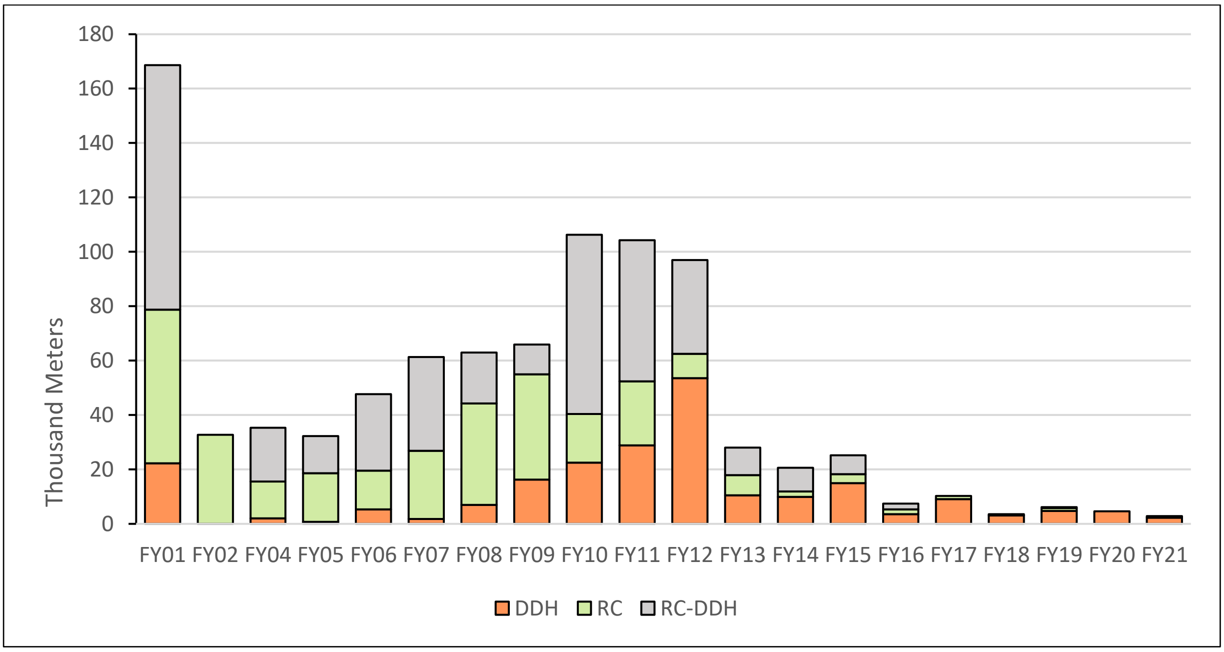
Geotechnical and hydrogeological drill holes that have already been used in their corresponding models were released for use in the Resource models, going through all the QA/QC requirements of infill drill holes.

Figure 7-1 and Figure 7-2 show the metres drilled per year since the start of the exploration phase for Escondida and Escondida Norte.



Source: MEL (2022)

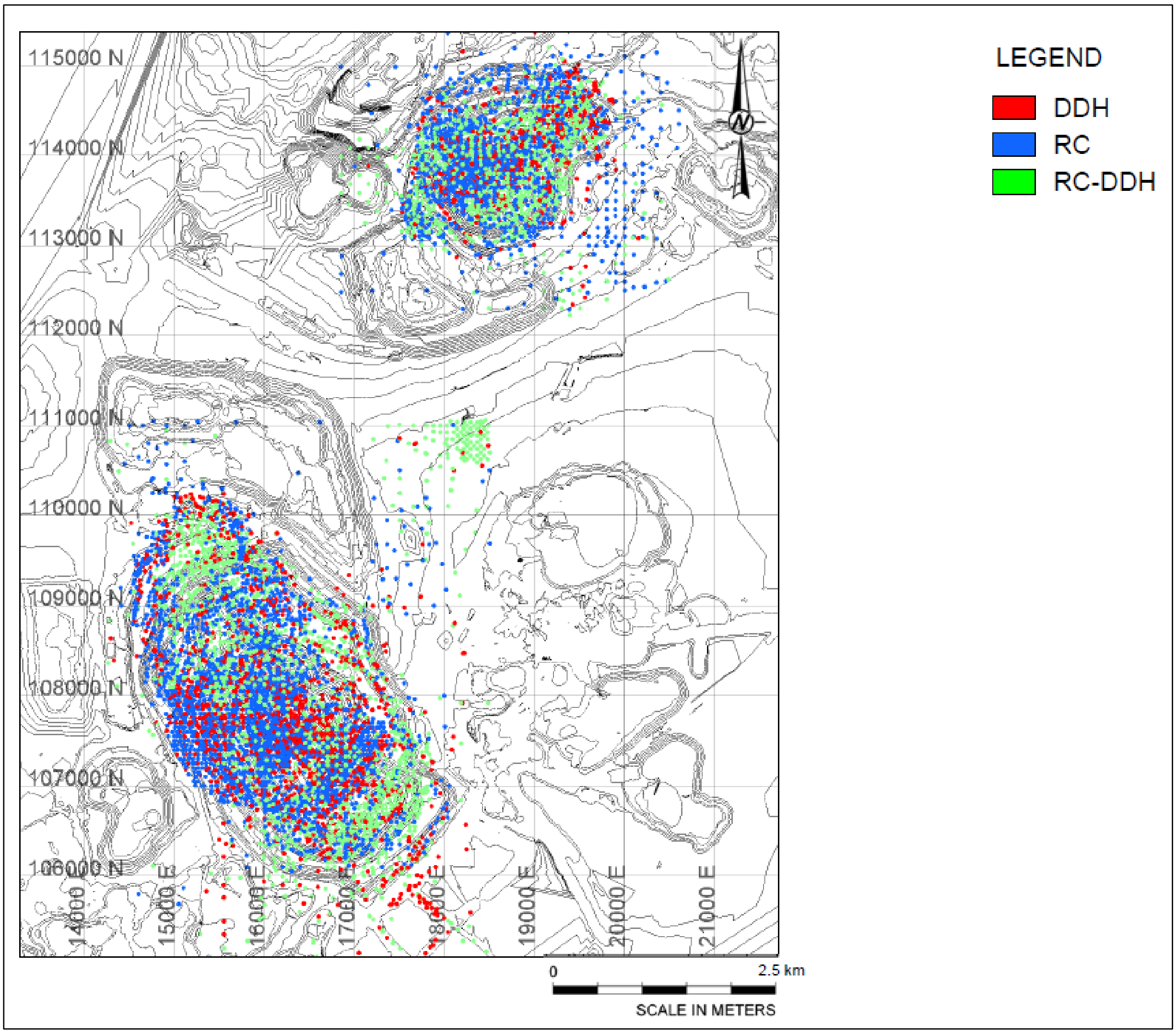
Figure 7-1: Metres Drilled by Drilling Type and FY, Escondida



Source: MEL (2022)

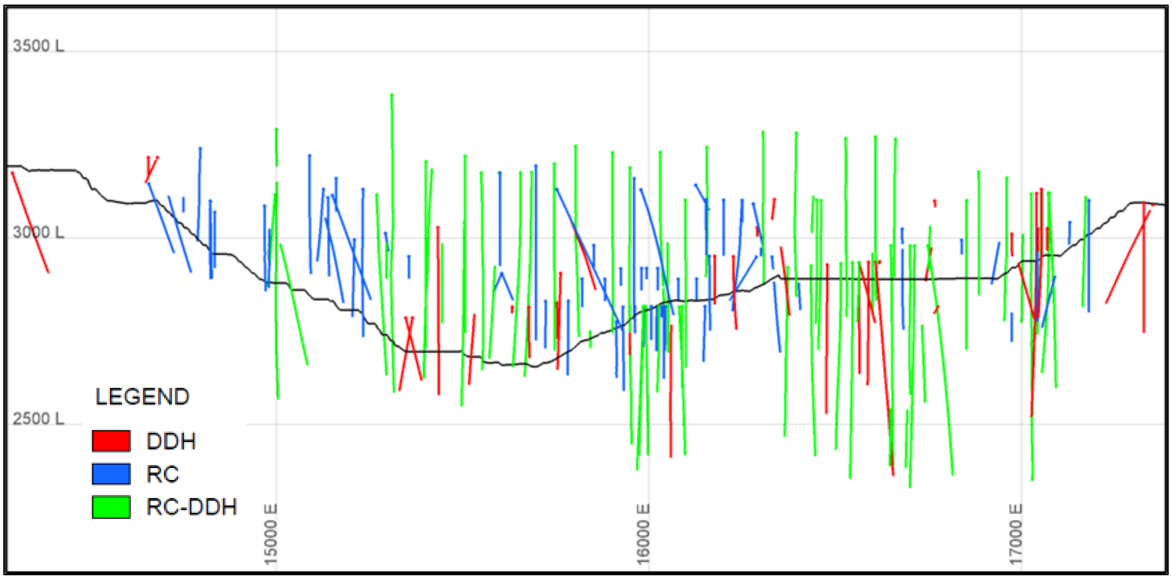
Figure 7-2: Metres Drilled by Drilling Type and FY, Escondida Norte

Figure 7-3 shows drill hole collars by type used in the construction of the 2021 Resource model for Escondida and Escondida Norte. Figure 7-4 and Figure 7-5 show cross-sections of the drill holes included in the Resource Models of Escondida and Escondida Norte.



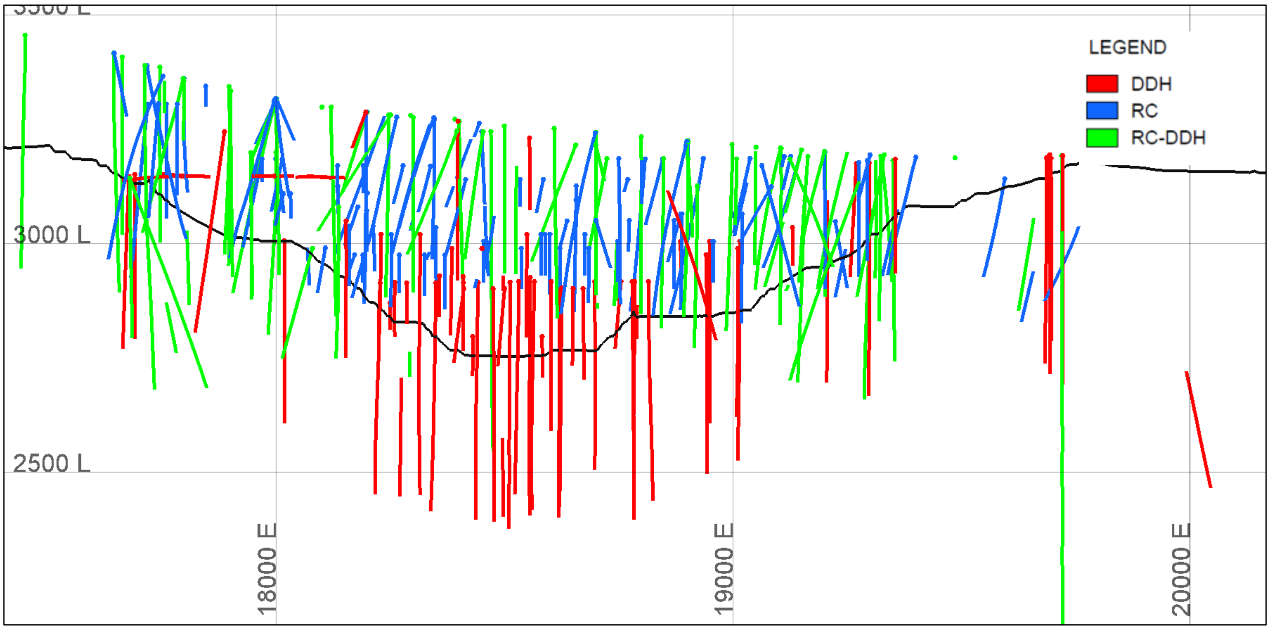
Source: MEL (2022)

Figure 7-3: Distribution of Collars by Drill Hole Type, Escondida and Escondida Norte



Note: Black line represents the December 31, 2021, topography.
Source: MEL (2022)

Figure 7-4: Vertical Section 108,600N with Drill Hole per Type, Escondida



Note: Black line represents the December 31, 2021, topography.
Source: MEL (2022)

Figure 7-5: Vertical Section 114,000N with Drill Hole per Type, Escondida Norte

7.2.2 Drilling, Sampling, and Recovery Factors

Recovery was calculated for all DDH holes completed to date, and except for the DDH in unconsolidated gravels, the average recovery (RC and DDH) for any given lithology exceeded 90%. The core recovery was determined by calculating the ratio of length of material returned in the core tube versus the total length drilled for the run and recorded as a percentage. Recovery for RC was calculated by comparing the sample weight recovery against the theoretical weight and recorded as a percentage.

Prior to June 2000, the collars were surveyed by conventional surveying techniques. Subsequently collar was measured using high-definition global positioning system (GPS). Prior to drilling the planned location of the drill hole (X, Y, Z coordinates) was surveyed with a high precision GPS. Location measurements were taken prior to the start of drilling and at the completion of drilling. In general, the differences between both measurements were minor than 30 cm. As a QA/QC procedure, approximately 10% of collar locations were checked by the same contractor but using a different surveyor. The differences reported for all the location checks were less than 10 cm. In instances where the drill hole was inclined and not vertical, the drill rig was oriented in the specified direction and inclination. Once the rig was positioned, the geologist responsible for the drilling campaign confirmed the orientation of the rig with a compass and the inclination with an inclinometer.

Deviation surveys were completed on all drill holes. The historical drill hole deviation was surveyed by several different techniques. Prior to 2000, single-shot cameras collected orientation measurements at intervals of approximately 50 m. From February 2000 to August 2003, the Maxibor instrument obtained orientations at 3 m intervals. From August 2003 through 2012, a multi-shot instrument that determined orientations at 6 m of separation.

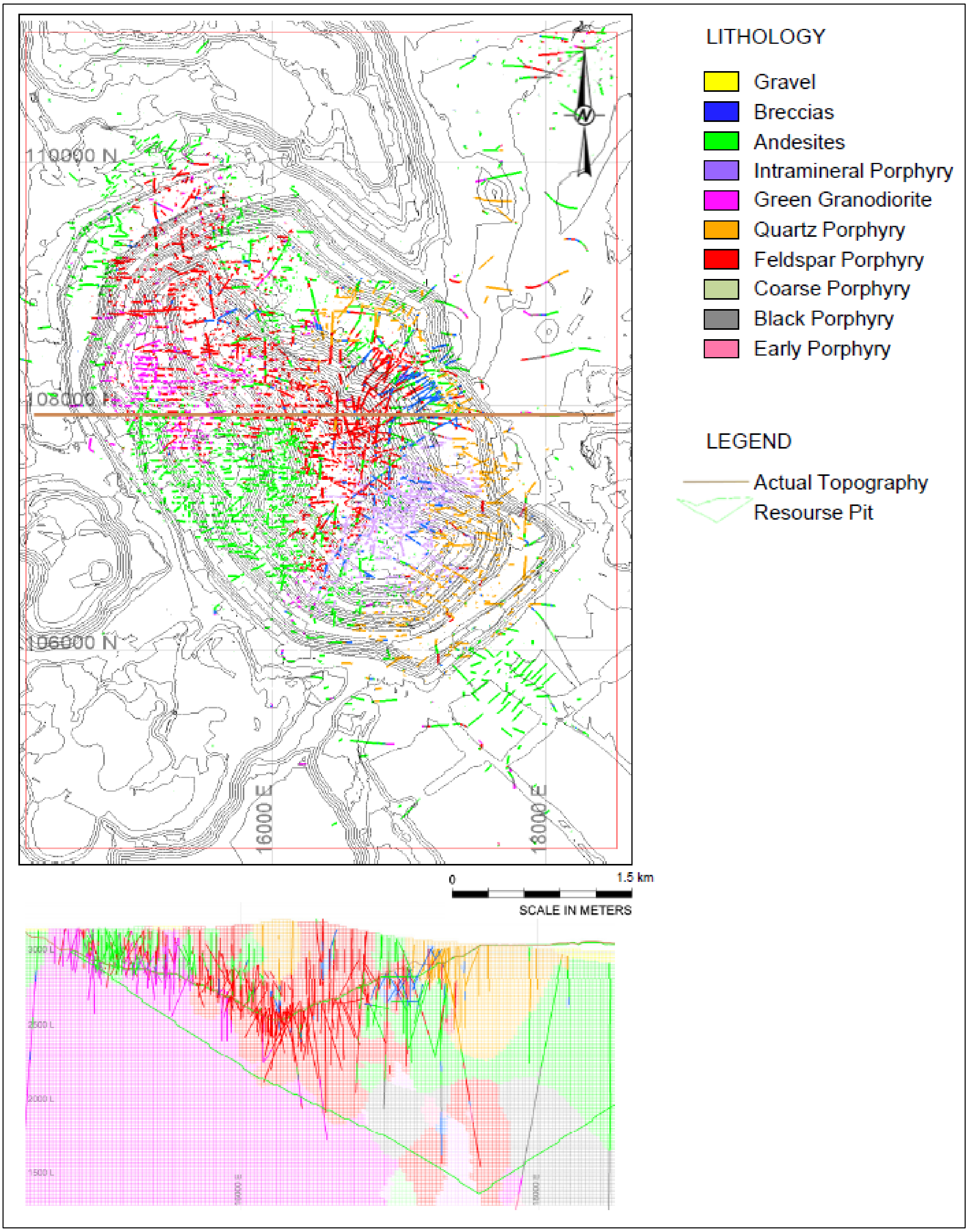
The Continuous North Seeking Gyroscope was implemented in 2012 and is still in use today. For orientation surveying Acoustic Televiewer (ATV), with orientation measurements every 10 m and real-time gyroscope, measurements every 20 m, have also been used for a small number of drill holes, but mainly for historical drilling.

In general, the downhole deviation of drill holes was adequate, rarely exceeding a cumulative deviation of 1° per 100 m for both DDH and RC drilling. More significant cumulative deviations that average 2° per 100 m, have occasionally occurred, but limited to high pressure RC drilling. Deviation more than 5% was not accepted by the operation. Drill hole data was discharged and not used for mineral resources estimation.

Detail of sampling and chain security of samples can be found in Chapter 8.

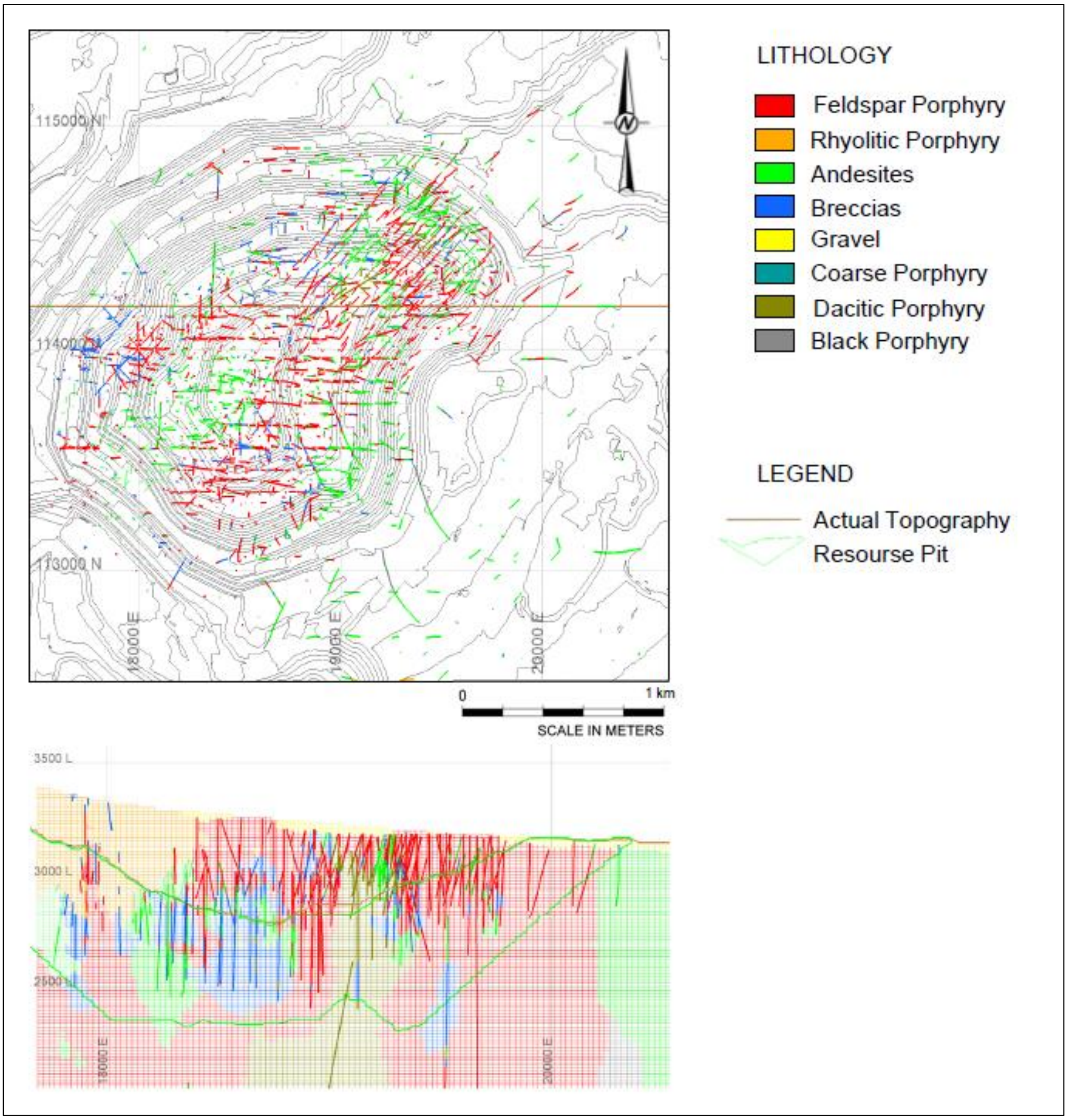
7.2.3 Drilling Results and Interpretation

Of the 2,690,000 m drilled at Escondida and Escondida Norte, and included in the 2021 Resource Model, only 1,400,000 m are located below the current pit topography, and the remainder in mined out areas. Most of the holes are drilled sub vertical, which allows adequate capture of the mantle of supergene enrichment and the zone of hypogene mineralisation. Drill holes spacing of 50 m in the areas close to the open pit limits, increasing up to 300 m beyond this. Figure 7-6 and Figure 7-7 show the layout of the drill holes in plan and sections. In the opinion of this QP, the amount, orientation and spacing of drill hole information was sufficient for mineral resources estimation purpose, as discussed in Chapter 11 of this TRS.



Source: MEL (2022)

Figure 7-6: Lithology Model Plan View and Vertical Sections, Escondida



Source: MEL (2022)

Figure 7-7: Lithology Model Plan View and Vertical Sections, Escondida Norte

7.2.4 Qualified Person's Statement on Exploration Drilling

The QP is not aware of any issues related to the drilling, sampling, or recovery factors that could materially affect the accuracy and reliability of the results of the historical drilling and sampling. The data was well documented, via original digital and hard copy records, and was collected using industry standard practices. All data was organised into a current and secure spatial relational database. The data has undergone internal data verification reviews, as described in Chapter 9 of this TRS.

7.3 Hydrogeology

The hydrogeological studies are associated with the performance of hydraulic tests, flow records and piezometric level, generated mainly from the drilling as a continuous process of capture and updating of information, in addition to the data obtained from the monitoring network of the of Escondida and Escondida Norte pits.

The hydraulic tests carried out on the pits correspond to pumping tests, Packer or Lugeon tests, Slug tests and Airlift tests. With this information, hydrogeological properties such as permeability, hydraulic conductivity and others are determined and validated. The main values obtained from the analyses of the tests carried out in Escondida are summarised below.

- The highest permeability (K) values, and higher porosity (S) in the case of airlift tests were observed for all tests in at least one sector of the pit, in sections characterised by Rock Quality Designation (RQD) minimum values in their lower ranges (<50%), and maximum Frequency Fracture (FF) in their upper ranges (5-17 and 17-40 1/m). This was specifically observed on the East and South walls.
- An increase in K values was observed in those tests that presented intersection with major faults, especially in the East, South, and Los Colorados walls. In the East and South walls, the faults with NW orientation would be related to higher values of K; while in the wall Los Colorados, the orientation of faults associated with higher values of K would be NE. The airlift tests did not present structural influence.
- The packer and slug tests showed higher K values in the sections characterised in the supergene mineralisation for the East and Los Colorados walls.

The Escondida hydrogeology characteristics are presented in Table 7-3.

The main hydrogeology properties values from the analysis of the evidence and data collected in the field in Escondida Norte are summarised below:

- The different magnitude of these responses would be related to the distribution of the fracturing of the rocky mass, represented by the RQD and FF, which would present a preferential orientation in the Northwest-Southeast direction.
- The greatest responses were associated with wells and monitoring piezometers located in an environment characterised by RQD values of 0-25% and FF 17-40 1/m, which align and connect with the pumping wells in a Northwest-Southeast direction. This connection could occur up to 200 m.
- The lowest responses were associated with wells and monitoring piezometers located in an environment characterised by RQD values greater than 50% and FF less than 5 1/m. For monitoring wells in this environment, stable levels were observed that did not respond to pumping, even if the well was 20 m away.
- The above observations are described as an anisotropy (compartmentalisation) in the rocky massif according to the Northwest-Southeast orientation of fracturing zones and their spatial relationship with the associated major faults that strengthens the observations carried out on the performance in terms of flow of the pumping wells.

The methodology used by MEL operations regarding hydrogeology data collection has been clearly established in the BHP Hydrogeological Technical Characterisation guide and is captured for two main purposes: mine operation, and project support. In both cases, all the information was collected in the field and no laboratory testing were used. The quality control are established in the contracts of in-situ test and frequently validate for MEL teams and external consulting companies.

Table 7-3: Summary Piezometric Characteristics of the Escondida Pit

Wall	Slope sector	Elevation Level (m amsl)	Gradient	Main Stress	Decrease Rate (m/month)	Hydrogeological Control
South	Low	2,557 - 2,565	Hydrostatic	Bottom Pit PW-450	<0.1 a 0.4 2.9 a 39.3	FF 5-17 y 17-40 1/m Major Faults NW Conductive Structural domain 1
	Middle	S/I	N/I	N/I	N/I	FF 5-17 y 17-40 1/m Major Faults NW Conductive Structural domain 1 - AND
	Out Pit	2,783 - 2,950	ascending	Advance S3C, E6 y E7	<0.1 a 0.73	FF 5-17 y 17-40 1/m Major Faults NW Conductive Structural domain 1 - AND Gravel saturated by anthropic refill
East	Low	S/I	N/I	N/I	N/I	N/I
	Middle	2,628 - 2,712	Hydrostatic	horizontal drains and pushback E6 and E7	<0.1 a 10.7	FF 5-17 y 17-40 1/m Major Faults NW Conductive Structural domain 2
	Middle High	2,670 - 2,810	descending on anhydrite ceiling anhydrite ceiling rise	horizontal drains and pushback E6 and E7	0.4 a 3.7	FF 5-17 y 17-40 1/m Major Faults NW Conductive Structural domain 2
	Out Pit	2,950 - 2,990	Hydrostatic - descending	Pushback E6 y E7	0.1 a 1.0	FF 2-5 1/m Major Faults NW Conductive Mineralisation LIX Structural domain 3
Los Colorados	Low	2,615 – 2,653	ascending	Deepening pit bottom, drains and bottom pumping wells	0.7 - 1.6	FF 2-5 1/m Major Faults NW Partial Barrier (450) Mineralisation LIX, HE y LE
	Middle	N/I	N/I	N/I	N/I	N/I
	High	2,782 – 2,940	Hydrostatic to descending. Ascendant in low sensors 2,650 m amsl	Pit excavation, drainage tunnel and horizontal drains	0.5 – 0.7	FF 17-40 1/m Major Faults NE conductive Mineralisation LIX, HE y LE
	Out Pit	2,966 – 3,014	Hanging aquifer	Anthropic refill	level increase (0.5 m)	Mineralisation LIX, HE y LE
		2,860	Deep aquifer	Pit excavation, drainage tunnel and drains	0.4	FF 17-40 1/m Major Faults NE conductive
Northeast	Low	2,608 – 2,714	Ascendant	Deepening of the pit bottom, pumping wells and horizontal drains	0.2 - 0.8	FF 2-5 1/m Major Faults NW Partial Barrier (450) Mineralisation LIX, HE y LE
	Middle High	2,758 - 2,852	Low sensor upstream 2,600 m amsl	Pit excavation, drainage tunnel and horizontal drains	0.2 - 0.6	FF 17-40 1/m Anhydrite ceiling
	High	2,780	Hydrostatic	Pit excavation, drainage tunnel and horizontal drains	0.3	FF 17-40 1/m
	Out Pit	3,009	N/I	Anthropic refill	0.1 - 0.2	Mineralisation LIX, HE y LE
		2,855 – 2,940	Hydrostatic	Excavation of the pit and system D&D in pit	0.2 - 0.5	FF 17-40 1/m Anhydrite ceiling
Northwest	Middle Low	2,555 - 2,577	Hydrostatic	Excavation and pumping pit bottom Infiltrations pools area ex-Crushing	0.13 a 5.03	Anhydrite ceiling
	High	2,707 - 2,800	Hydrostatic		0.2	
	Out Pit	2,898 - 3,060	Ascending	Pushback N16	<0.1 a 0.5	
Bottom Pit	-	2,490 – 2,561	Ascending	Excavation and pumping pit bottom	0.1 – 8.1	FF 2-5 1/m Major Faults NW Conductive

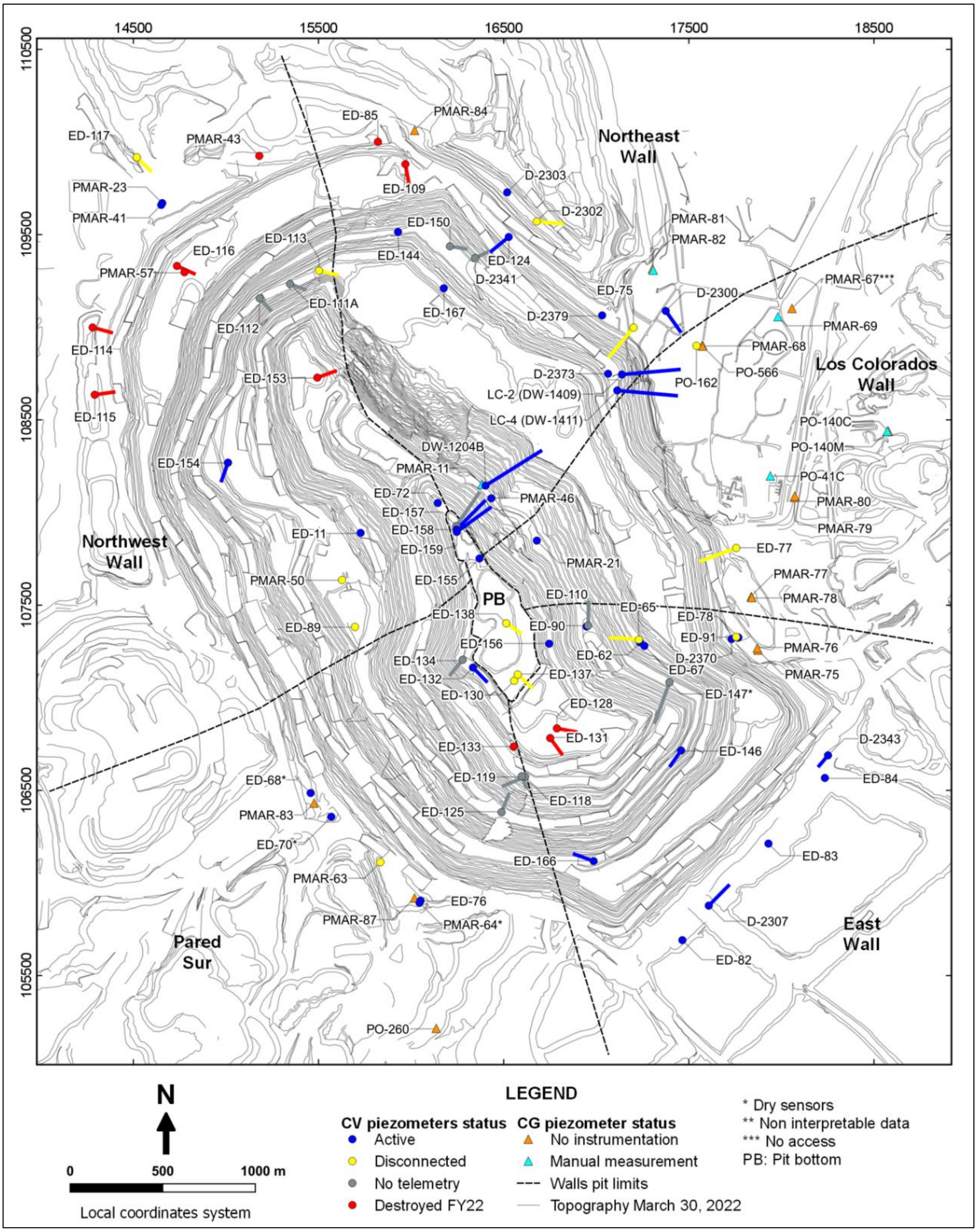
Source: MEL (2022)

7.3.1 Mine Operation

In the mining operation, the main activities are:

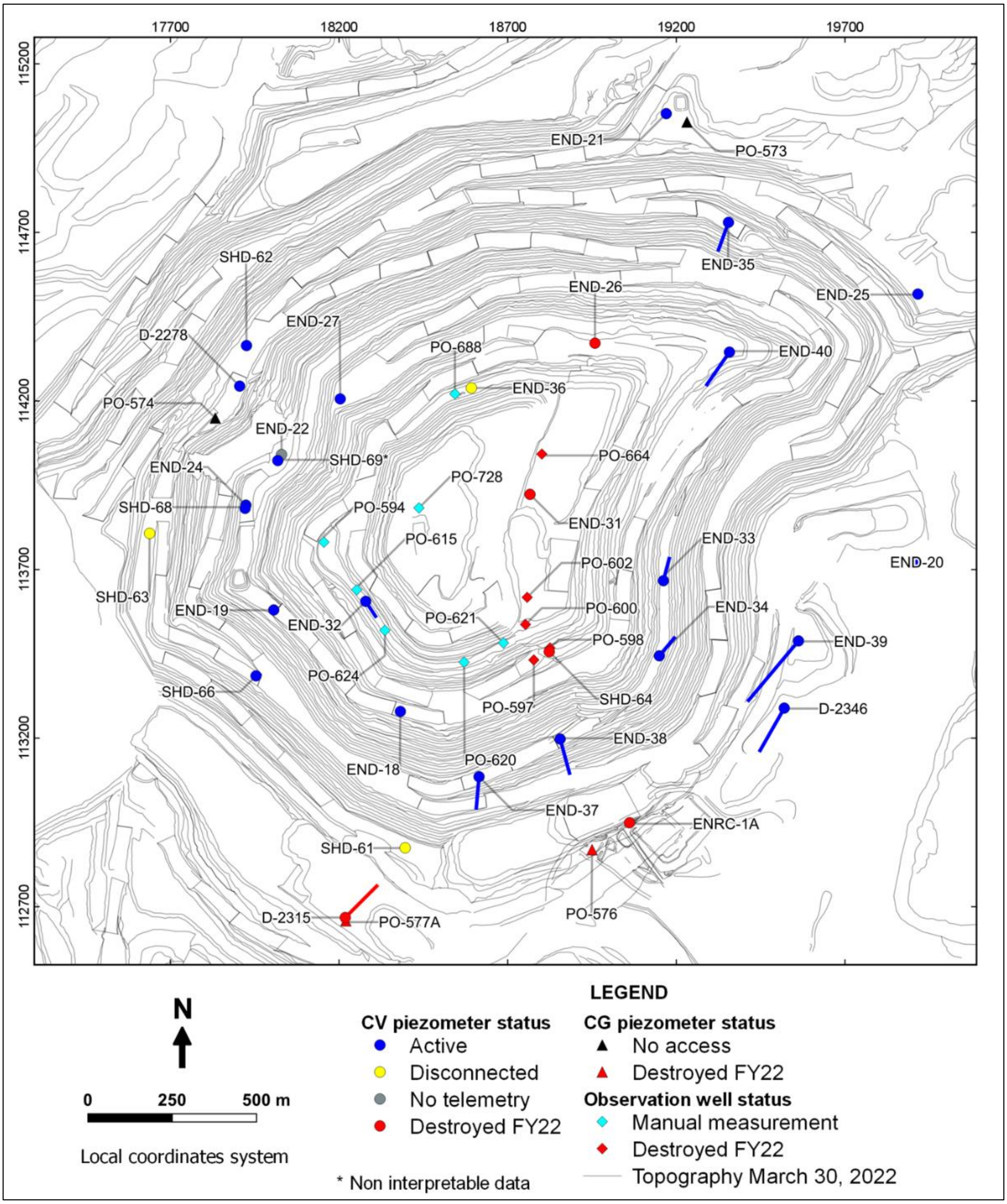
- Drilling of RC holes for water production and the installation of a monitoring network.
- Hydrogeological logging of drill holes, including definition of lithology, alteration and presence of faults or structures.
- Measurement of the piezometric elevation.
- Airlift tests each time a drill hole was added.
- Based on all this information it was estimated the optimum operating flow rate of the producing wells and thus define the hydrogeological transmissivity of the immediate environment.
- Monitoring network.

As at 30 June 2022, the hydrogeology monitoring network for MEL includes 35 active monitoring points in order to detect variations of the water table and pore pressure as well as estimate the hydraulic properties in the rock mass (Figure 7-8 and Figure 7-9). During the ordinary course of the mine life new sensors are installed and other are lost due to the normal mining exploitation activity.



Source: MEL (2022)

Figure 7-8: Piezometric Monitoring Network in the Escondida Pit



Source: MEL (2022)

Figure 7-9: Piezometric monitoring network in Escondida North pit

In the QP's opinion, the type and appropriateness of laboratory techniques (such as Pumping tests, slug tests and packer tests) used to test for groundwater flow parameters, such as permeability, and QA/QC procedures, are reasonable. MEL gathers information on permeable zones and local aquifers, flow rates, in-situ saturation, recharge rates and water balance and with this information the MEL hydrogeology group generates ground water models used to characterize aquifers, including material assumptions used in the modelling. These groundwater models are used for geotechnical analysis of pit stability and other required activities.

7.3.2 Projects

In addition to the continuous hydrogeological evaluation of the operating pits at the MEL operation hydrogeological evaluation is also undertaken for specific projects. These studies are generally outside of the regular production areas and include studies, such as, among others, new leaching areas, new tailing storage developments and the evaluation of potential future underground mining alternatives.

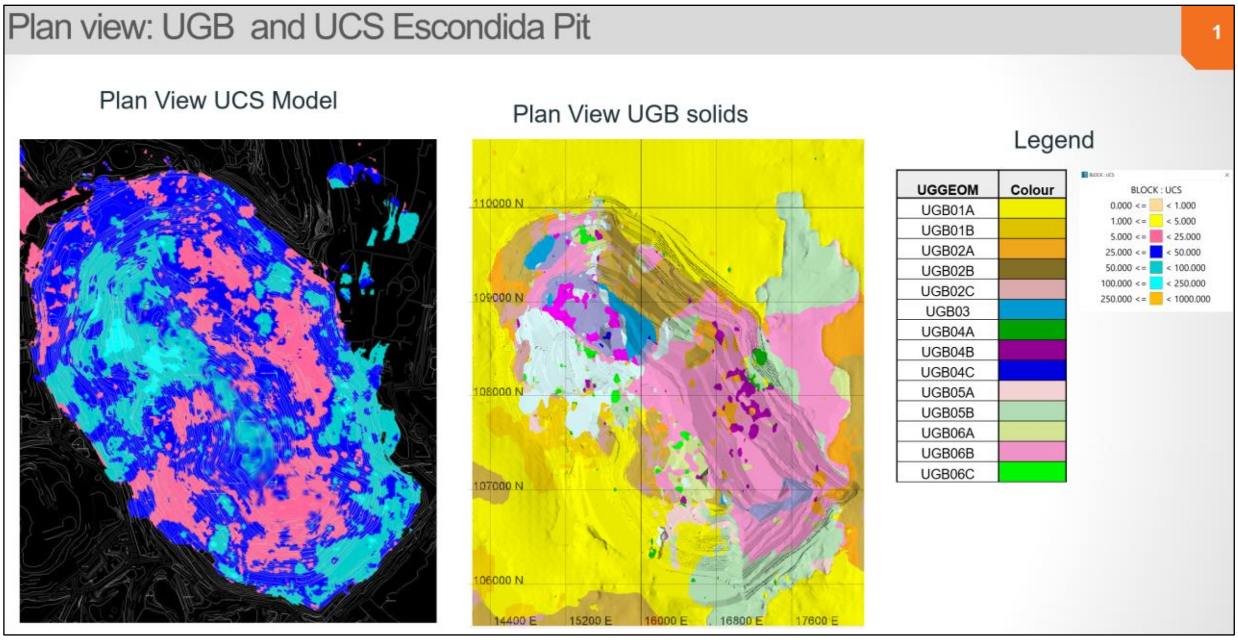
Hydrogeological characterisation campaigns are carried out according to the detail required by the project status, and generally includes DDH drilling with core recovery which was carried out to capture the following information:

- Geological logging and hydrogeological characterisation including definition of lithology, alteration, and presence of faults or structures.
- Piezometric level measurement.
- Execution of Lugeon permeability tests to establish the permeability of the hydrogeological units tested.
- Installation of vibrating string sensors at different depths to define the pore pressure distribution in the different hydrogeological units, hydrogeological gradients in the vertical and horizontal directions, location of the piezometric level at surface and the direction of underground flow.
- Ad hoc geochemical and/or hydrogeochemical evaluation may be also undertaken as required

The details of characterisation and monitoring network in hydrogeology models is included in Section 13.2.2.

7.4 Geotechnical Data, Testing, and Analysis

Every year geotechnical drilling campaign obtains samples from sectors with low information density or with more complex geological conditions. Figure 7-10 presents an example of the UCS model associated with the described geological units. The methodology used by the MEL operation in the geotechnical data collection, laboratory tests and analysis of information is established in the BHP Geotechnical Characterisation guide associated to estimate the rock mass properties (Geotechnical Standard Version 3.0), in Table 7-4 and Table 7-5.



Source: MEL (2022)

Figure 7-10: Geotechnical Unit and Uniaxial Compression Strength (UCS) Escondida Mine

7.4.1 Geotechnical Drilling

Geotechnical drilling and sampling are completed internally by MEL staff as part of the routine programme. The geotechnical drilling campaigns are completed with DDH drill holes with a core diameter of HQ3 gauge (63.5 mm). To enhance the adequacy of the drilling and geotechnical sampling, the process is led by trained personnel and follows established protocols.

From the probes there are samples of rocks which are identified with respect to their location, lithology, alteration and classified according to degree of resistance, including:

- Primary (1st) which are the most resistant rocks which have not been affected by leaching
- Secondary sensu strictu (2ss) which are the weakest rocks affected by surface leaching, and
- Secondary (2nd) transition that are rocks of intermediate resistance partially affected by surface leaching.

Table 7-4 shows the number of trials of each type. This information is used in the stability calculations of the design to be able to know the safety factors of the slopes at different scales inter-ramp and global slope. These calculations can be of limit equilibrium or numeric.

Table 7-4: Distribution of Historical Geotechnical Samples by Alteration, Lithology, and Geotechnical Zone, Escondida and Escondida Norte

Lithology	Alteration	1rio		2ss		2tr		Total
		TCS	UCS	TCS	UCS	TCS	UCS	
Andesite	ARG			31	25	29	21	**106**
	BIO	4	5		1	5		**15**
	QSC	1	10	174	71	124	34	**414**
	SCC	1	30	11	21	52	13	**128**
	SGV	1	1			2		**4**
Breccia	ARG			1	3	23		**27**
	BIO	1	3					**4**
	POT			1				**1**
	QSC			179	81	156	83	**499**
	SCC		2	4	6	21	13	**46**
	SGV		1					**1**
Feldspar Porphyry	ARG			3	5	18	3	**29**
	POT	4				7	1	**12**
	QSC	8	6	188	107	388	209	**906**
	SCC	2	22		1	25	6	**56**
	SGV	7				10	2	**19**
Quartziferous Porphyry	ARG			11		25	3	**39**
	QSC			118	51	98	57	**324**
	SCC					1	2	**3**
Late Porphyry	CLO		5					**5**
	SGV	2	4			1	1	**8**
BLANK				4	1	21	1	**27**
Total								**2673**

Source: MEL (2022)

To characterize and obtain the in-situ rock parameters, destructive and non-destructive tests were completed during the 2021 campaign. Destructive tests include Indirect Traction (IT), Uniaxial Compression (UCS), and Triaxial Compression (TCS). The QA/QC process include verification visit to Labs, use of international standards and checks of the process, tests and samples pre and post-test (the last process was with the SRK support).The detail of the total number of samples of for FY20 and FY21 campaigns are presented in Table 7-5 and Table 7-6.

Table 7-5: Distribution of 2020-2021 Geotechnical Samples by Alteration, Lithology and Geotechnical Zone, Escondida and Escondida Norte

Lithology	Alteration	1rio		2ss		2tr		Total
		TCS	UCS	TCS	UCS	TCS	UCS	
Andesite	SCC			1				**1**
	QSC	2	1	22	9	4	1	**39**
	POT					5	3	**8**
	SGV					25	11	**36**
	QSC	2		1	3			**6**
Breccia	-	2			3			**5**
Hydrothermal Breccia	-		1		1			**2**
Igneous Breccia	QSC			6	2			**8**
	SCC			1	2	2	1	**6**
	QS				1			**1**
	QSA			2	1			**3**
Quartziferous Porphyry	QSC			6	3			**9**
	QS	14	7	45	18			**84**
	QSC	2	1	7	3			**13**
Intermineral Porphyry	CL					1	1	**2**
	QSC			3	3			**6**
	QS					2	3	**5**
	SCC			6		27	9	**42**
	QS-GV	1	4	14	3	2		**24**
Feldspar Porphyry	-	7	1	2	1	1	2	**14**
Late Porphyry	-			2	1			**3**
Dacitic Tuff	-	4	2	7	3			**16**
Total		**34**	**17**	**51**	**182**	**69**	**31**	**333**

Source: MEL (2022)

Table 7-6 summarizes the strength properties by geotechnical unit for the Escondida and Escondida Norte pits, respectively.

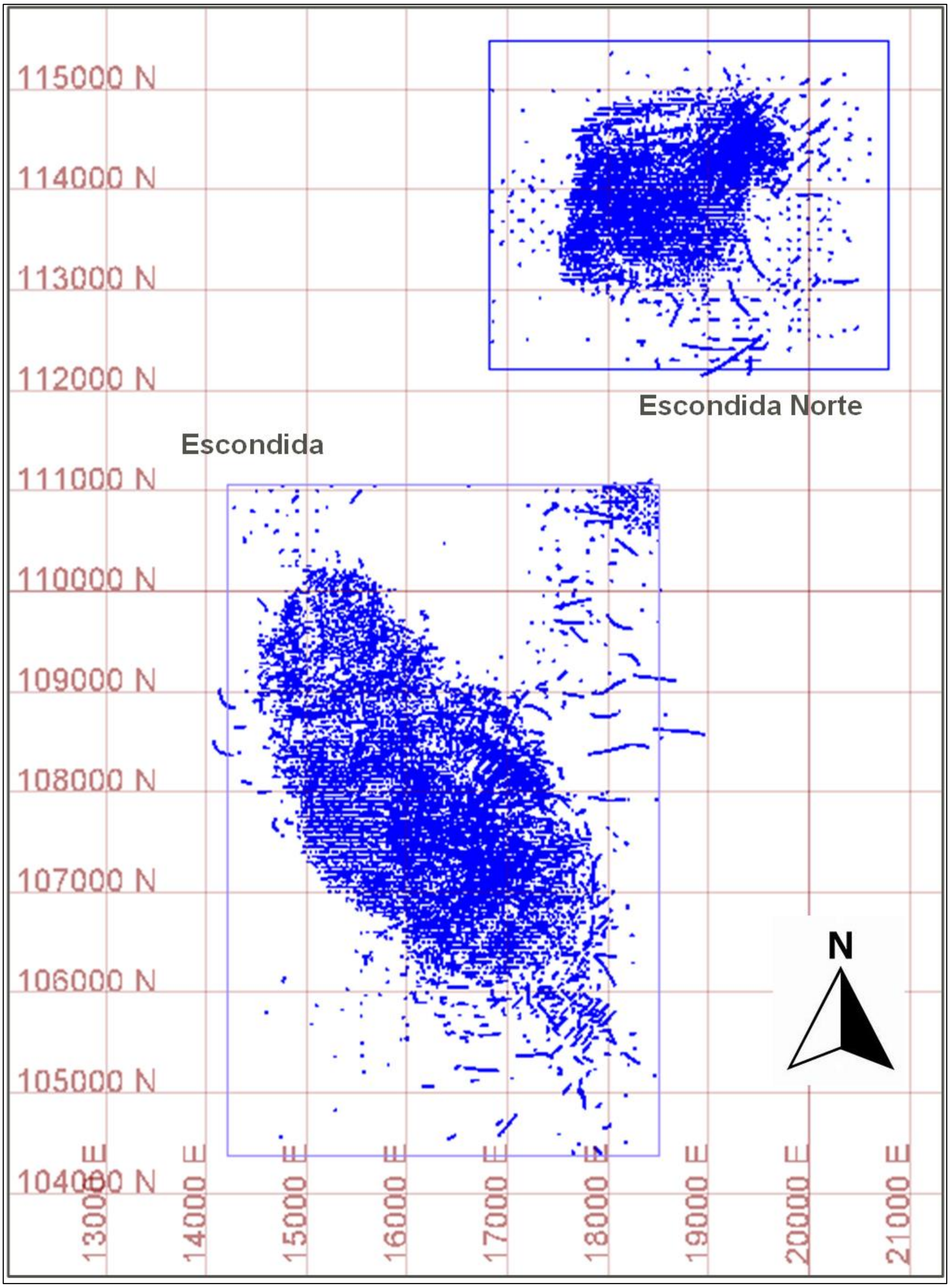
Table 7-6: Strength Properties by Geotechnical Unit for the Escondida and Escondida Norte

UGB	mi (-)	ci (MPa)	UGB	mi (-)	ci (MPa)	UGB	mi (-)	ci (MPa)
BGU01A	13.5	33.8	BGU06B	8.2	67.7	UGB01AN	25.2	17.9
BGU01B	8.2	62.5	BGU06C	8.4	61.4	UGB02AN	11.2	93.2
BGU02A	10.7	38.9	BGU07A	15.7	118.7	UGB02BN	12.8	30.4
BGU02B	13.7	58.3	BGU07B	10.1	73.0	UGB02CN	10.6	46.6
BGU02C	19.9	27.8	BGU07C	11.6	147.3	UGB02DN	9.5	53.0
BGU03	10.7	117.0	BGU08A	23.9	46.7	UGB03AN	6.0	74.5
BGU04A	9.9	41.3	BGU08B	17.9	142.9	UGB03BN	6.7	53.1
BGU04B	7.6	47.0	BGU09A	7.1	50.2	UGB04AN	18.6	45.4
BGU05A	11.1	52.7	BGU09B	17.8	101.4	UGB04BN	43.1	98.0
BGU05B	6.8	60.5	BGU06B	8.2	67.7	UGB05AN	43.5	88.5
BGU06A	10.2	47.4				UGB05BN	19.3	64.0
						UGB06N	20.1	124.7
						UGB08N	35.4	23.6

Source: MEL (2022)

7.5 Property Plan View

Figure 7-11 shows the location of all the drill holes used in the resource estimation. This figure presents the location of this information with respect to the block model volumes that support the mineral resources and mineral reserves estimates.



Source: MEL (2022)

Figure 7-11: Drill Hole (Samples) Location for Escondida and Escondida Norte Areas

7.6 Exploration Targets

No exploration targets are reported in this TRS.

8 Sample Preparation, Analyses and Security

8.1 Sample Preparation Methods and Quality Control Measures

MEL employs mining industry standard methodologies to undertake sampling and sample preparation processes regarding drill hole samples of various types. These methodologies are governed by internal protocols and procedures developed specifically for MEL's operational reality whilst also respecting BHPs internal company standards. Quality control of these processes are also required to adhere to both mining industry best practice and BHPs internal company standards.

8.1.1 Methods

Since the discovery of the Escondida deposit, the history of drilling at MEL has progressed from the initial use of conventional drilling during the discovery program to a balance of reverse circulation (RC) drilling and diamond drill hole (DDH). The approach, applied since the late 1980s, employs the different drilling techniques to balance the drillhole information and sample requirements with the cost and time elements for the acquisition of the required samples and data. This approach has generated variable amounts of drilling and sampling types throughout the history of MEL's data acquisition. Discussion of sampling herein concerns the RC and DDH (core) samples that support the geological evaluation and modelling.

RC Drilling

The RC samples were retrieved from the drill-mounted cyclone and were collected at continuous intervals of 2 m. The original sample (approximately 80 kg) was then divided with a riffle (Jones) splitter obtaining two sub-samples, each one representing 50% of the total. One of the portions was discharged (reject), while the second portion was quartered again to obtain two sub-samples (A and B), each corresponding to 25% of the total, of approximately 20 kilograms (Figure 8-1). During each division of the sample, the weight was recorded in order to evaluate that the process was being carried out properly. If there was presence of water, the drilling changed to DDH.

The sample was then placed in plastic bag, labelled with a bar code and sealed prior to transfer to the mechanical preparation facility.

The drilling contractor was responsible for the transportation of the samples to the warehouse.

Source: MEL (2022)

Figure 8-1: RC Sampling; A) Sample Collection; B) Weight control; C) Sample Splitting; D) A and B Samples

Core Drilling

Diamond drill hole cores were carefully handled at all stages of transport by the contractors. The cores were packed sequentially in metallic core boxes as they were collected from top to bottom and left to right in the order in which it was retrieved from the core barrel. For each core run, a wooden block, was placed where the driller notes the depth of the hole indicating the interval drilled. The boxes were properly labelled with the drill hole name, box number, and interval (Figure 8-2). The drilling contractor was responsible for the transportation of the samples to the warehouse.

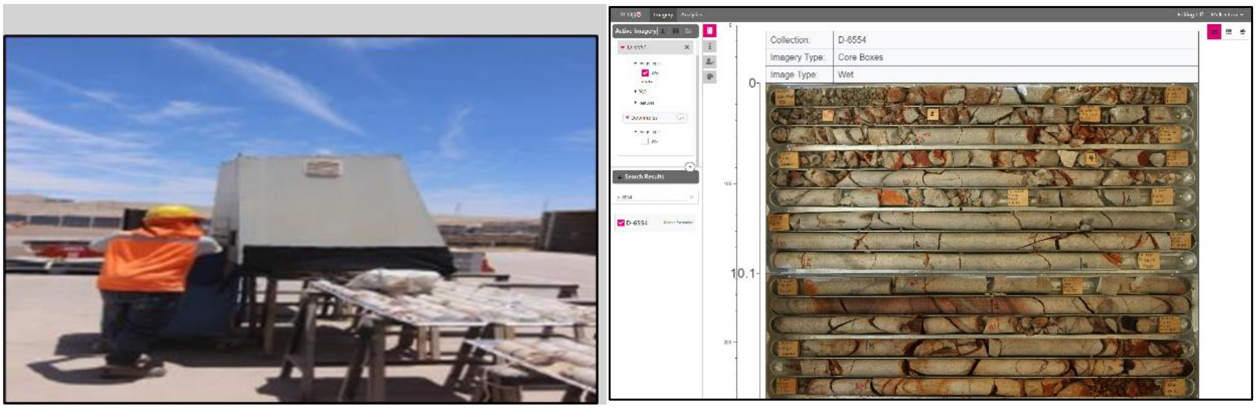
Source: MEL (2022)

Figure 8-2: DDH Sampling; A) Sample Collection; B) Sample Distribution in Metallic Trays

Once metallic trays were received in the warehouse core length was measured and marked every 2 m to regularize the sample length. These measurements are compared with those obtained by the drilling contractor. In case of differences, the drilling contractor was requested to repeat the regularisation process. The core recovery was calculated and reported as a percentage. This process was completed digitally and automatically uploaded to acQuire. When needed, these measurements are compared with those obtained by the drilling contractor and. in case of differences, the drilling contractor is requested to repeat the regularisation process.

Core Photography

Core photography with a digital camera was part of the standard procedures for core logging. Each drill hole tray was photographed from the top to show a view of the core in full screen using a device to maintain the same illumination in each section of the drill hole (Figure 8-3 A). The start and end depths were marked on the open box lid. Typed sheets showing the drill hole ID and core box number were also displayed on the core. The photographs were stored online in Imago software (Figure 8-3 B).



Source: MEL (2022)

Figure 8-3: A) Core Photography. B) Photography Stored in Imago Software

Logging

Drill hole logging was performed by geologists at the MEL warehouse (Figure 8-4) and supervised by senior MEL geologists. The logging process included preparing a detailed description of the lithology, as well as, the description of alteration, mineral zones and a visual grade estimation. Based on the geological description, codes were assigned to each geological unit. The logging process was carried out digitally on laptops and uploaded online into acQuire. The process included description of:

- Lithology: The description included textural parameters, associations, and mineralogical species.
- Alteration: Main and subordinate alteration were registered, the mineralogical species identified, and the intensity of the alteration were described.
- Mineralisation: Definition of mineral surfaces associated to the main zones of the deposit such as leached, oxide, mixed, secondary enrichment and primary were recorder. Description includes volume percentage of each sulphide species, oxidised and others. Also, occurrence such as disseminated or veinlets.

Also, the geologist defined the cutting schemes for core and the assaying schemes.

Source: MEL (2022)

Figure 8-4: Geological Logging

The geological logging includes its own specific QA/QC procedures. Monthly, 100 m of a specific drill hole were randomly selected for cross logging and subsequent review by MEL's senior geologist. The result of this validation were reported along with corrective actions and action plans, if determined to be necessary

The senior geologist was responsible for defining and selecting the sampling intervals to be cut. The mine conducts sampling based on a standard 2-m intervals with lengths adjusted to reflect geological contacts. When needed, local changes in the length may be needed and the geologist makes this decision depending on the complexity of the mineralisation. The sampling intervals were recorded in the core recovery database as well as in the core box and were identified with unique sample numbers (bar code).

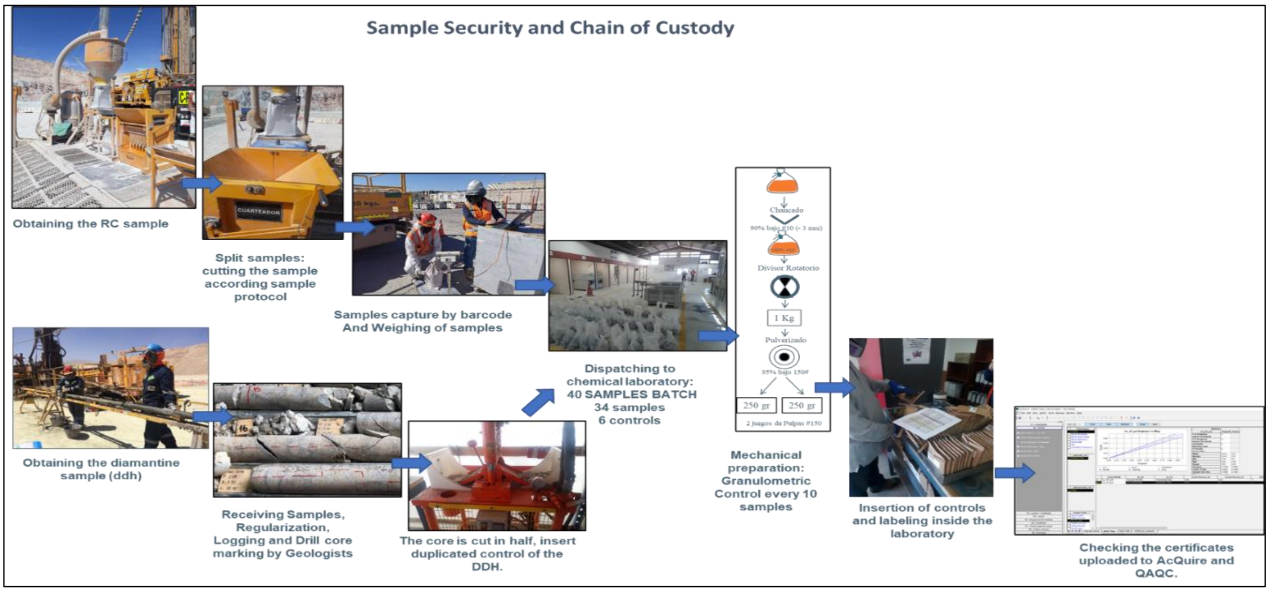
To prepare the core sample for submittal to the assay laboratory, 2-m intervals were split in half using a manual core cutter (Figure 8-5). One half of the core was carefully retained in the core box and kept for future reference, or for other testing purposes. The other half was placed in a plastic bag, labelled using the unique barcode and sealed for shipment to the laboratory. The weight of the samples varied between 8 and 15 kg, depending on the diameter of the drill hole.

Source: MEL (2022)

Figure 8-5: Hydraulic Guillotine for Core Cutting

8.1.2 Sample Security

At MEL, all information collected from drilling to chemical logs was entered electronically, online and stored in an acQuire database, allowing traceability and secure data storage (Figure 8-6). Access to the acQuire database is controlled by internal company security systems and utilize Windows Authentication. Line Managers can request the addition of employees to existing Windows Active Directory groups that permit access to the database. Active directory groups are regularly monitored for removal of employees no longer requiring access. In addition the acQuire licensing model is used to limit user functionality within the software. The license type (Client) permits viewing of most data in the database and restricted write-access. Data Entry license holders have additional permissions to enable them to enter data. Manager licenses (of which there are only one) permit full access to the database and all acQuire functionality.



Source: MEL (2022)

Figure 8-6: MEL Sample Chain of Custody

In general, actions taken to ensure sample integrity and data security include:

- Use of barcoding, which facilitates the digital flow within the database, from drilling to chemical analysis.
- All data was stored in acQuire, where the information was validated before being released for further use. Permissions to enter, modify and read data in acQuire were regulated by user type, which prevents loss of information.
- Biannual external audits are conducted, with the last one completed during 2021 and included a detailed review of the consistency of the data. Historically there have been no significant findings with only minor observations and recommendations.

8.2 Sample Preparation, Assaying and Analytical Procedures

8.2.1 Name and Location of Laboratory, Relationship and Certification

Since 2017, an external commercial laboratory, Bureau Veritas Chile S.A., has been used for the mechanical preparation and chemical assays of MEL samples. The laboratory is located in the city of Antofagasta, Chile, where all services were performed (Figure 8-7).

The Bureau Veritas Chile S.A. laboratory is independent of MEL and BHP and is certified by the National Accreditation System of the Instituto Nacional de Normalización (INN), as a testing laboratory, according to NCh-ISO/IEC 17025:2017.

Source: MEL (2022)

Figure 8-7: Chemical Analysis in External Laboratory

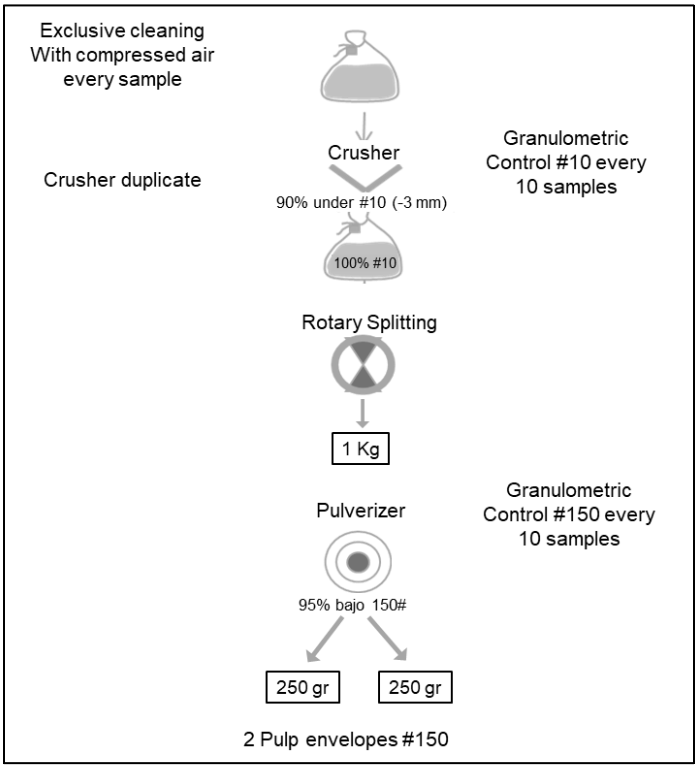
8.2.2 Sample Preparation and Analysis Protocol at Laboratory

The procedure used by the laboratory for mechanical preparation and chemical assaying has been defined by MEL and includes the laboratory's own internal QA/QC, specifically, accuracy, precision, blanks, and granulometric controls, which is, in addition to the QA/QC protocols in place at MEL, facilitating the integrity of the reported results.

The procedure at the laboratory for both DDH and RC mechanical preparation of samples was as follows (Figure 8-8):

- Sample reception.
- Samples weighted and dried.
- Primary crushing to 1/2 inch. (12.7 mm)
- Secondary crushing 90% to -10# Tyler (150 microns).
- Particle sizes control every 10 samples.

- Rotary splitter to produce 1 kg of sample; pulverised and the rest of the sample treated as rejection.
- Drying 1,000 gr for 1 hour.
- Pulverised until 95% at - 150# Tyler.
- Samples were then homogenised, split and distributed into three labelled envelopes of 250 grams each. These samples were labelled with new bar codes.
- A granulometric control was performed every 10 samples.



Source: MEL (2022)

Figure 8-8: Mechanical Preparation Schema, Bureau Veritas Laboratory

8.2.3 Analytical Methods

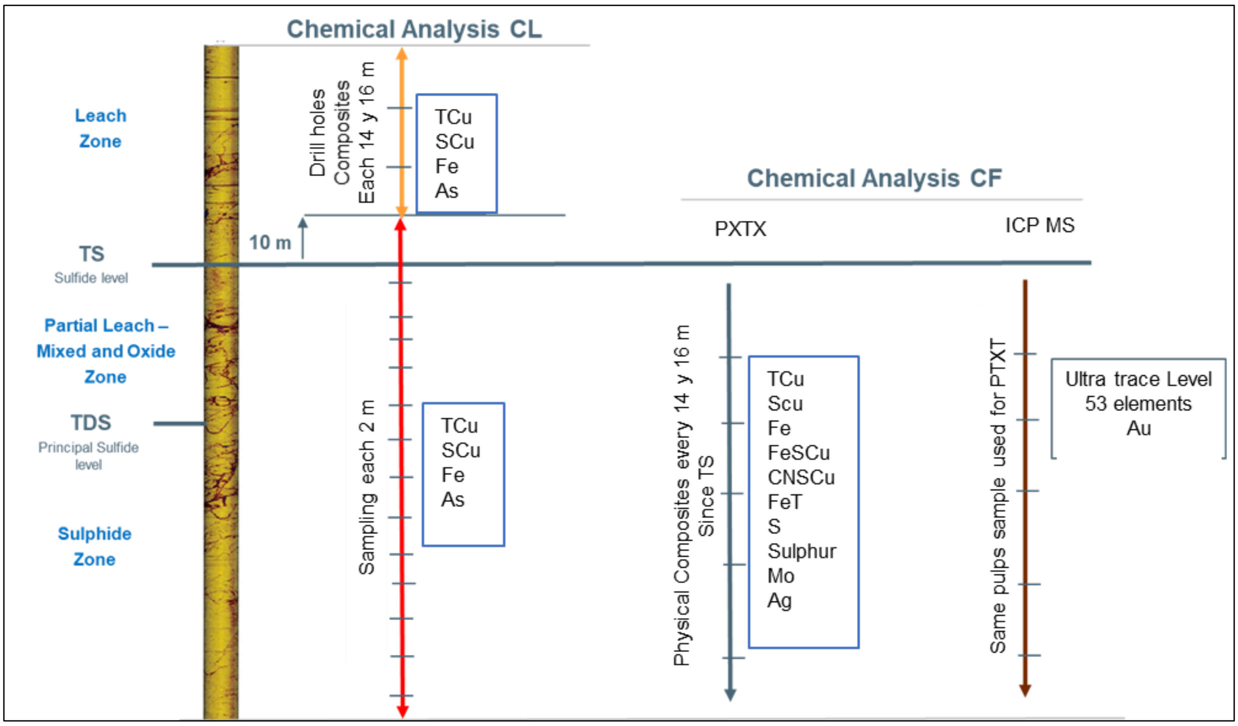
Samples have been assayed by different external laboratories throughout MEL's history. From the exploration stages to the present, they have been performed according to the industry standards of each period in addition to incorporating different types of controls to ensure the quality of the results. Table 8-1 details the laboratories and the type of service used in the different periods.

Table 8-1: MEL Laboratories from Exploration to FY2022, by Service Type

Laboratory	Period	Chemical Analysis	Location
CIMM – Internal and Others External laboratories	Pre 2003	TCu, SCu, Fe, As, density	Antofagasta
CIMM	2003 - 2009	TCu, SCu, Fe, As, Partial Extraction (Ptxt), density	Antofagasta
CIMM - Geoanalítica	2009	TCu, SCu, Fe, As, Ptxt density	Antofagasta
Verilab	2009 - 2013	Ptxt	Antofagasta
ALS-Chemex	2009 – 2016	ICP	La Serena
Geoanalítica -CIMM-SGS	2011 - 2016	TCu, SCu, Fe, As, Ptxt, density	Antofagasta
Bureau Veritas Chile	2017 - present	TCu, SCu, Fe, As, Ptxt, ICP, density.	Antofagasta/ ICP Canada

Source: MEL (2022)

The analytical schemes used by MEL were divided into two groups. Grade Composite (CL) performed on samples every 2 m, and Physical Composites (CF) that are performed every 14 and 16 m. These CFs were constructed from original 2 m samples following a procedure that is considered to ensure representativity of the composited interval. This is applied below the upper sulphide ceiling (TS) as explained in Figure 8-9.



Source: MEL (2022)

Figure 8-9: MEL Flow Chart Summarising Sampling and Analytical Protocol

Once the samples were analysed, the results were sent electronically to the MEL database administrator and uploaded into acQuire. The suite of analyses performed from 2003 to present is shown in Table 8-2.

Table 8-2: FY22 Chemical Analyses

Element	Method	Digestion	Detection Limit
TCu + Fe	Atomic Absorption Spectrometry (AAS.)	Acid digestion (Nitric acid - Perchloric and hydrochloric acid)	0.01%
SCu	AAS	Acid Leaching (Sulphuric Ac - Citric Ac.)	0.01%
CNCu	AAS	Leaching (sodium cyanide - deionised water)	0.01%
SCuFe	AAS	Leaching (Sulphuric Acid - Distilled Water)	0.01%
TFe	AAS	Acid digestion (nitric acid - perchloric acid - hydrofluoric acid)	0.3%
Sulphur	LECO	Sodium Carbonate Leaching	0.1%
S	LECO	Sample attack with oxygen to transform the sulphur present as sulphide and sulphates to sulphur dioxide.	0.1%
Mo	AAS	Acid digestion (Nitric Acid - Aqua Regia), reading by AAS	3 ppm
Ag	AAS	Acid digestion (Nitric Acid - Aqua Regia)	0.2 ppm

Source: MEL (2022)

Partial Extraction

Partial Extraction (Ptxt) is a technique that was implemented in 2003 (Preece, R., Williams, M.; 2003) which has been validated and audited during these years to date. Ptxt has been used in the different updates of the Resource model. This analytical technique determines the mineralogy and the volumetric contribution of copper and pyrite species in the sample based on a normative mineralogical matrix. The current suite of chemical analysis performed is presented in Table 8-3.

Table 8-3: Partial Extraction Analysis (Ptxt)

Element	Method	Digestion	Detection Limit
TCu + Fe	AAS	Acid digestion (Nitric acid - Perchloric and hydrochloric acid)	0.01%
SCu	AAS	Acid Leaching (Sulphuric Ac - Citric Ac.)	0.01%
CNCu	AAS	Leaching (sodium cyanide - deionised water)	0.01%
CuSFe	AAS	Leaching (Sulphuric Acid - Distilled Water)	0.01%
TFe	AAS	Acid digestion (nitric acid - perchloric acid - hydrofluoric acid)	0.3%
Sulphur	LECO	Sodium Carbonate Leaching	0.1%
S	LECO	Melting of the sample with an oxygen stream to transform the sulphur present as sulphide and sulphates to sulphur dioxide.	0.1%
Mo	AAS	Acid digestion (Nitric Acid - Aqua Regia), reading by AAS	3.0 ppm
Ag	AAS	Acid digestion (Nitric Acid - Aqua Regia)	0.2 ppm

Source: MEL (2022)

Spectral Analysis for Mineralogical Gangue Information

The Mineralogical Gangue Information (NIR) technique, implemented since 2016, was used to semi-quantitatively define the intensity of alteration minerals, based on a spectrometer through which the spectral curves of the materials were captured in the Near Infrared spectrum (NIR: 1001-2500 nm). There were a 10 to 20% duplicate sample submitted for QC, which should not exceed a 10% deviation.

The model currently allows for identifying the group of clays (Kaolinite-Smectite and Pyrophyllite), Sericite, Muscovite-Illite, Chlorite, and Biotite. These are variables estimated in the block model and were later used for the calculation of the fines indicator (Chapter 10) which is used to define the types of oxides and mixed to be sent to the leaching process.

Density

Density tests were carried out in all core drilling. Dry density has been determined for 15 to 30 cm drill core samples collected at intervals of approximately 10 m. Density was calculated using a wax immersion method. Approximately 41,262 density samples have been collected and used for density modelling (31,081 for Escondida and 10,181 for Escondida Norte). As QC, 10% of the duplicate tests were carried out with another external laboratory (SGS) that should not exceed 1% deviation between pairs.

8.3 Quality Control Procedures/Quality Assurance

QA/QC programmes are used help to ensure the reliability of assay results from commercial laboratories and were performed to industry standard practice. Throughout MEL’s history, the QA/QC has changed according to the requirements of each drilling campaign. The main milestones were:

- Prior to 2003: QA/QC was performed using a secondary laboratory. Sample labelling was done with sequential numbers manually to ensure blind submission to the laboratory.
- 2003: Implementation of a QA/QC programme with insertion of standardised reference controls (TSEN) from a round robin of field duplicates, analytical duplicates and blanks. Implementation of pre-printed and manually affixed barcodes on the bags are shown in Figure 8-10.

- 2005: Implementation of acQuire software as the official platform to store and manage the complete drill hole database. Originally Maskana and GVmapper software was used for the management of drilling and logging information online. During 2010 this software was eliminated, and all processes were migrated into acQuire. This also allowed the usage of rugged tablets for geological logging, sample reception, photography and DDH sampling. All data was consolidated in a single database.

Source: MEL (2022)

Figure 8-10: QA/QC Samples Insertion; A) Label Printing from acQuire; B) Labelling of Pulp and Checking of Position of Controls According to scheme of analysis; C) Control Types

Major milestones were:

- 2014: 100% online geological logging.
- 2016: Online QA/QC monitoring.
- 2017-2018: Use of acQuire for online analytical monitoring diagrams; diamond cutting and automatic random insertion of duplicates, standards and blanks. Online reporting used for sample weights.
- 2020-2021: Geometallurgical sampling flow implemented within the acQuire platform

The QA/QC process include seven (7) types of control samples (Table 8-4) that were inserted during the sample preparation and analysis process:

- Pulp Replicates: Correspond to samples obtained after the pulverisation. Pulp duplicates are inserted at a rate of 1 every 25 samples, including half in the same shipment and the other half in another shipment or to the control laboratory.
- 10# Duplicates: Corresponding to the samples obtained after crushing. Coarse duplicates are inserted at a rate of 1 every 25 samples, including half in the same shipment and the other half in another shipment, or to the control laboratory.
- Field Duplicates (RC and DDH): Consist of the second core quarter separated for analysis. Field duplicates are inserted at a rate of 1 every 25 samples.
- Coarse Blanks: Samples of barren rocks, or prepared with local barren rocks. Coarse blanks are inserted at a rate of 1 every 25 samples.
- Fine Blanks: Samples of barren rocks or grades below 0.05% TCu inserted to verify contamination in the chemical analysis process. This corresponds to pulverised quartz and inserted at a rate of 1 every 25 samples.
- Certified Reference Material (CRM): Samples are purchased from the commercial laboratory, ORE Research & Exploration Pty. Ltd. (OREAS), and include a corresponding certificate. CRMs are inserted at a rate of 1 every 20, or 25 samples, with the CRM chosen randomly. TSEN Reference Materials are MEL own matrix materials prepared by Geoassay laboratory. There are 8 standards, covering 0.35% to 2.6% copper grade.

Table 8-4: FY2021 Control Samples for RC and DDH

Process	Control	Source	Frequency	Control	Error
Composites	Field Duplicate (RC)	RC Sample B.	1 per batch	Precision	≤ 30%
	Field Duplicate (DDH)	DDH Half core		Precision	≤ 30%
	Duplicates 10#	Post crushing duplicates	1 per batch	Precision. Representativeness of the sample post mechanical preparation	≤ 20%
	Pulp Replicates	Duplicate from the division of the pulp into 2 envelopes of 250 g.		Accuracy. Inserted post pulverisation stage	≤ 10%
	Coarse Blanks	Barren blast holes TCU <0.02%	1 per batch	Contamination Inserted before primary crushing.	Grade > 5 times detection limit (x >0.05% TCu)
	Fine Blanks	Pulverised quartz		Contamination Inserted before the pulverising.	5% of samples analysed, > 3 times of detection limit (x >0.03% TCu).
	CRM (standards - TSEN)	Samples certified from a Round Robin	1 per batch	Accuracy	±2 standard deviations, bias < 5% and coefficient of variation < 5%

Source: MEL (2022)

QA/QC data was routinely monitored both in the short term and long term:

- Short-term: Carried out daily and in all specific batches as they were reported by the laboratory.
- Long term: Carried out monthly to identify trends and biases. This review includes analysis of precision, accuracy, and contamination. An annual report of the QA/QC programme results from the drilling campaign was constructed.
- Re-assay: Should the quality control standard(s) and/or blanks fail, the batch may be wholly or partly re-assayed at the discretion of the geologist. Where re-assaying has occurred, the QA/QC standards and blanks are checked again, and if approved, the results are added to the database.

8.3.1 Sample Analysis Controls and Results

2008 – 2020

Table 8-5 shows the overall accuracy and precision results of the QA/QC programme for TCu for twelve recent calendar years (2008 - 2020), for Field Duplicates (RC and DDH) and CRM. MEL uses a set of eight (CRM), which covers the range of TCu grades of the deposit. In general, the TCu CRMs present samples within the established 5% bias limits. Table 8-6 details the routine samples inserted from FY08 (ending June 2008) to FY21 (ending June 2021) at Escondida and Escondida Norte by type of composite.

Table 8-5: QA/QC Results for TCu, 2008-2020, Escondida and Escondida Norte

		2008	2009	2010	2011	2012	2013	2014
Precision	Field Duplicates	98.5%	97.3%	98.4%	98.5%	97.0%	94.6%	98.4%
	Pulp Replicates	98.4%	98.8%	98.8%	98.7%	96.1%	95.4%	99.0%
Accuracy	CRM (TSEN)	98.2%	98.5%	98.3%	98.6%	98.4%	98.1%	99.4%
		2015	2016	2017	2018	2019	2020	
Precision	Field Duplicates	99.7%	100%	100%	99.5%	97.7%	99.5%	
	Pulp Replicates	98.9%	99.2%	99.7%	100%	100%	99.5%	
Accuracy	CRM (TSEN)	98.8%	98.8%	99.4%	99.2%	100%	97.5%	

Source: MEL (2022)

Table 8-6: Number of Routine and Control Samples TCu, 2008-2021, Escondida and Escondida Norte

	MEL_DH_CL		MEL_DH_CF		MELEN_DH_CL		MELEN_DH_CF	
	N° Samples	N° Control	N° Samples	N° Control	N° Samples	N° Control	N° Samples	N° Control
FY08	23,127	1,373	4,112	296	66,111	3,781	7,099	412
FY09	37,119	2,028	6,876	372	82,115	4,513	6,902	383
FY10	100,495	5,594	16,961	1,190	47,185	2,647	9,516	553
FY11	74,454	4,663	11,457	1,077	57,931	3,717	7,975	1,007
FY12	54,635	7,403	5,440	1,307	42,851	5,351	4,323	987
FY13	26,796	4,078	2,745	636	12,616	1,877	1,189	291
FY14	22,201	4,118	2,091	488	9,783	1,796	1,161	287
FY15	17,257	3,134	1,550	340	12,118	2,255	1,474	321
FY16	13,211	2,372	1,506	284	3,644	650	447	83
FY17	10,199	1,742	1,083	181	4,840	862	587	104
FY18	10,419	1,805	935	153	1,623	284	179	28
FY19	7,906	1,393	884	151	2,974	521	305	51
FY20	6,434	1,056	742	140	2,314	394	312	48
FY21	7,758	1,125	746	125	1,664	230	225	36

Source: MEL (2022)

In terms of accuracy, TCu was analysed for six (6) types of duplicates (field, coarse and pulp samples). As a result, the accuracy for field, preparation, and pulp duplicates was adequate and within acceptable ranges.

2021

The number of controls for the year 2021, and their results are presented in Table 8-7, with examples of some control charts in Figure 8-6 to Figure 8-8.

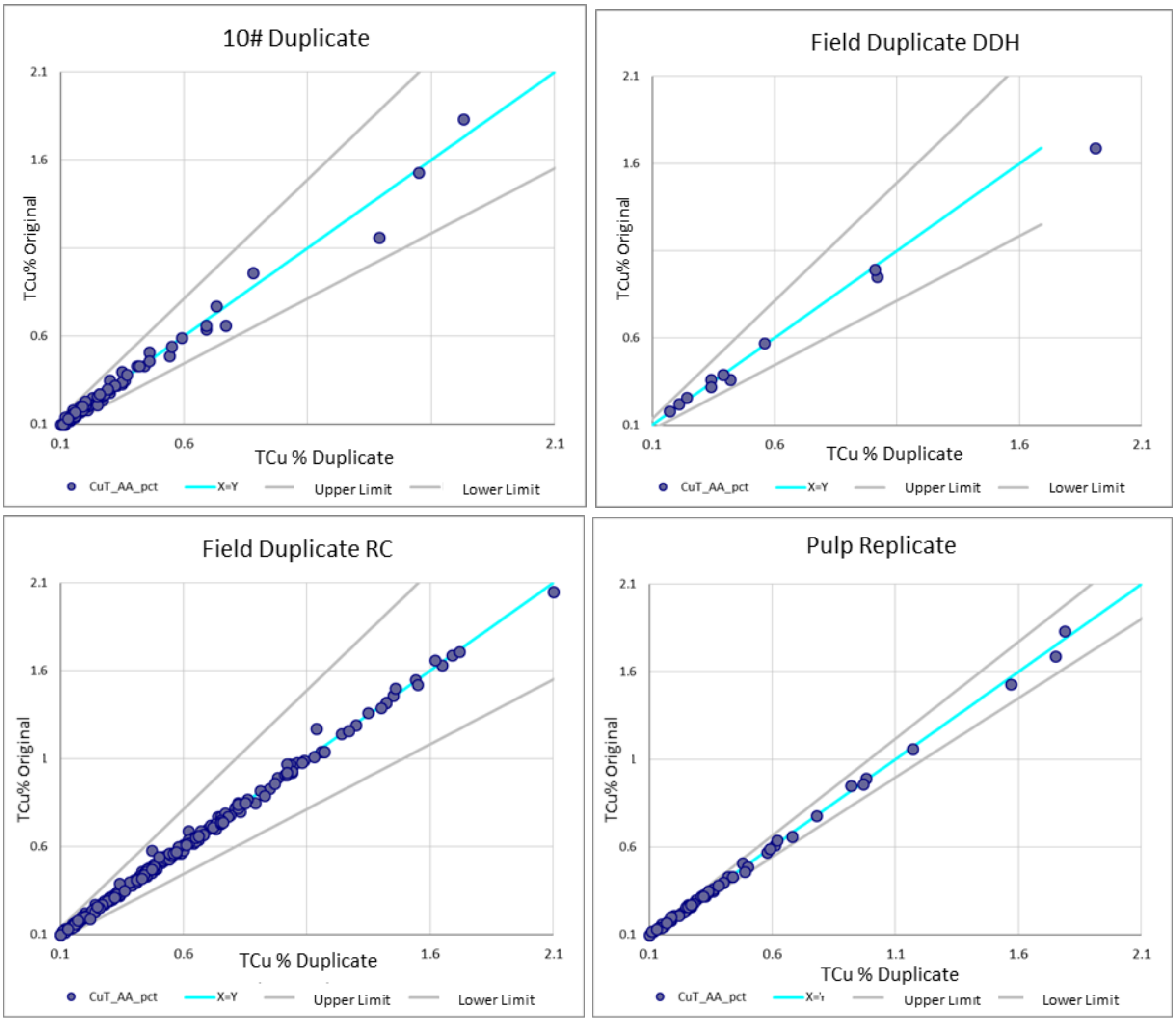
Table 8-7: FY2021 QA/QC Summary

	Control	N° Samples	Rate	Error rate (%)
Grade Composites (CL) y Physical Composites (CF)	Field Duplicate RC	302	1 per batch	TCu: 0 SCu: 0.3 Fe: 0.7 As: 0
	Field Duplicate DDH	13	1 per batch	TCu: 0 SCu: 0 Fe: 7.7 As: 0
	Duplicates 10#	99	1 per batch	TCu: 0 SCu: 0 Fe: 0 As: 0
	Duplicates of pulp	91	1 per batch	TCu: 0 SCu: 3.3 Fe: 0 As: 0
	Coarse Blanks	21	1 per batch	0.05%
	Fine Blanks	21	1 per batch	0.03%
	CRM (standards - TSEN)	223	A random mix of 8 CRM inserted, Grades between 0.35 to 2.71 TCu%	3.55% Bias

Source: MEL (2022)

Duplicates

As can be seen in Figure 8-11 the accuracy for field, preparation, and pulp duplicates was adequate and within acceptable ranges.



Source: MEL (2022)

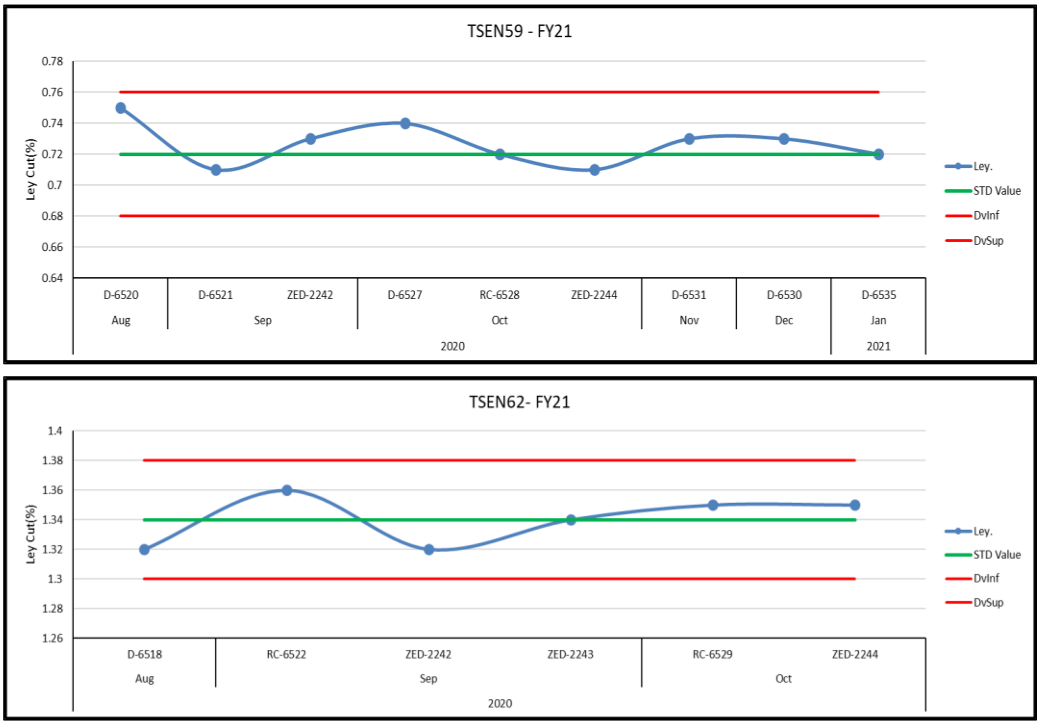
Figure 8-11: Results of Field, Coarse (10#), and Pulp Duplicates-TCu

CRM

Standard sample results show acceptable precision, most samples have TCu values within acceptable tolerance limits (Figure 8-12).

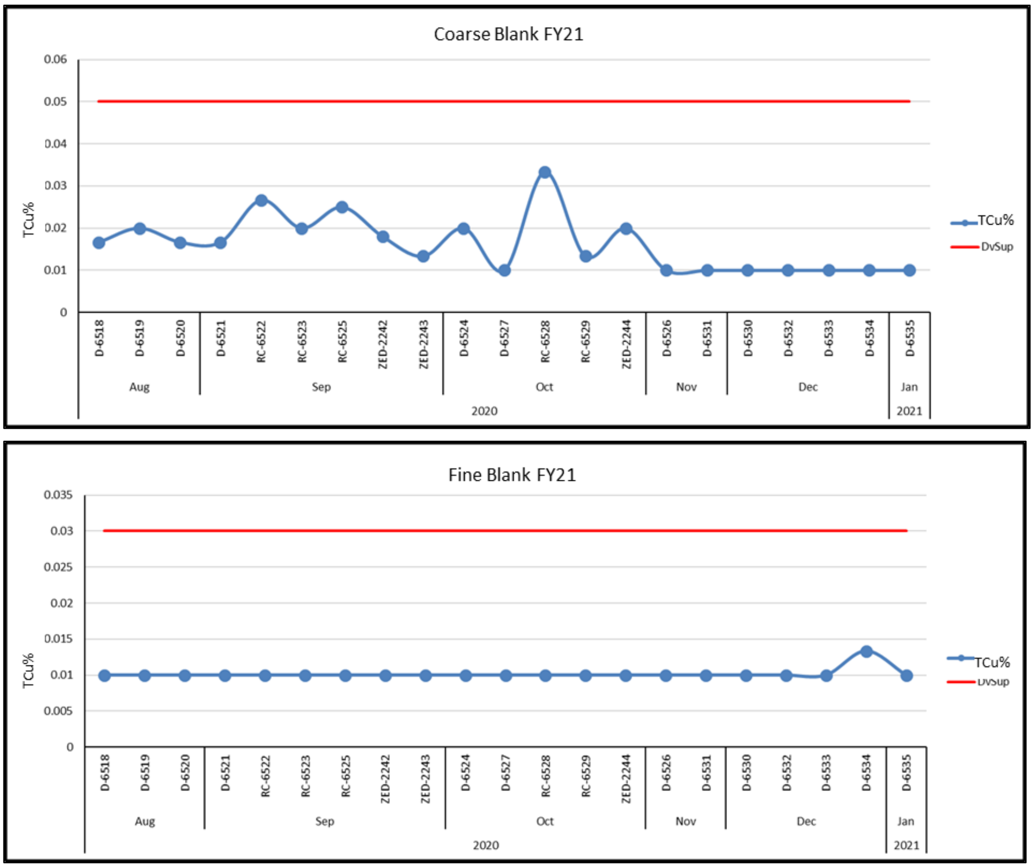
Blanks

Figure 8-13 shows the results for coarse and fine blanks used in FY21 campaign.



Source: MEL (2022)

Figure 8-12: Laboratory Results for TSEN59 and 62 of FY21 Campaign



Source: MEL (2022)

Figure 8-13: Coarse and Fine Blanks Result for FY21

8.4 Opinion on Adequacy

In the opinion of the QP, at MEL, there were adequate controls in the sample preparation, analysis, and security processes for use in the estimation of mineral resources and mineral reserves.

It is the QP's opinion that the sample preparation, security, and analytical procedures applied by MEL were appropriate and fit for the purpose of establishing an analytical database for use in grade modelling and preparation of mineral resources estimates, as summarised in this TRS.

During a site visit in August 2021, the QP reviewed the core and sampling techniques. The QP found that the sampling techniques were appropriate for collecting data for the purpose of preparing geological models and mineral resources estimates.

8.5 Non-Conventional Industry Practice

In the construction of the Resource model, no data was obtained using non-conventional industry procedures.

9 Data Verification

The QP was provided with the compiled Escondida and Escondida Norte database, in Excel file format, which included survey information, downhole geological units, sample intervals and analytical results.

Drill hole data for Escondida includes 5,764 drill holes, totalling 1,768,738 m of drilling, and with 1,678,615 m of assays. The Escondida Norte programme consists of 2,832 holes with 923,211 m of drilling and 908,081 m of analytical samples. Compiled supporting documentation for the Escondida and Escondida Norte drilling data included descriptive logs with collar surveys, core photos, and assay information. No other sample type were used in the construction of the resource model.

At MEL, protocols have been defined in order to assure data verification and data storage of both physical and electronic records. These protocols were defined for each stage of data acquisition processes: drilling, geological logging, chemical analysis and database delivery to users. It is the role of the QP that these protocols ensure the quality of the data through periodic reviews of the information entered the database, review of database delivery reports and participation in the different audits carried out on the process

9.1 Data Verification Procedures

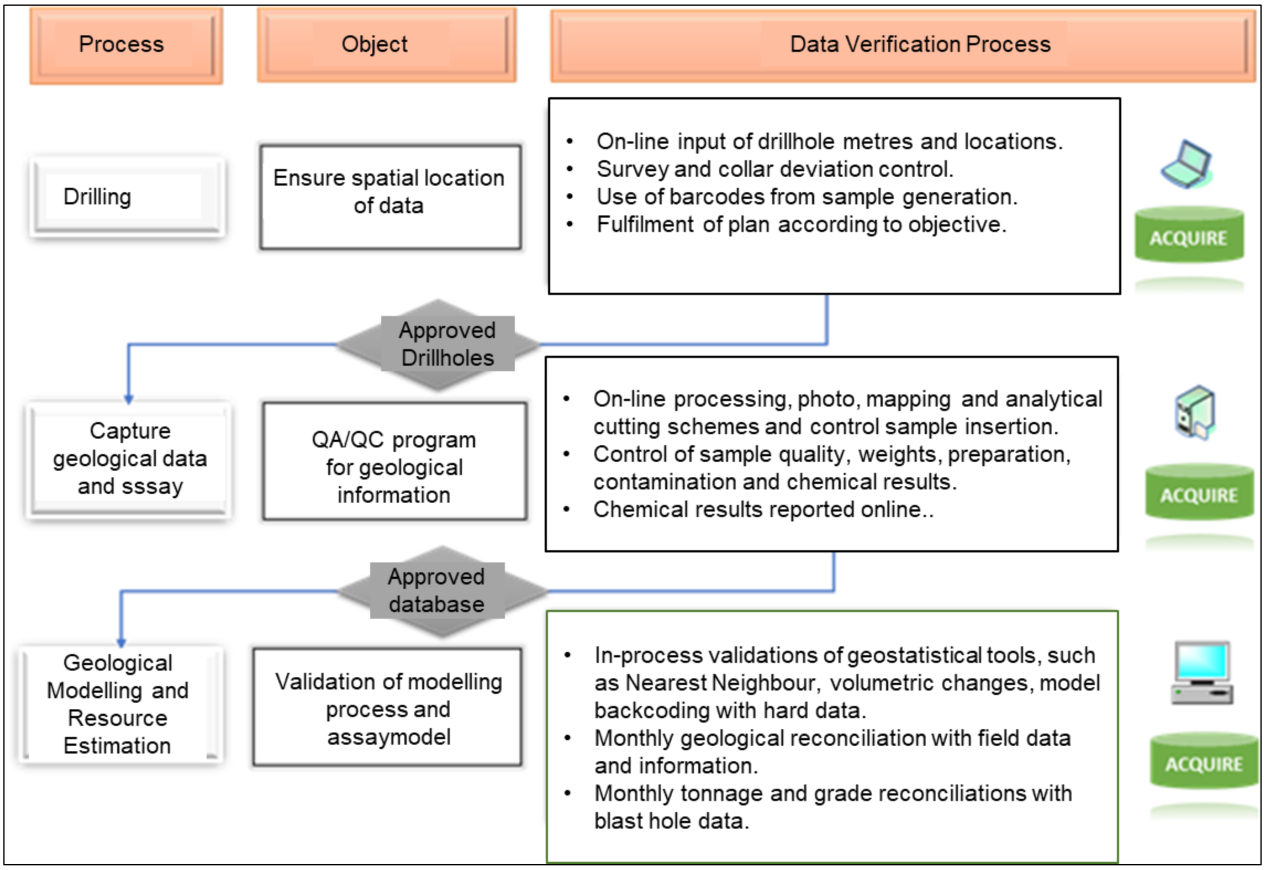
Under the plan, data is entered directly into acQuire where the data was first validated in its relational definition according to the data model, followed by verifications related to formulas and cross conditions. All validations were performed before permitting the export of data for geological modelling and resource estimation purposes. Validation in acQuire was applied to survey, geology, and assays (Figure 9-1).

The QP was responsible for the review of the data used for resource estimate at different stages of the process:

- Drilling:
    - Validation of the drill hole coordinates by checking the data recorded at the rig installation.
    - The drill hole deviation was validated both by a second measurement of the deviation for a percentage of the drill holes, as well as by evaluating the result of the deviation of the drilling hole, which must be less than 5%.
- Sampling:
    - Barcoding was used at all stages of the process, allowing the process to be managed completely blind for the laboratories.
    - All stages of the sampling process were managed with acQuire without any external intervention.
    - Specifically, sample checks were carried out on the samples at specific points including, core recovery for RC and DDH, weight of the RC samples, and core recovery.
- Assaying:
    - Assays used in mineral resources estimation have a robust QA/QC process that continuously monitors accuracy, precision and contamination at different stages.
    - Assay results reports from the laboratory were prepared digitally and the results were automatically uploaded to acQuire.
- Logging:
    - Geological data entry was performed digitally and stored directly in the acQuire database with no manual intervention at any time.
    - Geological logging was validated by cross-checking and validation by the MEL Senior Geologist.

An internal validation was performed periodically and includes approximately 5% of the data.

The database is located on the MEL server and backed up daily.



Source: MEL (2022)

Figure 9-1: Flowsheet of the MEL Data Verification Process

Data input validation procedures into AcQuire comprised automated import routines developed by MEL. These routines force the input data to abide by several data entry/import rules as well as enforcing internal validation tools to prevent erroneous data entry. Each time data relating to a drill hole is changed, the username, time, and type of alteration (insert, update or deletion) are recorded. Assays are never adjusted; however, samples may be re-assayed, if deemed necessary after examination of the accompanying QA/QC results.

9.1.1 External Reviews

Every two years, MEL performs an external audit to the Resource Models for the main estimated variables to include TCu, SCu, and density. This audit considers a detailed and independent expert review and validation of the procedures used to estimate the mineral resources via a detailed review of data capture and data management, interpretation and modelling of the geology, definition of estimation domains, grade estimate, and mineral resources classification. The historical audits performed are presented in Table 9-1.

During these audits, the QP was responsible for defining the scope of the audit, as well as leading and coordinating the Escondida and Escondida Norte work teams. In addition, this QP was responsible for evaluating the implementation of the recommendations arising from these audits.

The latest audit was conducted in 2021, by Golder Associates S.A., on the 2021 Resource Model (LPMay21) which supports this mineral resources statement as of 30th June 2022 and is reported in Golder Associates S.A. 21460151 MEL Auditoria Recursos 2021 revB.

Table 9-1: Mineral Resources Biannual External Audits

Calendar year	Model	Company	Data Acquisition	Model Interpret-ation	Estimation TCu & SCu	Density	Mineralogy & Partial Extraction	For Declaration Date
2013	LPMay13	CRM - Jeff Sullivan	YES	YES	YES	YES	YES	30th June 2014
2015	LPMay15	CRM - Jeff Sullivan	YES	YES	YES	YES	YES	30th June 2016
2017	LPMay17	CRM - Jeff Sullivan	YES	YES	YES	YES	NO	30th June 2018
2019	LPMay19	Golder	YES	YES	YES	YES	YES	30th June 2020
2021	LPMay21	Golder	YES	YES	YES	YES	YES	30th June 2022

Source: MEL (2022)

9.1.2 Internal Reviews

Internally, every year, the Resource Centre of Excellence (RCoE) of BHP conducts a Resources and Reserves Risk Review (RRR&R) upon Escondida and Escondida Norte deposits. This review seeks to ensure the reportability of mineral resources and mineral reserves under the international standards of the different stock exchanges where BHP makes declarations. The QP is present before the RCoE during the audit and is responsible for providing information and answering queries.

During this review, data management and the QA/QC programme for geological information is evaluated to include sample capture and preparation, chemical analysis, normative mineralogy (partial extraction), geological logging, spatial location of samples, and database management. No deficiencies were found in the handling and quality of the recorded data.

9.2 Limitations

Since 2005, the QP has been involved in the mineral resources estimate and is not aware of any other limitations, nor failure to conduct appropriate data verification.

9.3 Opinion on Data Adequacy

This QP makes periodic visits to the facilities where data capture, management, and backup activities are performed. The QP has validated the data disclosed, including collar survey, downhole geological data and observations, sampling, analytical, and other test data underlying the information, or opinions contained in the written disclosure presented in this TRS. The QP, by way of the data verification process described in this section of the TRS, has used only that data, which was deemed by the QP to have been generated with proper industry standard procedures and was accurately transcribed from the original source. The QP is also of the opinion that the data being used for the estimation of mineral resources is adequate for the purposes used in this TRS. Data excluded from the estimation is minimal and is not expected to affect materially the end result of the estimation.

10 Mineral Processing and Metallurgical Testing

The main mineralisation style in both Escondida and Escondida Norte consists of copper sulphides, such as chalcocite, covellite, and chalcopyrite. In addition, there are zones of oxide mineralisation where brochantite, chrysocolla, and antlerite are the main species.

Three processes were defined after extensive analysis and testwork in early stages of development. The understanding of geological characteristics, combined with the metallurgical response of the mineralisation, defined the following processing ways:

- Concentration of copper sulphides by froth flotation to produce a copper concentrate.
- Acid leaching, mostly copper oxides, to produce cathodes,
- Bioleaching of copper sulphides, below cutoff grade of concentration process, to produce cathodes.

These three processes were not all begun at start-up of the MEL operation, which was solely flotation of sulphides, but expansions and the addition of other processes were subsequently added. The addition of processing facilities, employing different metallurgical processes that depend upon different testwork for metallurgical evaluation, is the reason for which the collected data supporting production planning and growth projects is presented in the context of these processes.

In addition, the company obtains economic benefits from the gold and silver recovered as by-products of copper production that it markets in the form of metal contained in concentrate.

Maps presented in this chapter use local mine coordinates derived from the PSAD-56 UTM projection.

10.1 Testing and Procedures

10.1.1 General

Because of the overall dominance of copper concentrate as a product, the main activities for the updating of the geometallurgical models are focused on the flotation recovery of sulphides. However, the procedure for updating the geometallurgical variables includes acid leaching and bioleaching processes. In Figure 10-1, the activities related with production forecasting for the sulphide concentrators have been coloured light blue, the activities associated with concentrate quality modelling are in orange; finally acid and bioleaching models are coloured in green.

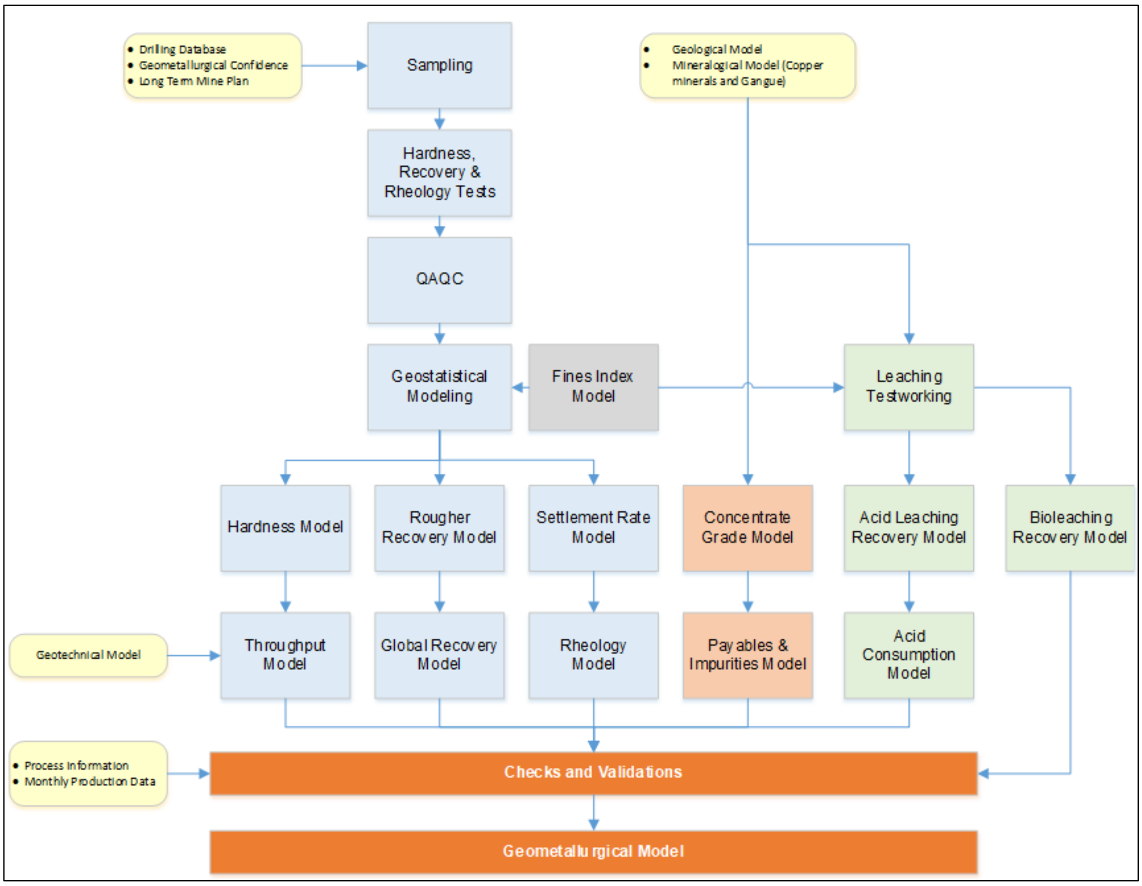
10.1.2 Testing and Laboratories

The samples for geometallurgical testing come from the following sources:

- Infill diamond drilling holes are used mainly for concentration process testing. These drilling programmes provide physical composites 14-16 m length, which are collected in a systematic approach.
- Infill reverse circulation drilling and bulk samples extracted from open pit are the main sources of samples for leaching processes because of both geochemical characterisation and mass requirements.

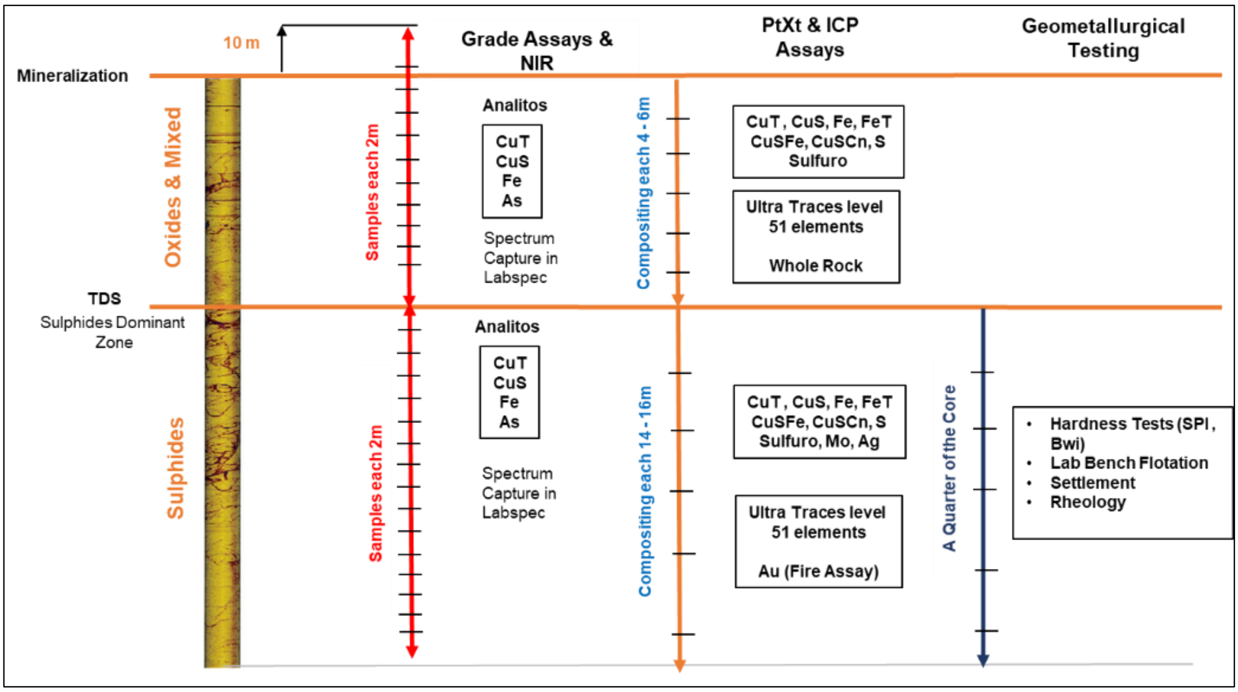
The drilling campaigns are the main activity to support the planning process and it is focused within the volumes to be extracted in the long term mine plan. Figure 10-2 shows the characterisation data collected from the drill holes.

Table 10-1 describes the nature of key metallurgical testwork procedures undertaken for geometallurgical characterisation to support both flotation and leaching process routes. Many laboratories and testwork facilities have been employed for metallurgical analysis and testing to support the geometallurgical evaluation of MEL during its operational life to date. These laboratories have been all independent external laboratories to MEL, and apply their own Quality assurance processes and/or external certifications. The most significant laboratories for MEL are listed in Table 10-2.



Source: MEL (2022)

Figure 10-1: MEL Geometallurgical Modelling Flowsheet



Source: MEL (2022)

Figure 10-2: Geometallurgical Testing Scheme

Table 10-1: Description of Key Testwork undertaken for Geometallurgical Characterisation

Process	Test / Assay	Notes
Concentration	SAG Power Index (SPI)	The SPI test is a well-established industry test for estimating specific energy consumption for the crushing and milling of rock in grinding mills. The result of the SPI Test is expressed in minutes, and is defined as the time required to reduce a mineral sample from a characteristic feed size of ½” to a characteristic product size of 1.7 mm. A longer grinding time, with respect to the mean of the distribution of data captured from the deposit, indicates greater resistance to grinding. SPI has the advantage of requiring little mass (~ 2 kg) and is therefore suitable for the geometallurgical characterisation of deposits by being able to provide many data points due to the relative ease of sampling and testwork through diamond drilling.
	Bond Work Index (BWi)	The BWi test is undertaken to estimate the energy required to grind previously milled rock to a fine size to prepare it for flotation. The test result is expressed in kWh / t. The test uses 10 kg of ore and the objective is to reach a steady state grinding of the sample. This is to emulate the replacement ratio of fresh ore to a grinding mill in continuous function. The parameter is equivalent to the mass passing through specific opening per revolution. This is repeated for a specific number of grinding cycles. Each cycle has 100 revolutions, wherein a sieve with a given opening is used to define the defined mesh (grain) size of the product in each cycle. It is a globally accepted test, in terms of its reliability, repeatability and reproducibility for the design and analysis of ball milling circuits.
	Rougher Flotation	The test uses one kilogram of ore, which is ground to a product size (P80) of 150 microns, which means that 80% of the mass passes through a 150-micron opening sieve. The mineral is deposited in a 3.1 litres laboratory cell and is floated under standard conditions for 12 minutes. Flotation kinetics can be determined by collecting 4 different concentrates, in cumulative quantities and in separate trays. In addition, at the end of the test, the copper analyses in all the products allow to calculate the recovery at different times and the maximum recovery. The test outputs the potential recovery of a determined ore and their kinetic curve. It is designed to be executed in standard conditions, using a target of primary grind size of 150 microns.
Acid and Bioleaching	Unit Leaching Columns	Numerous metallurgical programmes have been carried out supporting traditional crushed ore (heap) leaching using acid solutions. These tests are undertaken in plastic columns of various lengths and diameters to observe and analyse the response of mineralisation to acid bearing fluids (leach solutions). The process emulates the actual processes within a heap leaching pad. Standard test conditions for oxide leaching columns are established to ensure that comparison between different test conditions and ore types may be undertaken. Standard conditions for MEL are applied for testing.
	Acid Consumption Test	The test reports the sulphuric acid consumption of a previously ground sample of mineralisation to understand how much acid is consumed by the leaching of both copper minerals and other acid reactive minerals in a mineralisation type.
	Permeability Tests	Samples were crushed to < 0.5” diameter (crusher set to 25 mm) and prior to testing, the 0.5” crushed ore samples were agglomerated. Physical and hydraulic property laboratory screening tests are conducted to assess the ore hydraulic properties under a range of proposed heap heights, irrigation rates, and aeration rates. Screening tests and methods included specific gravity, particle size distribution (PSD) of pre-test and post-test ore samples using the sieve/ hydrometer and laser diffraction methods, Atterberg limits, dual wall saturated conductivity, dual wall unsaturated hydraulic conductivity, dual wall air permeability tests, energy-dispersive X-ray fluorescence (EDXRF), X-ray diffraction (XRD), and moisture retention characteristics (MRC).
	Agglomeration-Sulphation tests	The tests define the optimal acid and moisture dosage for different mineralisation zones. The approach is to run an experimental matrix using standard conditions defined by MEL.

Source: MEL (2022)

Table 10-2: Laboratories

Laboratory	Location	Testing & Assaying	Certifications
SGS Minerals	Chile	Hardness (SAG Power Index, Bond Work Index, Low Energy Index Test; Abrasion Index), Rougher Copper Recovery, Rougher Molybdenum Recovery, Rougher Copper Recovery, Rougher Copper Kinetic, Tailings rheology (Yield Stress, viscosity), Settlement Rate, Microtrack Automated Mineralogy QEMScan / TIMA, X-Ray Diffraction; Whole Rock and Clays Density Separation and FRX Particle Size Distribution Tests, Preparation of Irrigation Solution (Artificial Refining), Real Density (Pycnometre), Agglomerate of Samples; Operation, Control, Loading and Unloading of Crib, Minicribs and Columns; Gravel Drying, Disaggregation and Preparation, Treatment and Disposal of Solutions, Iso-pH bottle leaching tests, Hydraulic conductivity, Bioactivity Test, Bacterial Amenability, Agglomerate Quality Test, Sulphation test, ISO-Eh Test, Impact Test Routine Assaying (copper, iron, arsenic)	ISO 9001 ISO14001 ISO 45
Aminpro	Chile	Hardness (SAG Power Index, Bond Work Index), Pilot Testwork	
MEL Internal Metallurgical Laboratory	Chile	Focused on production samples. Rougher Flotation test, Chemical assaying from both concentrator and leaching operations streams.	
CISEM	Chile	Automated Mineralogy QEMScan, X-Ray Diffraction; Whole Rock	
GeoSystems Analysis, Inc.	USA	Permeability Testing	
ALS Chemex	Canada	Inductive Conductive Plasma (ICP) for 54 Elements assaying	ISO 9001 ISO14001
Bureau Veritas	Chile	Routine Assaying (total copper, Soluble copper, iron, arsenic)	ISO 9001 ISO14001
	Chile	Partial Extraction assaying (Soluble copper at cyanide, ferric sulphate, sulphuric+citric acid)	ISO 9001 ISO14001

Source: MEL (2022)

10.2 Sample Representativeness

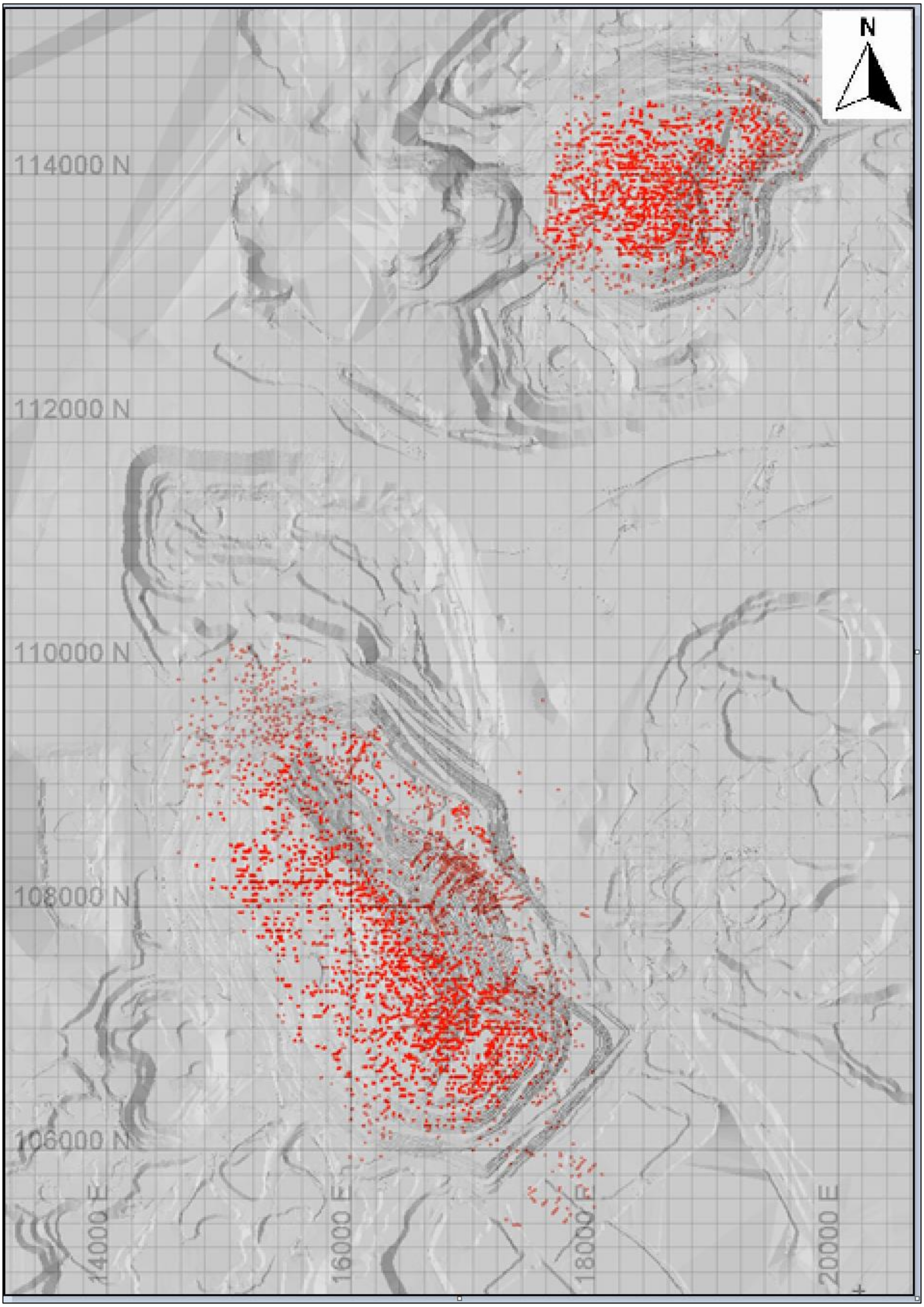
Sampling for MEL metallurgical testwork has been sourced during the operation to date from:

- Samples from drill holes employed to characterize the deposit geologically and chemically.
- Dedicated drill holes to recover larger sample mass for testwork.
- Bulk samples extracted from tunnels or the open pit.

Due to the maturity of the geometallurgical modelling, most new samples in the annual model updates are taken from regular diamond core drilling (DDH) to save cost and provide easy access to existing drill core. This new information is gathered continually and included into the geometallurgical modelling to predict metallurgical process response, as an ongoing part of the annual planning cycle. The geochemical characterisation, as with the geological characterisation, from drill holes is also employed in geometallurgical characterisation and modelling.

10.2.1 Sulphide Concentrator Sampling

The sampling process for concentrator testwork, for both hardness and copper recovery, is based on systematic sampling of DDH composites generated from alternating 14 m, or 16 m length intervals from diamond drill holes. These intervals are chosen to emulate the MEL mining bench height of 15 m, while being composited from the routine 2-m long sampling interval. These samples are chosen from diamond drill holes throughout the mineral deposit that are selected to characterize feed volumes considered in the long term production plan. The selection is prioritised according with both geometallurgical confidence criteria and the sequence of exploitation.



Source: MEL (2022)

Figure 10-3: Spatial distribution of geometallurgical samples

Table 10-3: Hardness and Recovery Databases Supporting Long Term Plan, as Issued at May21

Mine	Test	Database May21
Escondida	Hardness	9,126
	Recovery	9,120
Escondida Norte	Hardness	5,996
	Recovery	6,161
TOTAL	**Hardness**	**15,122**
	Recovery	**15,281**

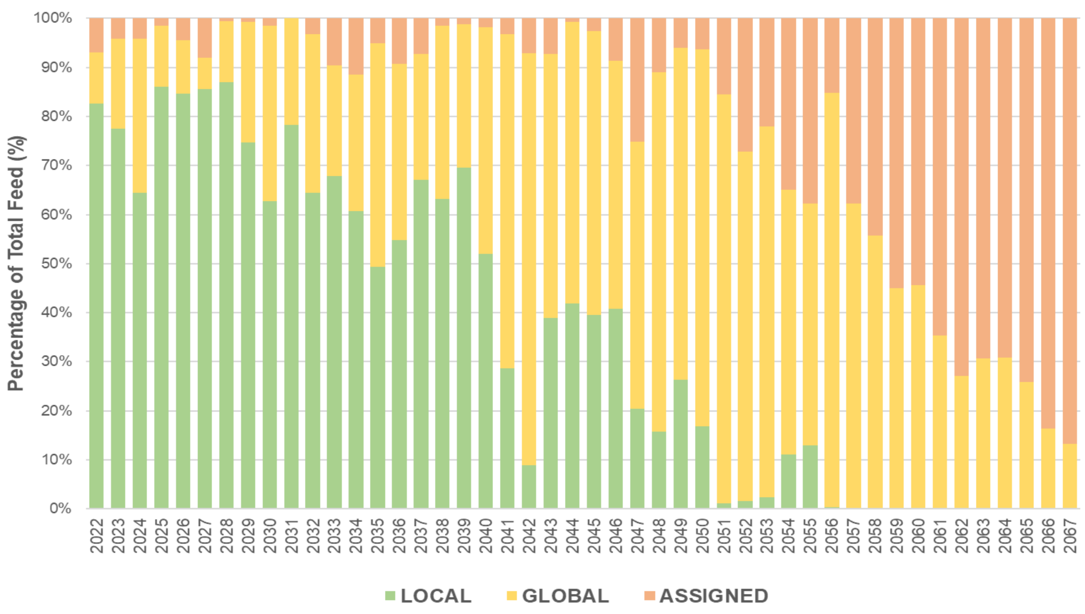
To support the sampling criteria, focused on the long and short term planning process, a geometallurgical classification system has been developed to incorporate a quantitative measurement of risk and uncertainty in mining plans for metallurgical parameters. The geometallurgical classification system is applied to the hardness and copper recovery data for concentrators and it works similar to resource categorisation.

In this case the terminology for geometallurgical variables has been defined as Local, Global and Assigned confidence depending on the holes, samples and distance that have been used to interpolate a single block. The "Assigned" classification it is related with blocks that are valued by means of global averages from the database where the input of fundamental information on grades and geology is always available, and this significantly decreases uncertainty expectations. The definition of this classification is shown in the Table 10-4, with the results shown in Figure 10-4.

Table 10-4: Geometallurgical Classification Definition for Hardness and Recovery

Classification	Definition
Local Confidence	Interpolated Blocks. Sample Distance ≤100 m. Samples used for Interpolation ≥5. Drill Holes used ≥4
Global Confidence	Interpolated Blocks. Sample Distance >100 m. Samples used for Interpolation <5. Drill Holes used <4
Assigned	Global averages from the database using grades, geology combinations where no geometallurgical samples are available.

Source: MEL (2022)



Source: MEL (2022)

Figure 10-4: Geometallurgical Classification Profile for Copper Recovery at Concentrators on Long Term Plan 22

The system provides information by which volumes with higher uncertainty, or risk to the metallurgical estimate, are identified so that drilling plans and/or sampling from existing drill holes, can be directed reduce uncertainty.

10.2.2 Acid Leach (Oxide and Mixed) and Acid Bio Leach (Sulphide) Sampling

Sampling for metallurgical testwork for these processes is no longer undertaken. During the early phases of these processes, bulk samples were obtained from large diameter DDH, sampling tunnels, and bulk samples taken from the operating pits. This was required to generate the large mass of sample required for testwork.

Based on that historical testwork, the process models for oxide leaching were developed and validated and these has been in use to date. The process models for oxide leaching continuously updated, because of the new data collected. The process models for leaching is fully linked with the geological and mineralogical data collected from routine characterisation.

In early stages of bioleaching for the sulphides, the project tested successfully a 500,000 t demonstration leach pad. It was constructed with ore extracted from the Escondida pit in 1999. Details of these sampling programmes are not presented in this TRS, since their importance has been displaced by the empirical use of the geometallurgical models that were thusly derived.

The maturity of the metallurgical parameters are now gathered from both regular 2 m geochemical and 14 m-16 m characterisation from infill drilling programme. This is an ongoing process that updates the geometallurgical models.

The model has information concerning the different types of geology present in both the reserves plan and the mineral resources volume to include principal alteration types, predominant lithologies, and mineralogical zones. This information informs the definition of ore types that are employed in ongoing characterisation and planning. The acquisition of information, and consequently the data density, reflects the difference in the geometallurgical complexity (variability) of the deposit. MEL undertakes a continuous process of data acquisition to support both long term planning and mining operations.

In the opinion of the QP, the data coverage provides sufficient representativity of the volume of the deposit to support the life of the mineral reserves. The maturity of the operation gives additional support for calibration and reconciliation process to improve both modelling and forecasting.

10.3 Relevant Results

The process established for the interpretation of collected analytical and testwork data and the transfer into the block model is through two ways to include when data density is higher enough, because of systematic sampling then a geostatistical interpolation is applied, or for variables that have either lower density of data points, or less inherent geological variability and the parameters are included in the block model by the allocation of global averages determined by the geological characteristics.

This process is underpinned by statistical analysis that has established discrete volumes of the deposit (estimation domains) that have been demonstrated as being populations with similar statistical characteristics. Finally, process models are applied based on the installed capacity to forecast mill throughput, flotation recovery, concentrate quality, and leach recovery for both long term and short term mine planning. Table 10-5 summarizes the methodology applied for each parameter to transfer into the block model.

Table 10-5: Testwork for Geometallurgical Process

Parameter	Modelling Method	Input
Concentrator Process (Sulphides)		
Hardness Model	Geostatistical interpolation and global averages, conditioned by the geological characterisation	Database of SAG Power Index (SPI) and Bond Work Index (BWI) testing.
Throughput	Specific-by-plant algorithm which calculates processing rates at resources block model using SPI and BWI inputs. A power-based model using installed capacity for the concentrators.	Hardness Model
Copper Recovery	Geostatistical interpolation and global averages, based on geological controls.	Database of rougher flotation test results employing scale-up factors to reflect the physical nature of each concentrator
Concentrate Grade	Algorithm which calculates expected grade at concentrate at the resources block model	Copper minerals and Pyrite content from mineralogical model.
Impurities and Payable elements	Algorithm which calculates expected content at the concentrate at the resources block model using an expected recovery at the process.	Recovery factors come from operational evidence.
Acid Leaching Process (Oxide and Mixed ore)		
Leach Recovery	Assigned to the block model conditioned by the geological characterisation and oxidation ratio	Principally derived from column test work recoveries
Acid Consumption	Assigned to the block model conditioned by the mineralogical characterisation of gangue minerals	Derived from testwork.
Bioleaching Process (Sulphides and Mixed ore)		
Leach Recovery	Algorithm which calculates expected copper recovery at the resources block model based on copper mineralogy. It is calculated at fixed leaching time.	Principally derived from large scale test working, test pad leaching work and empirical operational evidence. The fundamental is that each copper mineral species has specific recovery.

Source: MEL (2022)

As result of the previous methodology, the key metallurgical processing parameters are included in the long term geological (resource) block model that is used for long term planning that underpins mineral reserves. The procedures for estimation and/or assignment of these parameters have been developed during the ongoing operation of MEL that has included the addition of new metallurgical processing alternatives (oxide leaching and sulphide leaching) as well as successive expansion of the principal process (sulphide flotation and concentration). The modelling techniques and procedures are considered to be mature and are an appropriate reflection of the variability presented within the deposit given the nature of the current processing facilities. While the approach is identical for the two deposits that are currently being mined, namely Escondida and Escondida Norte, the outcomes are distinctive, due to the distribution of geological characteristics.

In the QP's opinion, the data support is adequate for forecasting purposes of both copper recovery and acid consumption over the life of the operation.

10.3.1 Hardness Model

The hardness is evaluated on the basis of the geological characteristics and is different between Escondida and Escondida Norte. The hardness estimate of SPI and BWi values is the fundamental input for the calculation of concentrator throughput. The following geological units (domains) have been established on the basis of statistical analysis, and mean SPI and BWi testwork results and are presented for each deposit. The evaluation of these domains is updated annually as additional testwork data is acquired.

In the QP's opinion, the historical data and future forecast shows strong correlation of harness modelling. For this reason, the QP feels that no additional data is currently needed.

Escondida Deposit

The results of database analysis of SPI and BWi results generates a hardness domain definition (UG DUR) that presents 7 geological units. These basic domains, based upon lithology combined with alteration, are refined by consideration of the vertical distance from the highest elevation of the mineral Anhydrite. The occurrence of the mineral Anhydrite has been identified as a geological control for ore hardness. The greater the depth from the anhydrite level, the greater the hardness of the rock. The definition of domains for hardness is presented in Table 10-6. Table 10-6 also presents a summary of the number of sample data and the mean results from database analysis.

Table 10-6: Hardness Domain Definition (UG DUR) and Results for Escondida

<table>
<tr><th>UG DUR CODE</th><th>Distance from Anhydrite Level</th><th>Alteration</th><th>Lithology</th><th>Samples</th><th>SPI (min)</th><th>BWi (kWh/t)</th></tr>
<tr><td>1</td><td rowspan="3">Greater than 150 m above</td><td rowspan="2">Quartz-Sericite-Clays</td><td>Quartz Porphyry-Andesites-Breccias-Intrusive Porphyry</td><td>2893</td><td>42</td><td>11.1</td></tr>
<tr><td>2</td><td>Others</td><td>2184</td><td>51</td><td>13.1</td></tr>
<tr><td>3</td><td>Others</td><td rowspan="5">All</td><td>1277</td><td>66</td><td>13.0</td></tr>
<tr><td>4</td><td rowspan="2">Less than 150 m above</td><td>Quartz-Sericite-Clays</td><td>1223</td><td>57</td><td>13.0</td></tr>
<tr><td>5</td><td>Others</td><td>820</td><td>80</td><td>13.2</td></tr>
<tr><td>6</td><td rowspan="2">Below</td><td>Quartz-Sericite-Clays</td><td>101</td><td>89</td><td>14.0</td></tr>
<tr><td>7</td><td>Others</td><td>602</td><td>138</td><td>15.7</td></tr>
</table>

Source: MEL (2022)

In the QP's opinion, the historical data and future forecast shows strong correlation of harness modelling. For this reason, the QP considers that no additional data is currently needed.

Escondida Norte Deposit

The results of database analysis for SPI and BWi results generates a hardness domain definition (UG DUR) that presents four geological units. For the 2020 Resource model update, the structural model was included as an additional geological control for hardness. The definition of domains for hardness is presented in Table 10-7 that also provides the numbers of samples and results from the database analysis.

Table 10-7: Hardness Domain Definition (UG DUR) for Escondida Norte

UG DUR CODE	Structural Domain	Alteration	Lithology	Samples	SPI (min)	BWi (kWh/t)
1	1	Quartz-Sericite-Clays	-	503	35	10.3
2	Others	Biotite		259	129	13.3
3		Others	Rhyolitic Porphyry	1,024	77	14.9
4			Others	3,844	62	12.2

Source: MEL (2022)

In the QP's opinion, the historical data and future forecast shows strong correlation of harness modelling. For this reason, the QP feels that no additional data is currently needed.

10.3.2 Throughput in Milling Plants

The expected throughput for the overall milling circuits of each of MEL's concentrators is calculated using two power-based models, one for each of the stages in the overall milling circuit. These are the Semi-Autogenous Grinding (SAG) mills and the ball mills.

For the throughput for SAG milling the algorithm uses the estimated SPI value (the Hardness Model) as a single variable, the rest of the parameters are constant. The algorithm is the following:

$$TPH_{SAG} = \frac{\%\,Power\ Utilization_{\ SAG}\ (\sum KW_{SAG})}{C * \left(\boldsymbol{SPI} * \frac{1}{\sqrt{T_{80}}}\right)^{n}}$$

For the ball milling stage, the algorithm uses the estimated BWi value (the Hardness Model) as the only variable, the rest of the parameters remain constant, and thus the throughput estimate is as follows:

$$TPH_{MB} = \frac{\%\,Power\ Utilization_{MB}\ (\sum KW_{MB})}{\left\{10 * \boldsymbol{BWI} * \left(\frac{1}{\sqrt{P_{80}}} - \frac{1}{\sqrt{T_{80}}}\right)\right\} * f}$$

The plant parameters for the different milling circuits in MEL's two flotation plants used for the throughput estimates are presented in Table 10-8.

Table 10-8: Parameters for throughput Estimates

Parameter	LOS COLORADOS			LAGUNA SECA	
	L1	L2	L3	L1	L2
Installed Power SAG (kW)	4.100	4.100	15.700	19.400	24.000
Installed Power MB (kW)	2 x 4.100	2 x 4.100	2 x 6.700 1 x 10.400	3 x 13.430 1 x 15.666	4 x 15.700
% Power Utilisation SAG	90	90	90	90	90
% Power Utilisation Ball Mills	95	95	95	95	95
Transfer Size T80 (microns)	6.000	6.000	6.000	8.500	8.500
Milling Product Size P80 (microns)	145	145	145	145	145

Source: MEL (2022)

In the QP's opinion, the historical data and future forecast shows strong correlation of throughput modelling. For this reason, the QP feels that no additional data is currently needed.

10.3.3 Copper Recovery in Flotation Plants

The recovery estimates is based upon the rougher recovery tests acquired from the sampling and testing of diamond drill core samples. These results are scaled-up, in accordance with normal industry practice, for each concentrator using the following equation to obtain a final recovery estimate as a function of rougher recovery:

$Rec_{Final} = Rec_{Rougher} * f_{Cleaner}$

$f_{Cleaner}$: Recovery factor for cleaner stage

The cleaner recovery factors used for each of the concentrators are: 96.5% for Los Colorados and 97% for Laguna Seca Line 1 and Line 2. These numbers are derived from design criteria of the cleaner circuit.

As with the hardness model the analysis of the input test data is undertaken on the two deposits independently in recognition of the geological differences between them.

In the QP's opinion, the historical data and future forecast shows strong correlation of copper recovery in flotation plants modelling. For this reason, the QP feels that no additional data is currently needed.

Escondida Deposit

Statistical data analysis carried out for rougher recovery data has to evaluate flotation domains (UG Rec). These basic domains, based upon mineral zone, lithology and alteration. The definition of the flotation estimation domains for the Escondida deposit comprises seven domains and is presented in Table 10-9. Table 10-9 also presents a summary of the number of sample data and the mean results from database analysis.

Table 10-9: Domains Definition for Copper Recovery (UG Rec) and Results for Escondida

UG Rec	Lithology	Alteration	Mineral Zone	Samples	Recovery (%)
0	All	All	Oxides	191	79.8
1	Non-Andesites	Quartz-Sericite-Clays / Potassic	High Enrichment Sulphides	2,277	88.8
2			Low Enrichment Sulphides	1,254	89.1
3			Primary Sulphides	2,770	86.4
4	Non (Andesites or Intrusive)	Sericite-Chlorite-Clays	All Sulphides	465	85.0
5	Andesites	Quartz-Sericite-Clays / Potassic		778	82.3
6	Andesites or Intrusive	Sericite-Chlorite-Clays		1,385	76.6

Source: MEL (2022)

Escondida Norte Deposit

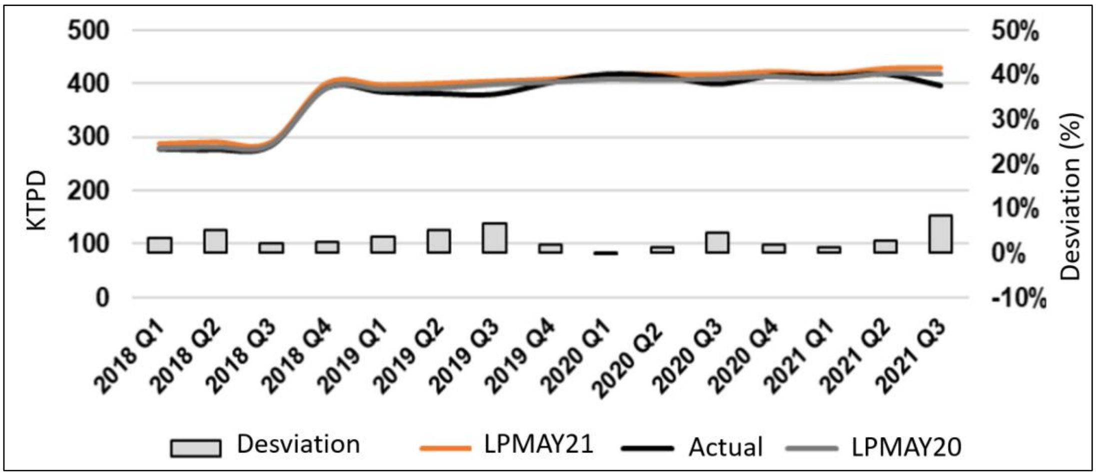
Evaluation of Escondida Norte has been undertaken in the same fashion as Escondida. This has also generated seven estimation domains. Whilst there are certain common elements between the resulting domains there are differences that reflect the geological differences between the deposits. Table 10-10 presents a summary of the number of sample data and the mean results from the samples at the database.

The TPH model presents low levels of deviation in terms of reconciliation where a relative error on plant results of 2.2% is obtained for the total of the FY18-FY21 period, as shown in Figure 10-5.

Table 10-10: Domains Definition for Copper Recovery (UG Rec) and Results for Escondida Norte

UG Rec	Lithology	Alteration	Mineral Zone	Samples	Recovery (%)
0	All	All	Oxides	90	81.1
1	Feldspar Porphyry / Breccias	QSC	High Enrichment / Low Enrichment Sulphides	1,138	89.3
2	Feldspar Porphyry / Breccias	QSC	Primary Sulphides	915	85.6
3	Rhyolitic Porphyry / Coarse Porphyry	QSC	All Sulphides	1,180	89.9
4	No Andesites	SCC/ K		1,197	82.2
5	Andesites	QSC		503	83.0
6	Andesites	SCC/K		1,138	79.0

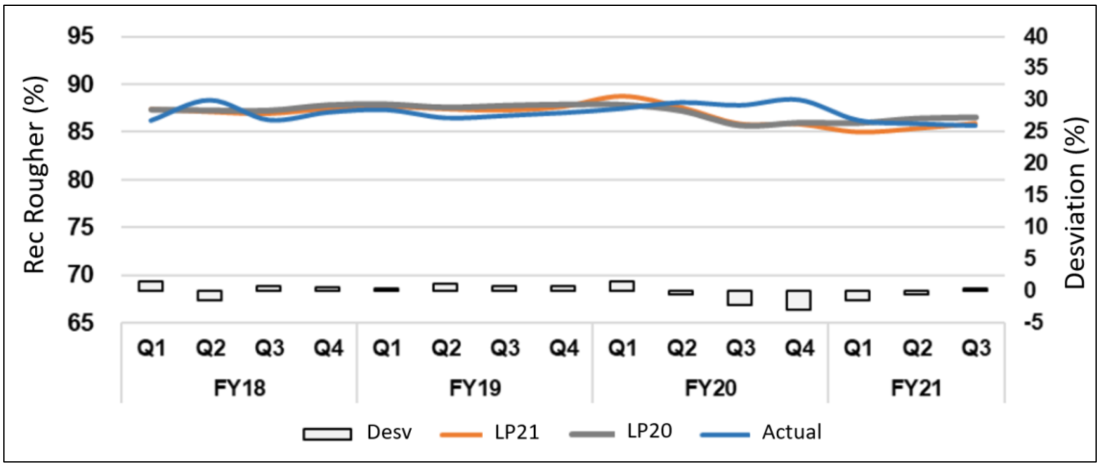
Source: MEL (2022)



Source: MEL (2022)

Figure 10-5: Throughput Model Reconciliation

In the case of the Rougher Copper Recovery model, a difference of approximately 0.1% over plant results is observed in the FY18-FY21 period, on a quarterly basis (Figure 10-6). In FY21, this difference is approximately 1% below the plant result also evaluated on a quarterly basis.



Source: MEL (2022)

Figure 10-6: Recovery Model Reconciliation

10.3.4 Acid Leaching of Oxides and Mixed Mineralisation

The metallurgical support for oxide leach was developed in 1997 for Escondida ore. It was based on testwork of large composites representative of the main oxides groups which were defined as a function of the oxidation ratio and the clays content. The testwork included a set of leaching columns and pilot testing for solutions treatment with the objective of determined expected recovery and acid consumption of the oxide ore. Further testwork were carried out in 2001 for Escondida Norte ore which updated metallurgical results and recommended to maintain the defined oxide groups.

Recent work in 2020 differentiated extraction curves at leaching for oxides and mixed ore, in order to enable mixed ore to the acid leaching process because of lower availability of oxides at the mine plans.

In addition to geometallurgical characterisation for processing based up of geological variables, an important criteria for classifying ore-types employed in MEL is the Solubility Ratio (RS) (also referred to as the Oxidation Ratio). This parameter is obtained from chemical analysis of copper minerals and corresponds to the percentage of copper soluble in sulphuric acid (SCu) with respect to the total copper content (TCu).

To define the ore-types for oxides and mixed, a sub-classification based on; i), the RS, which accounts for the potential copper recovery in leaching processes; and ii), the potential for the generation of fine particulate material (fines), which is a consequence of the proportions and characteristics of gangue minerals. The definition of fines in the process corresponds to the particle size less than 150 microns (−100 Mesh). Fines are important to leaching processes, because they may impact the permeability of the leach pads thereby impeding fluid flow and copper recovery.

The resulting acid leaching sub-classification system uses routine chemical analysis, geological mapping information, and gangue mineralogy determinations using the near infrared (NIR) technique. These groups were correlated with fines measurements from process feed samples. Table 10-11 shows the ore-types definition for Escondida and Escondida Norte for acid leaching process.

Table 10-11: Ore Types Definition for Acid Leaching Process

Ore-Type	Solubility Ratio (SCu/TCu)	Soluble Copper content (SCu (%))	(*) Fines Index
Oxide A	0.5 ≤ SCu/TCu ≤ 1	SCu ≥ 0.8	0
Oxide B		0.2 ≤ SCu < 0.8	0
Oxide C		SCu ≥ 0.8	1
Oxide D		0.2 ≤ SCu < 0.8	1
Mixed A	0.15 ≤ SCu/TCu < 0.5	-	0
Mixed C			1

Note: (*) Index Interpretation: 0 = Low Fines Probability; 1= High Fines Probability.
Source: MEL (2021)

The recovery results are discrete by solubility ratio, fines content, and the content of mineral species with higher acid consumption. The general algorithms that allow to estimate copper recovery at the oxide and mixed groups are based on the solubility ratio as follows:

$$Rec_{Oxides} = 76 * \frac{SCu}{TCu} + 52 * \frac{(TCu - SCu)}{TCu}$$

$$Rec_{Mixed} = 76 * \frac{SCu}{TCu} + 40 * \frac{(0.87 * TCu - SCu)}{TCu}$$

The geometallurgical characterisation for leaching processes (bulk samples for column testwork) requires a higher mass requirement for concentrator processes (drill hole composites) which places a constraint upon regular, high density sampling through the deposit. Sample numbers and density are therefore generally lower for leaching characteristics. In response to this a global average allocation on the basis of oretypes is currently used to assign both copper recovery and acid consumption. Operational experience demonstrates that this is an acceptable predictor of metallurgical processes outcomes for leaching processes.

10.3.5 Acid Bioleaching of Sulphide Mineralisation

The original concept of the sulphide leaching operations was to process, through a bioleaching process, all the low grade minerals that were not considered within the planning of the existing processes at MEL to include; (i), sulphides under the cut-off grade to the concentrator; (ii), untreated mixed in the acid leaching process; and (iii), unplanned oxides. The feasibility definitions for this operation account for the following assumptions:

- The process is designed to leach minerals in heaps under the Run-of-Mine (ROM) concept, that is, without prior crushing, using an acid solution and bacterial inoculation as leaching agents. The leaching cycle is at least 450 days for each ore strip.
- The expected global recovery of the process is 36% for the sulphide ore.

The process is fed with minerals from the Escondida and Escondida Norte pits. The deposits are enriched supergene copper porphyries with significant presence of sulphide copper minerals. The main copper sulphides are chalcocite, covellite, and chalcopyrite with a smaller amount of bornite and enargite. Some copper oxide minerals are also present, such as brochantite and chrysocolla. In general, the deposits have a very similar geology, with quartz-sericitic and chloritic alteration associated with the main mineralisation zones. The feed has been categorised consistently with existing geological modelling and resource evaluation of the deposits. Such categories consist of three groups of low grade sulphides, discretised by their geological combinations, which are expected to have different acid consumptions. Table 10-12 specifies the definitions of the types of sulphides under the concentrator cut-off grade, which are fed to the process.

Table 10-12: Ore Types Definition for Sulphides to Bioleaching Process

<table>
<tr><th>Sulphide Leach Oretype</th><th>Lithology & Alteration</th><th>Geological Description</th></tr>
<tr><td rowspan="2">M1</td><td rowspan="2">Porphyries
Quartz-Sericite-Clay</td><td>Escondida Porphyry, Rhyolite Porphyry or Breccia. Granodiorite Porphyry Complex, Rhyolite Porphyry</td></tr>
<tr><td>Quartz-sericite-clay alteration</td></tr>
<tr><td rowspan="2">M2</td><td rowspan="2">Andesite
Chlorite-Clay</td><td>Andesite volcanics</td></tr>
<tr><td>Sericite-chlorite-clay alteration</td></tr>
<tr><td rowspan="8">M3</td><td rowspan="2">Andesite
Potassic</td><td>Andesite volcanics</td></tr>
<tr><td>Potassic alteration</td></tr>
<tr><td rowspan="2">Andesite
Quartz-Sericite-Clay</td><td>Andesite volcanics</td></tr>
<tr><td>Quartz-sericite-clay alteration</td></tr>
<tr><td rowspan="2">Porphyries
Chlorite-Clay</td><td>Escondida Porphyry, Rhyolite Porphyry or Breccia. Granodiorite Porphyry Complex, Rhyolite Porphyry</td></tr>
<tr><td>Sericite-chlorite-clay alteration</td></tr>
<tr><td rowspan="2">Porphyries
Potassic</td><td>Escondida Porphyry, Rhyolite Porphyry or Breccia</td></tr>
<tr><td>Potassic alteration</td></tr>
</table>

Source: MEL (2022)

The metallurgical response of the minerals was determined through a series of tests whose objective was to establish the copper recovery and acid consumption expected in the bioleaching process of ROM minerals as well as to establish the key operational factors for control and leaching performance.

In order to validate the preliminary results, a demonstrative pad was built where the main ore-types M1 and M2 were tested, using ROM materials from the Escondida pit. About 200,000 t of ore was deposited on a specially prepared field. Prior to leaching, the ore feed was drilled, analysed, and modelled for grade and mineralogy. Once the leaching cycle was completed, the heap was drilled and the cuttings samples analysed, and the information collected was used to build a post-leaching block model. Both metallurgical tests carried out at 6-t crib and the demonstration pad used mostly ROM ore.

The predictions of leaching rates and copper recoveries require a quantitative estimate of the copper-iron-sulphur mineralogy. The determination of these parameters is conducted within the framework of the mineralogical block model. The sulphide mineral assemblage identified within and below the chalcocite enrichment blanket is well suited for a suite of copper, iron, and sulphur analyses to quantitatively determine chalcopyrite, chalcocite, covellite, and pyrite mineral contents in the ore. On the basis of the mineralogical identification, the chemical method of partial extraction (PtXt) is applied to samples from the Escondida and Escondida Norte deposits with the objective of generate a sulphide mineralogy model. The technique employs three different lixiviants that are run on different aliquots of the same sample, as opposed to sequential leaching, where the same aliquot is sequentially attacked with different chemical digestions.

Mineralogy calculations use the following chemical digestions of copper on separate samples:

- Total Copper (TCu)
- Copper Soluble in (Citric Acid + Sulphuric Acid)
- Soluble Copper in Ferric Sulphate
- Soluble Copper in Sodium Cyanide

In addition, the following specific chemical assays are used to include total iron, total sulphur, sulphur from sulphides (not soluble in Na_2CO_3), and total arsenic. By comparing the extractions of the pure species (chalcocite, covellite and chalcopyrite) with the analytical results of a given sample, the technique provides a quantitative determination of copper sulphides. For each sample, it is possible to determine a copper source ratio (CSR) that is the proportion of total copper contributed by each of the copper minerals in the sample and copper source percentage (CSP) that represents the absolute percentage of copper in the compound sample for each of the minerals. In other words, for CSRs and CSPs, the following is true:

- Sum of CSR = 1
- Sum of CSP = Total Copper Grade

Thus, CSR and CSP represent two different ways of expressing the copper contained in the minerals present in the sample. The mineralogical composition can be calculated from the CSP values, weighting the proportions of copper in the constituent minerals. The weight percentage is the total weighted percentage of the mineral in the sample and is determined based on the stoichiometry, which is determined experimentally, based on the composition of the minerals found in the deposit. Normative mineralogy is now routinely interpolated and is part of MEL's resource models.

The expected recovery at 450 days of leaching is presented as a function of the main sulphide mineralogy (chalcocite, covellite, and chalcopyrite), as shown Table 10-13.

Table 10-13: Leaching as a Function of the Main Sulphide Mineralogy

	Chalcocite	Covellite	Chalcopyrite
Recovery (%)	54	39	19

Source: MEL (2010)

Thus, the expected recovery for the copper sulphides fed to the sulphide leaching process is determined as:

$$Recovery\ = (CSRcc \times 0.54 + CSRcv \times 0.39 + CSRcpy \times 0.19) \times 100$$

The recovery of mixes was established as 30% of the insoluble copper and 60% of the soluble copper while the recovery of copper from oxides was established at 60%.

10.4 Payables and Deleterious Elements

The trace elements considered in the resource model at MEL include gold, silver, molybdenum, arsenic, cadmium, lead, zinc, bismuth, and antimony. All of these elements are reported because of their natural occurrence in the copper concentrate. However, there is currently no designed and installed process in the resource model at MEL to recover these elements. Only gold and silver add value to the copper concentrate in terms of sale price, since the commercial price reached by the copper concentrate increases if its content is greater than any of these.

The elements arsenic, cadmium, lead, zinc, bismuth, and antimony are considered impurities in the copper concentrate for which it receives penalties if it exceeds the permitted limit values. For this reason, the estimation of the content of these elements is relevant in order to not affect the sale price of the copper concentrates.

To obtain the content of a given element at the concentrate, the following algorithm is used, where the fundamental input is the in-situ content of the element in each block, as follows:

$$Element_{Conc} = \frac{Tons\ of\ Ore\ Fed * \ Element\ Grade * \ Recovery\ Factor\ Element}{Concentrate\ Tons}$$

The recovery factors for the elements are calculated based on different groups assigned according to the lithology, mineralogical zone and alteration, and the associated tonnages for each mine.

There is no significant content of deleterious elements in the mineralised zones of sulphides. Only arsenic occurs at the deposit in the form of enargite. Arsenic is associated with polymetallic veins and structures with only limited impact upon long term concentrate quality. Payable metals as gold and silver are present in concentrations that are locally sufficient to contribute to overall revenue from the sale of copper concentrate product, but are insufficient to be considered as drivers of the overall mine and business planning process. Gold and silver as sub-products are analysed within the copper concentrate product and through established contracts revenue is received according to the level of these contents within the copper concentrate product.

10.5 Adequacy of Data and Non-Conventional Industry Practice

It is the QP’s opinion that the geometallurgical data being used for the estimation and characterisation of product types is adequate for the purposes used in this TRS. The current testing, modelling, and analytical practices for geometallurgical variables are considered conventional. Reconciliation information on key geometallurgical parameters adequately supports the long term plan; and therefore, in the opinion of the QP, there is limited risk in using the results for throughput and metallurgical performance within Resource model.

11 Mineral Resources Estimate

The mineral resources estimate for the MEL property is reported in accordance with the SEC S-K 1300 Regulations. For estimating the mineral resources of Escondida and Escondida Norte, the following definition as set forth in the S-K 1300 Definition Standards adopted December 26, 2018, was applied.

The mineral resources presented in this section are not mineral reserves and do not reflect demonstrated economic viability. The reported Inferred mineral resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorised as mineral reserves. There is no certainty that all or any part of these mineral resources will be converted into Mineral Reserve. All figures are rounded to reflect the relative accuracy of the estimates and totals may not add correctly.

The effective date of the mineral resources estimate is June 30, 2022.

Maps presented in this chapter use local mine coordinates derived from the PSAD-56 UTM projection.

The mineral resources estimate was reported from within a constrained pit shell, using Whittle software, based on economics described later in this section. The MEL resource estimate contains both the Escondida and Escondida Norte deposits in separate block models. Escondida and Escondida Norte have been extensively drilled, with approximately 2,690,000 m of drilling forming the base of the LP2021 resource model, based in part on geological knowledge acquired over the past 30 years of exploration and operation. It is the opinion of the QP that the drilling grid is considered to be sufficiently spaced to confidently define the geological domains for modelling purposes.

The mineral resources qualified person visits sites regularly for program planning and reviews, gaining further understanding of exploration programs and interpreted geological framework.

The key elements of the geological modelling and resource estimation process are described below.

11.1 Key Assumptions, Parameters, and Methods Used

This mineral resources estimate was determined using a block model methodology based on the Ordinary Kriging (OK) interpolation method. Drill hole sample data was capped locally to control outlier values and then composited for each estimation domain with the distributive method. Mineral resources categories were assigned to the model based on uncertainty from simulation of geology and grade. Mineral resources estimates were constrained by an open pit shell based on economic criteria outlined in Chapter 12.

11.2 Geological Modelling

The geological modelling utilizes a dynamic 3D methodology using Vulcan software. This methodology allows on-screen geological interpretation and updating of the mineral resource model with new drill hole data through implicit methodology. The advantage of this methodology is the high level of traceability and accountability in the construction of models, allowing the handling large amounts of information and optimising the time involved.

Four variables: lithology, alteration, mineralogical zone and copper sulphide abundance, were modelled for Escondida and Escondida Norte. Also, at Escondida, the Porphyry Intrusive Pulse variable, which describes the different pulses of mineralisation, was modelled.

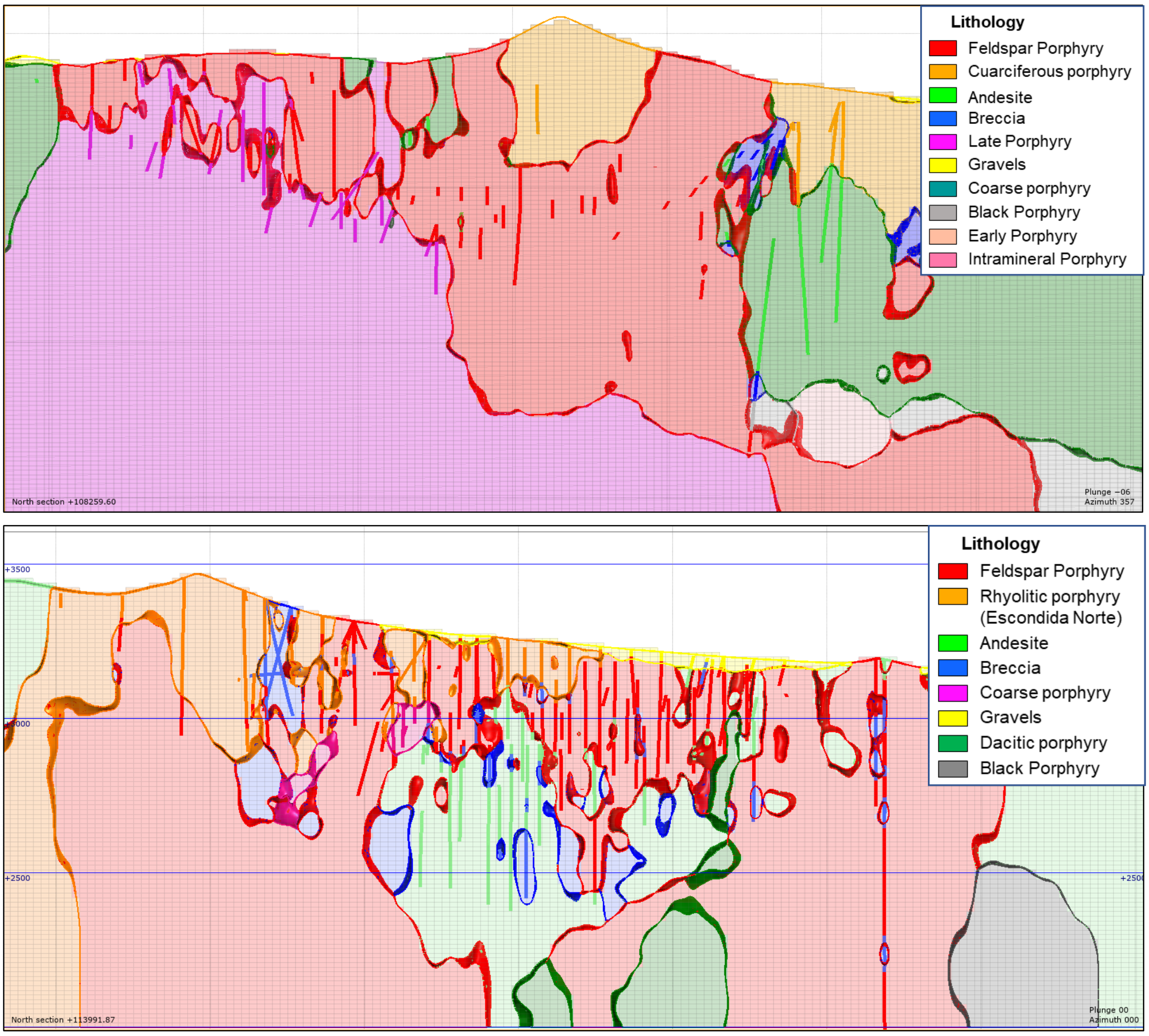
11.2.1 Lithology

There are 12 units built into the lithological model. The lithological model included the following units, as described in Table 11-1. Figure 11-1 shows vertical sections for the Escondida and Escondida Norte deposits for lithology, including the model and drill hole.

Table 11-1: Lithologies Included in the Geological Model for Escondida and Escondida Norte

Comment	Lithology	Modelling code
Pre mineral	Black Porphyry	12
	Early Porphyry	13
	Coarse porphyry	7
	Rhyolitic Porphyry (Escondida Norte)	2
Mineralised	Feldspar Porphyry	1
Inter mineral	Intermineral Porphyry	18
	Cuarciferous porphyry (Escondida)	2
Post mineral	Green Granodiorite	5
	Dacitic porphyry	9
Others	Andesite	3
	Breccia	4
	Gravels	6

Source: MEL (2022)



Source: MEL (2022)

Figure 11-1: Example Lithology Cross-Section for Escondida Section 108,260N (top) and Escondida Norte Section 114,000N (bottom)

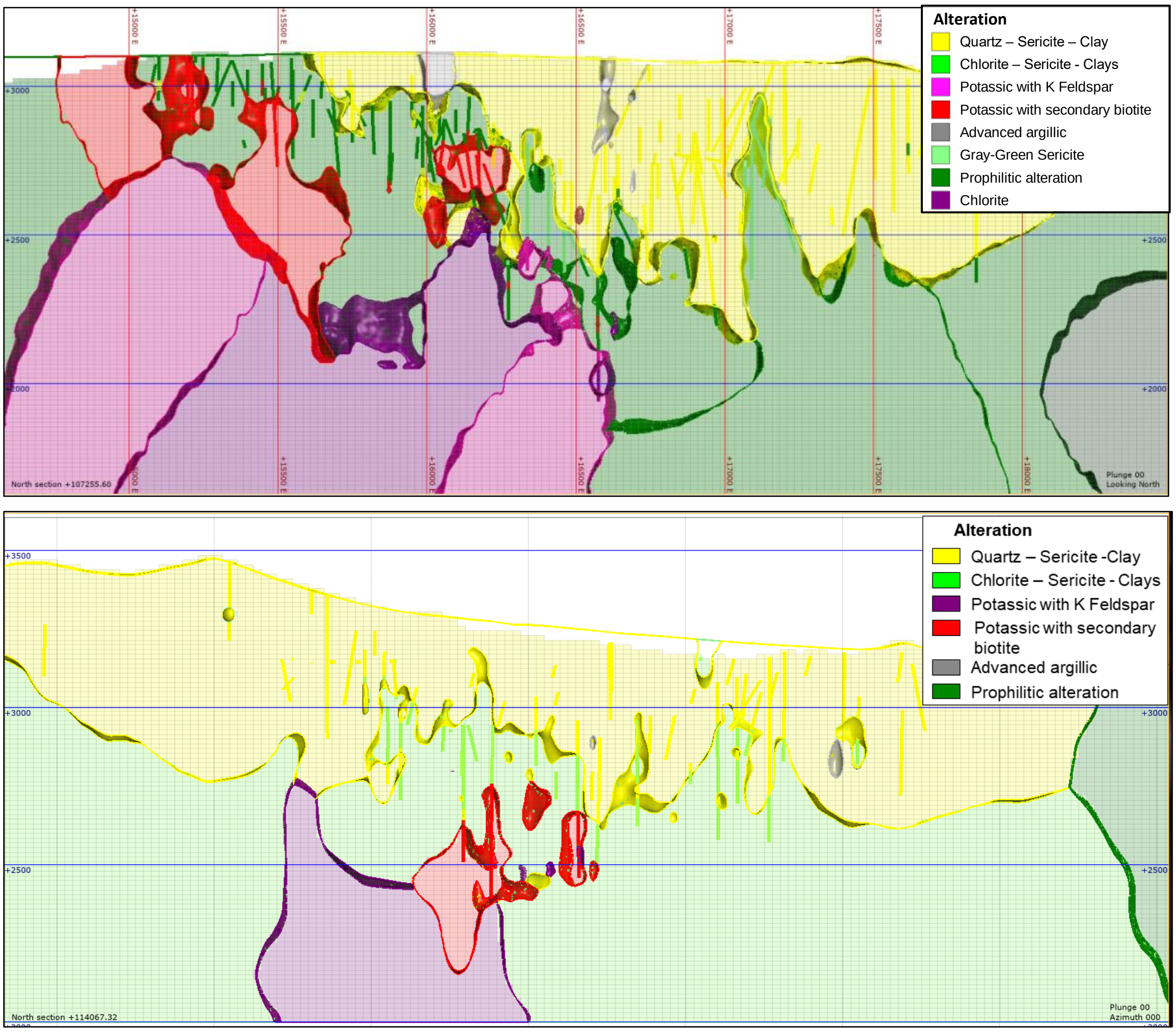
11.2.2 Alteration

Four units were built into the alteration model, identifying the different hydrothermal alteration events for copper porphyry. The alteration model considered the lithological units described in Table 11-2. The alteration model is an important way to ensure minimal effect during the processing recovery. For this reason, MEL ensures that the alteration model is part of the mineral resources estimation and any high clay areas are flagged as potential issue for plant recovery. Figure 11-2 shows vertical sections for both Escondida and Escondida Norte deposits for alteration, showing the model and drill holes code consistency.

Table 11-2: Alteration Included in the Geological Model for Escondida and Escondida Norte

Section	Alteration	Modelling code
Early Hydrothermal	Potassic with K Feldspar	3
	Potassic with secondary biotite	4
	Grey-Green Sericite	6
Transitional Hydrothermal	Chlorite – Sericite - Clays	2
Main Hydrothermal	Quartz – Sericite – Clay	1
	Advanced argillic	5
Late Hydrothermal	Propylitic	7
	Chlorite	8

Source: MEL (2022)



Source: MEL (2022)

Figure 11-2: Example Alteration Cross-Sections for Escondida Section 107,255N (top) and Escondida Norte Section 114,100N (bottom)

11.2.3 Mineralogical Zone

Seven units were built in the mineralised zone model (MINZONE), as shown in (Table 11-3). These units are defined based on the different copper minerals existing in the deposit and are the basis for the estimation of grades and the recovery of the different MEL production processes. The coding of the units was performed using the geological logging information in addition to the assay results. The MINZONE assignment methodology assists in the estimation process by ensuring that no cross boundaries estimation occurs. This methodology is used by most large copper deposits and the historical reconciliation shows the methodology should continue to be used. Figure 11-3 depicts the vertical sections for both Escondida and Escondida Norte deposits for mineral zones that show the model and drill hole code consistency.

Table 11-3: Mineralogical Zones Included in the Geological Model, Escondida and Escondida Norte

Copper Oxides/Sulphides	Mineralogical Zone	Modelling Code
Iron Oxide, barren	Leached	0
Brochantite, antlerite	Copper oxides	1
Copper sulphide and iron oxide	Partial leach	4
Copper oxides and copper sulphide	Mixed	5
Chalcocite – covellite - chalcopyrite <10 %	High enrichment	6
Chalcocite – covellite – chalcopyrite >10%	Low enrichment	7
Bornite – chalcopyrite	Hypogenic	8

Source: MEL (2022)

11.2.4 Copper Sulphide Abundance

Copper sulphide abundance (CSA) is calculated for each sample from the normative mineralogy available in the drill hole databases:

Normative mineralogy is calculated from PtXt analysis. This analysis provides the proportion of total copper (CSP) contributed by each copper sulphide species (chalcocite, covellite, chalcopyrite, and bornite). At MEL, these analyses were performed as regular practice for all drill holes in the sulphide mineralised portion. Using copper stoichiometry ratios, CSA is obtained from the CSP. The CSA is derived from the sum of the abundance of each individual sulphide species.

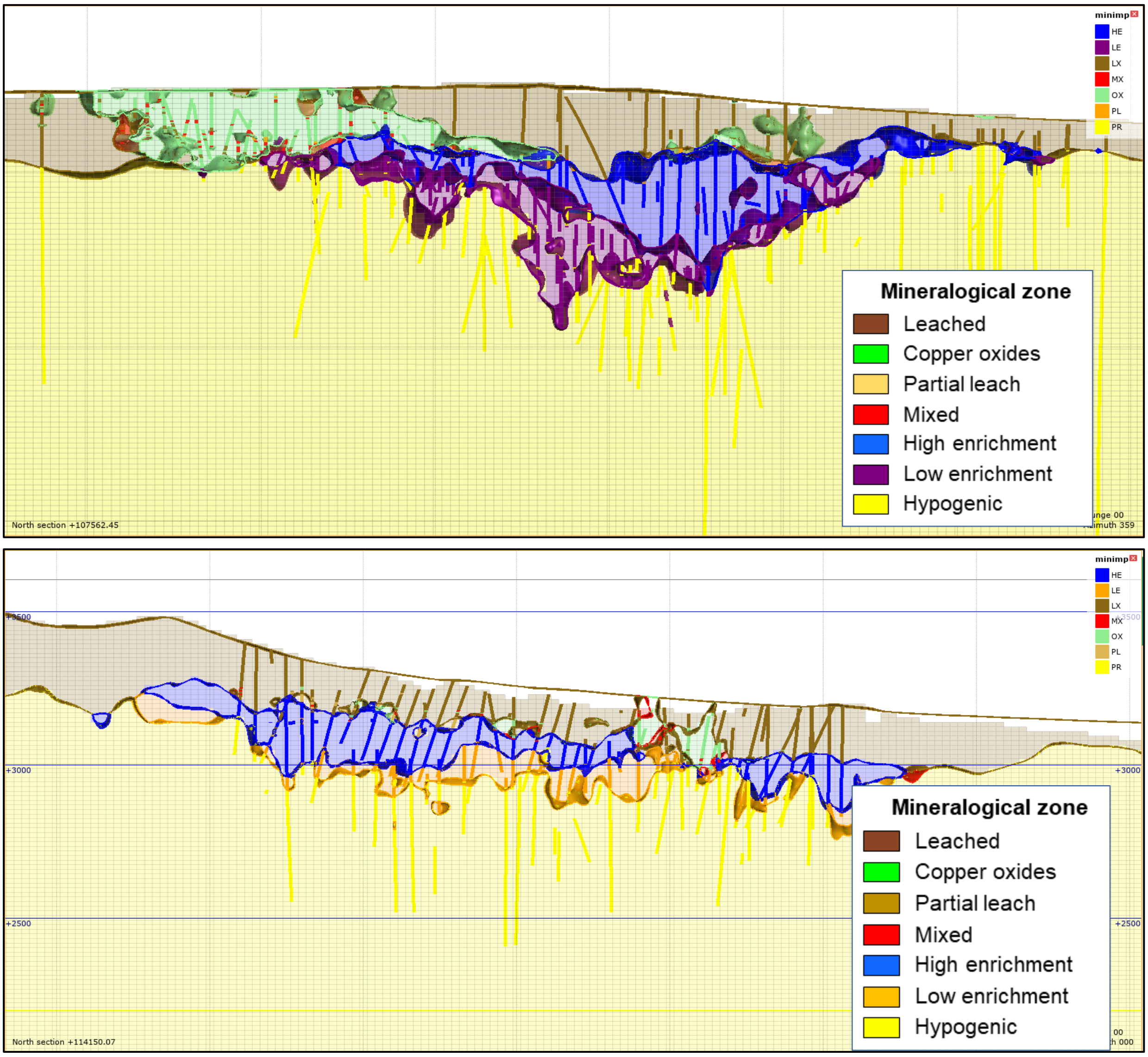
Two thresholds were defined from the CSA distribution (Table 11-4). The first to define the High CSA volume and the second to differentiate Low and Medium CSA volumes.

Figure 11-4 shows sections for both Escondida and Escondida Norte deposits for copper sulphide presenting the modelling coding for copper sulphide abundance volume.

Table 11-4: Copper Sulphide Abundance (CSA) definition

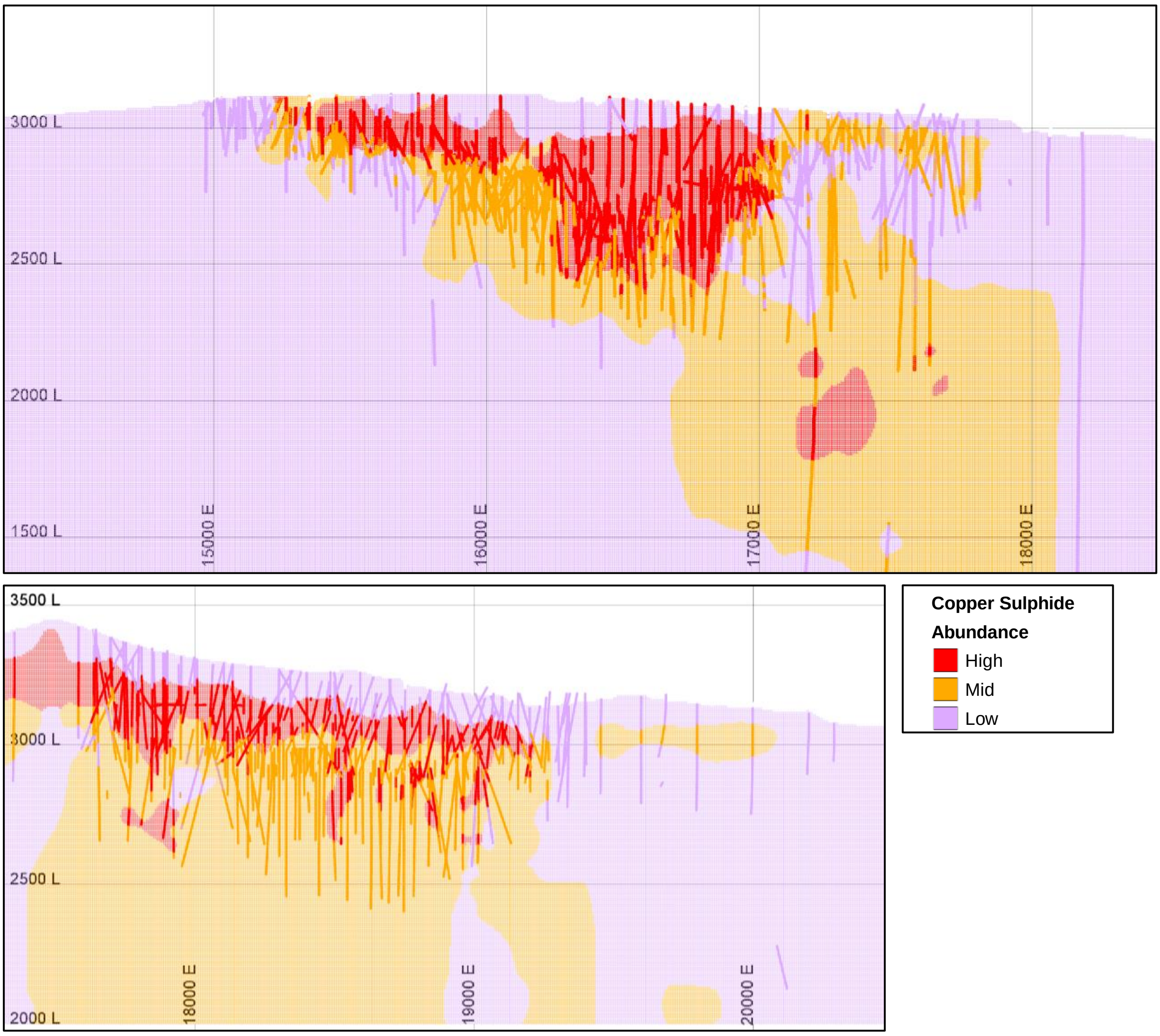
Zone	Copper Abundance Mineralisation Sulphide Supergene	Copper Abundance Mineralisation Sulphide Hypogene
Low	CSA < 0.4	CSA < 0.6
Mid	0.4 <= CSA < 1.5	0.6 <= CSA < 1.7
High	CSA >= 1.5	CSA >= 1.7

Source: MEL (2022)



Source: MEL (2022)

Figure 11-3: Examples of the Mineralogical Zones Cross-Sections for Escondida Section 107,550 (top) an Escondida Norte Section 114,150N (bottom)



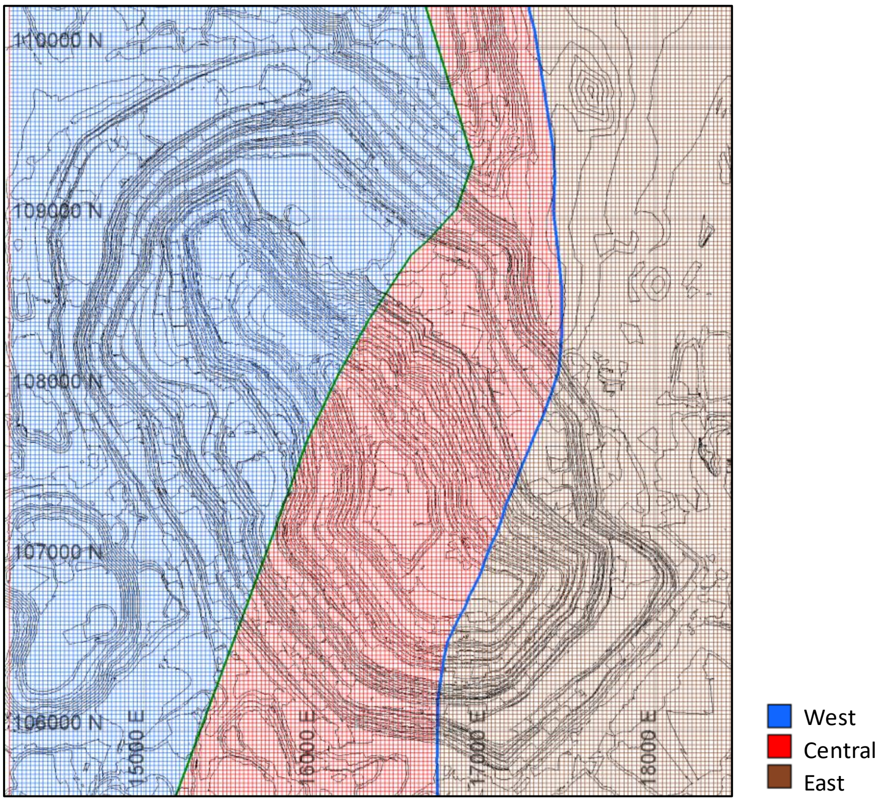
Source: MEL internal geology document. (2022)

Figure 11-4: Sulphide Examples of CSA Cross-Sections for Escondida Section 107,450N (above) and Escondida Norte Section 114,330N (below)

11.2.5 Porphyry Intrusive Pulse

Specifically, for the Escondida deposit, an additional “Pulse” variable was defined. This is undertaken to separate mineralisation events that are interpreted to occur in the Escondida deposit and are bounded by structural blocks. These mineralization events are considered to be associated with different intrusive pulses of the mineralizing porphyry intrusive event and the supergene enrichment event. Three blocks, each representing a mineralisation event, were defined to include west pulse (only enrichment event), central pulse (Escondida mineralization event), and east pulse (Escondida Este mineralization event). Whilst these structural blocks do not strictly comprise the transitional and overlapping boundary of each pulse the overall distribution of the mineralization types are honoured.

The boundary between these pulses corresponds to two north-northeast directional structures. Figure 11-5 depicts the geometry of these pulses, or blocks. Based on the 3D geological wireframes, a 6.25 x 6.25 x 7.5 m block model was constructed that includes the lithology, alteration, mineralisation zones, pulse, and CSA models for Escondida, and the lithology, alteration, mineralisation zones, and CSA models for Escondida Norte.



Source: MEL internal geology document. (2022)

Figure 11-5: General View of the Pulse Variable, Escondida

11.3 Block Modelling

A mineral inventory (block model) was estimated using established geostatistical techniques following comprehensive statistical and exploratory data analysis. Grade variables, density, and metallurgical variables were estimated. Table 11-5 shows the variables estimated in the block model.

Table 11-5: Variables Estimated in the Escondida and Escondida Norte Resource Model

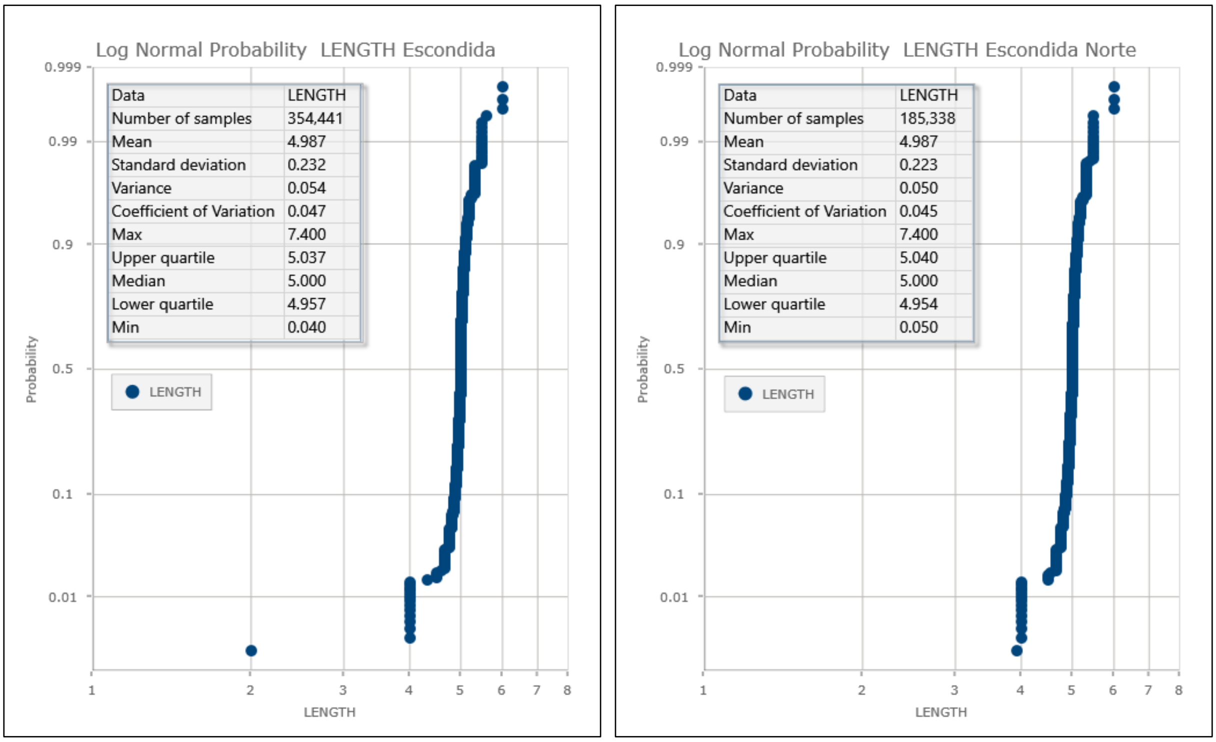
Variable	Description
TCu	Total copper (%)
SCu	Soluble copper (%)
Py	Pyrite (%)
S2	Sulphur (%)
cspcc	Copper grade from Chalcocite (%)
cspcv	Copper grade from Covellite (%)
cspcpy	Copper grade from Chalcopyrite (%)
densidad	Dry Density
bwi	Bond Work Index (Kwh/ton)
spi	Sag Power Index (min)
rec_flc	Flotation recovery for Los Colorados concentrator (%)
rec_fls	Flotation recovery for Laguna Seca concentrator (%)
rec_lixaci	Acid leach recovery (%)
rec_sl_350	Sulphide leach recovery (%)

Source: MEL (2022)

For estimation purposes, the drill hole database was composited on 5 m intervals. A detailed contact analysis has been carried out between the estimation units in order to define the type of contact. Grade capping used a local approach to identify outlier samples. Experimental pair-wise variograms models were generated and theoretical models were adjusted using three rotation axes and three structures. The estimate was completed using OK in three nested passes with increasing search dimensions from 50 m up to 600 m. Each pass adjusts the interpolation criteria based on geostatistical analysis and level of data support for elements by estimation domain.

11.3.1 Composite Length

There are a variety of sample lengths in the drill hole database, although the most common sample lengths were 2.0 m. The drill hole data base was composited to 5 m length, a multiple of the block height, to better define the outliers in the deposit. Composites used breaks in the compositing process when there is a change in the underlying estimation domain, therefore, only samples from the same domain are composited together. Any remaining samples lengths were merged into the last composite. The minimum length used to estimate a block is 2 m, which represents less than 0.001% of the database. The means of the domains are not altered, since they are weighted by the lengths of the samples Figure 11-6 shows the distribution of the resulting composite lengths for each of the Escondida and Escondida Norte deposits.



Source: MEL (2022)

Figure 11-6: Composite Length Distribution for Escondida (left) and Escondida Norte (right)

11.3.2 Estimation Domain

The exploratory data analysis (EDA) aims to find distributional similarities between samples and to determine possible groupings of geological units in the estimation domains. The EDA also seeks to identify possible drifts that may affect the estimation result. The statistical adequacy of the domain definitions was reviewed through the application of statistical and geostatistical tools. Analyses included basic statistics, box plots, distribution charts and continuity analysis. All statistical analyses were developed using the sample database. Maptek's Vulcan was employed as the main software tool for the mineral resources estimation.

For Escondida the copper estimation domains have been defined by mineralisation zones, pulse zones and CSA models

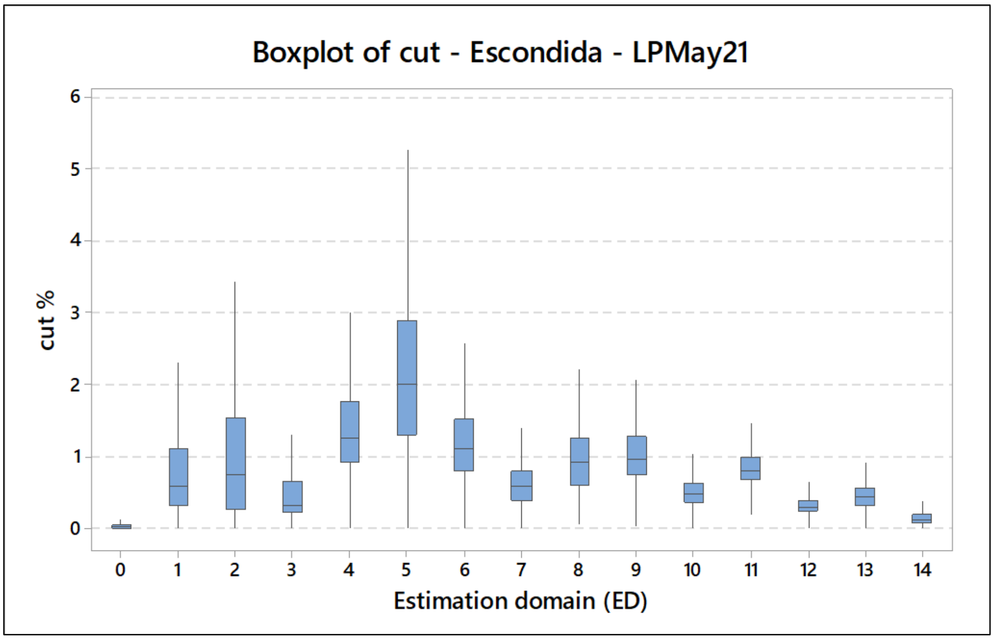
Oxidised minerals, namely, leached, oxides, mixed and partially leached are treated as independent units due to their spatial arrangement and mineralisation style. Sulphide minerals are separated into secondary enrichment and hypogene mineralisation. The central event of mineralisation (central block) has a higher grade than the other blocks. Finally, the CSA makes it possible to separate different zones associated with the intensity of mineralisation, due to the superimposition of mineralising events.

Table 11-6 shows the estimation domain definition for Escondida. Figure 11-7 shows a box plot of estimation domain for Escondida.

Table 11-6: Estimation Domain for TCu for Escondida

Domain	Mineralisation Zone	Pulse zone	CSA
0	Leached	All	All
1	Oxide	All	All
2	Partial Leach	All	All
3	Mixed	All	All
4	High Enrichment	West	High
5	High Enrichment	Center	High
6	High Enrichment	East	High
7	High Enrichment	All	Medium - Low
8	Low Enrichment	West	High
9	Low Enrichment	Center	High
10	Low Enrichment	All	Medium
11	High Enrichment - Hypogene	East	High
12	Low Enrichment - Hypogene	West	High - Medium
13	Low Enrichment - Hypogene	Center - East	Medium - Low
14	Hypogene	All	Low

Source: MEL (2022)



Source: MEL (2022)

Figure 11-7: Box Plot for TCu Estimation Domain for Escondida

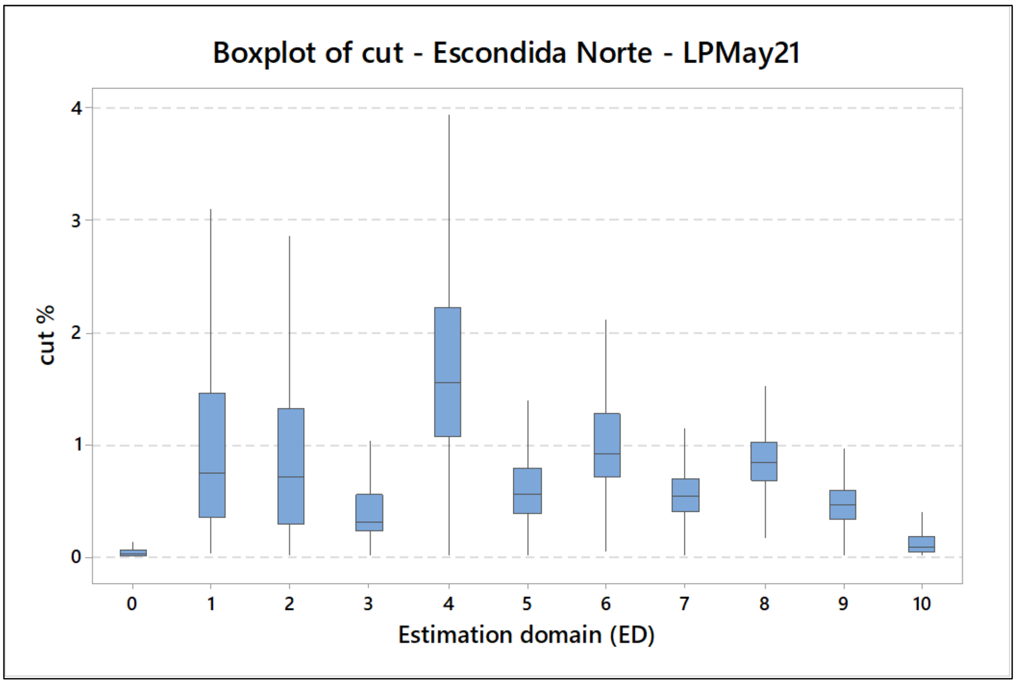
For Escondida Norte the copper estimation domains have been defined by mineralisation zones and CSA models. Oxidised minerals, including, leached, oxides, mixed and partially leached are treated as independent units due to their spatial arrangement and mineralisation style. Sulphide minerals are separated into secondary enrichment and hypogene mineralisation. The central event of mineralisation (central block) has a higher grade than the other blocks. Finally, the CSA makes it possible to separate different zones associated with the intensity of mineralisation, due to the superimposition of mineralising events.

The mineralisation zone is the most important control on copper grade, followed by the CSA. Table 11-7 shows the estimation domain definition for Escondida Norte. Figure 11-8 shows a box plot of estimation domain for Escondida Norte.

Table 11-7: Estimation Domain for TCu for Escondida Norte

Domain	Mineralisation Zone	CSA
0	Leached	All
1	Oxide	All
2	Partial Leach	All
3	Mixed	All
4	High Enrichment	High
5	High Enrichment	Medium
6	Low Enrichment	High
7	Low Enrichment	Medium
8	Hypogene	High
9	Low Enrichment – Hypogene	Medium - Low
10	Hypogene	Low

Source: MEL (2022)



Source: MEL (2022)

Figure 11-8: Box Plot for TCu Estimation Domain for Escondida Norte

Table 11-8 and Table 11-9 show the general statistics of the estimation domains for Escondida and Escondida Norte, respectively.

Table 11-8: TCu Statistics by Estimation Domain for Escondida

Domain	# Composite	Minimum %	Maximum %	Average %	Std. Dev.	Variance
0	67,196	0.001	7.58	0.06	0.14	0.02
1	14,640	0.010	12.75	0.87	0.92	0.85
2	3,814	0.004	15.08	1.11	1.21	1.46
3	7,734	0.010	14.55	0.58	0.75	0.56
4	13,870	0.010	22.01	1.46	0.93	0.86
5	14,432	0.008	12.17	2.20	1.22	1.49
6	3,264	0.010	19.53	1.28	0.89	0.79
7	16,511	0.005	10.10	0.67	0.47	0.22
8	1,782	0.057	4.55	1.02	0.60	0.36
9	10,373	0.021	5.84	1.14	0.65	0.42
10	22,374	0.007	12.74	0.54	0.30	0.09
11	16,653	0.011	5.51	0.86	0.32	0.10
12	8,948	0.010	5.40	0.35	0.20	0.04
13	45,486	0.010	6.41	0.46	0.21	0.04
14	61,176	0.002	3.21	0.16	0.12	0.01

Source: MEL (2022)

Table 11-9: TCu Statistics by Estimation Domain for Escondida Norte

Domain	# Composite	Minimum %	Maximum %	Average %	Std. Dev.	Variance
0	47,081	0.00	11.62	0.06	0.19	0.04
1	9,620	0.02	22.74	1.14	1.37	1.88
2	1,990	0.01	12.14	0.93	0.94	0.88
3	3,956	0.01	22.37	0.55	0.94	0.88
4	17,641	0.01	27.43	1.83	1.30	1.69
5	6,558	0.01	63.77	0.66	1.06	1.12
6	5,254	0.03	13.77	1.10	0.72	0.52
7	12,615	0.01	19.55	0.59	0.38	0.14
8	4,088	0.05	7.15	0.89	0.42	0.18
9	37,905	0.00	25.33	0.48	0.26	0.07
10	29,382	0.00	4.59	0.14	0.18	0.03

Source: MEL (2022)

11.3.3 Contact Analysis

To determine the type of contact (soft or hard) between different estimation domains, a contact analysis was conducted. Contact analysis is a mathematical method to define the grade behaviour among samples from different estimation domains as they approach a contact. The type of contact is important during the process of grade estimation. Hard boundaries (non-sharing of composites between estimation domains) have been used for non-sulphide domains, and, in general, soft boundary (allow of sharing composites between estimation domains) strategy has been used for sulphide mineralogical zones.

Table 11-10 and Table 11-11 show the maximum distance (m) to share composites between estimation domains for TCu in Escondida and Escondida Norte, respectively.

Table 11-10: Contact Analysis TCu for Escondida

	Estimation Domain for TCu, Escondida																	
Estimation Domain for TCu, Escondida	ED	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	0	-																
	1		-															
	2			-														
	3				-													
	4					-	50		30									
	5					30	-	30	50									
	6						30	-	30									
	7					50	50	30	-	50								
	8								30	-	30							
	9									30	-	30						
	10										50	-						
	11												-		30			
	12													-	30	30		
	13												30	30	-	30		
	14													30	30	-		
	15															50	-	
	16																	-

Source: MEL (2022)

Table 11-11: Contact Analysis TCu, Escondida Norte

	Estimation Domain for TCu, Escondida Norte											
Estimation Domain for TCu, Escondida Norte	ED	0	1	2	3	4	5	6	7	8	9	10
	0	-										
	1		-									
	2			-								
	3				-							
	4					-	30					
	5					30	-	30				
	6						30	-				
	7								-			
	8									-	30	
	9									30	-	30
	10										30	-

Source: MEL (2022)

11.3.4 Capping

Definition and control of outliers is a common industry practice that is necessary and useful to prevent potential overestimation of volumes and grades. Values defined as outliers have been controlled in the estimation using capping to avoid local estimation of high grades that are not representative of the grades within the estimation domain. The outlier values were defined at sample support with a local approach to identify outlier samples, by comparing the sample grade vs. mean grade of the neighbourhood, considering a minimum of 9 and a maximum of the 30 closest samples. The ratio between the sample and the averages is used to define the outlier if this value is greater than the limit of the domain.

No more than 2% of the data was capped for each estimation domain, and no additional grade control were applied during the estimate, for either Escondida or Escondida Norte. The variation of the average is less than 2% for Escondida and 3% for Escondida Norte, affecting the second decimal. Table 11-12 and Table 11-13 show the outlier grade by estimation domain in Escondida and Escondida Norte, respectively.

Table 11-12: Percentage of Capped Samples for Escondida

Domain	Limit Sample grade / neighbourhood grade	Samples capped % of total samples	Average % with capping	Average % without capping	Difference average
0	4.0	1.68	0.06	0.07	14.29%
1	5.0	0.44	0.87	0.88	1.14%
2	6.0	0.18	1.11	1.11	0.00%
3	6.0	0.25	0.58	0.59	1.69%
4	5.0	0.15	1.46	1.47	0.68%
5	2.5	1.03	2.20	2.21	0.45%
6	3.5	0.77	1.28	1.29	0.78%
7	5.0	0.20	0.67	0.67	0.00%
8	3.5	0.73	1.02	1.03	0.97%
9	3.0	1.01	1.14	1.15	0.87%
10	3.0	0.64	0.54	0.55	1.82%
11	3.0	0.27	0.86	0.86	0.00%
12	3.0	0.84	0.35	0.35	0.00%
13	3.0	0.33	0.46	0.47	2.13%
14	2.5	1.79	0.16	0.16	0.00%

Source: MEL (2022)

Table 11-13: Percentage of Capped Samples for Escondida Norte

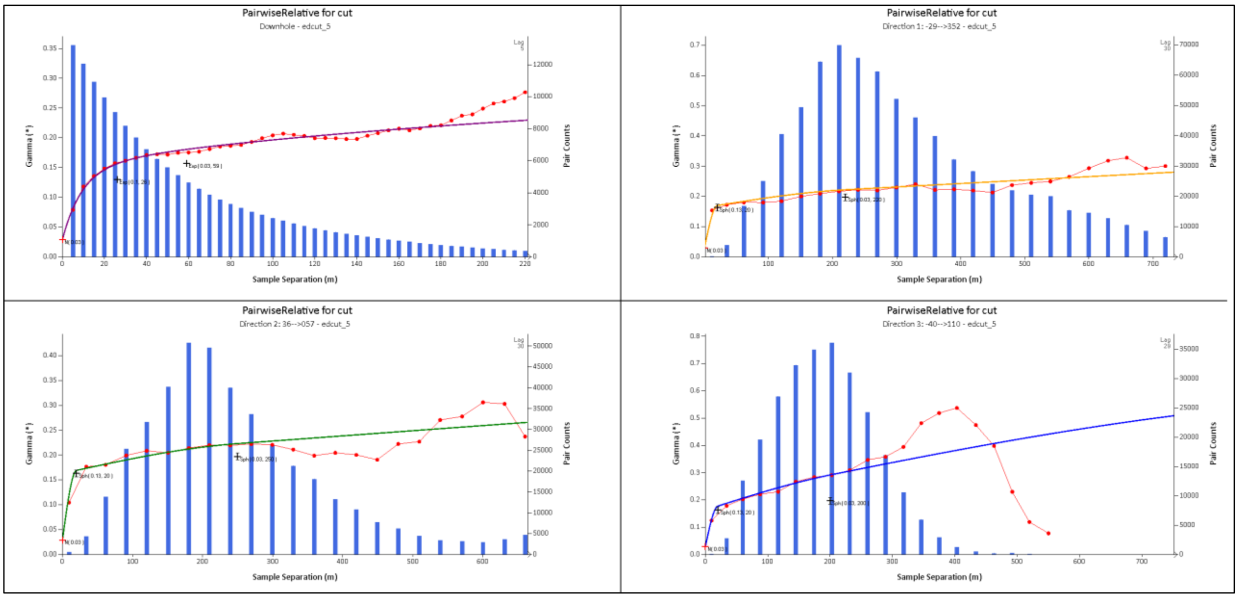
Domain	Limit Sample grade / neighbourhood grade	Samples capped % of total samples	Average % with capping	Average % without capping	Difference average
0	7.0	0.79	0.06	0.06	0.00%
1	7.0	0.25	1.14	1.14	0.00%
2	7.0	0.20	0.93	0.93	0.00%
3	8.0	0.15	0.55	0.55	0.00%
4	2.5	1.90	1.79	1.83	2.19%
5	3.5	0.81	0.64	0.66	3.03%
6	3.5	0.65	1.09	1.10	0.91%
7	4.0	0.33	0.59	0.59	0.00%
8	4.0	0.22	0.89	0.89	0.00%
9	4.0	0.13	0.48	0.48	0.00%
10	7.0	0.45	0.14	0.14	0.00%

Source: MEL (2022)

11.3.5 Variography

A variogram is a description of the spatial continuity of the data. The experimental variogram is a discrete function calculated using a measure of variability between pairs of points at various distances. To complete the analysis the QP first has to calculate experimental variograms using the existing data, and then model theoretical model variograms which will account for any given spacing for the deposit. The traditional experimental variogram is often unstable due to sparse data with outliers and clustered data with a proportional effect. The pairwise relative variogram is a more robust variogram, whereby the experimental traditional variogram is standardised with locally changing variance of the data. Experimental pairwise variograms were calculated using Supervisor software and modelled for each of the elements to be estimated. The orientation of the variograms is defined by the directions of major and minor continuity as derived from variogram maps in the horizontal and vertical directions for each of the domains. The nugget effect was obtained from the down-the-hole (DTH) variogram.

Figure 11-9 provides an example for directional variogram for TCu estimation domain 5 for Escondida: High enrichment, central block and High CSA and Figure 11-10 provides an example for directional variogram for TCu estimation domain 6 for Escondida Norte: Low enrichment and High CSA. Table 11-14 presents variogram parameters for TCu for Escondida and Table 11-15 shows variogram parameters for TCu for Escondida Norte.



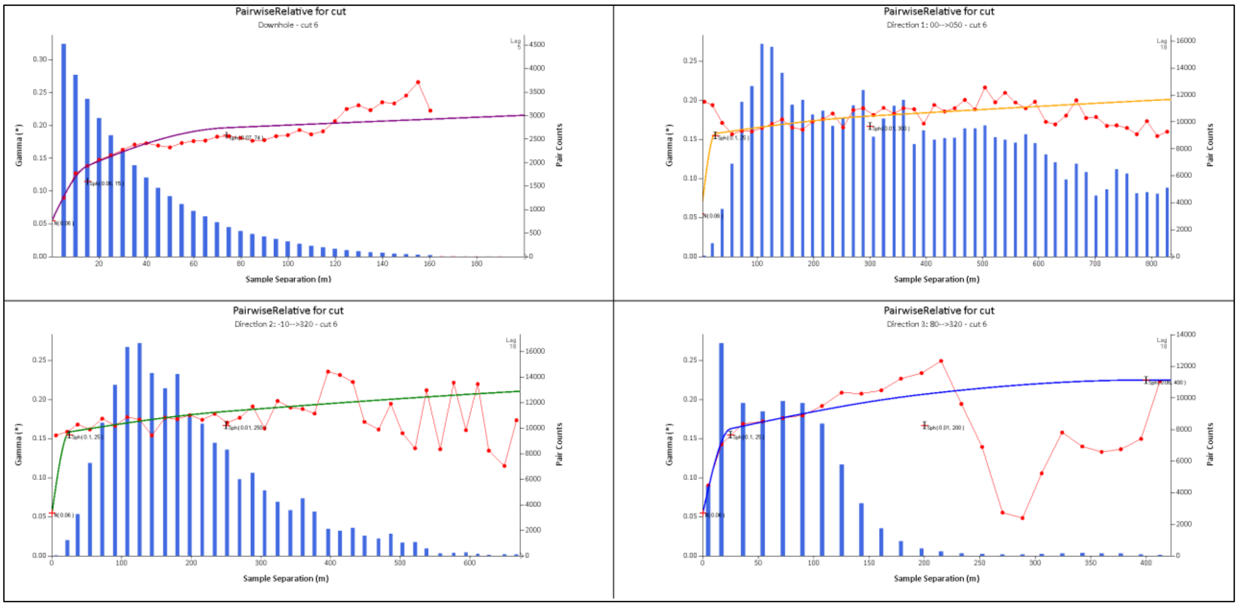
Source: MEL (2022)

Figure 11-9: Directional Variogram for TCu Estimation Domain 5 for Escondida

Table 11-14: Variogram Parameters for TCu, Escondida

TCu DOMAIN	C0	C1	Rotation Θ1/ Θ2/ Θ3	Range Mj/Sm/Mn	C2	Rotation Θ1/ Θ2/ Θ3	Range Mj/Sm/Mn	C3	Rotation Θ1/ Θ2/ Θ3	Range Mj/Sm/Mn
0	0.03	0.108	0/0/0	10/10/15	0.158	0/0/0	100/90/100	0.394	0/0/0	1900/1450/1200
1	0.04	0.16	250/20/0	10/10/10	0.18	250/20/0	75/75/60	0.07	250/20/0	1200/1200/250
2	0.13	0.19	160/0/10	100/100/5	0.22	160/0/10	110/140/500	0.14	160/0/10	1250/1300/1500
3	0.04	0.143	0/90/-120	5/5/5	0.078	0/90/-120	40/40/40	0.269	0/90/-120	1600/1300/850
4	0.03	0.09	30/0/10	20/20/20	0.05	30/0/10	90/90/170	0.12	30/0/10	2500/1750/450
5	0.02	0.14	1/-29/-137	20/20/20	0.05	1/-29/-137	400/300/250	0.38	1/-29/-137	5500/5500/1150
6	0.04	0.11	290/0/0	20/20/20	0.076	290/0/0	100/100/40	0.064	290/0/0	3900/2000/800
7	0.03	0.14	250/-10/0	30/30/15	0.08	250/-10/0	200/200/120	0.07	250/-10/0	3000/2500/1800
8	0.02	0.177	310/0/-120	40/40/40	0.096	310/0/-120	150/90/140	0.057	310/0/-120	1600/1500/1500
9	0.02	0.095	20/0/0	20/20/20	0.024	20/0/0	300/200/250	0.091	20/0/0	1900/1200/1500
10	0.04	0.05	201/28/67	10/10/10	0.033	201/28/67	50/50/50	0.115	201/28/674	3000/2200/1250
11	0.03	0.041	0/90/-80	35/35/35	0.025	0/90/-80	170/130/80	0.04	0/90/-80	1500/1100/350
12	0.03	0.087	270/0/0	35/35/15	0.031	270/0/0	220/220/150	0.062	270/0/0	3000/4000/2000
13	0.02	0.06	270/50/0	40/10/10	0.033	270/50/0	220/220/150	0.059	270/50/0	2200/2200/1000
14	0.08	0.09	240/20/0	30/30/30	0.07	240/20/0	200/200/150	0.41	240/20/0	5000/6000/1550

Source: MEL (2022)



Source: MEL (2022)

Figure 11-10: Directional Variogram for TCu Estimation Domain 6 for Escondida Norte

Table 11-15: Variogram Parameters for TCu, Escondida Norte

TCu DOMAIN	C0	C1	Rotation Θ1/ Θ2/ Θ3	Range Mj/Sm/Mn	C2	Rotation Θ1/ Θ2/ Θ3	Range Mj/Sm/Mn	C3	Rotation Θ1/ Θ2/ Θ3	Range Mj/Sm/Mn
0	0.068	0.16	20/0/0	20/20/20	0.179	20/0/0	200/210/210	0.219	20/0/0	4513/2000/2500
1	0.094	0.261	20/0/0	10/10/20	0.14	20/0/0	90/90/130	0.068	20/0/0	400/500/1000
2	0.134	0.348	20/0/0	30/15/30	0.032	20/0/0	350/300/250	0.164	20/0/0	1800/600/1000
3	0.07	0.12	330/0/0	15/20/15	0.107	330/0/0	500/350/700	0.112	330/0/0	2500/900/3000
4	0.07	0.11	40/0/0	15/15/15	0.065	40/0/0	160/170/200	0.11	40/0/0	2100/1200/500
5	0.099	0.11	310/0/0	20/20/20	0.066	310/0/0	370/360/170	0.043	310/0/0	1500/3000/700
6	0.055	0.1	50/0/10	25/25/25	0.012	50/0/10	300/250/200	0.058	50/0/10	2000/1200/400
7	0.053	0.065	50/0/10	35/35/15	0.025	50/0/10	200/180/50	0.016	50/0/10	800/500/200
8	0.026	0.055	50/0/0	40/40/10	0.02	50/0/0	250/220/130	0.03	50/0/0	1000/800/500
9	0.055	0.05	70/0/-90	15/20/30	0.02	70/0/-90	100/110/110	0.05	70/0/-90	2500/1100/1000
10	0.151	0.199	0/90/-20	50/30/20	0.115	0/90/-20	300/170/160	0.076	0/90/-20	8000/900/500

Source: MEL (2022)
Note: Mj (Major axis), Sm (Semi Major axis) and Mn (Minor Axis)

11.3.6 Estimation

The estimation was carried out by Ordinary Kriging (OK), which is standard practice for the industry. OK provides the best linear unbiased estimates. In the QP's experience this is an appropriate method for estimation. The block model includes sub blocks of 6.25 x 6.25 x 7.5 m and parent blocks of 25 x 25 x15 m. The use of sub-blocks allows the geological dilution associated with geological contacts to be included. Table 11-16 and Table 11-17 show the dimension of Escondida and Escondida Norte block model. Figure 11-11 shows a general view of the block models and collar distribution.

Table 11-16: Block Model Definition for Escondida

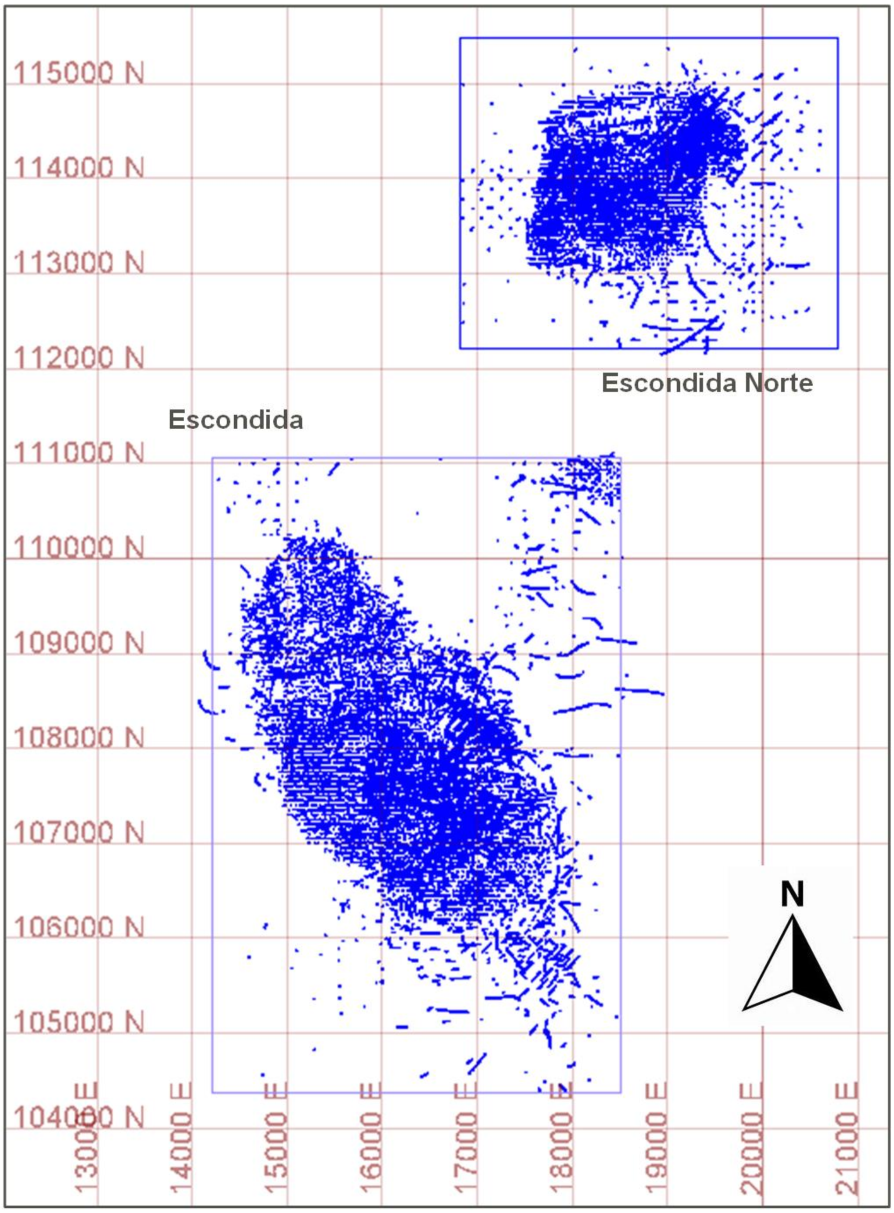
Orientation	East	North	Elevation
Origin	14,212.37	104,364.2	1,300
Block Size	25 m	25 m	15 m
Number of Blocks	172	268	144

Source: MEL (2022)

Table 11-17: Block Model Definition for Escondida Norte

Orientation	East	North	Elevation
Origin	16,812.5	112,212.5	2,000
Block Size	25 m	25 m	15 m
Number of Blocks	159	131	107

Source: MEL (2022)



Source: MEL (2022)

Figure 11-11: General View Escondida and Escondida Norte Block Model and Collar Distribution

A three-pass search strategy was used in which the search radii were increased from 50 m to 600 m. For each pass, the interpolation criteria were adjusted for each estimation domain based on the geostatistical analysis and the quantity and distribution of the data. Pass 1 and pass 2 request a minimum of 6 and 5 octants with samples, respectively. Pass 3 estimates the edges of domains with low sample density and has no octant restrictions. The search radii were defined based on the drilling density of each estimation domain and the continuity defined in its respective variogram, increasing with each pass. Table 11-18 and Table 11-19 detail the estimation plan by domain for TCu in Escondida and Escondida Norte, respectively. The QP explored the use of a different number of samples and octants in the estimation to establish an appropriate correlation of results to historical reconciliation. The minimum and maximum samples used in this process are presented in Table 11-18 and Table 11-19.

Table 11-18: OK Plan Estimates Plan TCu, Escondida

Domain	Pass	Search Radii			Comps. Number		N° Oct	Comps. per Oct		Comps. per drill	Rotation			Comps.
		Mj.	Sm.	Mn.	Min.	Max.	Min.	Min.	Max.		Mj.	Sm.	Mn.	Min.
0	1	100	90	80	12	32	6	1	4	5	0	0	0	0
	2	250	200	180	12	24	5	1	4	5	0	0	0	0
	3	650	600	450	6	20	NA	NA	NA	5	0	0	0	0
	4	600	600	600	1	1	NA	NA	NA	10	0	0	0	0
1	1	80	80	50	12	32	6	1	4	5	250	20	-20	1
	2	150	150	100	12	24	5	1	4	5	250	20	-20	1
	3	300	300	200	6	20	NA	NA	NA	5	250	20	-20	1
	4	600	600	600	1	1	NA	NA	NA	10	250	20	-20	1
2	1	70	80	120	12	32	6	1	4	5	160	0	10	2
	2	150	150	200	12	24	5	1	4	5	160	0	10	2
	3	300	300	400	6	20	NA	NA	NA	5	160	0	10	2
	4	600	600	600	1	1	NA	NA	NA	10	160	0	10	2
3	1	80	70	50	12	32	6	1	4	5	0	90	-120	3
	2	250	230	200	12	24	5	1	4	5	0	90	-120	3
	3	400	350	300	6	20	NA	NA	NA	5	0	90	-120	3
	4	600	600	600	1	1	NA	NA	NA	10	0	90	-120	3
4	1	70	60	50	12	32	6	1	4	5	30	0	10	4,5,7
	2	200	180	100	12	24	5	1	4	5	30	0	10	4,5,7
	3	400	350	200	6	20	NA	NA	NA	5	30	0	10	4,5,7
5	1	100	100	70	12	32	6	1	4	5	2	-30	-138	4,5,6,7
	2	200	200	140	12	24	5	1	4	5	2	-30	-138	4,5,6,7
	3	400	400	280	6	20	NA	NA	NA	5	2	-30	-138	4,5,6,7
6	1	90	80	50	12	32	6	1	4	5	290	0	0	5,6,7
	2	200	180	100	12	24	5	1	4	5	290	0	0	5,6,7
	3	400	350	200	6	20	NA	NA	NA	5	290	0	0	5,6,7
7	1	80	80	50	12	32	6	1	4	5	250	-10	0	4,5,6,7,8
	2	160	160	120	12	24	5	1	4	5	250	-10	0	4,5,6,7,8
	3	400	380	320	6	20	NA	NA	NA	5	250	-10	0	4,5,6,7,8
8	1	90	60	80	12	32	6	1	4	5	310	0	-130	7,8,9
	2	180	160	180	12	24	5	1	4	5	310	0	-130	7,8,9
	3	400	380	380	6	20	NA	NA	NA	5	310	0	-130	7,8,9
9	1	100	80	90	12	32	6	1	4	5	20	0	0	8,9,10
	2	200	160	180	12	24	5	1	4	5	20	0	0	8,9,10
	3	400	300	350	6	20	NA	NA	NA	5	20	0	0	8,9,10
10	1	100	90	80	12	32	6	1	4	5	206	37	64	9,10
	2	200	160	120	12	24	5	1	4	5	206	37	64	9,10
	3	400	300	350	6	20	NA	NA	NA	5	206	37	64	9,10
11	1	90	80	60	12	32	6	1	4	5	0	90	-80	11,13
	2	180	160	140	12	24	5	1	4	5	0	90	-80	11,13
	3	650	600	500	6	20	NA	NA	NA	5	0	90	-80	11,13
12	1	90	100	70	12	32	6	1	4	5	270	0	0	12,13,14

Domain	Pass	Search Radii			Comps. Number		N° Oct	Comps. per Oct		Comps. per drill	Rotation			Comps.
		Mj.	Sm.	Mn.	Min.	Max.	Min.	Min.	Max.		Mj.	Sm.	Mn.	Min.
	2	180	200	140	12	24	5	1	4	5	270	0	0	12,13,14
	3	650	750	550	6	20	NA	NA	NA	5	270	0	0	12,13,14
13	1	100	100	60	12	32	6	1	4	5	208	29	42	11,12,13,14
	2	300	300	200	12	24	5	1	4	5	208	29	42	11,12,13,14
	3	700	700	500	6	20	NA	NA	NA	5	208	29	42	11,12,13,14
14	1	100	100	80	12	32	6	1	4	5	240	20	0	14,12,13
	2	280	300	200	12	24	5	1	4	5	240	20	0	14,12,13
	3	650	700	500	6	20	NA	NA	NA	5	240	20	0	14,12,13

Source: MEL (2022)

Table 11-19: OK Plan Estimates TCu, Escondida Norte

Domain	Pass	Search Radii			Comps. Number		N° Oct	Comps. per Oct		Comps. per drill	Rotation			Comps.
		Mj.	Sm.	Mn.	Min.	Max.	Min.	Min.	Max.		Mj.	Sm.	Mn.	Min.
1	1	100	70	80	12	32	6	1	4	5	20	0	0	0
	2	200	100	150	12	24	5	1	4	5	20	0	0	0
	3	800	400	500	6	20	NA	NA	NA	5	20	0	0	0
2	1	60	60	110	12	32	6	1	4	5	20	0	0	1
	2	110	110	200	12	24	5	1	4	5	20	0	0	1
	3	200	200	350	6	20	NA	NA	NA	5	20	0	0	1
3	1	110	60	80	12	32	6	1	4	5	20	0	0	2
	2	220	120	160	12	24	5	1	4	5	20	0	0	2
	3	350	150	250	6	20	NA	NA	NA	5	20	0	0	2
4	1	90	70	50	12	32	6	1	4	5	330	0	0	3
	2	180	160	110	12	24	5	1	4	5	330	0	0	3
	3	300	250	190	6	20	NA	NA	NA	5	330	0	0	3
5	1	100	70	50	12	32	6	1	4	5	40	0	0	4,5
	2	200	140	110	12	24	5	1	4	5	40	0	0	4,5
	3	350	250	200	6	20	NA	NA	NA	5	40	0	0	4,5
6	1	75	120	50	12	32	6	1	4	5	310	0	0	4,5
	2	150	200	100	12	24	5	1	4	5	310	0	0	4,5
	3	280	370	200	6	20	NA	NA	NA	5	310	0	0	4,5
7	1	100	70	50	12	32	6	1	4	5	50	0	10	6,7
	2	220	170	120	12	24	5	1	4	5	50	0	10	6,7
	3	350	250	200	6	20	NA	NA	NA	5	50	0	10	6,7
8	1	85	80	50	12	32	6	1	4	5	50	0	10	6,7,8
	2	170	160	130	12	24	5	1	4	5	50	0	10	6,7,8
	3	300	250	200	6	20	NA	NA	NA	5	50	0	10	6,7,8
9	1	85	60	40	12	32	6	1	4	5	50	0	0	7,8,9
	2	160	120	90	12	24	5	1	4	5	50	0	0	7,8,9
	3	500	400	300	6	20	NA	NA	NA	5	50	0	0	7,8,9
10	1	85	70	65	12	32	6	1	4	5	70	0	-90	8,9,10
	2	200	180	150	12	24	5	1	4	5	70	0	-90	8,9,10
	3	600	530	450	6	20	NA	NA	NA	5	70	0	-90	8,9,10

Source: MEL (2022)

The copper grade in the regularised block model was calculated by the weighted average for each estimation domain within the block.

Cspcc, cspcv, and cspcpy were estimated by OK with the same copper estimation domains and normalised to the copper value, only for sulphide mineralisation.

Dry density was estimated using OK. The methodology adopted for the interpolation uses mineralogical units (Minzone) as controls for the spatial distribution of the variable in each deposit. An average density, by geological grouping, is assigned to the blocks with no interpolated value.

11.4 Validation

In order to validate the Resource model, a validation of the block model was carried out to assess the performance of the OK and the conformity of input values. The validation was carried out on estimated blocks and up to the third pass, considering composites used in the estimates, and included:

- Visual Comparison of OK model vs. composites
- Global statistics by estimation domain
- OK vs. Blasthole model reconciliation
- Swath plots to compare mean grade between declustered composites and block model

11.4.1 Visual Comparison

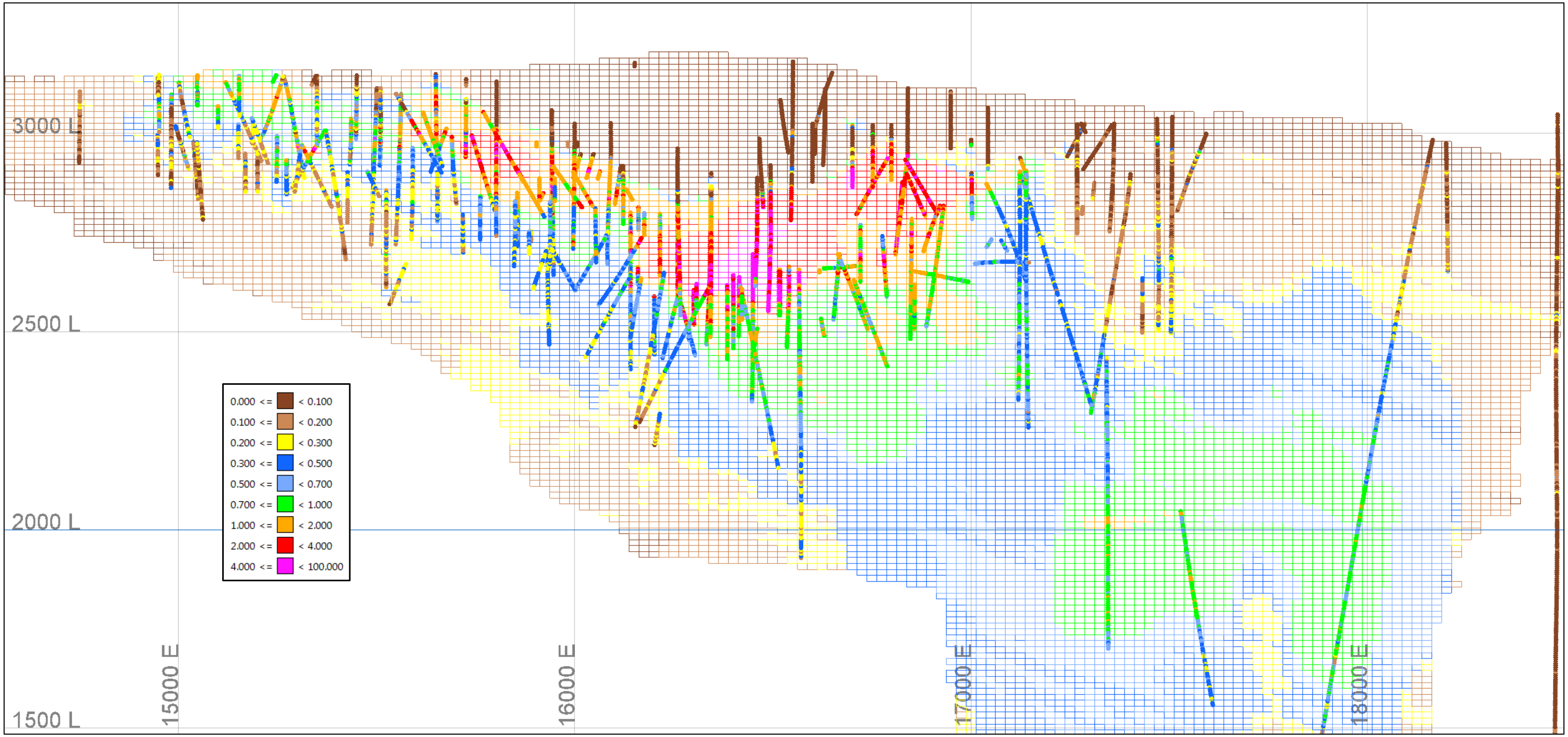
To visually validate the TCu estimation, the QP completed a review of a set of cross-sectional and plan views. The validation shows a reasonable representation of samples in blocks. Locally, the blocks match the estimation composites both in cross-section and plant views. In general, there is a reasonable match between composite data and block model data for Cu grades. High grade areas were suitably represented, and high-grade samples exhibit suitable control, which validates the treatment of outliers used. Smoothing increases at the boundaries and deep areas of the deposit due to the reduction in number of available composites.

There are some deep mineralised areas where the drill hole spacing reaches a maximum of 400 m (mean 330 m). Considering the large continuity of the hypogene mineralisation and the grades clean process beyond of the last drill hole line, this portion of the Inferred Resource is considered interpolated.

Figure 11-12 shows an east-west cross-section and Figure 11-13 shows a plan section for the Escondida copper grade model, it is possible to observe a good spatial reproduction of the composites grades in both cross-sections without smearing of high-grade composites and minimum over extrapolation of grades.

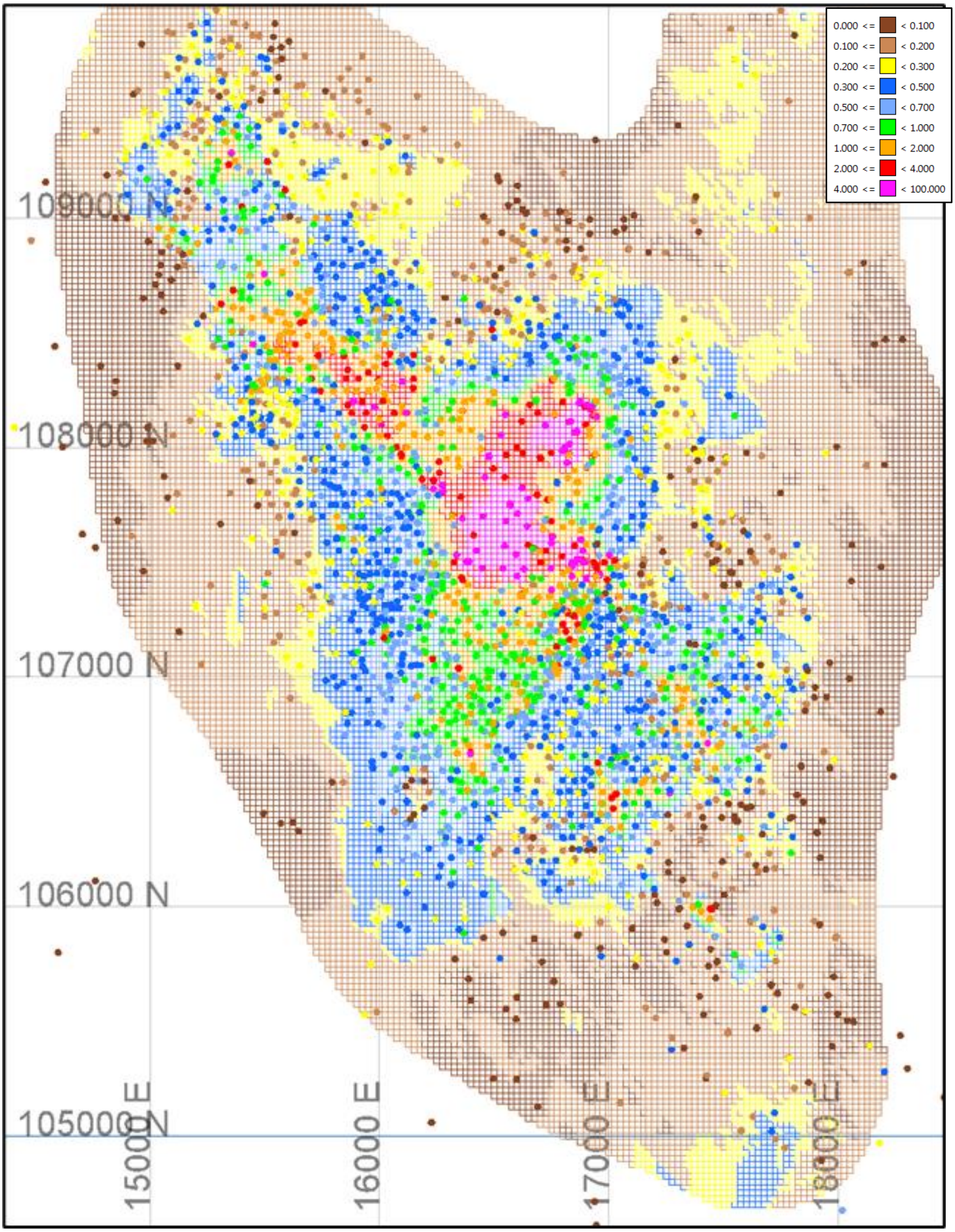
Figure 11-14 and Figure 11-15 show the block and composites grade comparison for plan view and east-west cross-sections in Escondida Norte. Like Escondida it is possible to observe good sample coverage for the deposit and spatial reproduction of grades. Lateral extension of the ore body is well limited by samples and the deposit remains open at depth at low copper grade less than 0.5%.

No high-grade smearing and minimum grade extrapolation were observed. The Inferred Resource is considered 100% “interpolated”. This limit is updated as new drill holes are drilled in the periphery of the deposits.



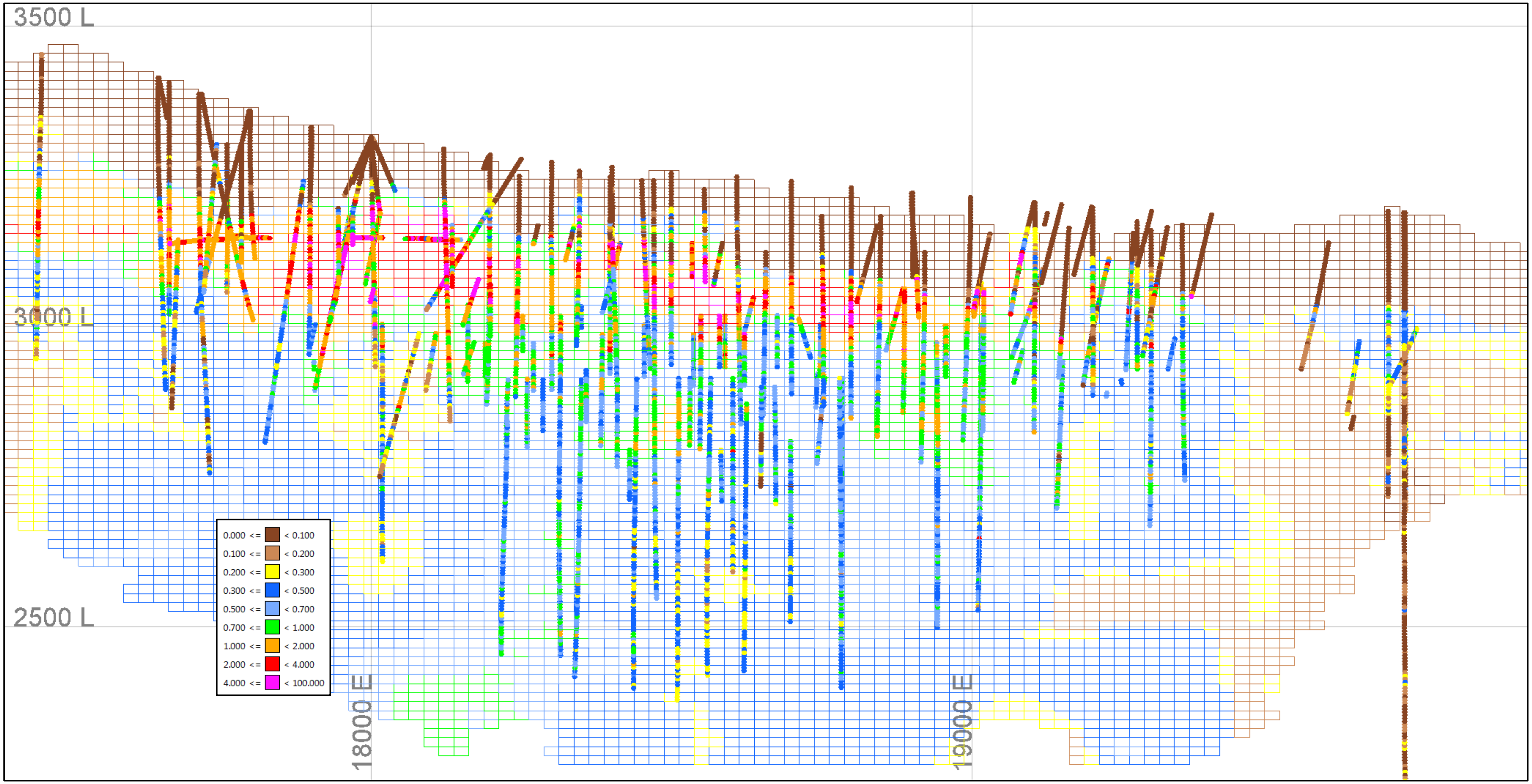
Source: MEL (2022)

Figure 11-12: Escondida 107,900N Copper Cross-section Looking North



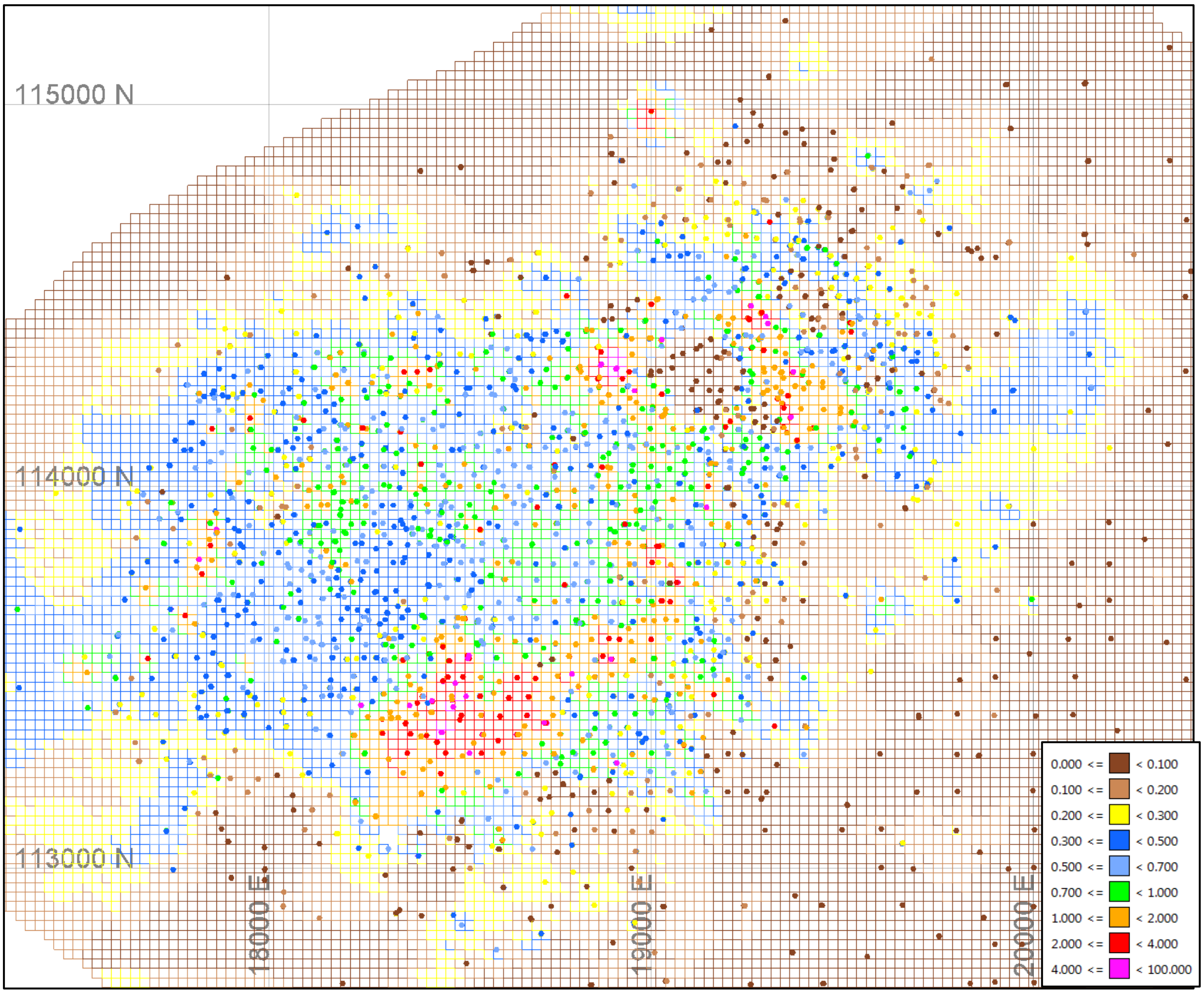
Source: MEL (2022)

Figure 11-13: Escondida Copper at 2770 RL



Source: MEL (2022)

Figure 11-14: Escondida Norte 114,000N Copper Cross-section Looking North



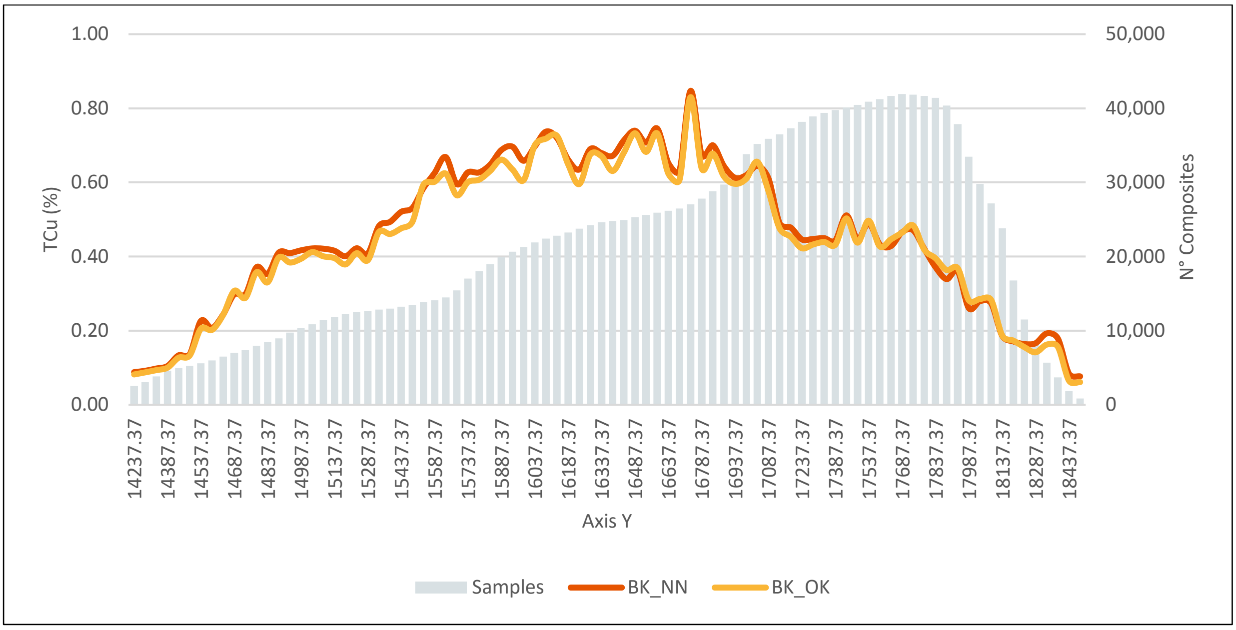
Source: MEL (2022)

Figure 11-15: Escondida Norte Copper at 2960 RL

11.4.2 Swath Plots

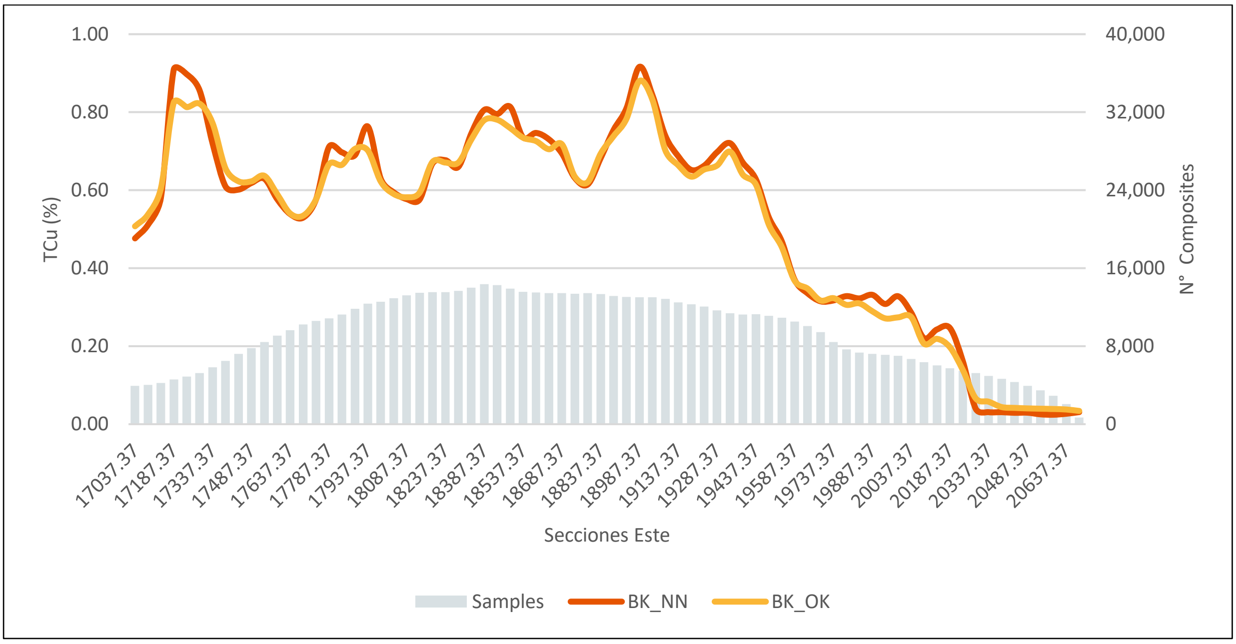
In order to evaluate how robust block grades were in relation to data, a semi-local comparison using swath plots was completed. Generating swath plots entail averaging blocks and samples separately in regular 100 m (east) x 100 m (north) x 50 m (elevation) panels and then comparing the mean grade in each sample and block panel through each axis.

To calculate the average grade in the database, a nearest neighbour (NN) model was established. The block model must reproduce in an acceptable way the mean shown by the composites for each estimation domain. Figure 11-16 show the mean grade comparison for Escondida and Figure 11-17 for Escondida Norte for sulphide mineralisation. It is opinion of this QP that results indicate that estimates reasonably follow trends found in the deposit's grades at a local and global scale without observing an excessive degree of smoothing.



Source: MEL (2022)

Figure 11-16: Swath Plots Total Sulphide, Escondida



Source: MEL (2022)

Figure 11-17: Swath Plots Total Sulphide, Escondida Norte

11.4.3 Global Statistics

Statistical comparison was carried out in order to detect global bias in the interpolated model compared with drill holes grade. Global statistics of declustered composites were calculated using the NN method with search ranges equating to those used in the estimation and were compared with OK grades for each domain (ED_TCu).

Table 11-20 and Table 11-21 show the comparison with grade capping. The results show an acceptable reproduction of the global mean for total copper grade. Domains located in the leach-oxide zone shows larger differences: ED 0 corresponds to leached material with low copper grade and high-grade variability between 0.001 and 0.1 % TCu, which explains the relative differences observed. These lower copper grades are waste and this variation is not material. ED 3 corresponds to the mixed zone, with high variability in copper grades. The QP noticed that, where the larger variances exist, they are in low grades below COG or in domain with low spatial continuity, and therefore, considered to be not material.

In the opinion of this QP the result of the estimate shows that relative differences for the main estimation domains were found within acceptable limits. Only estimation domains with less samples and poor geological continuity and low tonnage show results above the expected threshold.

Table 11-20: Global mean comparison for TCu, Escondida

Domain	# Composite	Composite average %	Model average %	Relative Difference (%)
0	67,196	0.06	0.08	24.02%
1	14,640	0.87	0.83	-5.57%
2	3,814	1.11	1.15	3.80%
3	7,734	0.58	0.53	-10.72%
4	13,870	1.46	1.41	-4.03%
5	14,432	2.20	2.25	2.00%
6	3,264	1.28	1.17	-9.13%
7	16,511	0.67	0.66	-0.60%
8	1,782	1.02	1.03	1.28%
9	10,373	1.14	1.16	1.24%
10	22,374	0.54	0.57	4.96%
11	16,653	0.86	0.82	-4.64%
12	8,948	0.35	0.36	4.20%
13	45,486	0.46	0.45	-3.69%
14	61,176	0.16	0.15	-1.97%

Source: MEL (2022)

Table 11-21: Global mean comparison for TCu, Escondida Norte

Domain	# Composite	Composite average %	Model average %	Relative Difference (%)
0	47,081	0.06	0.07	5.16%
1	9,620	1.06	1.06	0.17%
2	1,990	0.90	0.88	-2.38%
3	3,956	0.59	0.47	-26.88%
4	17,641	1.69	1.66	-1.59%
5	6,558	0.65	0.61	-5.81%
6	5,254	1.05	1.07	1.52%
7	12,615	0.56	0.58	2.85%
8	4,088	0.86	0.83	-2.80%
9	37,905	0.41	0.44	7.97%
10	29,382	0.10	0.12	14.76%

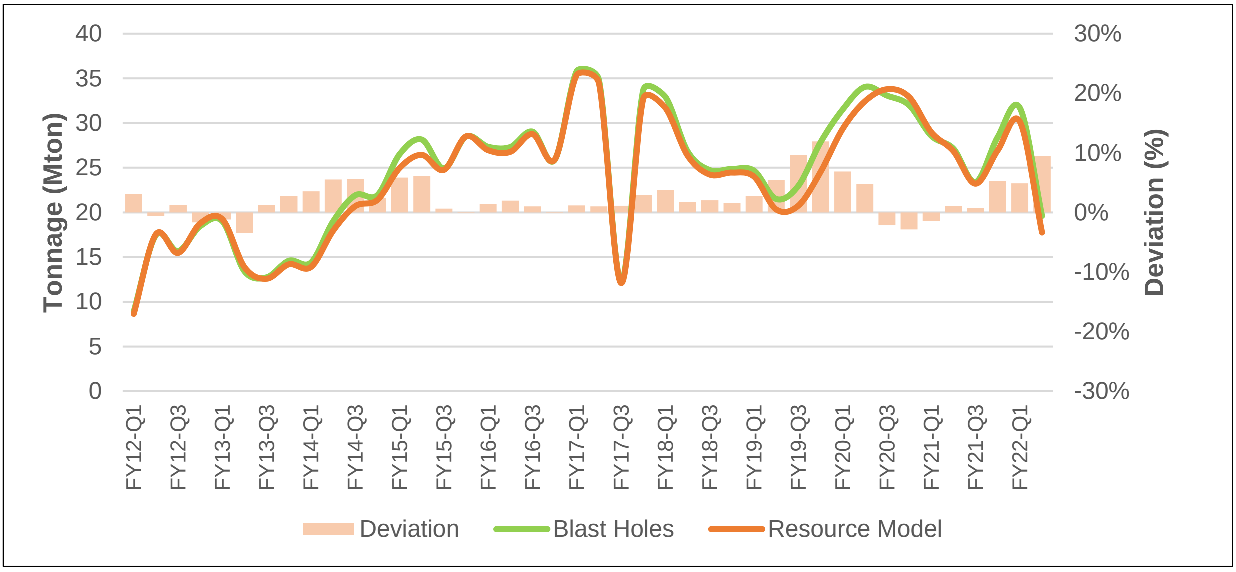
Source: MEL (2022)

11.4.4 Comparison Against Blasthole Grade

As part of the Resource model validation process, a reconciliation of tonnage, grade and metal against the blasthole model (short term model) was completed. The reconciliation was performed at 0.25% total copper cut-off grade within the monthly mined volumes of the last FY10. Year by year reconciliation has been done to ensure no local bias.

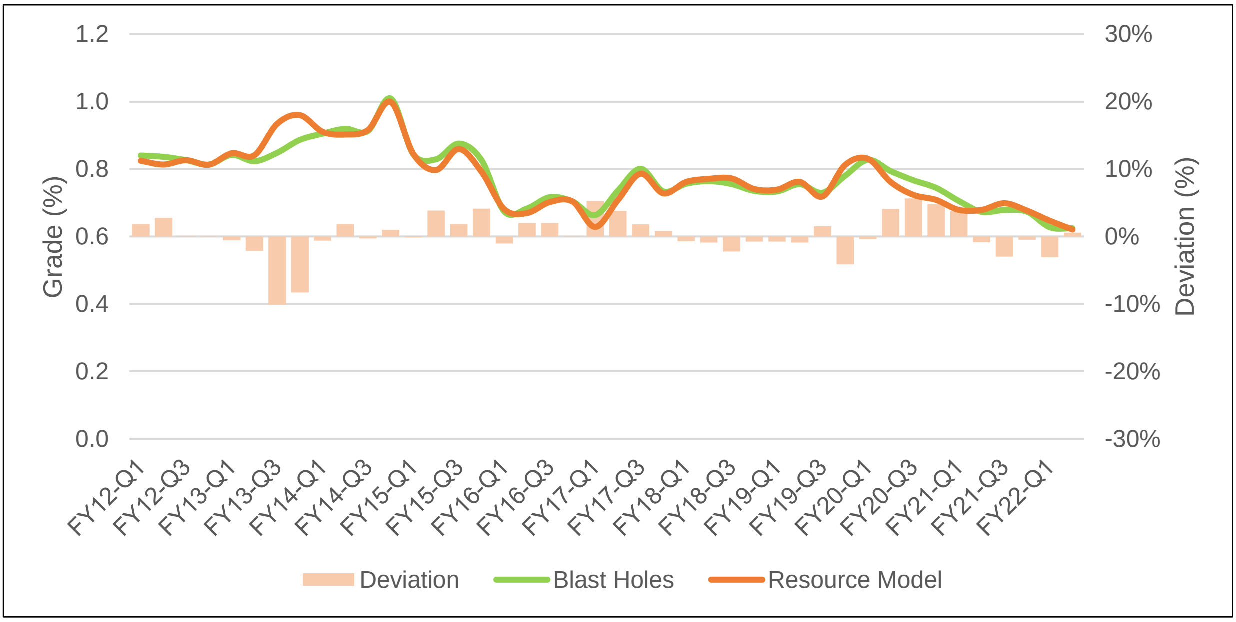
Escondida Sulphide

The Escondida deposit shows a good performance, the in-situ tonnage deviations show an unbiased behaviour with periods of underestimation and overestimation within a range of ±7% (see Figure 11-18). Three quarters showed deviations closer to 10% underestimation .This deviation is related to zones with contact between leached and sulphide mineralisation due to low continuity ore bodies not recognised by drilling. Copper grades show an unbiased performance with periods of under and over estimation within a range of ±7% on average (see Figure 11-19). Figure 11-20 shows the result for the in-situ metal.



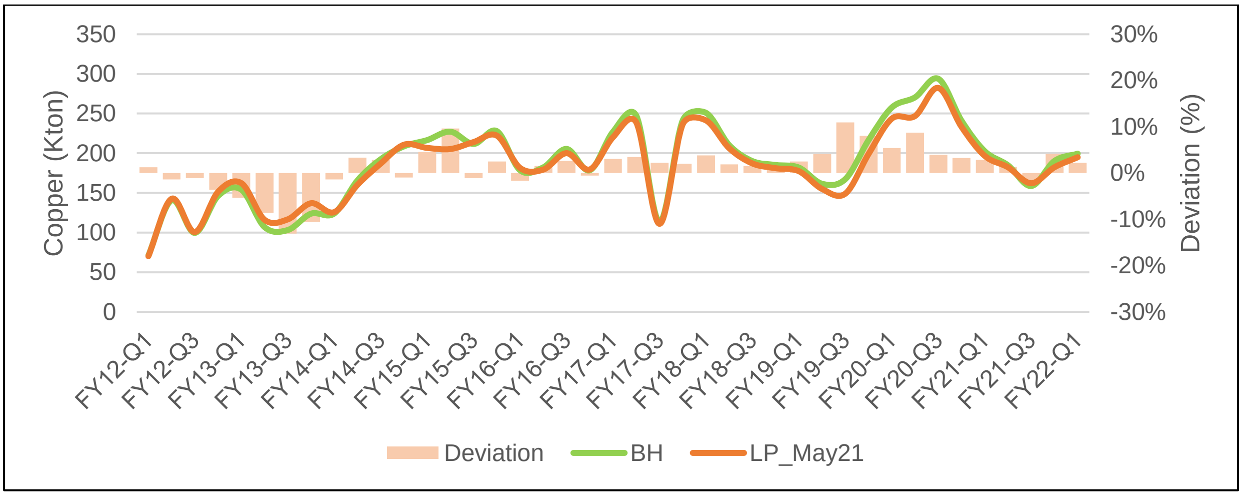
Source: MEL (2022)

Figure 11-18: Tonnage Reconciliation, Sulphide Escondida



Source: MEL (2022)

Figure 11-19: Total Copper Grade Reconciliation, Sulphide Escondida

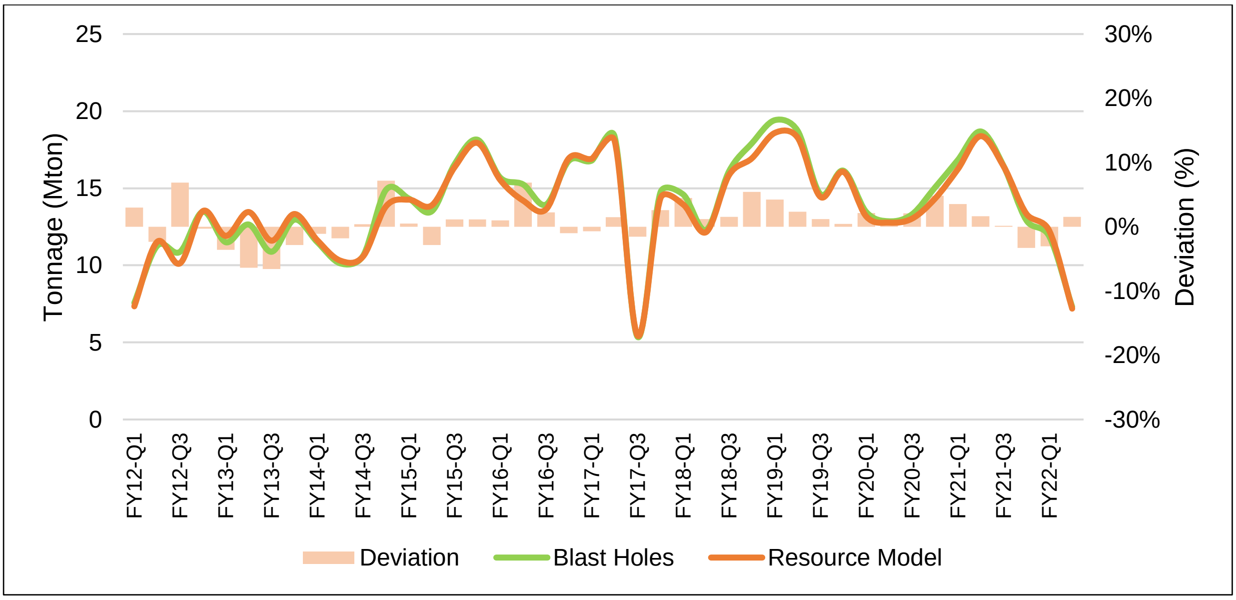


Source: MEL (2022)

Figure 11-20: Total Contained Copper Tonnes Reconciliation, Sulphide Escondida

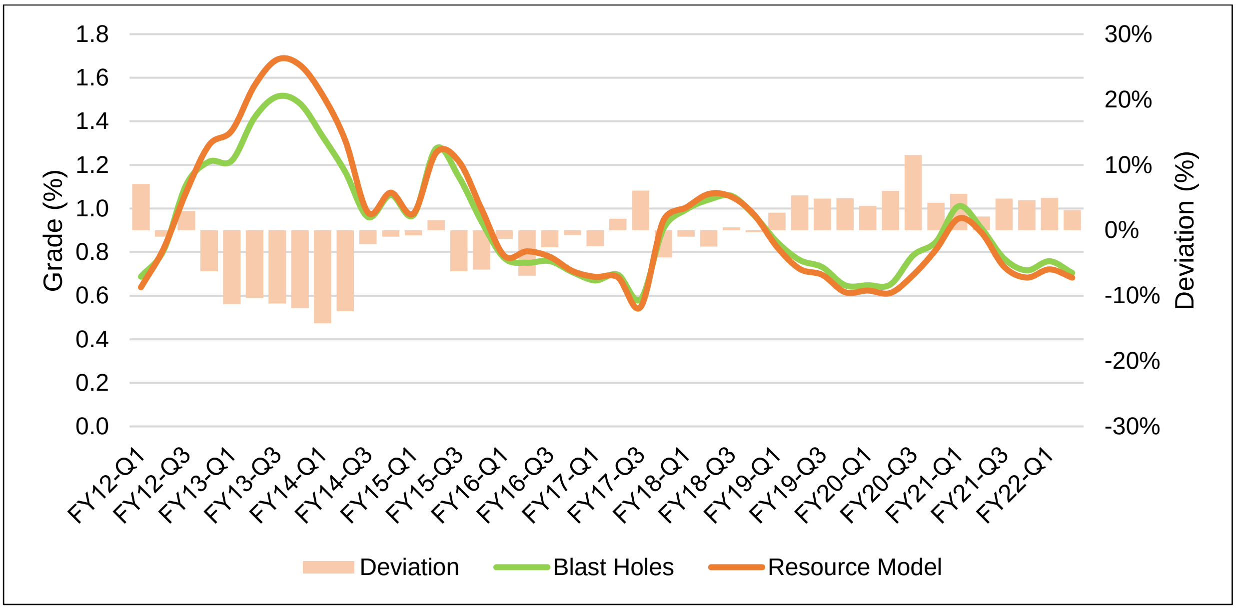
Escondida Norte Sulphide

The Escondida Norte deposit shows a non-biased performance with the in-situ tonnage deviations showing an unbiased behaviour with periods of underestimation and overestimation within a range of ±5%, as shown in Figure 11-25. Copper grades show an unbiased performance with periods of under and over estimation within a range of ±7% on average (see Figure 11-22). There is a period of overestimation closer to -10% (FY13-Q2 to FY14-Q2), which is related to a high variability and low continuity of high-grade zones at the periphery of the deposit that were not identified by the drilling pattern. Figure 11-23 shows the result for in-situ metal.



Source: MEL (2022)

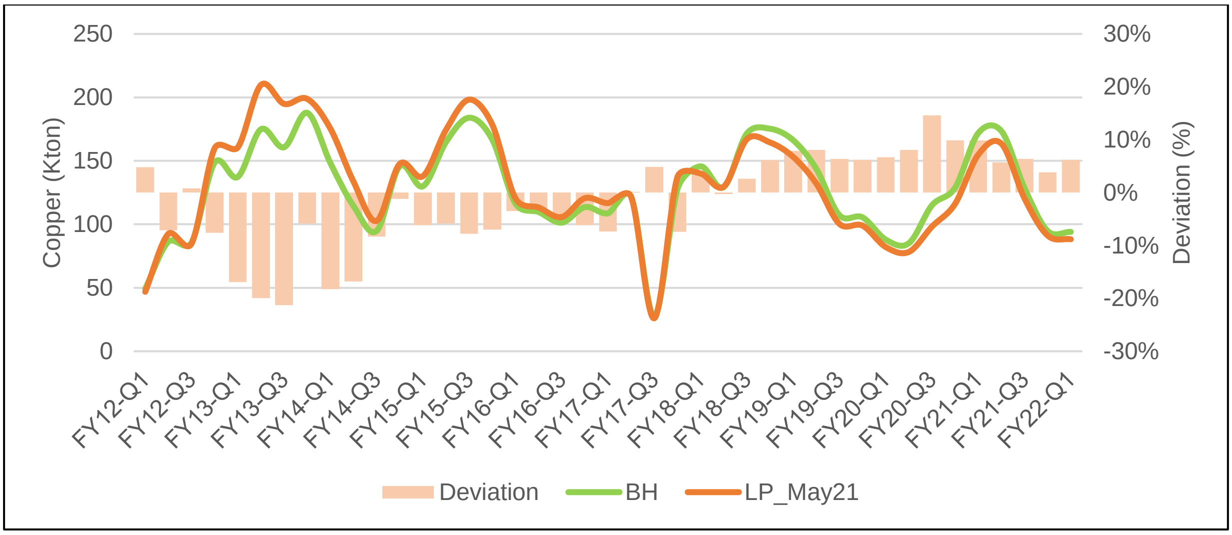
Figure 11-21: Tonnage Reconciliation, Sulphide Escondida Norte



Source: MEL (2022)

Figure 11-22: Total Copper Grade Reconciliation, Sulphide Escondida Norte

Figure 11-23 shows in-situ copper for quarterly periods with an unbiased performance with periods of underestimation and overestimation within a range of ±7%.



Source: MEL (2022)

Figure 11-23: In-situ Metal Reconciliation, Sulphide Escondida Norte

It is the opinion of the QP that the results of the reconciliation with deviations of less than 10% per quarter for tonnage, grade and in-situ metal, are acceptable for a model designed on an annual basis.

11.5 Cut-Off Grades Estimates

The 2022 mineral resources statement is based on the determination of mineable mineralisation suitable for processing under the assumptions that provide the framework for the Escondida life of asset plan (LoA) completed in November 2021 for June 2022 reporting (LoA23). The statement combines mineral resources from the Escondida and Escondida Norte deposits and is tabulated from volumes contained in the unsmoothed and optimised pit using the Learch Grossman algorithm determined using the May21

Resource models, LOA23 mining and processing costs. The price was calculated for 3-year historic monthly third quartile: high-price: 3.04 US$/lb.

Chapter 16 contains the full analysis of the copper commodity price in which discussion of the validity of the commodity prices employed is presented. In the opinion of the QP for resources the selected price for resources is considered reasonable. The QP is of the opinion that the use of three calendar year mean of historic monthly third quartile to define mineral resources is considered appropriate as they are factual, objective, and transparent to the market.

Table 11-22: Cut-off Economic Inputs for Mineral Resources

Description	Units	Value
Mining - Base Cost	$/t material moved	0.87
Mining - Haulage Cost		Variable
Mining Loss	%	0
Mining Dilution	%	0
Ore Processing Cost - Milled Ore	$/t Ore Processed	7.10
Ore Processing Cost - Sulphide Bio Leach Ore	$/t Ore Processed	1.31
Ore Processing Cost - Acid Leached Oxide Ore	$/t Ore Processed	7.98
Metallurgical Recovery - Milled Ore	%	83
Metallurgical Recovery - Sulphide Bio Leach Ore	%	42
Metallurgical Recovery - Acid Leached Oxide Ore	%	62
Payable Cu - Milled Ore	%	96.65
Payable Cu - Sulphide Bio Leach Ore	%	100
Payable Cu - Acid Leached Oxide Ore	%	100
Cu Price	US$ / lb	3.04

Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

The cut-off for mineral resources estimation is based on applying all applicable costs as summarised in Table 11-22. .

The cut-off grade for Escondida and Escondida Norte was defined based on the material type and all applied costs and recovery:

- Sulphides: Cut-off grade is 0.25% TCu if chalcopyrite is less than 70% and 0.3% TCu if chalcopyrite is greater than 70%.
- Mixed: Cut-off grade was 0.30% TCu.
- Oxides: Cut-off grade is 0.20% SCu.

Table 11-23 shows the different cut-off grades for mineral type at Escondida and Escondida Norte.

Table 11-23: Mineral Zone Definition Criteria

Mineralisation Zone	Cut-off
Oxide	SCu >= 0.2%
Mixed	TCu <= 0.3%
Sulphide	TCu >= 0.25% & chalcopyrite < 70%
Sulphide	TCu >= 0.30% & chalcopyrite >= 70%

Source: MEL (2022)

These cut-off grades were based on a break-even economic analysis, considering a low degree of confidence in the metallurgical test work of the low-grade material. Cost assumptions are determined as part of an annual planning cycle that is used to estimate the asset life production plan and subsequently the published ore reserves. These assumptions are described in Section 12.3.

11.6 Reasonable Prospects for Economic Extraction

Mineral resource estimates may be materially affected by the metallurgical recovery and the accuracy of the economic assumptions supporting Reasonable Prospects for Economic Extraction (RPEE) including metal prices, and mining and processing costs. The mineral resources presented are contained in a pit optimisation definition.

A nested pit analysis was performed on the geologic model using the three processing routes and the economic cut-offs described in Section 11.5. Additional optimisation parameters are shown in Table 12-5. The assumptions used for mineral resources and mineral reserves are the same, only the price change to the high-price: 3.04 US$/lb for mineral resources.

BHP constrained the statement of mineral resources to within an optimised pit shell produced in Whittle using the internal LG algorithm calculations. The optimised pit is designed to consider the ability of the “ore” tonnes to pay for the “waste” tonnes based on the input economics. The result is a surface or volume which constrains the resource but provides the RPEE at the mineral resources pricing revenue factor while utilising the current mineral reserves pricing for overall inputs. Pit optimisation inputs are noted as follows:

- Reserve based copper price of US$3.04/lb (delivered to client smelter)
- Revenue Factor of 1.00 = US$3.04/lb Cu pricing (delivered to client smelter)
- 10% premium to mineral reserves price and comparable with US$3.04/lb mineral resources price (delivered to client smelter).
- Variable metallurgical recovery by different rock type and processing route (see Chapter 14)
- Pit slope (variable pit wall angles)
- 0% mining dilution, 100% mining recovery
- Operating cost structure as seen in Table 11-22

The resource pit is then used as a reporting limit to exclude all tonnes from reporting which sit external to this pit shape. MEL notes that the mineral reserves (Section 12.2) is constrained by a reserve pit. This reserve pit generally sits within the resource pit, although it locally extends beyond the limits of the resource pit due to design constraints such as ramps. MEL also notes that the optimised pit for resource reporting is not limited by boundaries for mining infrastructure, and that no capital costs for movement or replacement of this infrastructure are assumed.

11.7 Resource Classification and Criteria

MEL has used conditional simulation models since 2007 as part of the mineral resources classification process. This methodology allows the inclusion of the following elements in the classification of mineral resources:

- Density and spatial location of the information (conditional data)
- Geological continuity (geological features that have been simulated)
- Grade continuity (grade distribution that has been simulated)

The uncertainty associated with drilling, sampling, chemical analysis, and geological mapping is controlled in the QA/QC plan explained in chapter 8, and the resulting database used as input for the resources classification, complies with this procedure. Conditional simulation allows the development of an uncertainty model to quantify the copper grade estimation uncertainty for monthly production volumes. The process used can be summarised as:

- Perform conditional simulation models, for Geology and copper grade in a fine grid (5 x 5 x15 m).
- Re-block simulation models at SMU size (25 x 25 x15 m).
- Post process simulated grades to account for change of support, from a single SMU to monthly panel
- Uncertainty model calculation
- Threshold definition to produce preliminary resource classification
- Classification adjusted according to the local drilling pattern
- Mathematical smoothing using MAPS algorithm from CCG Alberta
- Final review, checks, and validations

For the FY21 Resource models, which are internally known as MLP22 and being those employed for the June 2022 declarations, the mineral resources categories are defined as follows:

- **Measured Resource:** Material which provides a prediction of the tonnes of recovered or saleable copper and grade with an accuracy of ± 10% on an annual basis and ± 15% on a quarterly basis with 95% confidence (for the mining method used at the planned capacity and at the planned cut-off grade).
- **Indicated Resource:** Material which provides a prediction of the tonnes of recovered or saleable copper and grade with an accuracy of ± 15% on an annual basis with 95% confidence (for the mining method used at the planned capacity and at the planned cut-off grade).
- **Inferred Resource:** Material which provides a prediction of the tonnes of recovered or saleable copper and grade with an accuracy of ± 25% on an annual basis with 95% confidence (for the mining method used at the planned capacity and at the planned cut-off grade).

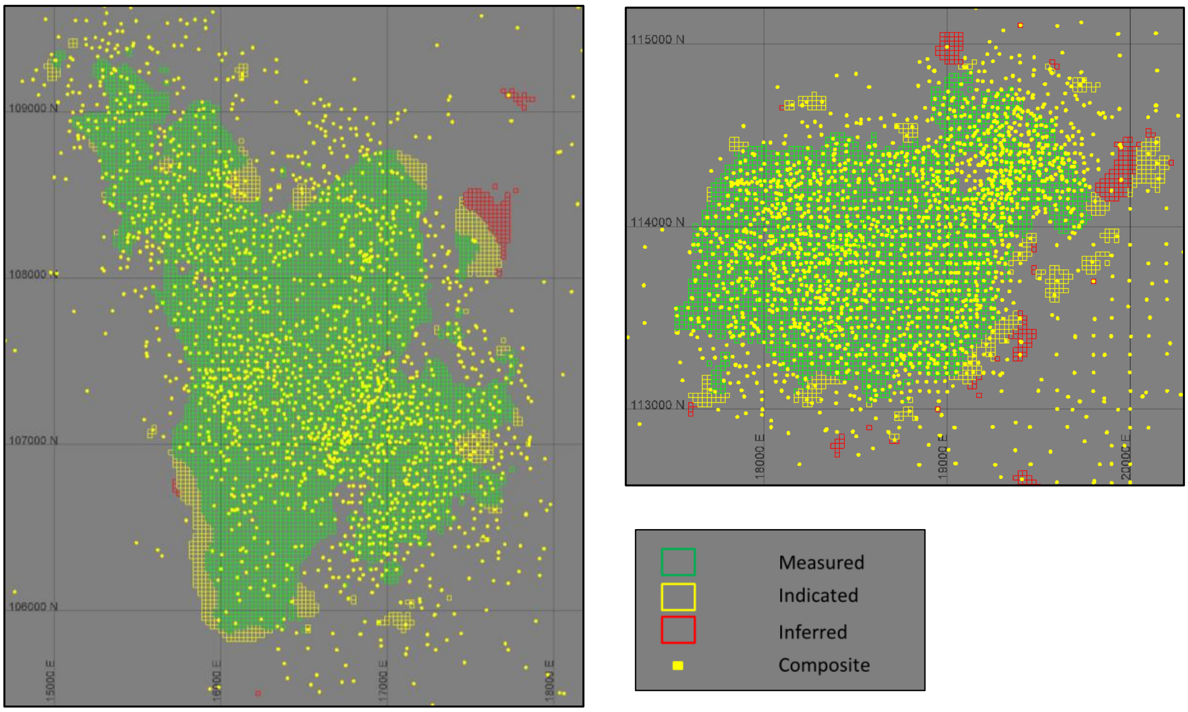
Scaling factors for change of support between Quarterly and Monthly deviations were defined to adjust mineral resources classification criteria in order to comply with internal guidelines. These factors were applied to define measured and indicated categories. The reduction factor in deviations was applied as the uncertainty reduction factor and in this way the guideline was directly used to define thresholds in the uncertainty model to produce different resource categories. The uncertainty model was updated to 95% of probability instead of 90% used in previous version; Table 11-24 shows the uncertainty threshold for each kind of mineralisation.

Table 11-24: Uncertainty Thresholds by Mineralisation

Category	Internal threshold	Uncertainty threshold for Sulphide	Uncertainty threshold for Oxide
Measured	±15% Quarterly @ 95% confidence ±10% Annually @ 95% confidence	Uncertainty (95%) ≤ 20%	Uncertainty (95%) ≤ 30%
Indicated	±15% Annually @ 95% confidence	20% < Uncertainty (95%) ≤ 30%	30% < Uncertainty (95%) ≤ 45%
Inferred	±25% Annually @ 95% confidence	Uncertainty (95%) > 30% (Interpolated)	Uncertainty (95%) > 45% (Interpolated)

Source: MEL (2022)

The thresholds were validated with historical reconciliations of the feed materials presented in figures 11-27 and 11-28. In the opinion of the QP, uncertainty thresholds used for mineral resources classification are adequate for a porphyry copper deposit, given the level of information and the extraction volume defined. Figure 11-24 shows the spatial configuration and drill hole arrangement for Escondida (left) and Escondida Norte (right).



Source: MEL (2022)

Figure 11-24: Mineral Resources Classification and Data Density

Although MEL mineral resources classification methodology does not use a specific drilling pattern to define the different categories it is possible to calculate a nominal drilling pattern according to the commonly used formula in the industry:

$$Nominal\ Drilling\ Pattern = \sqrt{\frac{tonnage}{drill\ hole\ meters}}$$

Table 11-25 shows the nominal drilling pattern calculated for each one of the resource categories.

Table 11-25: Nominal Drilling Pattern

Category	Oxide	Mixed	Sulphide
Measured (mean)	40 x 40 m	45 x 45 m	60 x 60 m
Indicated (mean)	60 x 60 m	75 x 75 m	150 x 150 m
Inferred (maximum)	90 x 90 m	100 x 100 m	320 x 320 m

Source: MEL (2022)

11.8 Uncertainty

Mineral resources are not mineral reserves and do not necessarily demonstrate economic viability. There is no certainty that all or any part of these mineral resources will be converted into mineral reserves.

Inferred mineral resources are too speculative geologically to have economic considerations applied to them to enable them to be categorised as mineral reserves.

Mineral resources estimates may be materially affected by the quality of data, natural geological variability of mineralisation and / or metallurgical recovery and the accuracy of the economic assumptions supporting reasonable prospects for economic extraction including metal prices, and mining and processing costs.

Mineral resources may also be affected by the estimation methodology and parameters and assumptions used in the grade estimation process including top-cutting (capping) of data or search and estimation strategies although it is the QP's opinion that there is a low likelihood of this having a material impact on Figure 11-25 and Figure 11-26 show the mineral resources distribution by category for sulphide mineral mined during the last 10 years, showing that the majority corresponds to measured resources.

Source: MEL (2022)

Figure 11-25: Mined Sulphide Material by Mineral Resources Category, FY12 to FY22, Escondida

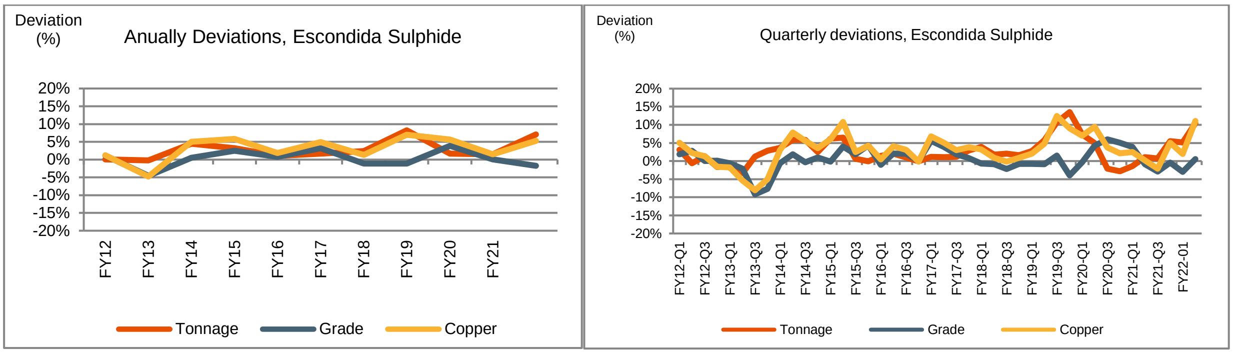
Source: MEL (2022)

Figure 11-26: Mined Sulphide Material by Mineral Resources Category, FY12 to FY22, Escondida Norte

Figure 11-27 shows Escondida annually and quarterly deviation for tonnage, grade and in-situ copper. There is one annual period were the in-situ copper deviation is outside of accepted limit with 8% underestimation. Considering quarterly periods, FY13-Q1, FY-15-Q2 and FY-19-Q3 period shows in-situ copper deviation outside of the guideline used to define the measured category.

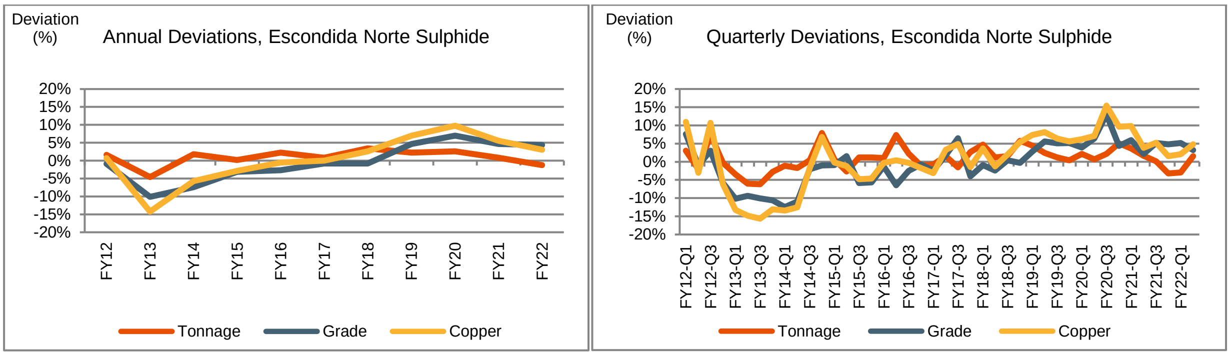
For the Escondida Norte case, Figure 11-28 only FY13 in-situ copper deviation outside of the guideline used to define the measured category shows there were no deviations outside of the limits used to define measured category.

Based on the previous analysis, there is a high effectiveness of the measured Resource in adhering to its current definitions used during the resource classification process.



Source: MEL (2022)

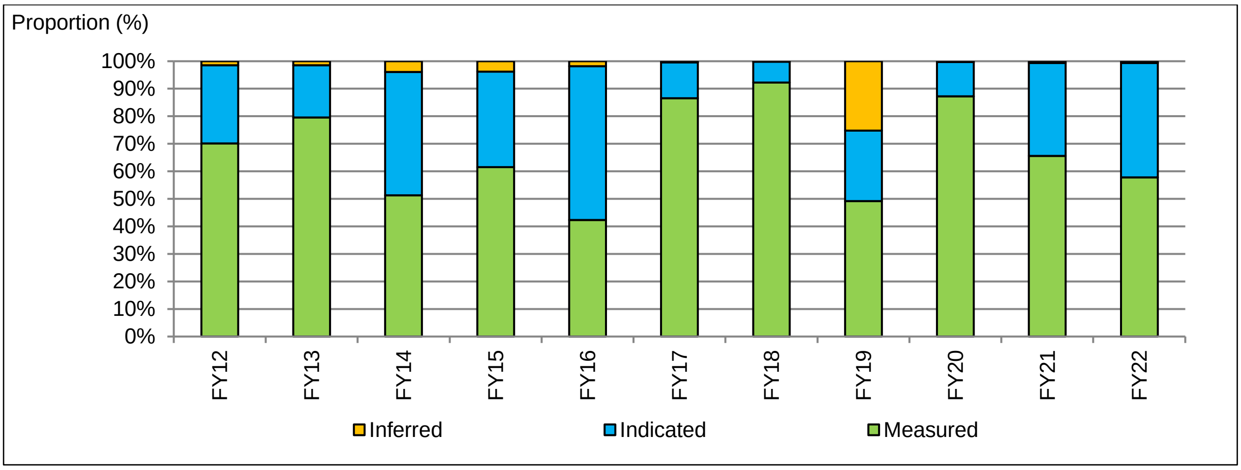
Figure 11-27: Escondida Sulphide Annual and Quarterly Deviations



Source: MEL (2022)

Figure 11-28: Escondida Norte Annual and Quarterly Deviations

Figure 11-29 shows the mineral resources classification proportions and the total mined ore for the Oxide and Mixed ore for the last 10 years. There were certain periods in which the measured resource exceeds 80%, decreasing the ability to quantify the effectiveness for measured category to produce estimation errors inside of the guidance used during the mineral resources classification process.



Source: MEL internal geology document. (2022)

Figure 11-29: Mined Oxide and Mixed Material by Mineral Resources Category, FY12 to FY22, Escondida Norte

11.9 Mineral Resources Statement

The mineral resources statement is generated and summarised in accordance the SEC S-K 1300 Regulations. The tables are presented as follows:

- Mineral Resources Exclusive of Mineral Reserves corresponding to BHP's 57.7% ownership (Table 11-26);
- Mineral Resources Inclusive of Mineral Reserves corresponding to BHP's 57.5% ownership (Table 11-27);

The mineral resources Statement reflects BHP's ownership of the Escondida property through Minera Escondida Limitada as at June 30, 2022. This statement includes the Escondida and Escondida Norte deposits combined. The tables present a breakdown of the mineral resources by classification and material type, presenting on both an exclusive (of those mineral resources that have been converted to mineral reserves) and an inclusive basis.

Table 11-26: Escondida Property BHP Ownership Basis (57.5%) – Summary of Mineral Resources Exclusive of Mineral Reserves as of 30th June 2022

Copper Chile Escondida	Mining Method	Measured Resources		Indicated Resources		Measured + Indicated Resources		Inferred Resources	
		Tonnage	Quality	Tonnage	Quality	Tonnage	Quality	Tonnage	Quality
		Mt	%Cu	Mt	%Cu	Mt	%Cu	Mt	%Cu
Oxide	OC	4.0	0.48	5.0	0.47	9.0	0.48	2.0	0.75
Mixed	OC	4.0	0.53	9.0	0.44	13	0.47	11	0.49
Sulphide	OC	596	0.49	1,020	0.49	1,620	0.49	5,370	0.53
Escondida Total		**604**	**0.49**	**1,030**	**0.49**	**1,640**	**0.49**	**5,380**	**0.53**

Notes:
1 The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
2 Mineral resources are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals.
3 Mineral resources are presented exclusive of mineral reserves.
4 Escondida, in which BHP has a 57.5% interest, is considered a material property for purposes of Item 1303 of S-K 1300.
5 Escondida point of reference for the mineral resources was mine gate.
6 Escondida mineral resources estimates were based on a copper price of US$3.04/lb.
7 Escondida mineral resources cut-off criteria used was Oxide ≥ 0.20% soluble Cu; Mixed ≥ 0.30% Cu; Sulphide ≥ 0.25% Cu for mineralisation assigned to be processed via leaching or ≥ 0.30% Cu for mineralisation assigned to be processed via the concentrator.
8 Escondida metallurgical recoveries for Oxide 62%; Mixed 42%; Sulphide 42% for material processed by leaching or 83% for material processed via the concentrator.

Table 11-27: Escondida Property BHP Ownership Basis (57.5%) – Summary of Mineral Resources Inclusive of Mineral Reserves as of 30th June 2022

Copper Chile Escondida	Mining Method	Measured Resources		Indicated Resources		Measured + Indicated Resources		Inferred Resources	
		Tonnage	Quality	Tonnage	Quality	Tonnage	Quality	Tonnage	Quality
		Mt	%Cu	Mt	%Cu	Mt	%Cu	Mt	%Cu
Oxide	OC	49	0.59	18	0.53	67	0.57	2.0	0.75
Mixed	OC	34	0.52	28	0.47	61	0.50	11	0.49
Sulphide	OC	2,910	0.59	2,160	0.51	5,070	0.56	5,370	0.53
Escondida Total		**2,990**	**0.59**	**2,210**	**0.51**	**5,200**	**0.56**	**5,380**	**0.53**

Notes:
1 The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee

future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

2 Mineral resources are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals.
3 Mineral resources are presented exclusive of mineral reserves.
4 Escondida, in which BHP has a 57.5% interest, is considered a material property for purposes of Item 1303 of S-K 1300.
5 Escondida point of reference for the mineral resources was mine gate.
6 Escondida mineral resources estimates were based on a copper price of US$3.04/lb.
7 Escondida mineral resources cut-off criteria used was Oxide ≥ 0.20% soluble Cu; Mixed ≥ 0.30% Cu; Sulphide ≥ 0.25% Cu for mineralisation assigned to be processed via leaching or ≥ 0.30% Cu for mineralisation assigned to be processed via the concentrator.
8 Escondida metallurgical recoveries for Oxide 62%; Mixed 42%; Sulphide 42% for material processed by leaching or 83% for material processed via the concentrator.

11.10 Discussion of Relative Accuracy/Confidence

In the QP's opinion, the relative accuracy, and therefore, confidence of the mineral resources estimates are deemed appropriate for their intended purpose of global mineral resources reporting and medium to long term mine planning studies. The factors influencing the accuracy and confidence, as stated in Section 11.7 are taken into consideration during classification of the model; and therefore, are addressed by the QP in the attributed mineral resources classification.

Mineral resources are not mineral reserves and do not necessarily demonstrate economic viability. There is no certainty that all, or any part, of this mineral resources will be converted into mineral reserves.

Inferred mineral resources are too speculative geologically to have economic considerations applied to them to enable them to be categorised as mineral reserves.

Mineral resources estimates may be materially affected by the quality of data, natural geological variability of mineralisation and/or metallurgical recovery and the accuracy of the economic assumptions supporting reasonable prospects for economic extraction including metal prices, and mining and processing costs.

11.11 Opinion on Influence for Economic Extraction

The QP is of the opinion that, with the recommendations and opportunities outlined in Section 23.1 (Recommended Work Programmes), any issues relating to all applicable technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

12 Mineral Reserves Estimate

12.1 Key Assumptions, Parameters, and Methods

MEL is a mature open pit operation with more than 30 years of operation. To generate a mineral reserves, we utilize the measured and indicated components of the mineral resources estimates and apply additional modifying factors to produce a mine plan which MEL uses as the basis of a mineral reserves declaration. Modifying factors include mining parameters, geological and geotechnical models, costs, and revenue.

Estimating the mineral reserves at MEL is part of an annual process that aims to optimise a large scale and complex operation comprising of three process routes (Concentrator, Sulphide, and Oxide Leaching), which are fed from two active pits. Each process route presents different copper grades, geo-metallurgical characteristics, and mining constraints. The overall process of Reserve development is provided graphically below in Figure 12-1.

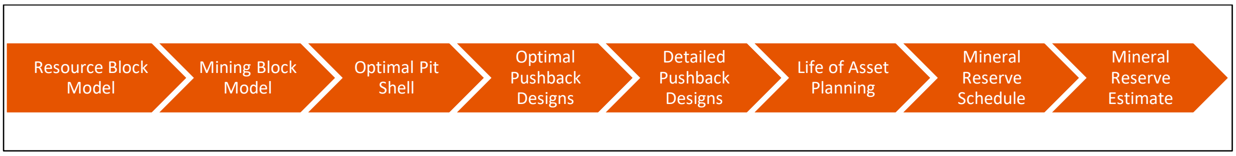


Figure 12-1: MEL Process for Mineral Reserves Estimation

Maps presented in this chapter use local mine coordinates derived from the PSAD-56 UTM projection.

The subsections below describe the ore Reserve estimation process.

12.1.1 Geologic Resource and Mining Models

The dimensions of the block model are shown in Table 12-1 for the Escondida Norte pit, and Table 12-2 for the Escondida pit. The principal variables of the block model used for mineral reserves are shown in Table 12-3.

Table 12-1: Block Model Dimensions – Escondida Norte Pit

Dimension	Minimum	Maximum	Block Size (m)	No. of Blocks
X	0	5,400	25	216
Y	0	5,450	25	218
Z	0	1,650	15	110

Source: MEL (2022)

Table 12-2: Block Model Dimensions – Escondida Pit

Dimension	Minimum	Maximum	Block Size (m)	No. of Blocks
X	0	7,400	25	296
Y	0	10,400	25	416
Z	0	2,160	15	144

Source: MEL (2022)

Table 12-3: Principal Variables of the Block Model

Variable	Description
TCu	Total Copper (%)
SCu	Soluble copper (%)
Au	Gold (%)
Ag	Silver (%)
densidad	Dry Density
bwi	Bond Work Index (Kwh/ton)
spi	Sag Power Index (min)
rec_flc	Flotation recovery for Los Colorados concentrator (%)
rec_fls1	Flotation recovery for Laguna Seca Line 1 concentrator (%)
rec_fls2	Flotation recovery for Laguna Seca Line 2 concentrator (%)
rec_lixaci	Acid leach recovery (%)
rec_sl_350	Sulphide leach recovery (%)
Categ_Rec	Resource category

Source: MEL (2022)

MEL reports using financial years that start on 1st July and end the next year on 30th June of each year. The model starts on the 1st July 2022 (start of the FY23 financial year). The estimated depletion was based off the CY2021 May Forecast which includes approximately 12 months of forecasted movement. In the opinion of the QP any difference between the planned and actual start surface is not material.

A Mining Model was created from the Geologic Resource Model by applying dilution and mining recovery factors of 0% and 0% respectively. See Section 13.3.4 for further discussion.

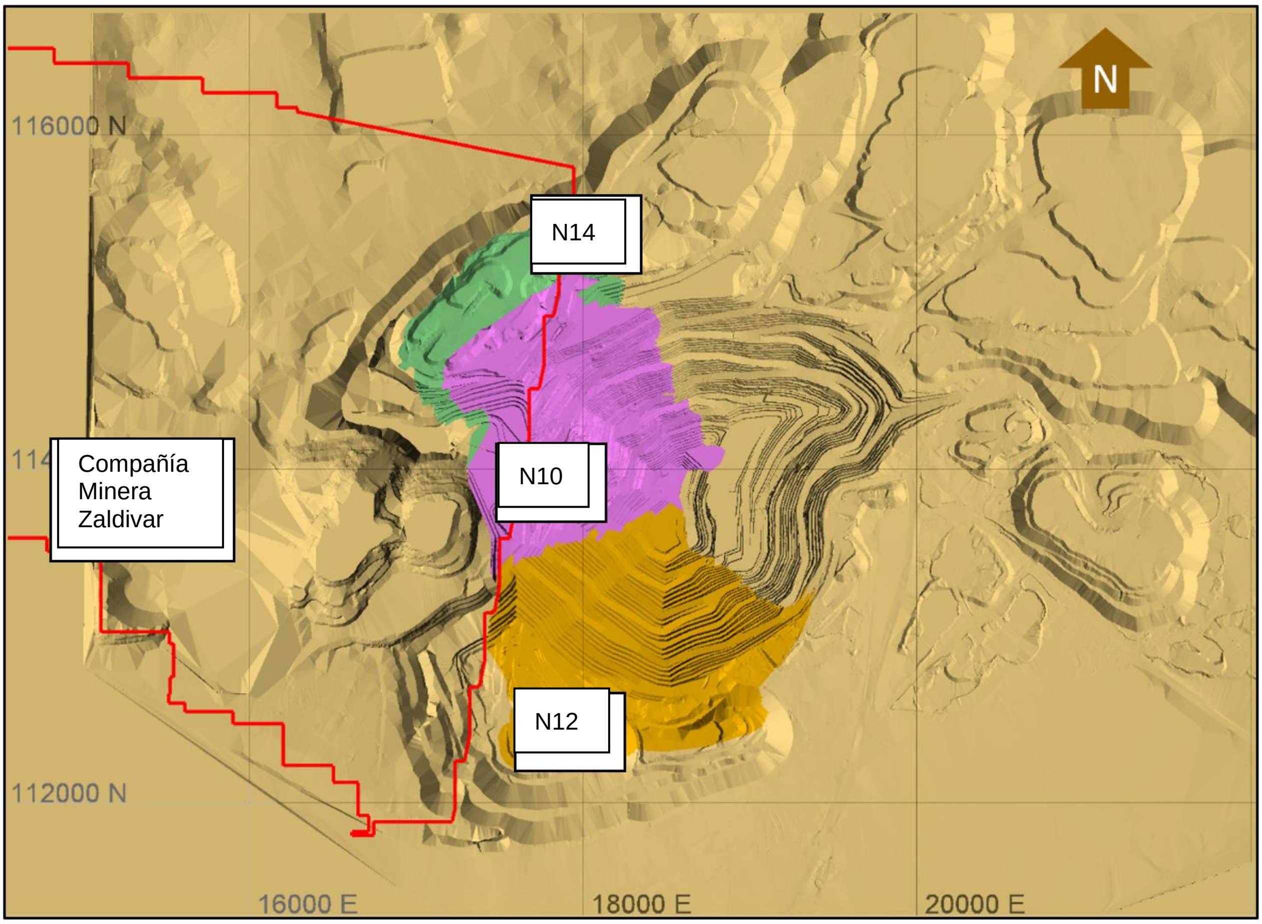
12.2 Modifying Factors

12.2.1 Property Limits

The Escondida pit falls completely within the MEL property limits.

The Escondida Norte pit shares a lease boundary with Compañía Minera Zaldivar (CMZ), this is a mine that is operated by Antofagasta Minerals. The shared boundary impacts Pushback N12, N10 and N14. All material in the CMZ lease is considered as waste when developing the optimal pit designs.

CMZ and MEL have historic agreements in place with regards to CMZ accessing areas that fall within the MEL property, as well as MEL gaining access to portions of the Escondida Norte pit that fall within the CMZ mine property.



Source: MEL (2022)

Figure 12-2: Escondida Norte Pit and the Compañía Minera Zaldivar Lease Boundary

12.2.2 Project Constraints

The mining project boundary isn't limited by existing infrastructure; however, there are several projects that enable the final boundary to be reached.

- Los Colorado Concentrator Removal
- Truck Shop Removal
- Hamburgo Tailings Removal

Los Colorado Concentrator Demolition

The Los Colorado Concentrator is the original concentrator at MEL. As the pit has expanded this concentrator is required to be removed to access the ore underneath it. In the SEC mine plan, the final year of operation for this concentrator is FY27. A replacement of this concentrator is not included in this plan, however concentrators Laguna Seca Lines 1 and 2 are expected to continue to operate. Once removed access into PL2s/PL2n and subsequent pushbacks is available.

Truck Shop Removal

The current Truck Shop where the maintenance of the trucks is carried out it located adjacent to the Los Colorado Concentrator and must be removed to access the ore underneath it. Once removed access into PL2s and subsequent pushbacks is available. A new truck shop is planned to replace the one that has been removed.

Hamburgo Tailings Removal

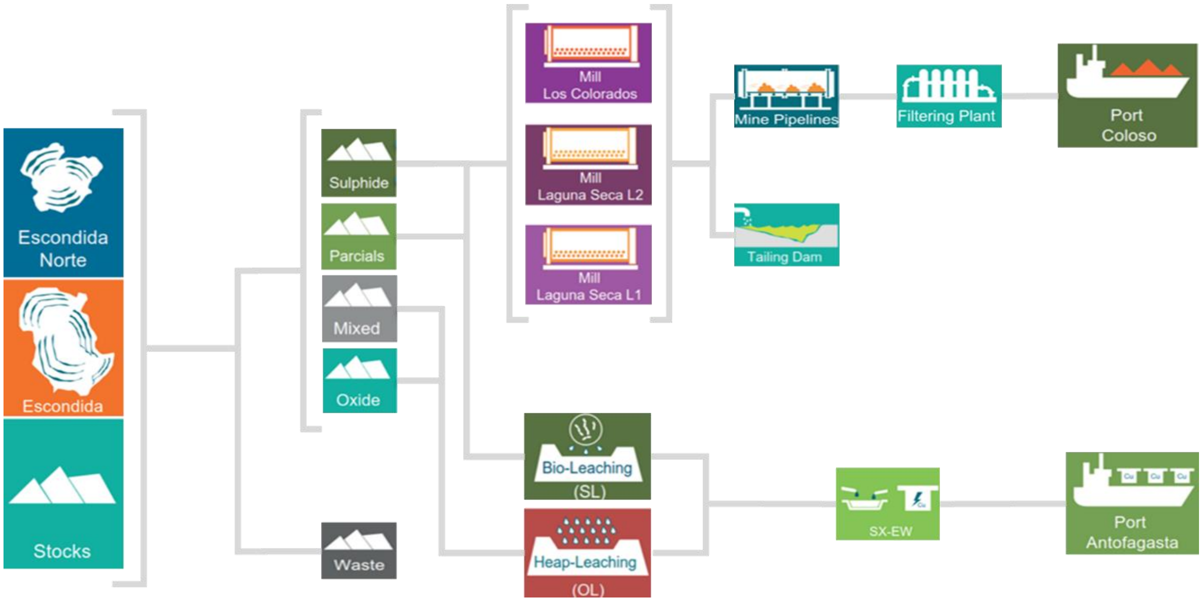
The Hamburgo tailings deposit is located at the southeast end of the Escondida pit. It is required to be removed to access the pushbacks E8 and PL5s, PL6s, PL7s. E8 is the initial pushback that is enabled from the removal of the Tailings, and this pushback is planned for FY50.

12.2.3 Processing

Material is mined from two open pits; Escondida and Escondida Norte, using truck and shovel mining methods (described in further detail in Chapter 13) and sent to one of three processes (see Figure 12-3):

- Concentrators (Consisting of three separate concentrators; Los Colorados, Laguna Seca Line 1, Laguna Seca Line 2)
- Sulphide Bioleaching
- Acid Leaching

Product is then sent via a pipeline (in the case of concentrators) or sent via railways (in the case of Cathodes) to ports near the city of Antofagasta for export.



Source: MEL (2022)

Figure 12-3: Sources and Actual Destination Flowsheet

12.2.4 Commodity Prices Used

The copper price and used for the pit optimisation and economic cut-off analysis was: 2.79 US$/lb.

The historic price of copper since the mid 2000's has average approximately 3.5 US$/lb. External forecasts project a shortage of copper supply over the next 10 years as demand grows, while supply is forecast to drop from existing mines, resulting in an expected long-term price (2032 onwards) to be above 3.50 US$/lb (real$ 2022), which is higher than the price used in the current reserves estimation process (2.79 US$/lb).

Chapter 16 contains the full analysis of the copper commodity price in which discussion of the validity of the commodity prices employed is presented. In the opinion of the QP for reserves the selected price for reserves is considered reasonable.

12.2.5 Cut-off Grade Estimate

The cut-off grades (COG) used to differentiate waste from mineralised ore are 0.3% of total copper for the Sulphide (concentrator feed) and 0.25% of total Copper and less than 70% of Chalcopyrite for Sulphide Leach (ROM sulphide leach feed) reserves whereas for the Oxide (acid heap leach) feed reserves are reported above 0.2% Acid soluble copper. These cut-off grades are based on economic analysis and assume open-pit extraction and concentrator, ROM or heap leach processing alternatives as per the current operation. Since the material fed to concentrator and sulphide leach processes are sourced from the same ore body, MEL employed a variable cut-off grade (VCOG) to determine the ore destination that provides maximum value.

The cut-off grades are based on copper content only. Material processed through the concentrators also contains gold and silver, from which MEL generates revenue. The gold and silver revenues have been included in the financial model (Chapter 19), however they are excluded from the cut-off grade calculation. This is considered to be a relatively conservative method of applying the cut-off.

12.2.6 Cut-off Grade Calculation for Mill

The parameters in Table 12-4 used to calculate the value of sending the material to the mill. If the value is greater than zero, the material can be considered for processing. In addition, it was considered for processing if it had a solubility index less than 0.8.

Table 12-4: Copper Concentrator COG Parameters

Variable	Units	Value	Additional Information
Payable metal in concentrate dispatched from site	%	96.65	
Mill recovery	%	83	Life of Mine (LoM) Average.
Indicative site costs			
Mining cost	$/t material moved	0.87	
Hauling cost		Variable	
Mill Processing cost	$/t of Ore Processed	7.10	
Mill Selling cost	$/t of Saleable Cu	359	
Administration and overheads cost	$/t of Saleable Cu	838	

Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

The Mill Cut-off Grade (COG) for the Concentrator is shown below:

$$Mill\ CoG = \frac{(MiningCost + ProcessingCost)}{(\,SellingPrice - SellingCost) * \ Recovery * Payability}$$

Based on the above equation, the Mill cut-off is 0.23%. The cut-off used to calculate the mineral reserves, is 0.20%. The mill and sulphide bioleaching use the same material for processing, so we use a variable cut-off grade to maximum value between the mill and leaching processes. The minimum cut-off grade is 0.2% and greater than the variable cut-off grade.

12.2.7 Cut-off Grade Calculation for Sulphide Bioleaching Process

The parameters in Table 12-5 are used to calculate the value of sending the material to the Sulphide Bioleaching. If the value is greater than zero, the material can be considered for processing.

Table 12-5: Sulphide Bioleaching COG Parameters

Variable	Units	Value	Additional Information
Payable	%	100.0	
Leaching recovery	%	42	Life of Mine (LoM) Average.
Indicative site costs			
Mining cost	$/t material moved	0.87	
Hauling cost		Variable	
Processing cost	$/t of ROM ore	1.31	
Mill Selling cost	$/t of Saleable Cu	441	
Administration and overheads cost	$/t of Saleable Cu	838	

Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

The Sulphide Bioleaching Cut-off Grade (COG) is shown below:

$$Sulphide\ Bio\ Leaching\ CoG = \frac{(MiningCost + ProcessingCost)}{(\ SellingPrice - SellingCost) *\ Recovery * Payability}$$

Based on the above equation, the Sulphide Bioleaching Cut-off Grade is 0.21%. The cut-off used to calculate the mineral reserves, is 0.25%.

12.2.8 Cut-off Grade Calculation for Acid Leaching Process

The parameters in Table 12-6 are used to calculate the value of sending the material to the acid leaching process. If the value is greater than zero, the material can be considered for processing.

Table 12-6: Acid Leaching COG Parameters

Variable	Units	Value	Additional Information
Payable	%	100.0	
Leaching recovery	%	62	Life of Mine (LoM) Average.
Indicative site costs			
Mining cost	$/t material moved	0.87	
Hauling cost		Variable	
Processing cost	$/t of ROM ore	7.98	
Mill Selling cost	$/t of Saleable Cu	661	
Administration and overheads cost	$/t of Saleable Cu	838	

Notes: 1) Selling cost includes solvent extraction-electrowinning and transport.
2) The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

The Acid Leaching Cut-off Grade (COG) is shown below:

$$Acid\ Leaching\ CoG = \frac{(MiningCost + ProcessingCost)}{(SellingPrice - SellingCost) * \ Recovery * Payability}$$

Based on the above equation, the Acid Bioleaching Cut-off Grade is 0.35%. The cut-off used to calculate the mineral reserves, is 0.35%.

For ore to be routed to the mill in this study, the following criteria had to be met:

- A mineral resource classification of either measured or indicated
- A mill value greater than or equal to zero
- Does not exceed the feed limit which is based on the design and historical data
- Does not exceed the limit of the crushing circuit which is based on rock hardness and the design and historical data of the crushing circuit
- Concentrator metallurgical recovery is based on mineralogical data in the block model and historical performance data

For ore to be routed to the Sulphide bioleaching pad in this study, the following criteria had to be met:

- A mineral resources classification of either measured or indicated
- A leach value greater than or equal to zero
- Less than 70% of Chalcopyrite ore
- Limited by the electrowinning process to 200k tonnes of copper produced per year

For ore to be routed to the Acid Leaching in this study, the following criteria had to be met:

- A mineral resources classification of either measured or indicated
- A leach value greater than or equal to zero
- Clay content does not exceed 17%
- Limited by the electrowinning process to 150,000 t of copper produced per year

12.2.9 Pit Optimisation

A pit optimisation analysis was carried out using Blasor software, an internally developed software programme. The purpose of pit optimisation work is to determine the economic shell that can be mined using open pit methods. The optimum result is to mine as much of the resource as economically possible.

Blasor uses the Lerchs-Grossman algorithm for pit optimisation. It employs a series of geometric assumptions (related to pit slope angles) and economic assumptions (price, recovery, mining, and processing costs) to determine the three-dimensional shape that yields the maximum profit under those assumed conditions. Individual blocks in the model are assigned the net revenue the block generates, from its recoverable copper, after mining processing and smelting costs have been deducted. Waste blocks have a negative value; ore blocks will generally generate positive revenue.

The Lerchs-Grossman algorithm is an industry standard algorithm. The Optimised Reserve pit is defined based on the mineral resources excluding inferred resources. In addition, the historical prices and costs for the past 3 years are used to define the limits for the public reporting of mineral reserves. Pit slope parameters for the pit optimisation were developed as described below with additional detail provided in Section 13.2. The design slopes were adjusted to account for anticipated haul road locations.

Geotechnical evaluation defined different geotechnical parameters for the Escondida and Escondida Norte pit slope designs. Recommendations for geotechnical slope angles are defined in terms of Inter-Ramp Angles (IRA), global angle, bench face angle, width ramp and considerations in terms of height and geometry of design. To reduce the risk associated with the vertical interaction between phases, and to mitigate wall failures between pushbacks, the geotechnical design includes a catch berm (step out) every

10 benches for single benching and a catch berm every five benches for double benching. It is considered good practice to build a containment berm on the crest of the step-out, and if possible, at the toe of the bench face. The minimum height of the parapet wall should be 2m, (1/2 of height wheel of trucks).

A nested pit analysis was performed on the geologic model using the three processing routes and the economic cut-offs described in Section 12.3. Additional optimisation parameters are shown in Table 12-7.

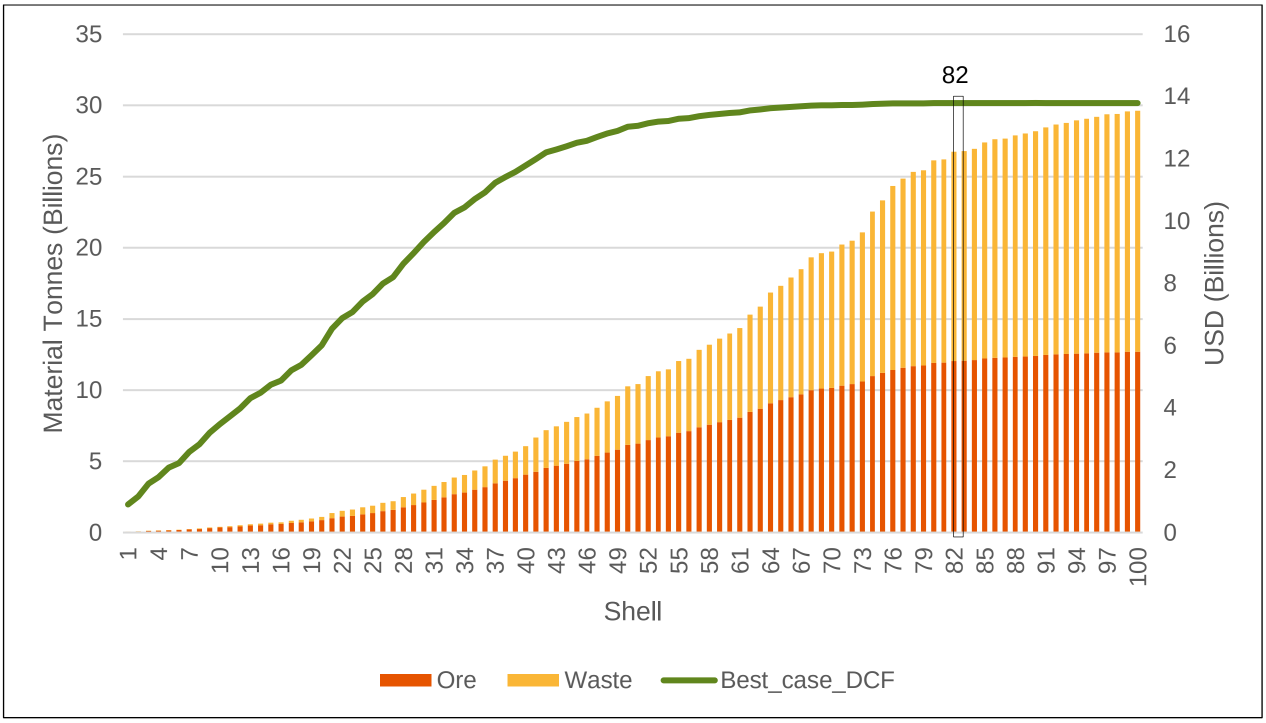
Table 12-7: Pit Optimisation Economic Inputs

Description	Units	Value
Mining - Base Cost	$/t material moved	0.87
Mining - Haulage Cost		Variable
Mining Loss	%	0
Mining Dilution	%	0
Ore Processing Cost - Milled Ore	$/t Ore Processed	7.10
Ore Processing Cost - Sulphide Bio Leach Ore	$/t Ore Processed	1.31
Ore Processing Cost - Acid Leached Oxide Ore	$/t Ore Processed	7.98
Metallurgical Recovery - Milled Ore	%	83*
Metallurgical Recovery - Sulphide Bio Leach Ore	%	42*
Metallurgical Recovery - Acid Leached Oxide Ore	%	62*
Payable Cu - Milled Ore	%	96.65
Payable Cu - Sulphide Bio Leach Ore	%	100
Payable Cu - Acid Leached Oxide Ore	%	100
Cu Price	US$ / lb	2.79

Notes: 1) * variable recovery curves is applied to each block and material type
2) Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

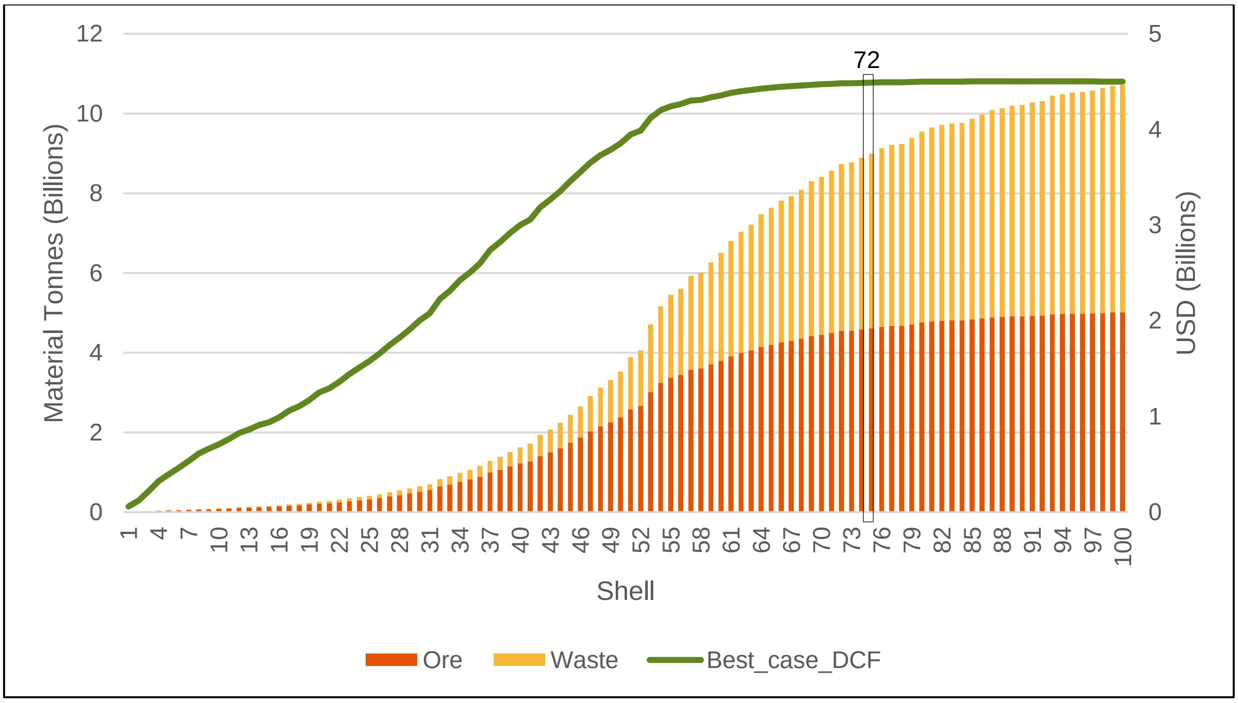
Figure 12-4 and Figure 12-5 show how each pit reacts to different Revenue Factors (RF), with a Revenue Factor of 1 corresponding to the copper price outlined in Chapter 16. The selected optimal pits for both Escondida and Escondida Norte are 82 and 72 respectively, which represent RF of 0.92 and 0.82 respectively. These pits correspond to the point where the discounted cash flow starts to flatten out. Pits after the selected point do not add significantly more value.

Ultimate pits were designed for which were based on the selected pit shells the geotechnical design parameters outlined Escondida and Escondida Norte. The final pit designs in the context of the overall mine site are presented in Figure 13-16 (Chapter 13).



Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

Figure 12-4: Optimal Pit Selection for Escondida Pit



Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

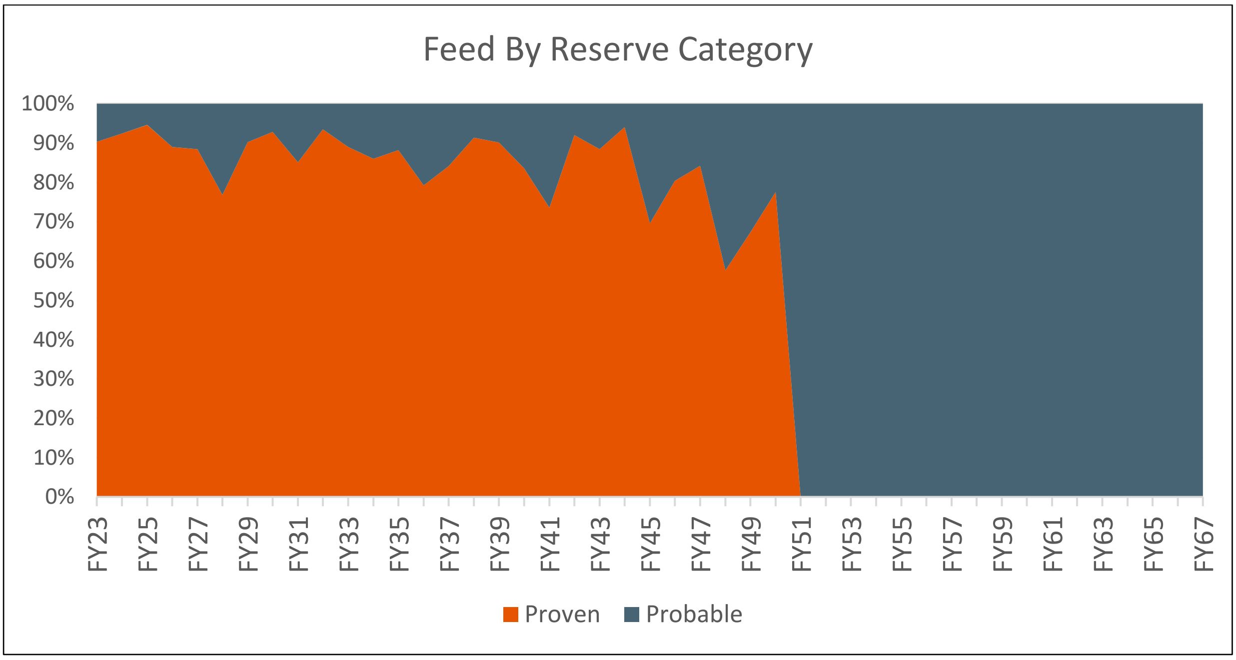
Figure 12-5: Optimal Pit Selection for Escondida Norte Pit

12.3 Mineral Reserves Classification and Criteria

Generally, the approach to classifying mineral reserves is to convert measured mineral resources to proven mineral reserves and Indicated mineral resources to probable mineral reserves based on the modifying factors. MEL has taken this approach for all mineral reserves up until FY50 in the mine plan, with all mineral reserves being classified as probable after this year.

In FY50 MEL is required to renew surface rights and in addition we expect to be approaching the final approved limit of the tailings dam. To raise the tailings dam wall higher a new Environmental Impact Study (EIA) will be required. The Qualified Person has no reason to think either of these rights and approvals will not be obtained; however, given how far in the future they occur, we have chosen out of an abundance of caution to reflect the increased uncertainty by classifying measured mineral resources as probable mineral reserves after FY50.

The mineral reserves by Category can be seen in and Figure 12-6.



Source: MEL (2022)

Figure 12-6: Feed by Reserve Category to Process

12.4 Material Risks Associated with the Modifying Factors

The QP has identified the following material risks associated with the modifying factors:

- Product Sales Price:
  - The copper price expected for the sale of copper concentrates and cathodes is based on three calendar-year average of historical monthly median values as explained in Chapter 16. There is considerable uncertainty about how future supply and demand will change which will materially impact future copper prices. The reserve estimate is sensitive to the potential significant changes in revenue associated with changes in copper concentrate/cathode prices.
- Mining Dilution and Mining Recovery:
  - The mining dilution estimate depends on the accuracy of the resource model as it relates to internal waste dilution/dikes identification. Due to the spacing of the resource drill holes, it is not possible to identify all of the waste dikes the operation will encounter in the future. If an increased number of waste dikes are found in future mining activities, the dilution may be greater than estimated because there will be more ore blocks in contact with waste blocks. This would potentially introduce more waste into the plant feed, which would decrease the

feed grade, slow down the throughput and reduce the metallurgical recovery. A potential mitigation would be to mine more selectively around the waste dikes, although this would result in reduced mining recovery.

- Impact of Currency Exchange Rates on Production Cost
  - Differences in the actual exchange rate compared to the assumed rate in the model could potentially change the mineral reserves estimates.
- Geotechnical Parameters:

  Geotechnical parameters used to estimate the mineral reserves can change as mining progresses. Local slope failures could force the operation to adapt to a lower slope angle which would cause the strip ratio to increase and the economics of the pit to change.
- Processing Plant Throughput and Yields:
  - The forecast cost structure assumes that all processing plants remain fully operational and that the estimated recovery assumptions are achieved. If one or more of the plants does not operate in the future, the cost structure of the operation will increase. If the targeted recovery is not achieved, concentrate production will be lower. Both of these outcomes would adversely impact the mineral reserves.

12.5 Mineral Reserves Statement

Based on the modifying factors discussed in this section the mineral reserves is listed in Table 12-8 on a BHP 57.5% ownership basis.

Table 12-8: Escondida Property BHP Ownership Basis (57.5%) - Summary of Mineral Reserves as at 30th June 2022

Copper Chile Escondida	Mining Method	Proven Reserves		Probable Reserves		Total Reserves	
		Tonnage	Quality	Tonnage	Quality	Tonnage	Quality
		Mt	%Cu	Mt	%Cu	Mt	%Cu
Oxide	OC	75	0.57	31	0.51	106	0.55
Sulphide	OC	1,560	0.70	939	0.56	2,500	0.65
Sulphide Leach	OC	755	0.46	197	0.40	952	0.45
Escondida Total		**2,390**	**0.62**	**1,170**	**0.53**	**3,560**	**0.59**

Notes:
1 The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
2 Mineral reserves are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals.
3 Escondida, in which BHP has a 57.5% interest, is considered a material property for purposes of Item 1303 of S-K 1300.
4 Escondida point of reference for the mineral reserves was mine gate.
5 Escondida mineral reserves estimates were based on a copper price of US$2.79/lb.
6 Escondida mineral reserves cut-off criteria used was Oxide ≥ 0.20% soluble Cu. For Sulphide ≥ 0.30% Cu and where greater than the variable cut-off of the concentrator. Sulphide ore is processed in the concentrator plants as a result of an optimised mine plan with consideration of technical and economic parameters in order to maximise net present value. Sulphide Leach ≥ 0.25% Cu and 70% or less of copper contained in chalcopyrite and lower than the variable cut-off grade. Sulphide leach ore is processed in the leaching plant as an alternative to the concentrator process.
7 Escondida metallurgical recoveries for Oxide 62%; Sulphide Leach 42%; Sulphide 42% for material processed by leaching or 83% for material processed via the concentrator.

12.6 Discussion of Relative Accuracy/Confidence

It is the QP's opinion that the accuracy of the modifying factors are with the plus or minus 25% as defined in the SEC S-K 1300 Regulations for a PFS level study.

13 Mining Methods

13.1 Selected Mining Method

MEL is a mining operation that uses conventional open pit methods to extract mineral reserves containing economic quantities of copper to produce both cathodes and copper concentrates. The mineral reserves are based on the LOM plan which only considers open pit mining.

Maps presented in this chapter use local mine coordinates derived from the PSAD-56 UTM projection.

13.2 Production Tasks

Since the start of operations at MEL, the mine has operated using an open pit mining method, utilising trucks, and shovels/excavators. This method is suited to the large copper porphyry deposits mined by MEL as the deposits are low grade, high tonnage and located relatively close to the surface.

Since this is an established operation, the deposit, mining, metallurgy and processing, and environmental aspects of the project are well understood. The geological knowledge for MEL is based on the collective experience of personnel from MEL's site operations geology, mining, metallurgy, and other technical disciplines gained during the history of the operations. This knowledge is supported by years of production data at MEL.

13.2.1 Drill and Blast

The mining operation begins with the drilling process; drill samples are sent to an assay laboratory for analysis. The assay results are used to mark out zones of ore, leach, and waste rock, which are mined separately. The current drilling equipment is outlined in Table 13-7.

13.2.2 Waste Removal and Storage

After the blasting is completed, ore and waste are mined by excavators loading onto trucks. The current fleet is outlined in Table 13-7. Overburden and waste loads can be used for fixing roads, building ramps, or simply placed on the Overburden Storage Facility (OSF).

13.2.3 Ore Removal and Transport

There are three destinations for ore based on the processing method to include mill, sulphide bio leach, and acid leaching.

Ore being sent to the Mills is sent to one of two locations, the Los Colorados plant which is adjacent to the Escondida pit, or Laguna Seca Line 1 / Line 2 plants located approximately 6km south of the Escondida pit. Ore coming from the Escondida pit being sent to Los Colorados is sent to Crusher 1 (with a capacity of 4,500 tonnes per hour [tph]) and then transported by conveyor to Los Colorados. Ore coming from Escondida pit being sent to Laguna Seca Line 1 or Line 2 is sent to Crusher 2 (capacity of 7,420tph) or Crusher 3 (capacity of 9,330 tph) and then via one of two conveyors to Laguna Seca Line 1 or Line 2. Ore from Norte pit is sent from Crusher 5 (capacity of 9,330 tph) and transported to either Los Colorados or Laguna Seca Line 1.

Ore being sent to Sulphide Bioleaching is sent via trucks to the ROM pad located 8 km east of the Escondida pit / 6 km southeast of the Escondida Norte pit. This pad has a design capacity of ~1,600 Mt.

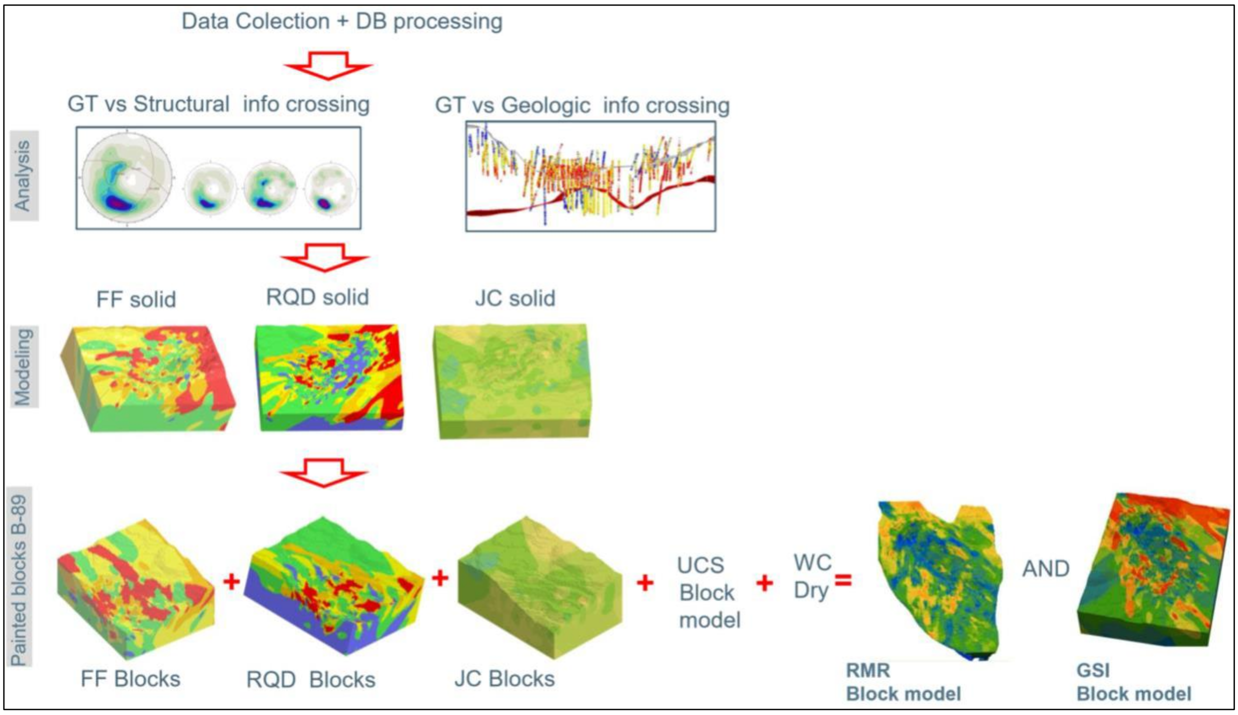
Acid Leaching Ore is taken via trucks to Crusher 4 (capacity of 5,000tph), it then undergoes secondary and tertiary crushing and finally agglomeration before being sent via conveyor to be placed on the dynamic pad approximately 7km to the Northwest of the Escondida pit.

13.3 Additional Parameters Relevant to Mine Designs and Plans

13.3.1 Geotechnical Models

From the geotechnical logging of drilling, geotechnical parameters were obtained, such as resistance of the rocky matrix (Intact Rock Strength [IRS]), degree of fracturing (RQD and FF), additionally the condition of the discontinuities (continuity, opening, roughness, filling, alteration of walls) to determine the RMR89 (rock mass rating Bieniawski) dry condition, which are incorporated in the geotechnical block models for Escondida and Escondida Norte with spatial variability in each of the variables (GSI, FF, RQD, RMR89 each lithology-alteration unit had a fixed value of GSI (geological strength index) or RMR89 calibrated to better represent the observed failure mechanisms.

The current geotechnical model is developed by Interpolation with the Reverse at Distance (RBF) method using Leapfrog tool, applying structural anisotropy for interpretation, with a basis of geological conceptualisation. Figure 13-1 shows an overview of the process to crease these models.

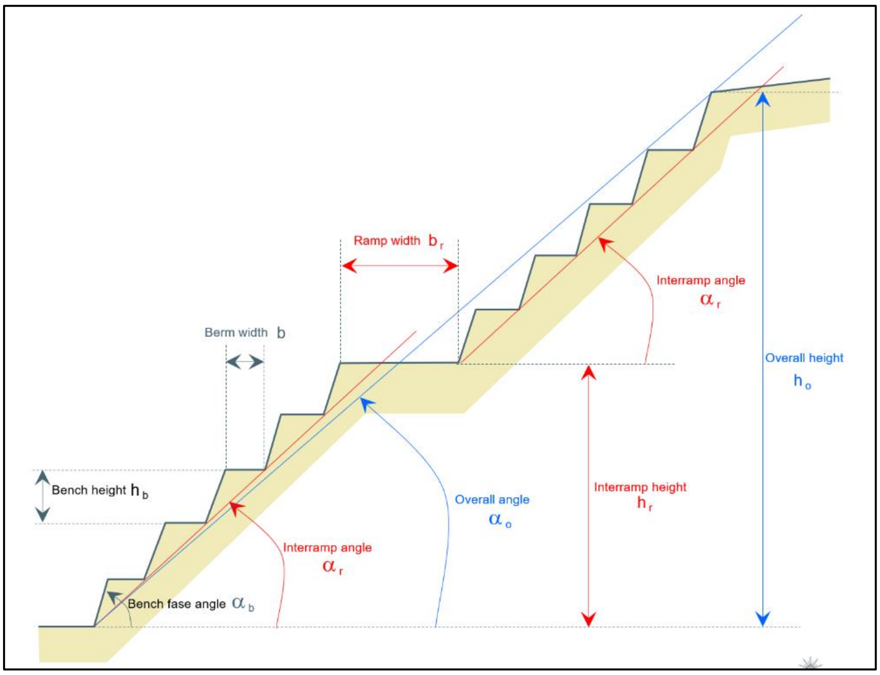


Source: MEL (2022)

Figure 13-1: Geotechnical Estimate Flowsheet

Geotechnical evaluation has defined different geotechnical parameters for the Escondida and Escondida Norte pit slope designs. Recommendations for geotechnical slope angles are defined in terms of Inter Ramp Angles (IRA), global angle, bench face angle, ramp width, and considerations in terms of height and geometry of design. In order to reduce the risk associated with the vertical interaction between phases, and to mitigate wall failures between pushbacks, the geotechnical design includes a catch berm (step out) every 10 benches for single benching and a catch berm every 5 benches for double benching. It is considered good practice to build a containment berm on the crest of the step-out, and if possible, at the toe of the bench face. The minimum height of the parapet wall should be 2 m, (1/2 of height wheel of trucks).

The mine design parameters applied for the Escondida and Escondida Norte mine pit pushbacks are summarised in Figure 13-1 and Table 13-1. Figure 13-2 and Figure 13-3 show the IRA for Escondida and Escondida Norte pits, respectively.



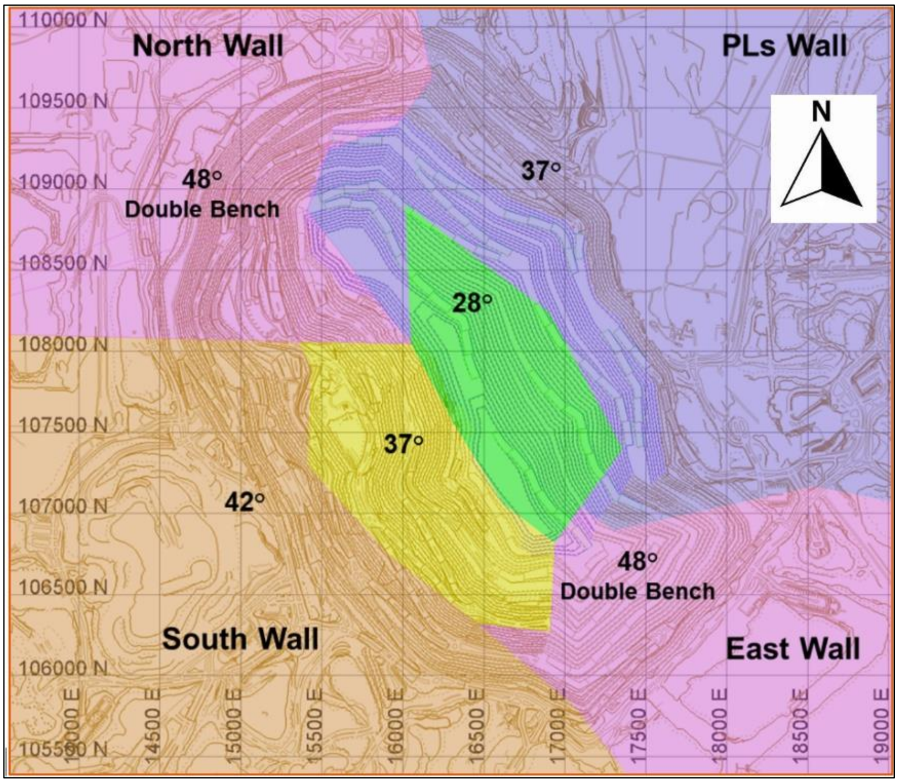
Source: MEL (2022)

Figure 13-2: Geotechnical Definitions

Table 13-1: Mine Design Parameters

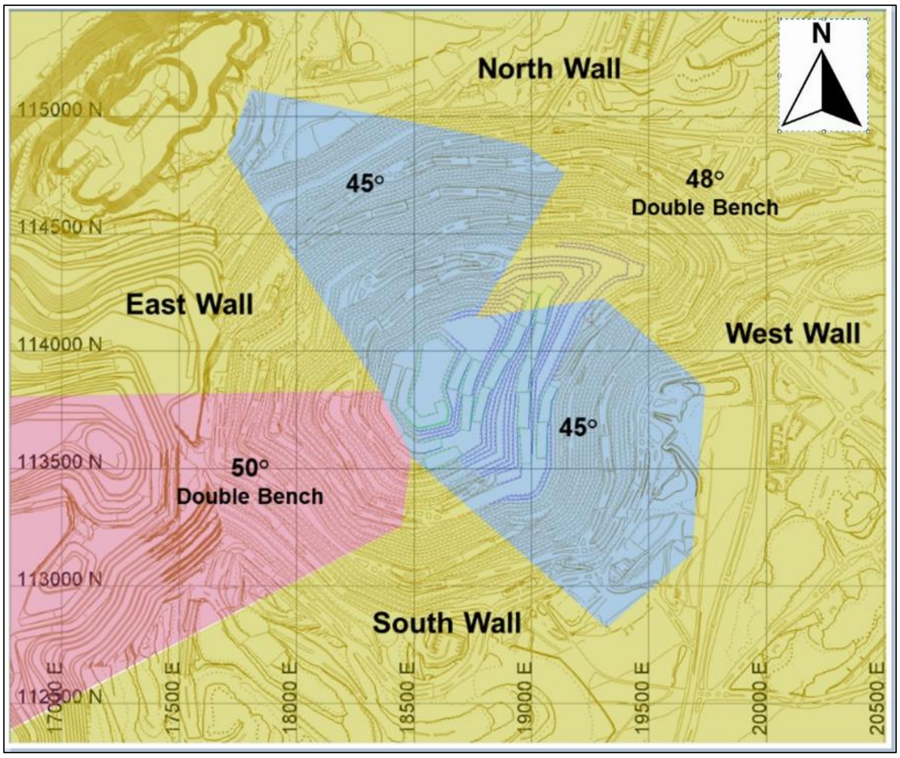
Design Parameters	Dimensions
Minimum mining width (pushback)	150 m
Escondida pit bench height	15 m (single benching)
Escondida Norte pit bench height	15 m (single benching) and 30m (double benching)
Bench face angle	70° (single benching) y 72° (double benching)
Haul road maximum grade	10%
Maximum curve radius	21 m
Haul road width	40 m
Inter-ramp angle	Variable by sector, based on geotechnical criteria
Berm width	Variable, according to inter-ramp angle and bench interval

Source: MEL (2022)



Source: MEL (2022)

Figure 13-3: Escondida Pit Operational IRA (ToR 23)



Source: MEL (2022)

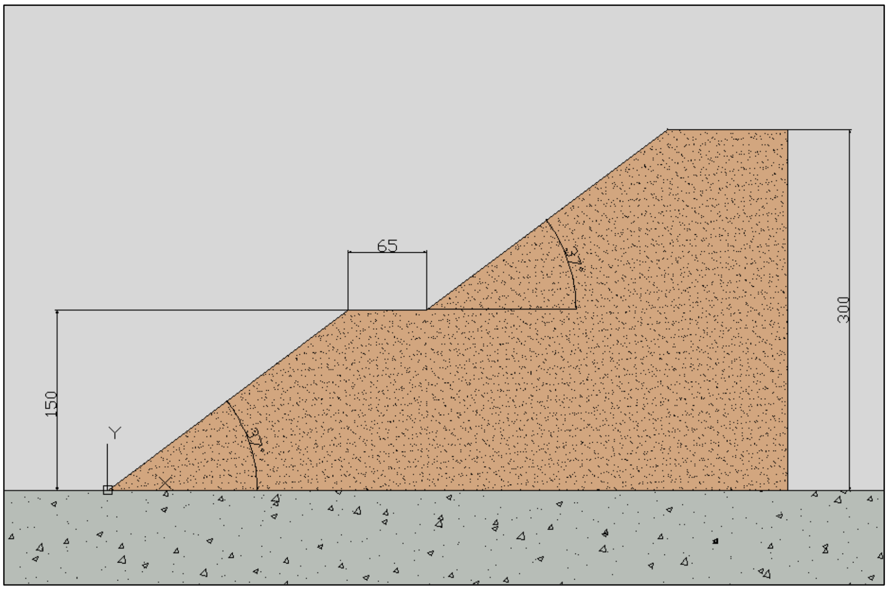
Figure 13-4: Escondida Norte Pit Operational IRA (ToR 23)

Waste dump designs are common throughout the operation and consider the building of dumps with two lifts of 150 m height each and berms of 65 m between each lift Figure 13-4. This results in waste dumps of 300m maximum height with slope angles of 37°. The design considers access ramps with a maximum gradient of 10%. A summary of the main assumptions for waste dump construction is shown in Table 13-2.

Table 13-2: Waste Dump Design Parameters

Design Parameters Value	Value
Face angle (angle of repose)	37 degrees
Waste material Density	1.8 tonnes/m^3
Access ramps	10% grade
Dump height maximum (each level)	150 m
Berm width between lifts	65 m
Maximum number of levels	2
Haul road width	40 m

Source: MEL (2022)

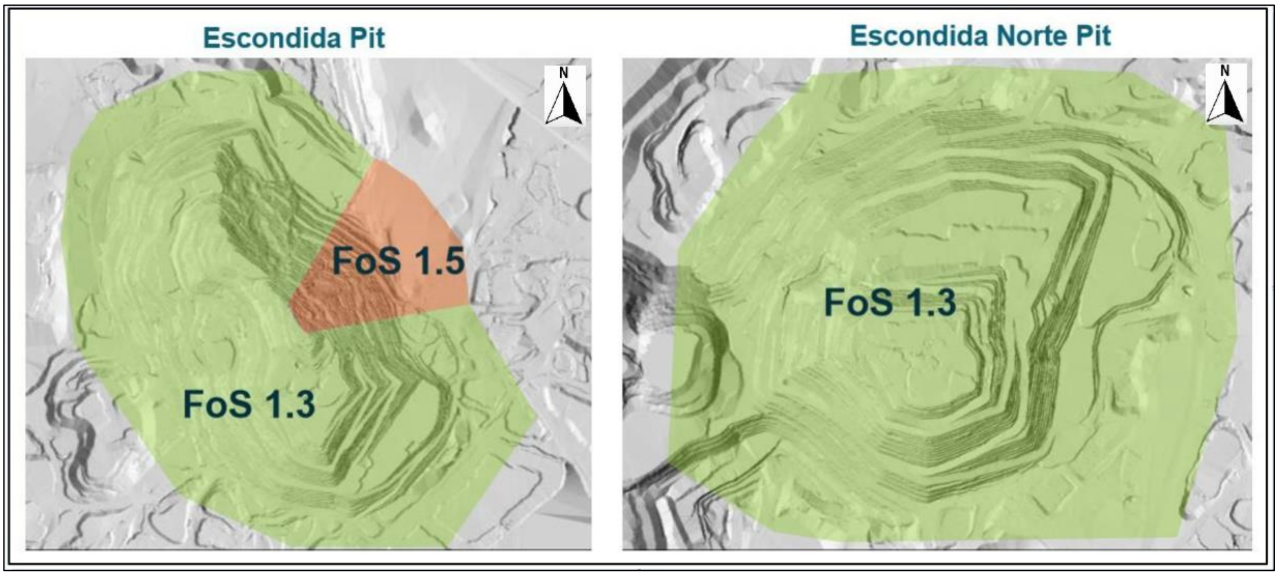


Source: MEL (2022)

Figure 13-5: Waste Dump Design Parameters

Design Acceptance Criteria for Pit Design

The occurrence of instabilities can occur at the bank, inter-ramp, or global level on a slope. Therefore, it is necessary to consider a criterion of acceptability that a slope must meet for its degree of stability to be considered acceptable. Usually, the acceptability criterion depends on the magnitude and consequences of an eventual instability of the slope considered, and is defined in terms of minimum or maximum permissible values for one or more of the following parameters: Factor of Safety (FoS), Safety Margin, Probability of Failure, reliability index, etc. In MEL, the most used parameter is the FoS, which corresponds to the ratio between the resistance of the material and the acting stress on it (a factor over 1.0 has a stable condition). The FoS of both pits can be seen in Figure 13-6.



Source: MEL (2022)

Figure 13-6: Factor of Safety Criteria for Pit Design

13.3.2 Hydrological Models

The Escondida pit is located inside the basin of the Salar de Hamburgo, in its western sector, at an elevation of 3,000 m amsl. The climate corresponds to marginal desert height, with average sporadic rainfall of 19.3 mm/year, and high evaporation rates of the order of 2,136 mm/year, resulting in negligible natural recharges. The basin has no permanent surface water courses, nor surface groundwater outcrops. The flow of natural groundwater occurs through the sedimentary deposits of the Hamburgo Salt Flat basin, formed, mainly gravels and sands of varied selection and degree of consolidation and through the underlying fractured rock consisting of andesitic rocks, which are intruded by the granodioritic intrusive complex.

Groundwater flow would be controlled primarily by major NW-SE and N-S orientation faults, which would act as preferential conduits for water circulation. They would also exert a hydrogeological control, less pronounced, the contact of the primary mineralisation with other mineralisation units, and the areas of the igneous rocky massif (volcanic and intrusive) of greater fracturing, found mainly in the primary mineralisation, characterised by the geotechnical parameter RQD (designation of rock quality). With these parameters eight Hydrogeological Units (UHs) of the pit rock massif are defined, as shown in Table 13-3.

Table 13-3: Hydraulic Parameters UH

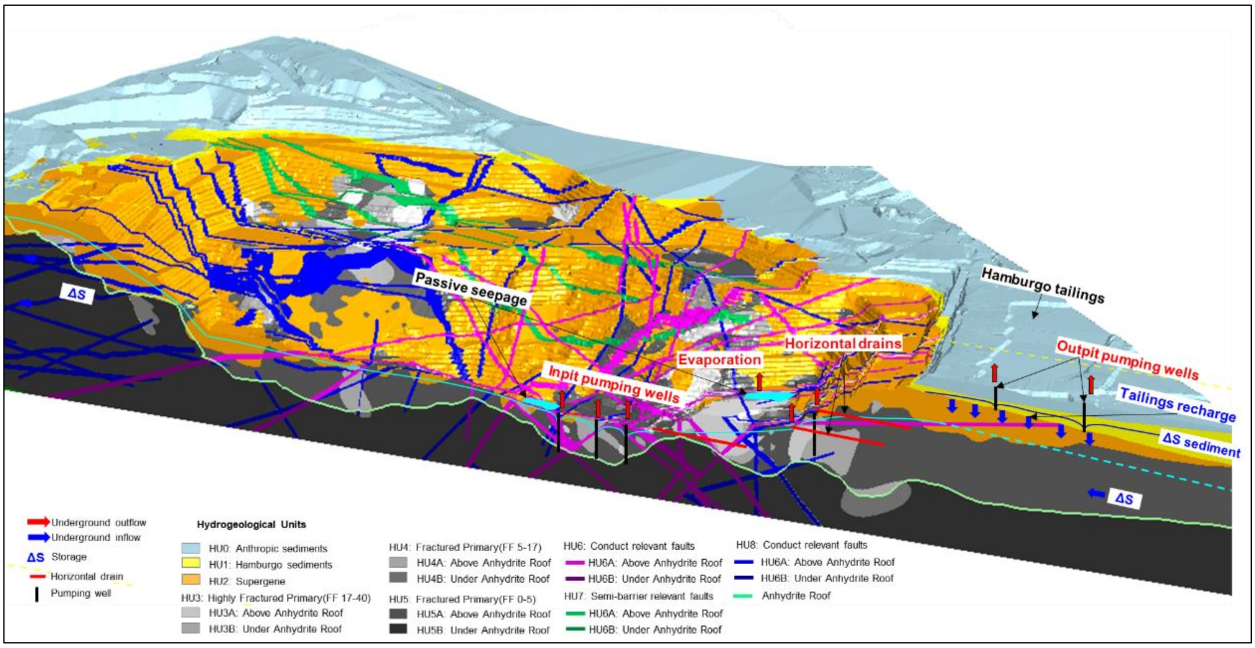
Description UH	Permeability K (m/s)	Specific Porosity (%)
UH0 Anthropic deposits	$1E^{-06}$ - $4E^{-04}$	21
UH1 Hamburgo sediments	$6E^{-08}$ - $6E^{-05}$	0.1 – 12
UH2 Supergene and Leaching	$1E^{-09}$ - $4E^{-06}$	0.05
UH3 Severely fractured primary (FF 17-40 1/m)	$2E^{-09}$ - $1E^{-07}$	1-5
UH4 Fractured primary (FF 5-17 1/m)	$1E^{-10}$ - $5E^{-08}$	0.05
UH5 Poorly fractured primary (FF 0-2 1/m)	$3E^{-11}$ - $4E^{-08}$	0.01
UH6 Relevant conducted failures	$1E^{-11}$ - $4E^{-07}$	0.01
UH7 Relevant Faults Partial Barrier	$3E^{-11}$ - $4E^{-08}$	0.01
UH7 Other faults	$1E^{-11}$ - $4E^{-07}$	0.01

Source: MEL (2022)

The excavation of the Escondida pit has generated a cone of depression that has modified the natural groundwater regime, inducing a radial flow into the mining excavation. Two piezometric levels are detected, one more shallow around 3,000 m amsl, contained in the UH2 and a deeper one linked to the primary rock that has heights between 2850 and 2,550 m amsl at the bottom of the pit.

The flow of groundwater manifests itself in the pit as passive outcrops and as a saturated zone on the slopes, hindering efficiency in the development of the mining plan, both in the safety aspect, associated with the geotechnical stability of the slopes, and in the operational aspect, hindering the process of blasting and loading of material in the fronts of advance of the pit.

A diagram of the Escondida hydrogeological model can be seen in Figure 13-7.



Source: MEL (2022)

Figure 13-7: Escondida Hydrogeological Model

The water balance of the Escondida pit is composed of the following elements:

- Input flows:
  - Anthropic refills: Corresponds to the infiltration by seepage from the pool 400x400 that reach the pit, combined with the flow of groundwater generated by the residual recharge produced from the original tailings deposit in the Hamburgo basin. The magnitude of these components is estimated to reach the order of 25 L/s. Within this flow, the possible infiltration from other mining infrastructure near the pit such as the Los Colorados plant is also considered.
  - Precipitation: It is estimated that the recharge by precipitation is negligible, considering that the estimated average annual precipitation and evaporation for the Hamburgo basin are 19.3 and 2,136 mm/year, respectively.
- Output flows:
  - Evaporation: There are no measurements or land estimates of the magnitude of the passive outcrops in the pit; however, this was estimated based on hydrological studies of the area that the magnitude of evaporation losses could reach 10 L/s.
  - Pumping wells: This component corresponds to the pumping flow extracted by the depressurisation and drainage system which is of the order of 22 L/s.
  - Horizontal drains: This component corresponds to the flow drained passively by the drains of the depressurisation and drainage system, which is of the order of 15 L/s.

- Drainage tunnel: This component corresponds to the flow of groundwater captured by the drainage tunnel, which is of the order of 5 L/s.
- In this way and as reflected in Table 13-4, the variation of the storage is of the order of 30 L/s.

Table 13-4: Escondida System Water Balance

Inflows (L/s)		Output flows (L/s)	
Anthropic refill	25 ± 4	Evaporation passive outcrops	10 ± 2
		Pumping wells	22 ± 4
		Horizontal drains	15 ± 3
		Drainage tunnel	5 ± 1
TOTAL	25 ± 4	TOTAL	52 ± 10

Source: MEL (2022)

The Escondida Norte pit is located on the northern limit of the Hamburgo Salar watershed, about 140 km southeast of Antofagasta, at an average elevation of 3,200 m amsl.

At the district level, the Basin of the Salar de Hamburgo is composed of a series of sedimentary deposits of varied consolidation, mainly gravels and sands with different proportions of fines in their matrix, which are arranged by overlaying both porphyry rocks that make up the ore deposit, as well as ancient volcanic and sedimentary rocks that host the intrusions.

The Hamburgo Salt Flat basin is characterised by a marginal desert climate of height, with sporadic rainfall of the order of 19.3 mm/year, and high evaporation rates of the order of 2,136 mm/year. It has no surface water courses, nor natural groundwater outcrops; only a few ravines on the western slope of the Domeyko Mountain Range have sparse vegetation.

In its natural condition, that is, prior to any anthropic intervention in the basin, the direction of the underground flow occurred mainly in the direction of the West of the basin, following a hydraulic gradient of low magnitude finally discharging towards the end of the West limit. MEL's operations modified both the magnitude and direction of groundwater flow that occurred in natural condition (due to the excavation of the pits, as well as the generation of anthropic recharge from mining infrastructure built in the basin). Of these in the vicinity of the Escondida Norte pit, the sub terrestrial flow is radial towards the centre of it.

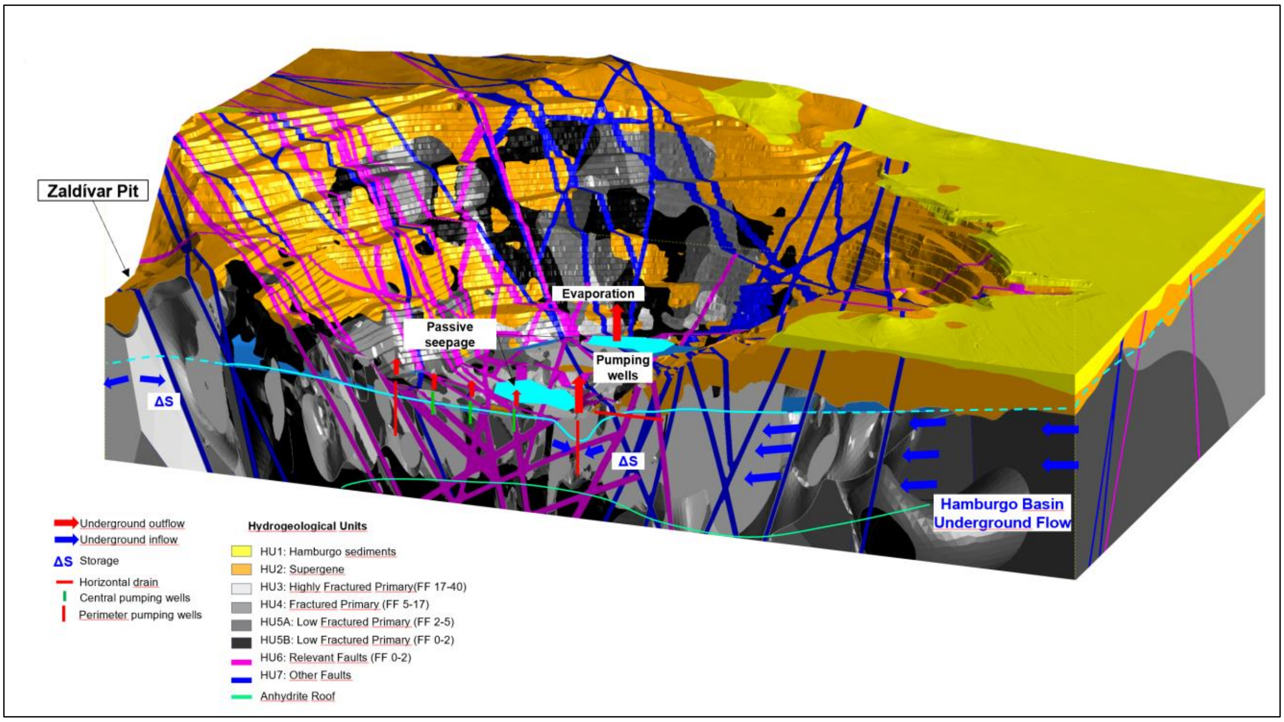
The hydrogeological units are defined in the fractured rock mass, associated with the unconsolidated deposits that fill the Hamburgo basin and that are defined as gravels. The description of the hydrogeological units is included in the Table 13-5.

A diagram of the Escondida Norte hydrogeological model can be seen in Figure 13-8.

Table 13-5: Hydrogeological Units of Escondida Norte

Hydrogeological Unit	Description	Permeability K (m/s)	Porosity Sy (%)
UH1	Hamburgo sediments	$6E^{-08}$ - $6E^{-05}$	0.1-12
UH2	Supergene and Leaching	$4E^{-10}$ - $5E^{-06}$	0.05
UH3	Severely fractured primary (FF 17-40 1/m)	$8E^{-10}$ - $2E^{-06}$	1-5
UH4	Fractured primary (FF 5-17 1/m)	$3E^{-09}$ - $6E^{-07}$	0.05
UH5A	Poorly fractured primary (FF 0-2 1/m)	$1E^{-10}$ - $3E^{-08}$	0.01
UH5B	Poorly fractured primary (FF 2-5 1/m)	$1E^{-10}$ - $3E^{-09}$	0.01
UH6	Relevant Faults	$6E^{-09}$ - $3E^{-06}$	0.01
UH7	Other faults	$6E^{-09}$ - $3E^{-06}$	0.01

Source: MEL (2022)



Source: MEL (2022)

Figure 13-8: Escondida Norte Hydrogeological Model

The water balance of the Escondida pit is composed of the following elements, as discussed below.

Inflows

- Groundwater flow from the Hamburgo Salt Flat basin: Corresponds to the flow of groundwater coming from the district environment of the Escondida Norte pit, mainly from the upper part of the basin (east and south of the pit) and from its middle zone, where the Escondida pit and the Hamburg well field are located. It is estimated that the underground flow from the west and north of the Escondida Norte pit would be lower, due to the effect of the Zaldivar pit and the low underground flow expected at the upper limit of the basin, respectively. The estimates that the magnitude of the groundwater flow from the Hamburgo basin could be in a range between 19 L/s, which would come mainly from the east and south of the Escondida Norte pit.
- Precipitation: It is estimated that the recharge by precipitation is negligible, considering that the estimated average annual precipitation and evaporation for the Hamburgo basin are 19.3 and 2,136 mm/year, respectively.

Output flows

Evaporation: There are no measurements or ground estimates of the magnitude of passive outcrops in the pit, however, this was estimated to reach 8 L/s

- Pumping wells: This component corresponds to the pumping flow extracted by the pit drainage system. The average monthly pumping flow rate is in the order of 20 L/s.
- Horizontal drains: This component corresponds to the flow generated by the horizontal drains. The flow rate was found in the order of 5 L/s.

In this way and as reflected in the table the variation of the storage is of the order of 14 L/s.

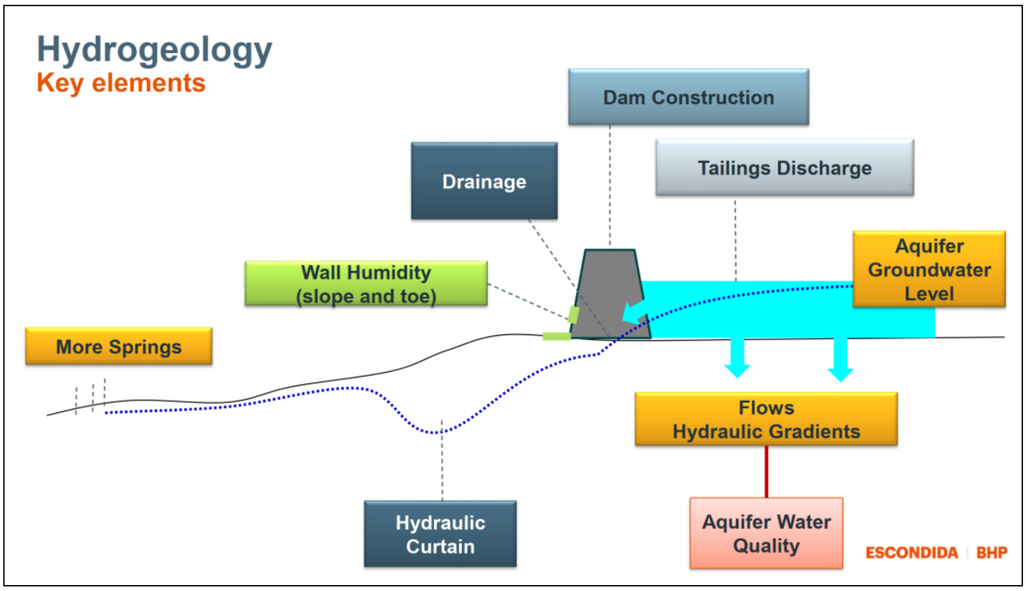
Regarding the hydrogeology of the tailings dam, currently in operation, (Tailing Laguna Seca) it is located in the hydrological basin called Laguna Seca, approximately 15 km southwest of the Escondida pit. This basin is endorheic in nature without the presence of surface runoff, given the arid conditions of the area.

Table 13-6: Escondida Norte System Water Balance

Inflows (l/s)		Output flows (l/s)	
Lateral flow	19	Evaporation passive outcrops	8
		Pumping wells	20
		Horizontal drains	5
TOTAL	19	TOTAL	33

Source: MEL (2022)

From the hydrogeological point of view, although in the centre of the basin under the basin of the tailing, there are sediments with storage potential and flow of groundwater, the underground discharge of the basin, occurs to the west through fractured rock units, mainly by the sector where the Tailing wall is currently located (Figure 13-9).



Source: MEL (2022)

Figure 13-9: Laguna Seca Tailing Storage Facility Hydrogeological Model

13.3.3 Mine Design Parameters

Mine planning at MEL follows the typical standards for open pit mining. The processes include:

- Revision of dilution and recovery factors
- Development of a value for each of the blocks in the model
- Perform pit optimisation and select optimal pit shell to be used for the basis of the ultimate pit design
- Ultimate pit design
- Develop pushback/phase designs
- Develop mine planning targets and constraints

The ultimate pit shell selected from the pit optimisation process was used as a guide to develop a more detailed design. The resulting pit design was referred to as the operational pit. The operational pit was also limited by the following constraints:

- Mining restrictions, including legal and environmental impacts
- Overall slope angle
- Operational design characteristics, including ramp locations and grades, OSF locations, mining width and height, and other practical mining considerations given the mine geometry.

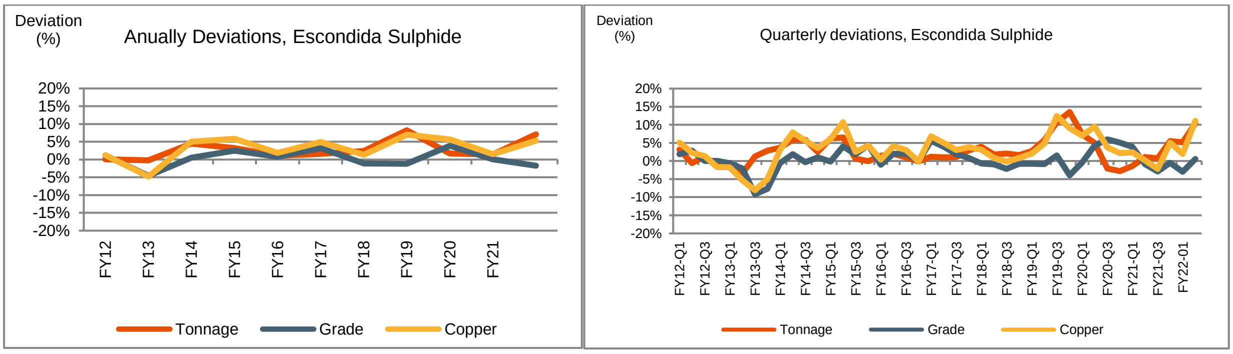
The mine design criteria are listed below:

- Surface mining approach
- Minimum operating width of 80 m
- Haul road design width of 40 m
- Bench height of 15 m
- Maximum road grade of 10%
- Bench face angle and catch berms vary based on geotechnical sector
- Typical blasting grid ranging from 7x7 until 11x14m
- Final wall Control Drill Pattern 2.0, 2.5 and 3.0 m depending on sector
- Blasthole diameter of 6.1/2, 9, 10 5/8 and 12 inches
- Rock density average of 2.5

13.3.4 Dilution, Loss, and Mine Recovery

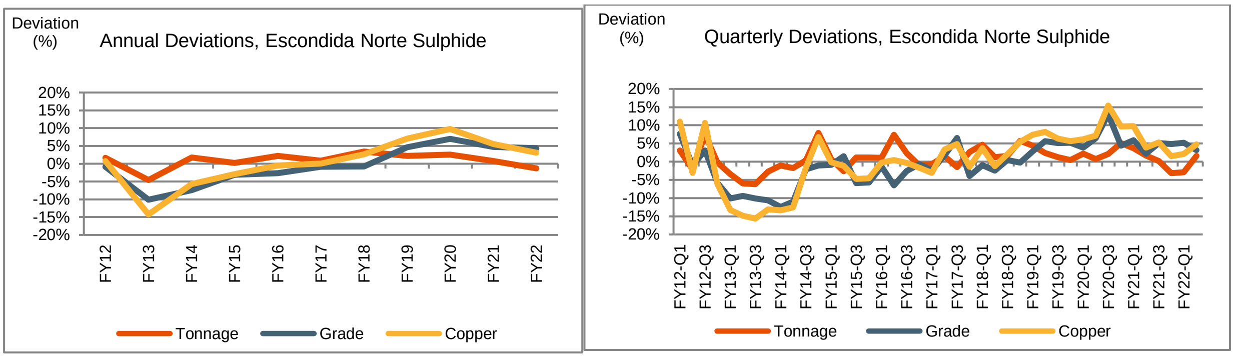
A dilution of 0% was applied to the schedule and Mineral reserves estimate. It is the opinion of the QP for mineral reserves that with the current practices at MEL no ore loss or mining dilution is required as the resource model has been reconciled to actual mining production. This conclusion is based on the results of a reconciliation between the geological resource model and actual mine production. The results of the reconciliations are provided below in Figure 13-10 and Figure 13-11.

Based on the previous analysis, there is a high effectiveness of the measured mineral resource in adhering to its current definitions used during the resource classification process. Figure 13-10 and Figure 13-11 shows the historical adherences to tonnage, grade and copper productions which is the basis of assuming zero dilution.



Source: MEL (2022)

Figure 13-10: Escondida Sulphide Annual and Quarterly Deviations

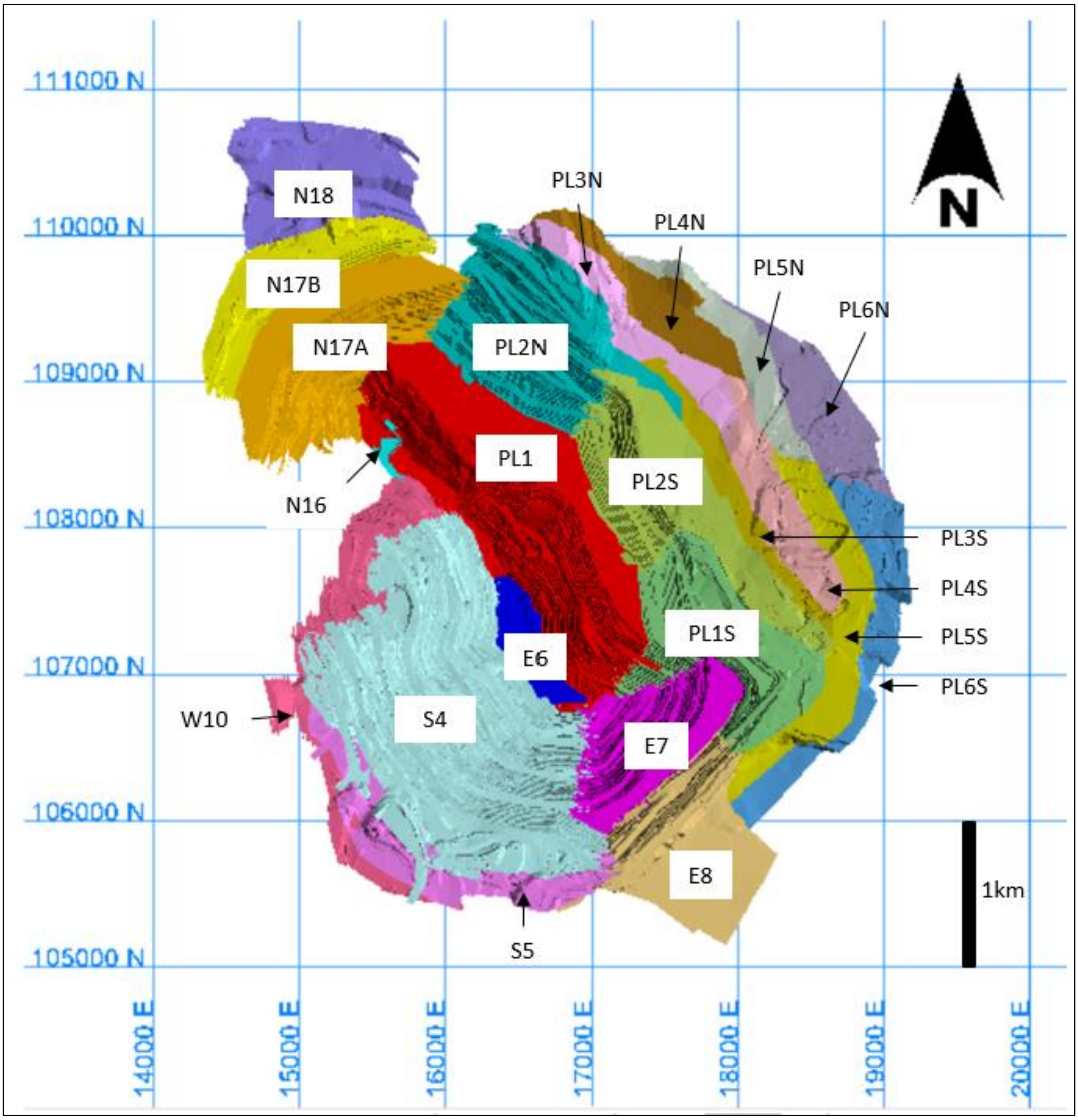


Source: MEL (2022)

Figure 13-11: Escondida Norte Annual and Quarterly Deviations

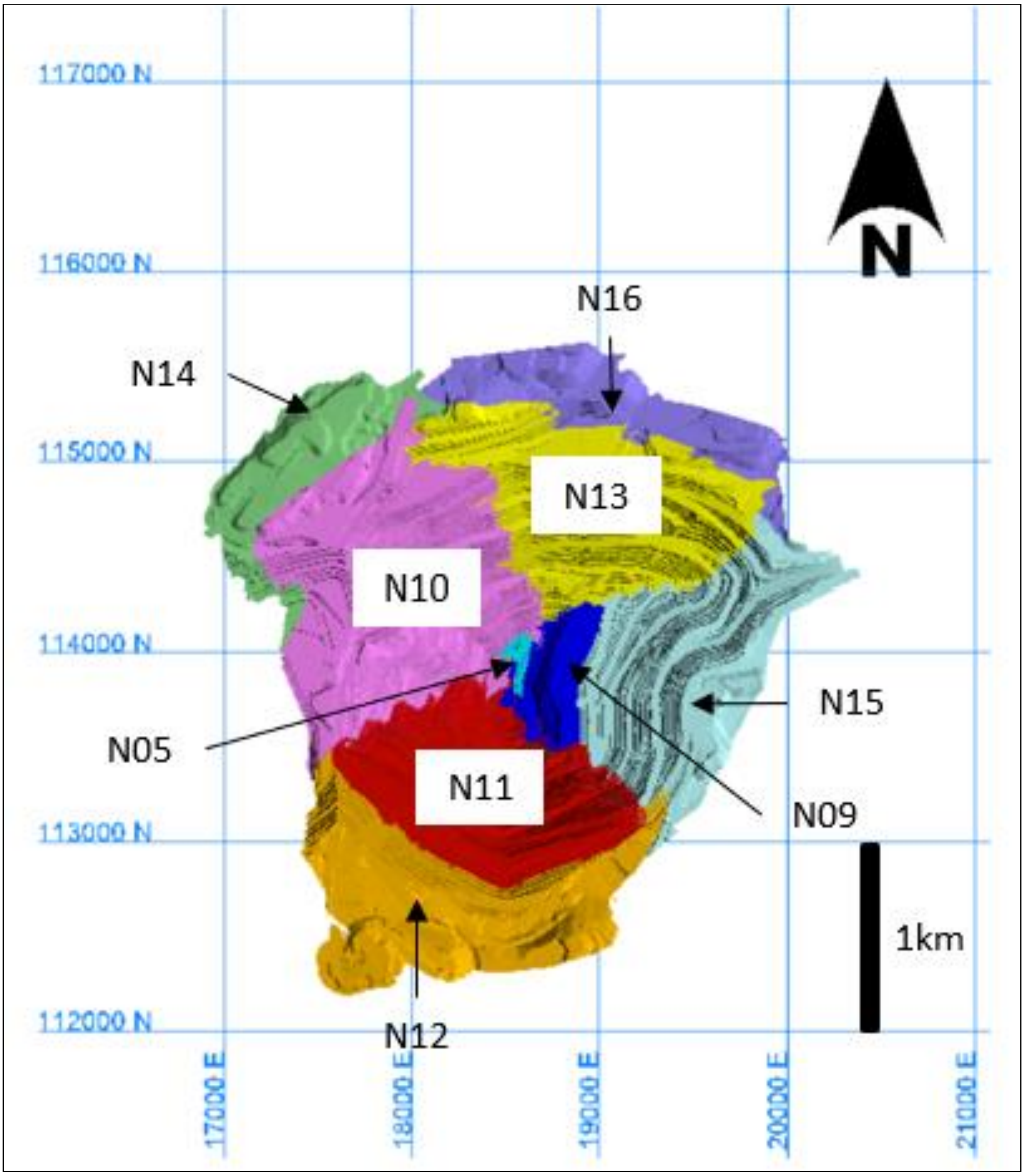
13.3.5 Mining Pushbacks

The operation mine plan consists of 22 pushbacks in the Escondida Pit (Figure 13-12) and nine (9) pushbacks in the Escondida Norte Pit (Figure 13-13).



Source MEL (2022)

Figure 13-12: Escondida Pit Pushbacks



Source: MEL (2022)

Figure 13-13: Escondida Norte Pit Pushbacks

13.3.6 Mining Strategy and Production Rates

The SEC LOM mine plan results in a mill feed rate of about 149 Mtpa of Mill Feed until FY27 (when the SEC LOM plan has Los Colorado's concentrator finishing) and approximately 91 Mtpa over the remainder of the LOM Schedule. An average feed rate of 74 Mtpa of Sulphide Bio Leach Ore and 20 Mtpa of Acid Leach Ore with the LOM mine plan averaging an annual total movement of 380 Mtpa. It should be noted that production rates presented in this section, as discussed in the Note Regarding Forward-Looking Statements (see page ii), have been prepared using commodity prices and costs which are different to those that have been employed in the preparation of BHP's production guidance. Therefore, the production rates presented herein may differ significantly from the assumptions utilized in determining BHP's production guidance published in accordance with ASX Listing Rules.

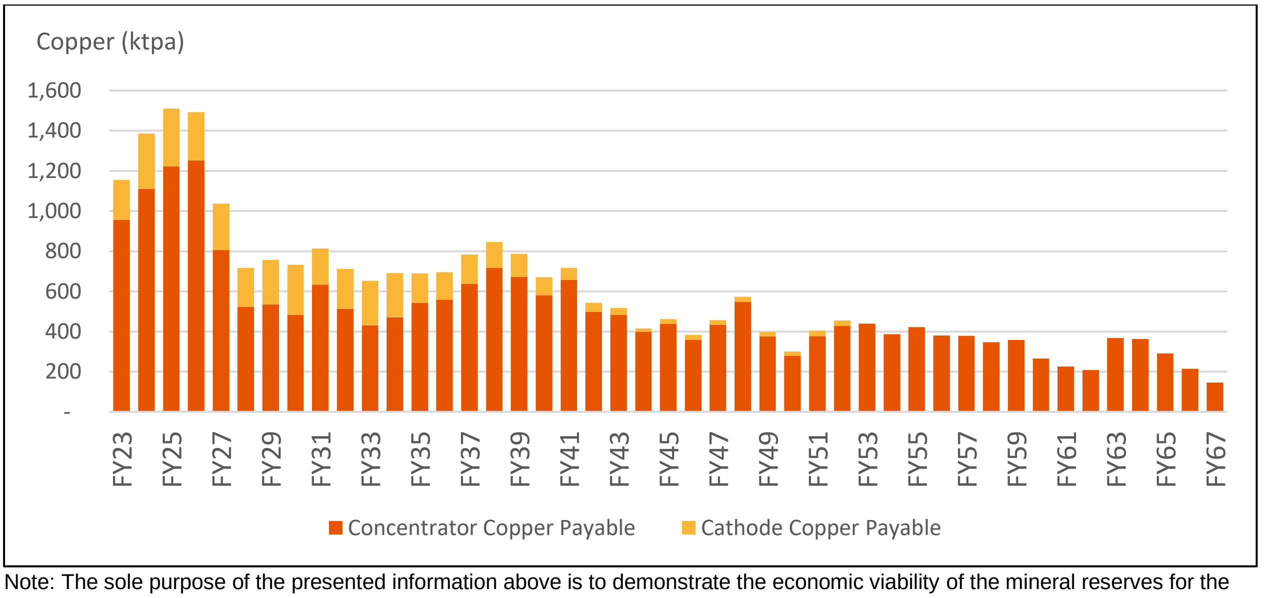
Other considerations to the mine planning process are:

- Maximum extraction rate for each pit as conditioned by mine fleet and performance
- Extraction rates are conditioned by operational restrictions of specific pushbacks
- Equipment availability for stockpile movement and re-handling
- Maximum capacity of the primary crushers for each individual process and pit
- The overall crusher-conveying system capacity
- The concentrator feed programme including throughput rates and operating hours
- Applicable blending restrictions for both leaching processes

13.4 Production Schedule

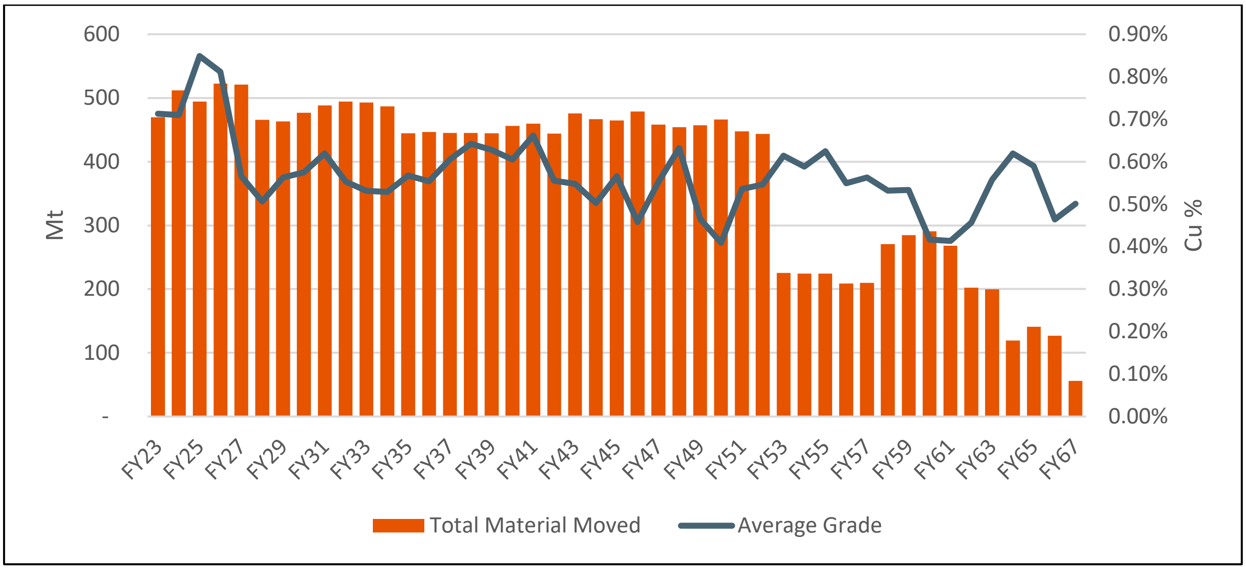
The effective date of the mine plan for reserves estimation (the LOM Plan) is 1st July 2022 (start of FY23). A summary of the LOM Plan production is found in Figure 13-14, total movement and ore grade is shown in Figure 13-15.

It should be noted that production schedule presented in this section, as discussed in the Note Regarding Forward-Looking Statements (see page ii), has been prepared using commodity prices and costs which are different to those that have been employed in the preparation of BHP's production guidance. Therefore, the production schedule data included herein is based upon pricing and cost assumptions that differ significantly from the assumptions utilized in determining BHP's production guidance published in accordance with ASX Listing Rules.



Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

Figure 13-14: SEC Annual Production by Process (ktpa)



Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

Figure 13-15: Total Material Movement (Mt) and Average Grade

13.5 Production Rates and Mine Life

The Life of Mine (LoM) plan is optimised using a Net Present Value methodology described in detail in Chapter 19. The total movement is largely driven by ensuring the concentrators have consistent supply of ore, as well as, but to a lesser degree, ensuring a consistent supply of ore to the leaching processes.

The average production of the LOM Plan for MEL is expected to be 610 Ktpa over the 44-year Reserve life. The concentrators are operational over the mine life, however the Oxide ore is expected to be exhausted in FY34 resulting in the closure of the Oxide leaching. The Sulphide leach pad is expected to be completed in FY52 when the leach pile reaches it design limits. The production schedule data included herein is based upon pricing and cost assumptions that differ significantly from the assumptions utilized in determining BHP’s production guidance (see Note Regarding Forward-Looking Statements page ii).

13.6 Equipment and personnel

All major equipment at MEL is owner operated. The primary loading units are electric shovels, with the primary haulage units consisting of CAT 797 / 793 trucks as well as Komatsu 930 and 960. Front end Loaders and small excavators also assist with loading. An overview of all equipment in FY23 can be seen in Table 13-7. Equipment replacement is assumed to be like for like once equipment reaches the end of its operational life.

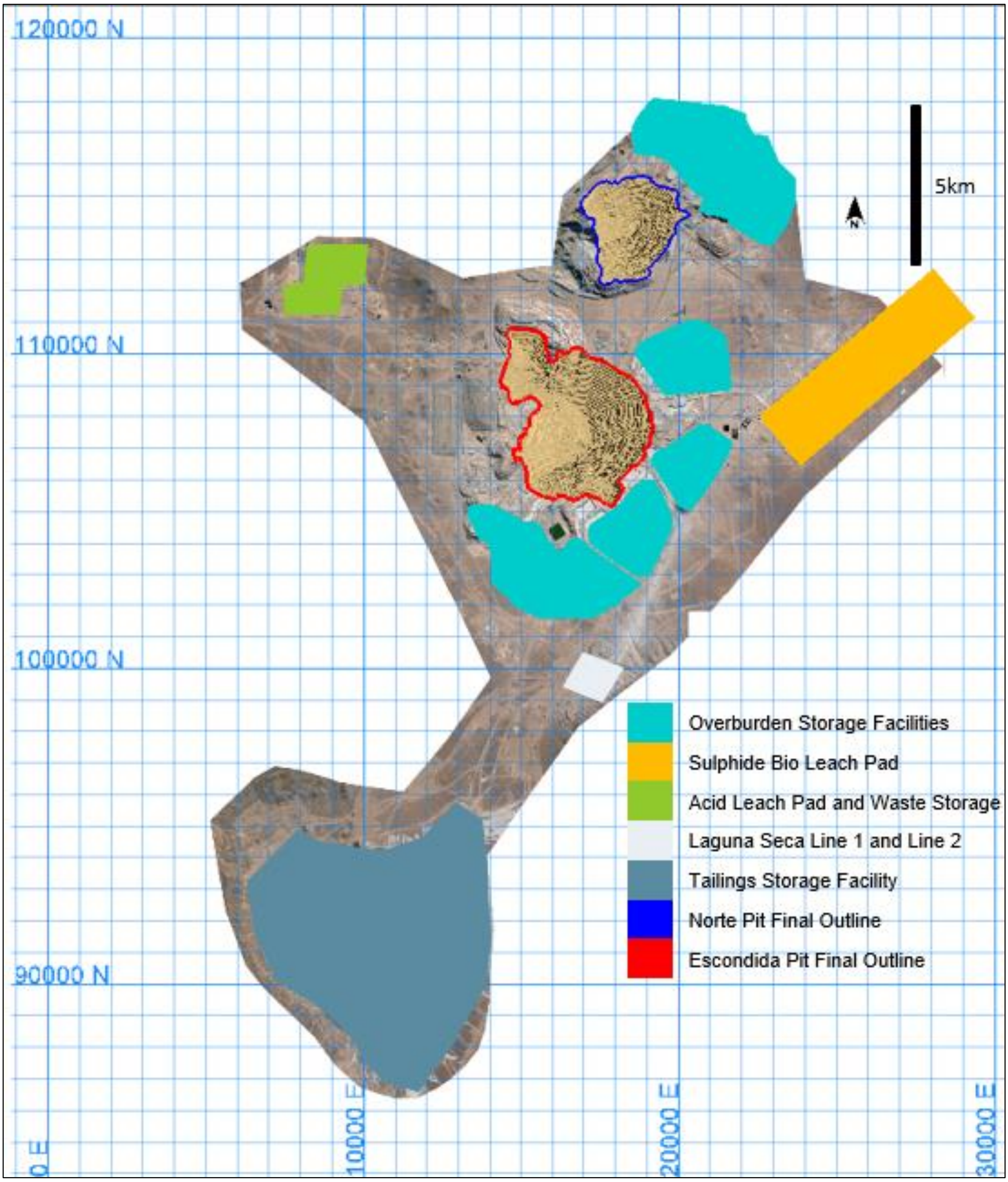
Table 13-7: Mine equipment distribution FY23

Equipment	Fleet	#	Equipment	Fleet	#
Trucks	Caterpillar 797	114	Drills	Electric	5
	Caterpillar 793	7		Diesel	9
	Komatsu 930	3		Pre-split	5
	Komatsu 960	43	Ancillary	Motorgrader	9
Electric Shovel (73yd^3)	P&H	8		Watertruck	12
	Bucyrus	8		Wheeldozer	16
Hydraulic Shovel	Komatsu	2		Bulldozer	16
Front End Loader	Komatsu	3		Cable Reeler	10

Source: MEL (2022)

13.7 Final Mine Outline

Final pit outline of MEL's open pits can be seen in Figure 13-16.



Source: MEL (2022)

Figure 13-16: Final Pit outlines of the MEL mining operations

14 Processing and Recovery Methods

The dominant type of copper mineral in both the Escondida and Escondida Norte deposits consists of copper sulphides: these sulphides are secondary (or enriched) sulphides such as chalcocite and covellite, along with the primary (or hypogene) copper sulphide chalcopyrite. In addition, there are lesser oxide copper minerals which include a range of copper bearing species such as brochantite, chrysocolla and antlerite. These copper mineralised species present an overall zonation that is related to the genesis of the deposits, as described in Chapter 6.

The copper oxides are generally soluble, or part soluble, in acidic solutions (sulphuric acid). In contrast, the copper sulphide species, particularly chalcopyrite, is refractory to acid solutions at ambient temperatures, with chalcocite being moderately soluble and covellite less soluble. This mixture of copper minerals, and distribution within the overall deposits, is typical of what are termed “Secondary Enriched Copper Porphyry”.

Because of the fundamental metallurgical response of this range of minerals, combined with the spatial distribution of general, but not pure, zones of the various copper minerals, the characteristics of the mineral resources have made it possible to define three main primary product lines:

- Concentration of supergene and hypogene sulphides by grinding and conventional froth flotation to produce a copper rich sulphide concentrate. Over time within the operation, sulphide concentration has moved from secondary sulphides to hypogene sulphides.
- Acid leaching of crushed oxide minerals (“heap” leaching) to then produce copper cathodes by solvent-extraction and electro-winning (SX-EW).
- A third process, which is also leaching but uncrushed material in “run of mine” (ROM) pads, employs acid bioleaching of lower grade secondary sulphide material that is below sulphide concentrator cut-off, which also produces copper cathodes SX-EW.

MEL receives economic benefits from the gold and silver recovered in copper concentrate as by-products. When present, these by-product metals are not recovered in leaching process.

14.1 Process Plant

The company's basic infrastructure comprises two open-pit mines, three concentrator plants (comprising milling, grinding, flotation and thickening), an acid heap leach pad facility (on/off heap leach - oxides), a ROM bioleach pad facility (permeant dump leach - sulphides) and a solvent-extraction and electro-winning plant producing copper cathodes from both leach facilities.

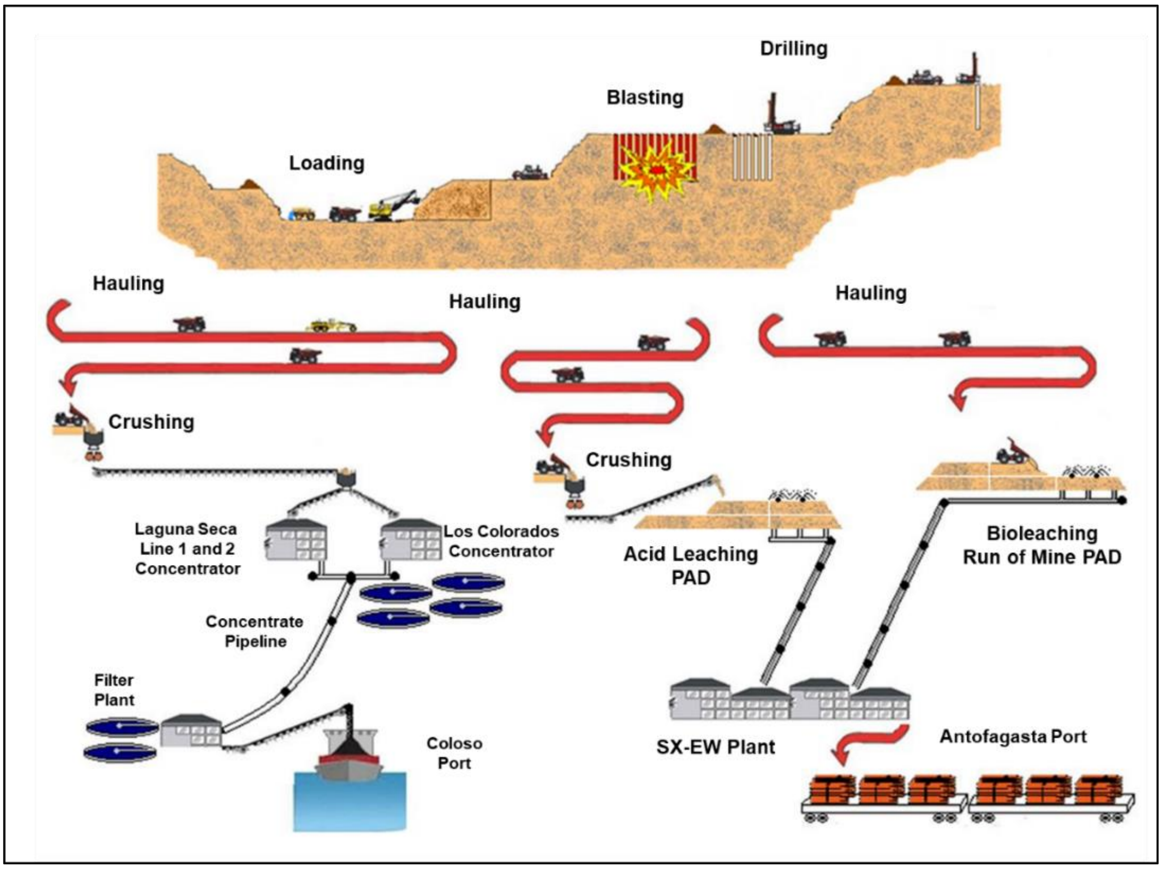
Copper concentrate is transported through two pipelines to the filtration plant, located at the coast in Coloso port, where it is loaded for shipping to end customers. The copper cathodes are transported to the Antofagasta port of Mejillones from where they are shipped to customers (Figure 14-1). In terms of metal tonnes, the copper contained in concentrate represents approximately 70 % of sales while the copper cathodes production represents approximately 30% of sales. This ratio changes over the life of mine.

14.2 Plant Throughput and Design, Equipment Characteristics and Specifications

14.2.1 Primary Crushing

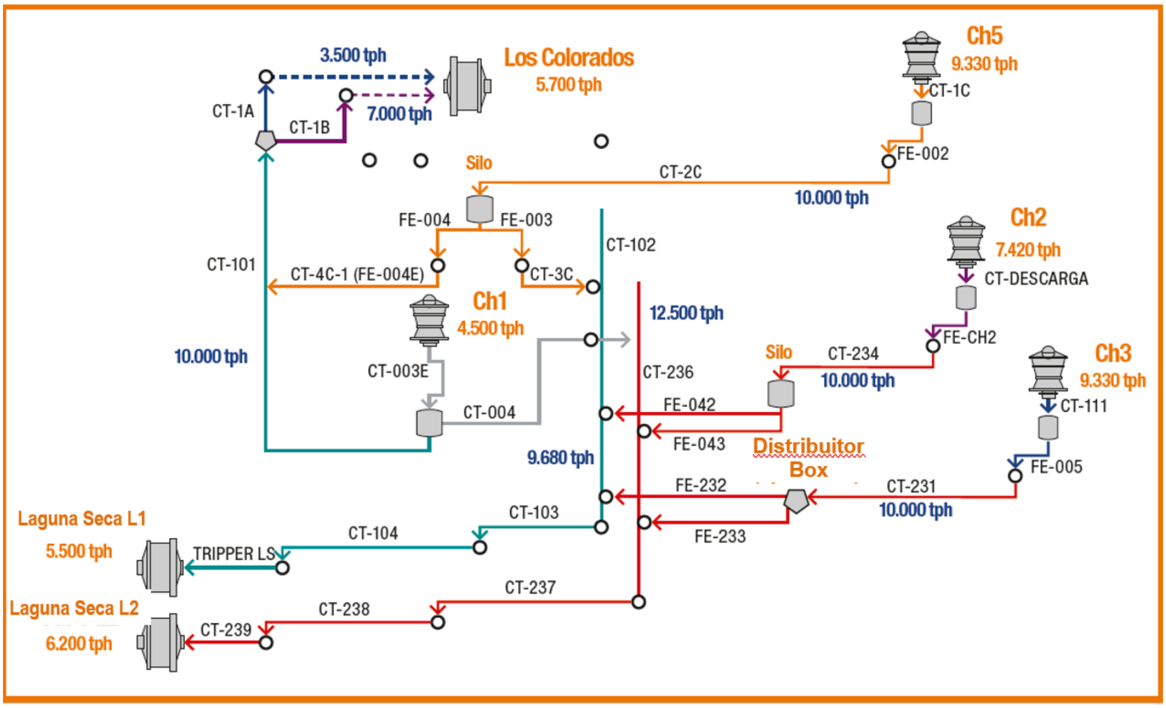
The main objective of the primary crushing stage is to generate particles of suitable size and shape to enables the material handling on conveyor belts that feed the stockpiles for the processes.

In the case of high grade sulphides, mixed and oxides the blasted ore is transported by trucks to the primary crushers. Low grade sulphides, under the cut-off for concentrators, goes to Bioleaching process which receives only run-of-mine blasted ore. A general flowsheet for the primary crushers which feed concentrators is observed in Figure 14-2, the specifications for main conveyor belts and ancillary equipment are presented in Table 14-1 and Table 14-2.



Source: MEL (2022)

Figure 14-1: Schematic of MEL Infrastructure



Source: MEL (2022)

Figure 14-2: Primary Crusher System for Concentrators

Table 14-1: Primary Crushers Specifications

Equipment	Manufacturer	Specification (inches)	Capacity (tph)	Power (HP)	Ore-Type Treated	Ore-Type / Possible Destination
Crusher 1	Allis Chalmers	54x74	4,500	1,000	High-Grade Sulphides	Laguna Seca L1
Crusher 2	Fuller	60x89	7,420	1,000	High-Grade Sulphides	Los Colorados, Laguna Seca L1, Laguna Seca L2
Crusher 3	Fuller	60x113	9,330	1,000	High-Grade Sulphides	Los Colorados, Laguna Seca L1, Laguna Seca L2
Crusher 4	Fuller	60x89	5,000	1,000	Oxides	Secondary Crushing at Acid Leaching
Crusher 5	Fuller	60x113	9,330	1,000	High-Grade Sulphides	Los Colorados, Laguna Seca L1

Source: MEL (2022)

Table 14-2: Conveyor Belts and Equipment Specifications at Primary Crushing System

Area	Equipment	Width (mm)	Length (m)	Capacity (tph)
Crusher 1	Crusher			4,500
	CT-Fino	2,590	58	4,500
	CT-Descarga	2,438	90	4,500
	CT-003	1,219	170	4,500
Crusher 2	Crusher			7,420
	CT-Descarga	2,794	210	7,500
	FE-3305	2,438	50	7,500
	CT-234	2,200	632	11,000
	FE-042	2,800	106	11,000
	FE-043	2,800	121	11,000
Crusher 3	Crusher			9,330
	CT-111	3,150	275	11,000
	FE-005	3,150	44	11,000
	CT-231	2,200	556	11,000
	CT-232	2,200	87	11,000
	CT-233	2,200	107	11,000
Crusher 4	Crusher			6,000
	FE-005	2,438	45	6,000
	CT-001	1,828	700	6,000
Crusher 5	Crusher			9,330
	CT-1C	3,150	350	10,000
	FE-002	3,150	44	10,000
	CT-2C	1,600	12,550	10,000
	FE-003	3,150	44	9,000
	CT-3C	1,828	145	9,000
	FE-004	3,150	44	10,000
	CT-4C	1,828	622	10,000
Overlands	CT-102	1,600	7,600	9,300
	CT-103	1,600	7,500	9,300
	CT-104	1,600	3,950	9,300
New Overlands	CT-236	1,800	7,075	12,500
	CT-237	1,800	8,442	12,500
	CT-238	1,800	4,005	12,500
	CT-239	2,200	581	12,500

Source: MEL (2022)

14.2.2 Concentration Process Description

The main product of Minera Escondida Ltd. consists of copper contained in a concentrate of copper and iron sulphides. This is currently produced by three plants located at the mine site to include; 1), Los Colorados; 2), Laguna Seca Line 1; and 3), Laguna Seca Line 2, which collectively have a total nominal capacity of 413,700 tpd of ore Table 14-3.

Table 14-3: Installed Capacity for Concentrators

Concentrator Plant	Installed Capacity (tpd)	Run Time (%)	Nominal Capacity (tpd)	Commissioning Year
Los Colorados	35,000 45,600 54,600 107,500 127,500	93.5	119,200	1990 1993 1994 1996 1998
Laguna Seca Line 1	135,000 150,000	95	142,500	2002 2012
Laguna Seca Line 2	160,000	95	152,000	2016
TOTAL			413,700	

Source: MEL (2022)

These run times are based on design criteria and were established by the process engineering considering vendor specifications. A general scheme for the concentration process is shown in Figure 14-3. It was designed to process only sulphide ores and consists of the following stages:

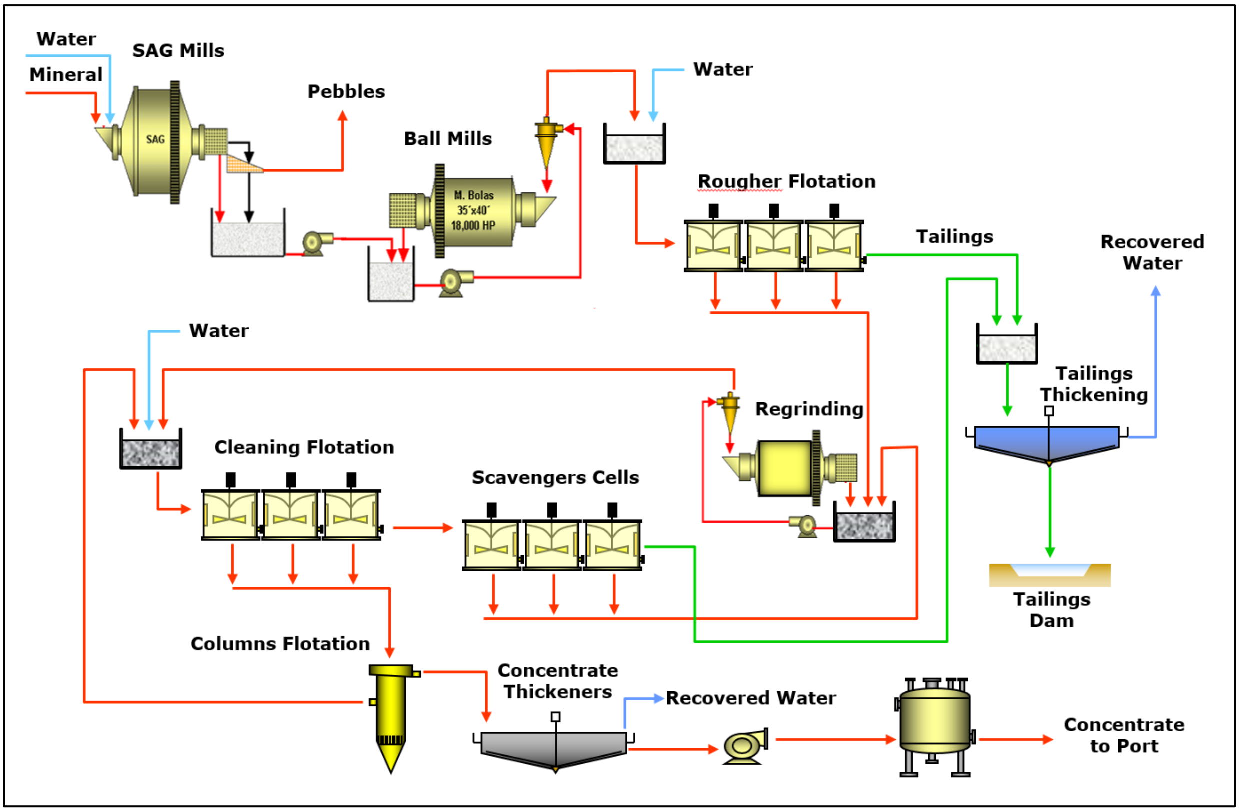
- Coarse ore Stockpile receiving crushed ore from primary crushers.
- Primary grinding is undertaken in SAG mills, operating in closed circuit with pebble crushing systems.
- Secondary grinding is undertaken in ball mills, operating in closed circuit with hydrocyclones.
- Rougher flotation cells.
- Cleaner flotation cells, operating in closed circuit with a regrind circuit.
- Concentrate dewatering in conventional thickeners.
- Tailings dewatering in thickeners.

The coarse ore is sent to primary grinding circuit which uses SAG mills. The SAG mill reduces the size of the ore from an average feed size of 10 cm to a product of about 5 cm in size. Next, the material is classified, and the coarse particle fraction is sent to the pebble crusher, while the fine material is sent to conventional ball milling process, which finally produces a fine product, below 150 microns, which is the target for particle size for flotation feed. These stages are necessary to ensure that the valuable sulphide minerals are liberated from the silicate gangue rock. The grinding processes are similar in the three plants. Only equipment dimensions are different.

In the flotation stage, the different physicochemical properties between the valuable copper minerals and the gangue are used to produce the separation, incorporating a series of chemical reagents. When air is injected into the system, the copper sulphide particles adhere to the bubbles, producing a froth in the flotation separation process. The froth is copper concentrate. The particles that do not float are eliminated as tailings. These are silicates and other gangue minerals, which includes some iron sulphides.

Primary, or rougher flotation, aims to maximize the recovery of valuable mineral species. Cleaning flotation stages have the purpose of eliminating impurities and improving the copper grade in the concentrate to achieve the final product grade. The scavenger cells reduce the losses in cleaner tailings. There are minor differences in the configuration of the flotation circuits at the three plants.

A simplified process flow diagram for the concentrators is included as Figure 14-3 and shows the major equipment. In addition, an equipment list for the plants is provided in Table 14-4.



Source: MEL (2022)

Figure 14-3: Schematic of MEL Concentrator Process

Table 14-4: Main Equipment list for Concentrator Process

Concentrator	Equipment	Manufacturer	Description	Quantity
Los Colorados	Stockpile		420,000 t Capacity 60,000 t Live	1
	Pebble Crusher	Symons	7 ft. Cone Short Head 750 HP	2
	SAG Mill		Single Pinion 24' x 14' (D x EGL) Westinghouse 6,300 HP Installed	2
	SAG Mill		Dual Pinion 36' x 19' (D x EGL) General Electric 19,440 HP Installed	1
	Ball Mill		Single Pinion 18' x 24.5' (D x EGL) Westinghouse 5,500 HP Installed	4
	Ball Mill		Single Pinion 20' x 35' (D x EGL) General Electric 9,000 HP Installed	2
	Ball Mill		Dual Pinion 26.4' x 36' (D x EGL) General Electric 14,000 HP Installed	1
	Rougher Flotation Cells	Outotec	100 m³ Capacity	80
	Rougher Flotation Cells	Outotec	300 m³ Capacity	10
	Scavenger Flotation Cells	Dorr-Oliver	44 m³ Capacity	130
	Cleaner Columns	Cominco	4 x 4 x 15 m	14
	Regrinding Mill		Single Pinion 14' x 26.5' (D x EGL) 2,750 HP Installed	3
	Concentrate Thickener	Dorr Oliver	52 m Diameter	2
	Tailing Thickener	Dorr Oliver	125 m Diameter	4
	Tailing Thickener	EIMCO	125 m Diameter	1
Laguna Seca Line 1	Stockpile		410,000 t Capacity 110,000 t Live	
	Pebble Crusher	Nordberg	MP-1000 1,000 HP	2

Concentrator	Equipment	Manufacturer	Description	Quantity
	SAG Mill	Fuller	Gearless 38' x 20' (D x EGL) 26,000 HP Installed	1
	Ball Mill	Fuller	Gearless 25' x 40' (D x EGL) 18,000 HP Installed	3
	Ball Mill		Gearless 26' x 41.5' (D x EGL) 21,000 HP Installed	1
	Rougher Flotation Cells	Wemco	160 m³ Capacity	72
	First Cleaner Flotation Cells	Wemco	160 m³ Capacity	25
	Cleaner – Scavenger Flotation Cells	Wemco	160 m³ Capacity	20
	Second Cleaner Flotation Column Cells		Microcell 4.5 m Diameter	10
	Regrinding Mills		Tower Mills 1,500 HP	5
	Concentrate Thickeners	Delkor	42.7 m Diameter	2
	Tailings Thickeners	EIMCO	125 m Diameter	3
Laguna Seca Line 2	Stockpile		297,000 t Capacity 146,000 t Live	
	Pebble Crusher		1,000 HP	2
	SAG Mill		Gearless 40' x 26' (D x L) 32,200 HP Installed	1
	Ball Mill		Gearless 26' x 42.5' (D x L) 21,000 HP Installed	4
	Rougher Flotation Cells	Outotec	300 m³ Capacity	49
	Scavenger Flotation Cells	Outotec	300 m³Capacity	21
	Rougher Column Flotation Cells		Microcell 4.5 m Diameter	7
	Scavenger Column Flotation Cells		Microcell 4.5 m Diameter	5
	Regrinding Mills		Tower Mills 3,000 HP	3
	Concentrate Thickeners	FLSmidth	42.7 m Diameter	2
	Tailings Thickeners	FLSmidth	125 m Diameter	3

Source: MEL (2022)

14.2.3 Oxide Leach Process Description

The oxide leach process has been designed to treat ore containing oxide minerals following the traditional flowsheet for heap leaching of copper ores. The battery limits of the process are the coarse ore stockpile and electro-winning with the metal production. The stages of the process are the following:

- Coarse ore reclaiming from stockpile receiving crushed ore from the mine.
- Secondary and tertiary crushing operating in closed circuit with screens.
- Agglomeration with sulphuric acid and water in tumbling drums.
- Stacking of the agglomerated ore in a dynamic heap.
- Irrigation using an acid solution operating in closed circuit with a solution treatment plant denominated solvent extraction (SX).
- Transferring of the dissolved copper contained in the output solution to a cleaned solution using selective solvents.
- Transformation of the dissolved copper in metal using electric energy through an electrolytic process called electrowinning (EW).
- Spent ore disposal in waste dump called a ripios dump.

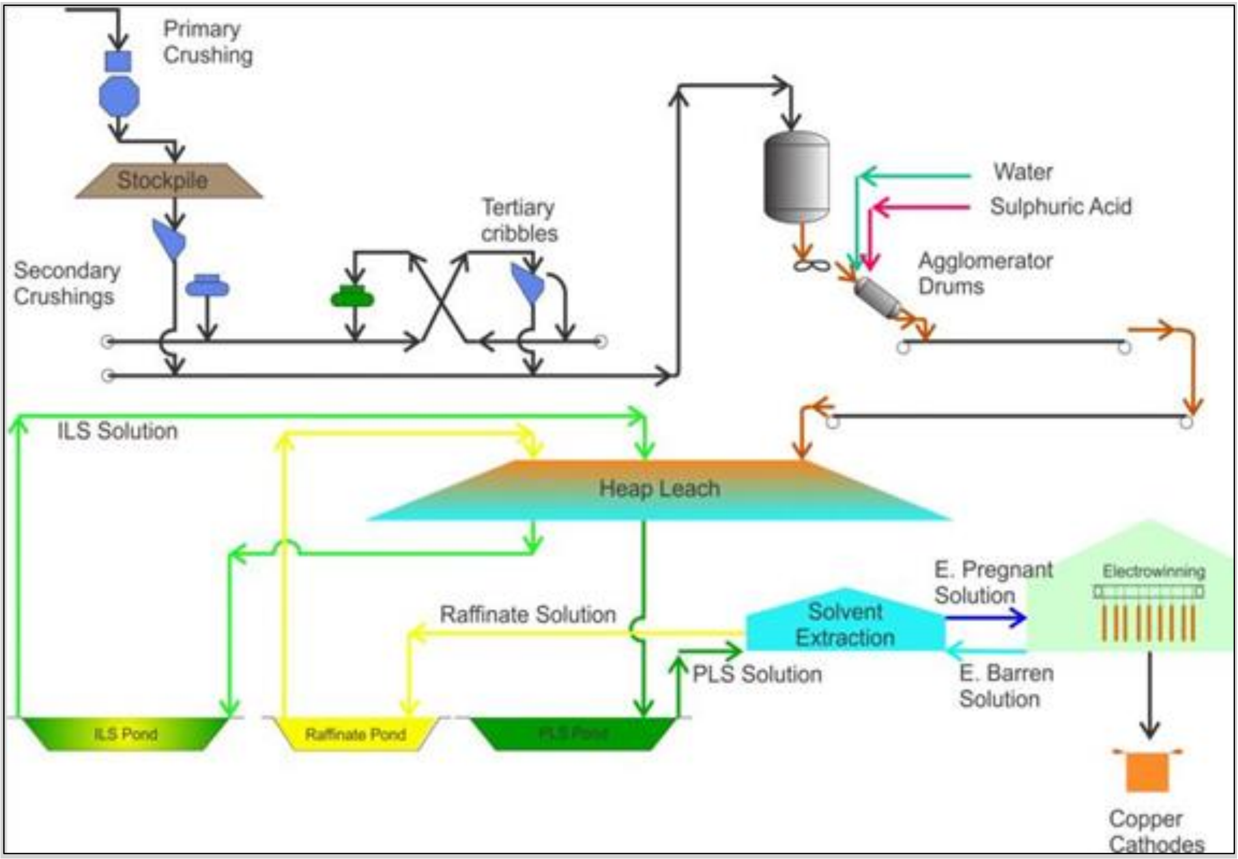
The process starts with the coarse ore reclamation from the stockpile. The ore is then transported to the crushing plant where secondary crushers reduce the size of the ore from an average size of 100 mm to about 19 mm in diameter. The ore is transported to the tertiary crushing stage operating in closed circuit with screens. The final product from crushing must comply with the 80 % of the mass passing 19 mm.

Next the crushed ore is agglomerated using concentrated sulphuric acid and water to increase dissolution kinetics of the copper species and to generate stability before irrigation.

The ore is stacked in the area in the form of a 6-metre-high heap and then a solution of sulphuric acid is used to irrigate the ore and dissolve the copper. The irrigation cycle is 150 days. The drainage solution containing the dissolved copper is treated in a solvent extraction plant (SX), where the objective is to remove impurities and produce a cleaned solution without other elements that can affect the following stages. Finally, the clean copper solution is pumped to a tank house where electrolyses is applied to transfer copper in solution to stainless steel plates, where the copper deposits in the form of metal. This is called electrowinning and the final product is copper cathodes.

The leached ore (ripios) are reclaimed using a bucket wheel excavator that uses an overland and series of mobile conveyors to transport the ripios out of the leach pad. Subsequently, a shiftable conveyor with tripper discharges the ripios on the spreader, which will finally deposit the waste material onto the ripios dump.

A simplified flow diagram for the process at oxide leach is included as Figure 14-4 and shows the existing major equipment. In addition, an equipment list is provided in Table 14-5.



Source: MEL (2022)

Figure 14-4: Schematic of MEL Oxide Leach Process

Table 14-5: Main Equipment List for Oxide Process

Area / Process	Equipment	Description	Quantity
Crushing	Stockpile	162,000 t Capacity, 56,000 t Live	1
	Secondary Crusher	MP-1000, 1000 HP, Capacity 1,523 tph	2
	Secondary Screen	Nominal Capacity 880 tph, Vibratory Double Deck	2
	Tertiary Crusher	MP-1000, 1000 HP, Capacity 551 tph	3
	Tertiary Screens	Nominal Capacity 609 tph, Vibratory Single Deck	4
	Agglomeration Drum	Capacity 4,166 tph	2
Stacking	Conveyor Belt	Capacity 5,250 tph (wet), length 27m, width 60”, max. speed 3.9 m/s	1
	Overland Conveyor Belt	Capacity 5,250 tph (wet), length 1,615m, width 60”, max. speed 4 m/s	1
	Conveyor Belt	Capacity 4,120 tph (wet), length 360m, width 60”, max. speed 4 m/s	1
	Overland Conveyor Belt	Capacity 4,120 tph (wet), length 1,018m, width 60”, max. speed 4 m/s	1
	Overland Conveyor Belt	Capacity 4,120 tph (wet), length 3,432m, width 60”, max. speed 4 m/s	1
	Conveyor Belt	Capacity 4,120 tph (wet), length 168m, width 60”, max. speed 4 m/s	1
	Tripper	length path 50 m, path speed 6 m/min	1
	Conveyor belt and stacking mobile bridge	Capacity 4,120 tph (wet), length 401m, width 60”, max. speed 4 m/s	1
	Tripper	length path 50m, path speed 6 m/min	1
	Stacking Belt	Capacity 4,120 tph (wet), length 18m, width 84”, max. speed 2.2 m/s	1
Reclaiming	Bucket Wheel Excavator	Capacity 5,027 tph (wet), wheel diameter 12 m	1
	Discharge conveyor belt	Capacity 5,027 tph (wet), length 27m, width 84”, max. speed 2.5 m/s	1
	Hoppers	Capacity 5,027 tph (wet)	2
	Conveyor belt and discharge mobile bridge	Capacity 5,027 tph (wet), length 416m, width 84”, max. speed 5 m/s	1

Source: MEL (2022)

14.2.4 Bioleaching Process Description

The bioleaching process started operations in 2006. It was designed as a low-cost method to process low grade sulphides. Since this material is mined to access ore for the sulphide concentrators this material would be sent to marginal stocks or to waste dump. The bioleaching process realizes value from this this material. In general, the stages at the process can be described as:

- Transport of the run of mine (ROM) ore from the existing pits or stockpiles to the leach pads
- Stacking of the ore in a permanent heap.
- Irrigation using an acid solution operating in closed circuit with a solution treatment plant denominated SX.
- Transferring of the dissolved copper contained in the output solution to a cleaned solution using selective solvents.
- Transformation of the dissolved copper in metal using electric energy through an electrolytic process, EW.

The process involves the extraction of copper from ROM material with copper content above 0.25%, through bioleaching of the sulphide ore. The ore is placed in a permanent (static) leach pad with seven lifts of 18 m each one and irrigated with acid solution for more than 350 days. An aeration system is necessary to promote bioleaching process.

In general, it is the leaching of sulphide minerals that distinguishes bioleaching from conventional acid leaching wherein only oxidised minerals are leached. Bioleaching involves the use of microorganisms to catalyse the oxidation of iron sulphides to create ferric sulphate and sulphuric acid. Ferric sulphate, which is a powerful oxidising agent, then oxidizes the copper sulphide minerals and the copper contained is then leached by the sulphuric acid formed.

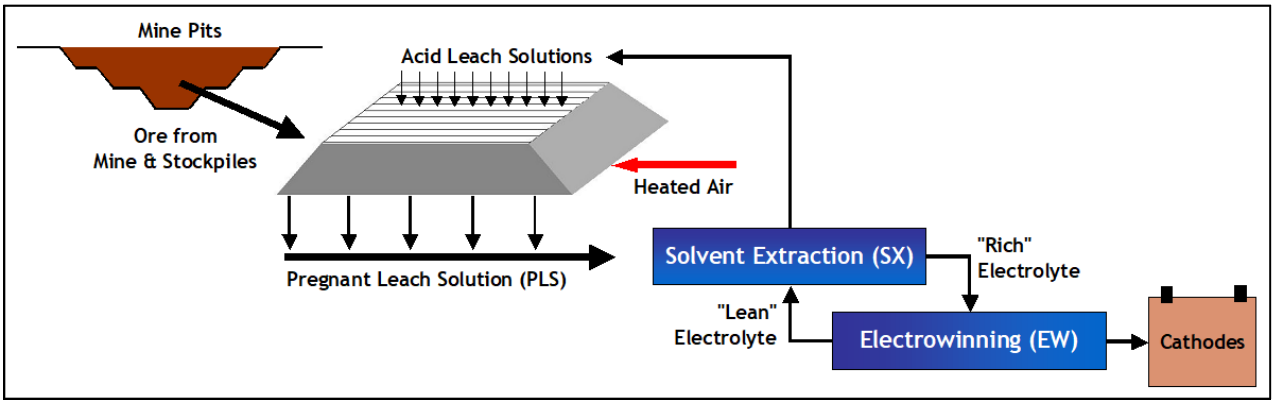
The key factors for successful leaching in all the sulphide oxidation reactions are:

- The presence of ferric iron, supplied in part by the pyrite and chalcopyrite but much more importantly regenerated from the ferrous iron by bacterial action.
- The presence of oxygen supplied by the forced aeration system.
- The presence of acid, supplied in part by oxidising pyrite but also from the irrigation liquors fed to the dump.

Without these three components, namely bacteria, oxygen and acid, the leaching process is not effective.

Copper is then recovered from pregnant leach solutions via dedicated facilities for SX and EW. The sulphide leach maximum irrigation capacity is 16,500 cubic metres per hour (m^3/h).

A simplified flow diagram for the process at low grade sulphides leaching is presented as. Figure 14-5 the existing major equipment, in addition an equipment list is provided in Table 14-6.



Source: MEL (2022)

Figure 14-5: Schematic of MEL Bioleach Process

Table 14-6: Main Equipment List for Bioleaching Process

Area / Process	Equipment	Description	Quantity
Leaching	Fans Aeration	Pressure 15.5 KPa e.a., Flow 1,720.000 A m^3/h	50
	Raffinate Pumps	Flow Rate 1,500 m3/h	8
	PLS Pumps	Flow Rate 1,500 m3/h	7
	Heat Exchangers	6,000 kW e.a., Flow Rate 300 m3/h	2
Solvent Extraction	Organic Cyclone	Flowrate 4.5 m3/h	1
	Recovered Organic Tank	Capacity 6 m3	1
Ponds	PLS	Capacity 108,000 m3	1
	Raffinate	Capacity 108,000 m3	1

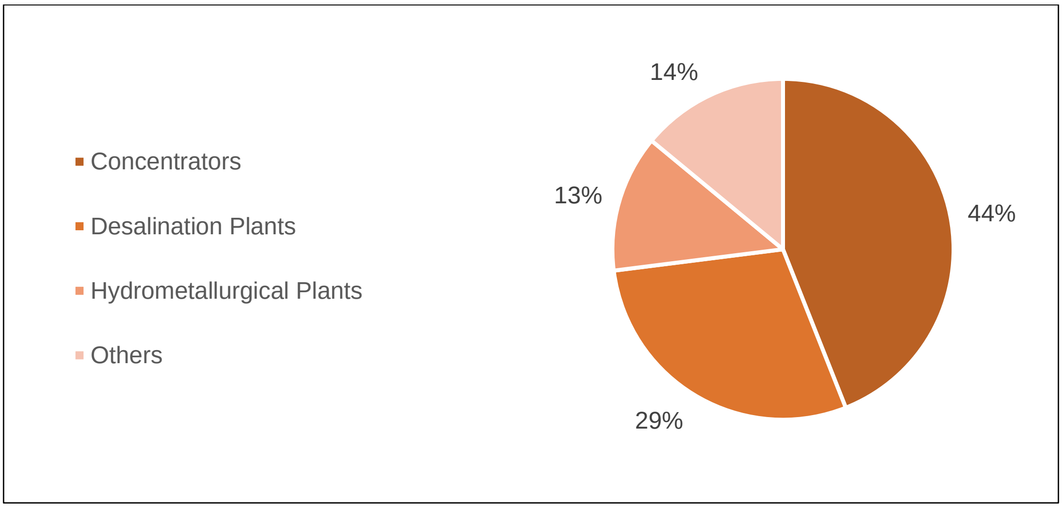
Source: MEL (2022)

14.3 Requirements for Energy, Water, Process Materials, and Personnel

The following sections describe the requirements for energy, water, processing and personnel.

14.3.1 Energy

MEL operations considers a stable power demand of 6,120 [MWh] until June 2028, after that the power demand will likely decrease by approximately 30% in response to the anticipated Los Colorados concentrator shutdown. In general terms, the main energy consumption is associated with the concentrator processes, followed by desalinated water pumping from the sea level to the mine site. The energy consumption distribution is presented in Figure 14-6.

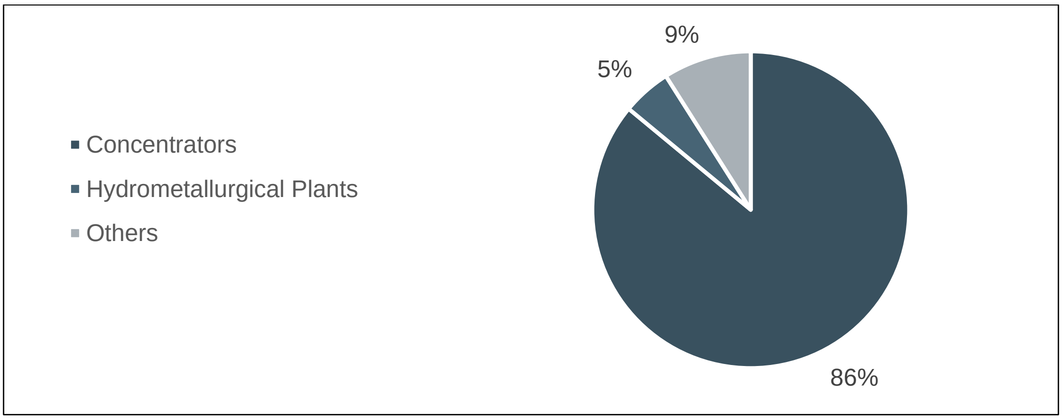


Source: MEL (2022)

Figure 14-6: Energy Consumption Distribution at MEL

14.3.2 Water

MEL operations has a total demand of water of over 4,500 litres/second. The water consumption in MEL site is driven by concentration process. The water supply for the processes is composed of two main sources; i), desalinated water which is pumped from the ocean to the mine site; and ii), recovered water from the dewatering processes at concentrators. The consumption distribution is show in Figure 14-7. In the next decade it is expected that water demand will decrease 30 % because of the closure of both oxide leaching operation and Los Colorados concentrator



Source: MEL (2022)

Figure 14-7: Water Demand Distribution at MEL

The desalinated water represents the 70 % of the whole water supply. No water sourced from pumping of underground water is used for either mining or processing.

14.3.3 Suppliers for Process

The main materials used at the mine and the process are presented in Table 14-7. The critical supplies are managed by long term contracts to mitigate low stock risk.

Table 14-7: Main Materials used at the Mine and Process

Process	Main Supplies
Mine	Tires, Fuel
Concentrators	Grinding balls, mill liners, lime, chemical reagents, replacement parts.
Hydrometallurgical Plants	Sulphuric Acid

Source: MEL (2022)

14.3.4 Personnel

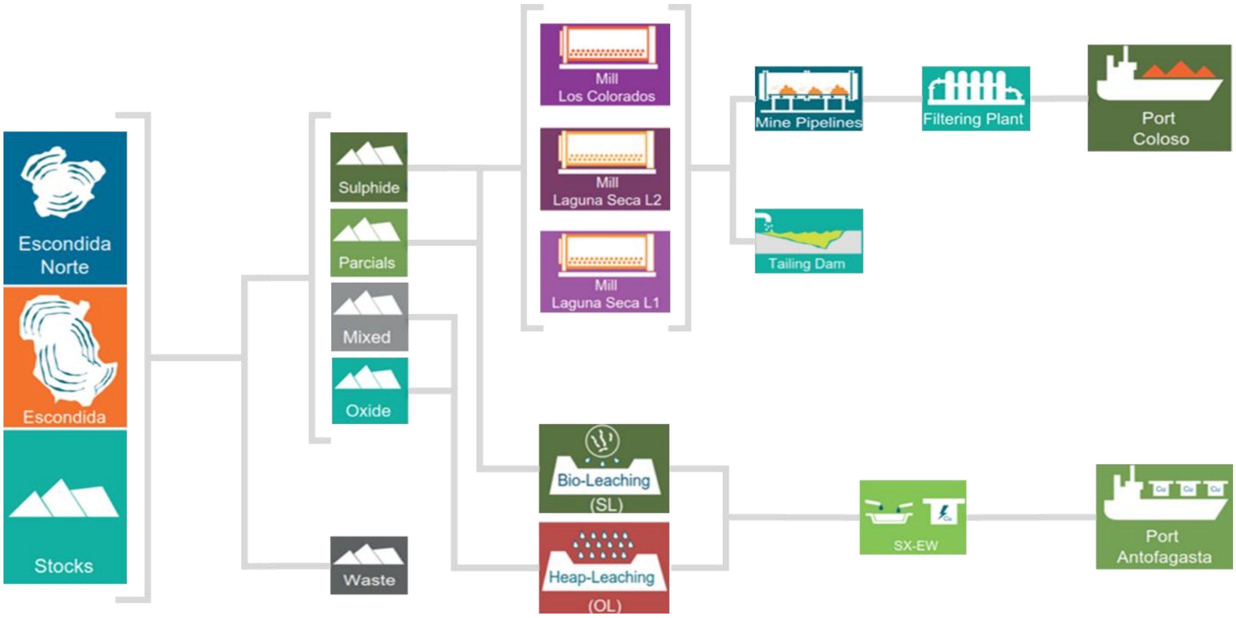
Over the next 25 years in the base plan at MEL, total personnel (MEL & Contractors) are projected remain stable at 2021 levels. The estimated personnel ranges between 12,000 and 14,000 people because of spot contracts for shut-down maintenance. The personnel employed directly by MEL consists of approximately 3,800 people.

14.4 Novel Processing Methods

In the opinion of the Qualified Person the processing methods and practices are considered conventional for the industry standard. The process technology and equipment are widely proven in the industry to support long term mine plans for MEL and therefore limits the risk for reserves estimation.

15 Infrastructure

MEL has a company-owned infrastructure distributed over an extended area of the Antofagasta Region from port sites on the pacific coast to the mine site in the Andes. The infrastructure is required to support the magnitude of MEL's operational activities: the extraction of waste and mineral from two mining open pits, the operation of three concentrator plants, two heap leaching processes with their cathode production plants, the operation of two seawater desalination plants and water pumping to mine site, a tailings deposit, along with support and service facilities. These are shown schematically in Figure 15-1.



Source: MEL (2022)

Figure 15-1: Schematic of MEL Operations

Table 15-1 describes the principal value chain at MEL which is comprised of three major subsystems to include mine site, transportation and port, with seven process steps.

Table 15-1: Overview of Major Subsystems at MEL

Mine site:	Mineral	
1	Mining, including drill and blast, and load and haul	
2	Ore handling and transport to processing plants (including crushing and/or screening as required) and metallurgical processing	
	Product: Concentrate	**Product: Cathode**
3	Concentrate stockpiled as slurry then pumped to port via pipeline	Cathode packaged, stored, and loaded for rail transport to port
Transport	**Product: Concentrate**	**Product: Cathode**
4	Gravity driven transport of concentrate via pipeline to port	Cathode by train to port
Port	**Product: Concentrate**	**Product: Cathode**
5	Concentrate collected, filtered and dried at port	Unloaded and stored at port
6	Stockpiled at Coloso Port	Stockpiled at Angamos Port
7	Direct ship loading to dedicated bulk carriers;	Loaded to ship

Source: MEL (2022)

Maps presented in this chapter use UTM WGS84 unless otherwise stated.

15.1 Description

MEL began construction in 1988, with an initial investment of US$836 M for the construction of general facilities, plant, port, and pipelines, and started operations in 1990. In 1991, it had a plant capacity of 35,000 tpd.

Subsequently, in 1993, with an investment of US$76, Phase I began, with an expansion to 45,000 tpd. Then, with an investment of US$ 261 million, Phase II began in 1994; and over the next ten years, Phases III, III1/2 and IV were developed, reaching 230,000 tpd in 1993.

MEL's operating process begins with the extraction of materials from the Escondida and Escondida Norte deposits using conventional open-pit mining techniques. Extraction includes waste materials and ores.

After fracturing the rock with controlled blasting, the removed material is loaded by electromechanical shovels onto trucks and transported to processing plants in the case of high grade ore, to sulphide leaching heaps in the case of low grade sulphide ores, or to authorised dumps in the case of waste.

The sulphide ores are processed in three concentrator plants: Los Colorados, located near the Escondida pit, Laguna Seca Lines N°1 and N°2, located some 17 km south of the Escondida pit. The valuable mineralisation is separated from the waste rock through the flotation concentration process, generating copper concentrate as the final product. The waste or residue from the concentration process is taken to the tailings deposit known as the Laguna Seca tailings dam.

The copper concentrate is transported as a pulp with 65% solids through two 170 km long pipelines to the Coloso Port sector, located on the coast south of Antofagasta, where it is filtered until it reaches a humidity of around 9%, and then placed in stockpiles until it is shipped from the port on bulk carriers. Some minor amounts of concentrate is loaded onto trucks and transported by road to other ports or to national smelters.

The oxidised ores are processed through a sequence of leaching, SX, and EW processes. The process begins with crushing and agglomeration of the ore, which is then deposited on large heaps where it is irrigated with sulphuric acid solutions to dissolve the copper present.

In addition, low-grade sulphide ores are processed through a sequence of bioleaching, solvent extraction (SX), and EW processes. The process begins by transporting these materials directly from the mine and depositing them in giant heaps, where they are irrigated with sulphuric acid solutions and treated with bacteria at a certain temperature, which dissolve the copper contained in these minerals.

The recovery of copper from the solutions emanating from the leaching heaps, both oxides and sulphides, is carried out by selective extraction using specific organic compounds (SX), obtaining a solution enriched in copper after a re-extraction process. Finally, by EW, the dissolved copper is deposited on stainless steel plates that constitute the copper cathodes. These cathodes reach an approximate weight of 78 kg with a purity of 99.999% and are transported by rail to the port of Antofagasta or Mejillones for subsequent shipment to the international market.

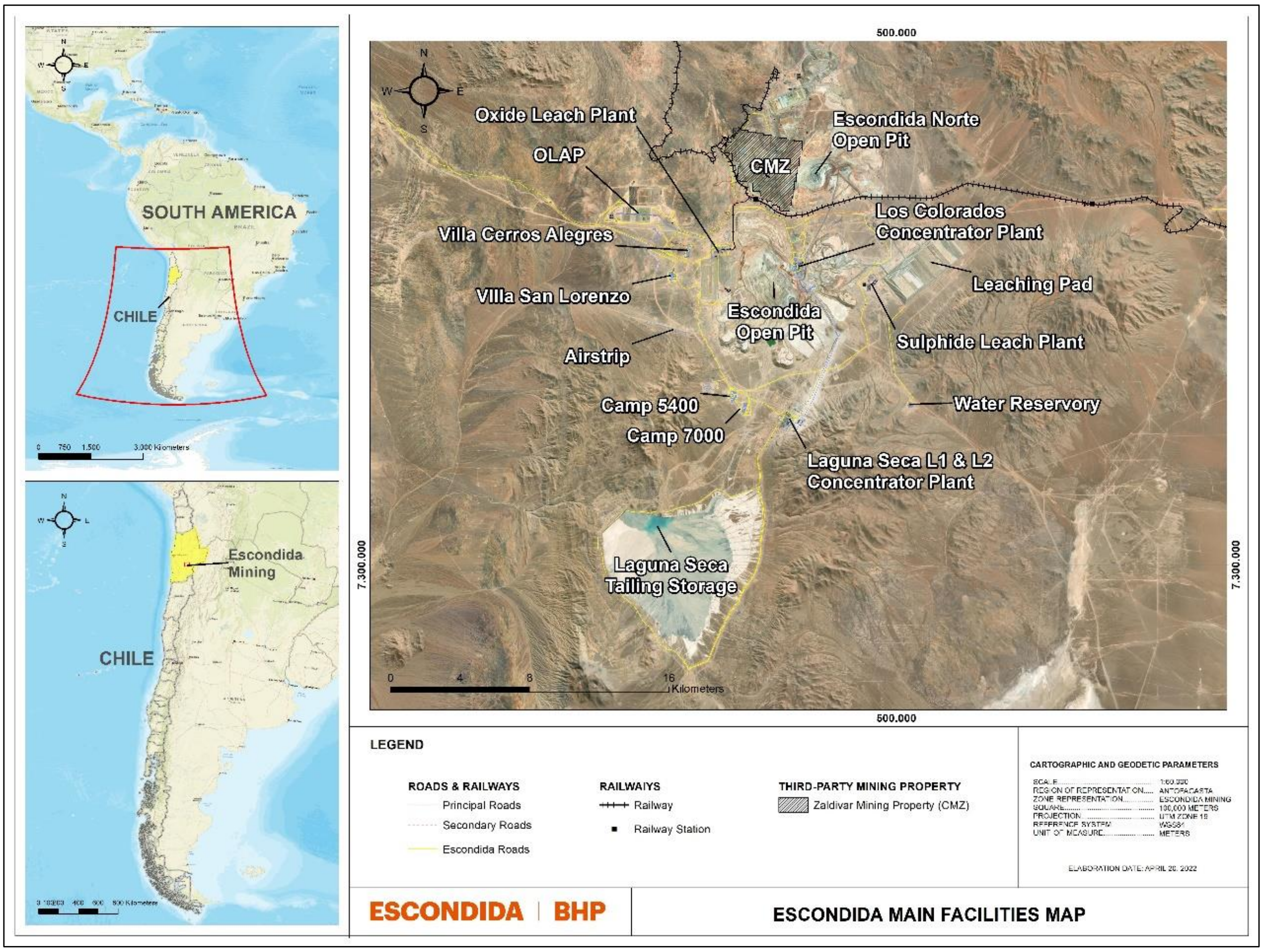
The operational infrastructure also includes all the facilities associated with production support services and the supply of inputs, such as electrical energy transmission systems at different thickness levels, desalinated, drinking and recovered water supply systems, camps, warehouses and buildings, administrative offices, and access and internal roads among many other complementary facilities.

The main existing infrastructures in the sectors where operations and support activities are carried out for MEL are:

- Escondida Pit
- Escondida Norte Pit
- Escondida Dumps

- Escondida Norte Dumps
- Crushers and Conveyors Belts
- Sulphide ore concentrator plants: Los Colorados and Laguna Seca Lines N°1 and N°2
- Copper Concentrate Transport Systems (Pipelines)
- Tailings transport systems (Relay pipelines)
- Copper Concentrate Filtration Plant (Punta Coloso)
- Copper concentrate shipping facilities (Coloso port)
- Reclaimed water transport and storage systems
- Tailings deposits: Hamburgo and Laguna Seca
- Oxidised ore leaching heaps
- Heap leaching of low-grade sulphide ores
- SX and EW plants
- Crushers and conveyor belts
- Supply and support facilities:
- Industrial water supply systems (desalinated water)
- Seawater desalination plants (Coloso sector)
- Drinking water treatment plants
- Wastewater treatment plants
- Electricity supply systems, consisting of substations, transmission lines, electrical rooms and service roads.
- Waste storage facilities
- Waste transfer centres
- Fuel storage and distribution systems
- Explosive's storage and preparation
- Work camps:
    - Villa San Lorenzo
    - Villa Cerros Alegres
    - Camp 5,400
    - Villa Monica Harvey
- Warehouses and workshops:
- Administrative offices
- Storage yards
- Access roads and internal connections

The location of MEL's main existing facilities is presented in Figure 15-2.



Source: MEL (2022)

Figure 15-2: MEL's Main Facilities

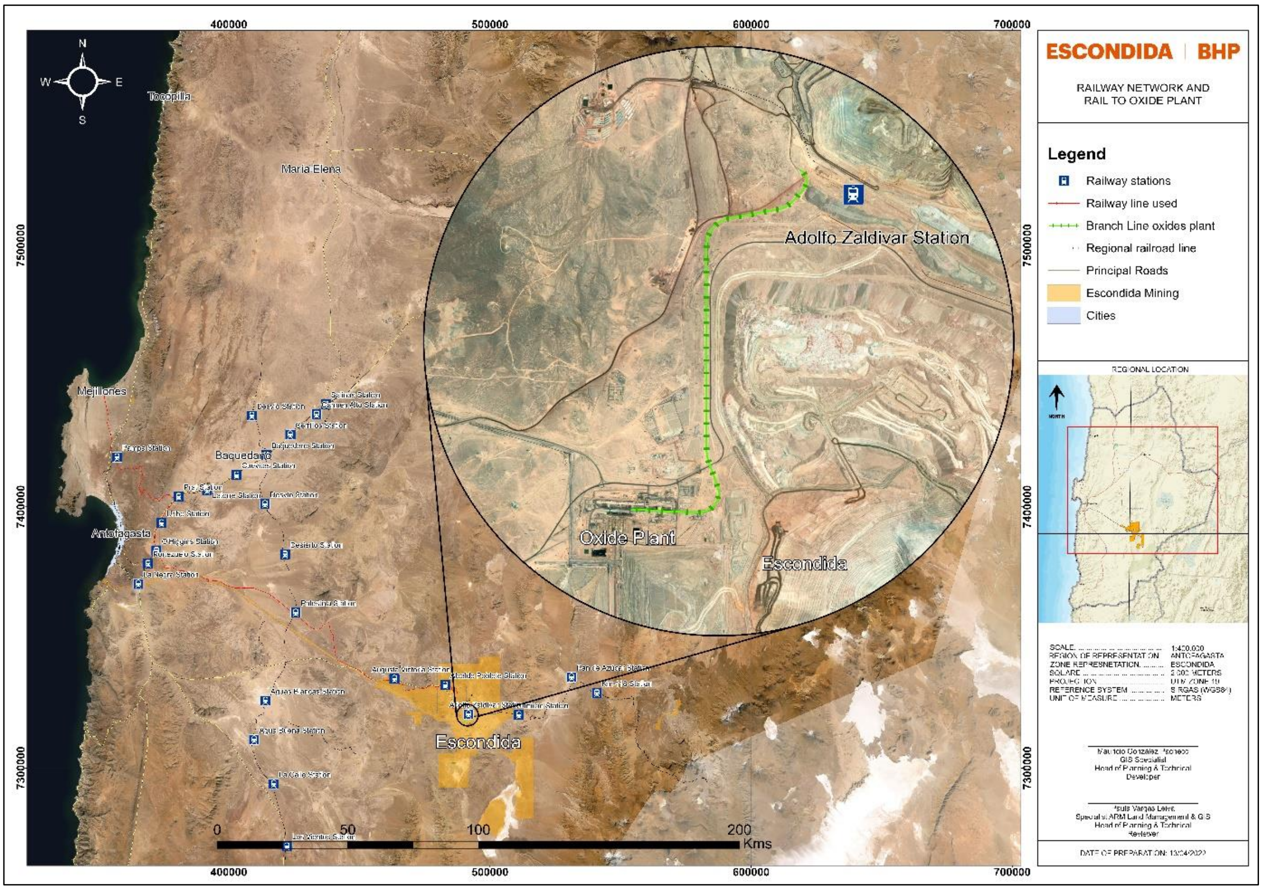
15.2 Rail and Roads

15.2.1 Rail

MEL is an important user of the existing railways in the Antofagasta Region for the transport of copper cathodes to the port of Antofagasta and Mejillones, as well as for the transport of sulphuric acid from ports to the mine site, where it is stored in tanks for later use. To transport cathodes and sulphuric acid, MEL has transport service contracts with the main railway companies that own the railways, such as Ferrocarril de Antofagasta a Bolivia (FCAB) or Empresa de Transportes Ferroviarios S.A. (Ferronor). Ferronor, in addition to owning the railway track and railway stations, among others, owns the section that goes from Augusta Victoria Station to Socompa, which crosses the Pinta Verde sector. Ferronor also owns the surface land along the railway track, whose width varies between 50 m for sectors of relatively flat relief, up to 100 m wide for those sectors with steep topography. These distances are measured from the axis of the railway track (Figure 15-3).

MEL owns only a small railway line that connects the Cathodes Plant with the railway line that runs from Augusta Victoria to Socompa, and which connects with the railway line owned by Ferronor in the sector called Adolfo Zaldívar Station. This railway line has a length of 4.1 km and can be seen in Figure 15-3.

It should be noted that the gauge of the railway tracks is 1.0 m and that, apart from the rail convoys that transport the cargoes of mining companies such as MEL, or CMZ, rail traffic in the region for other products has been quite scarce and sporadic for many years.



Source: MEL (2022)

Figure 15-3: Regional Railway Scheme

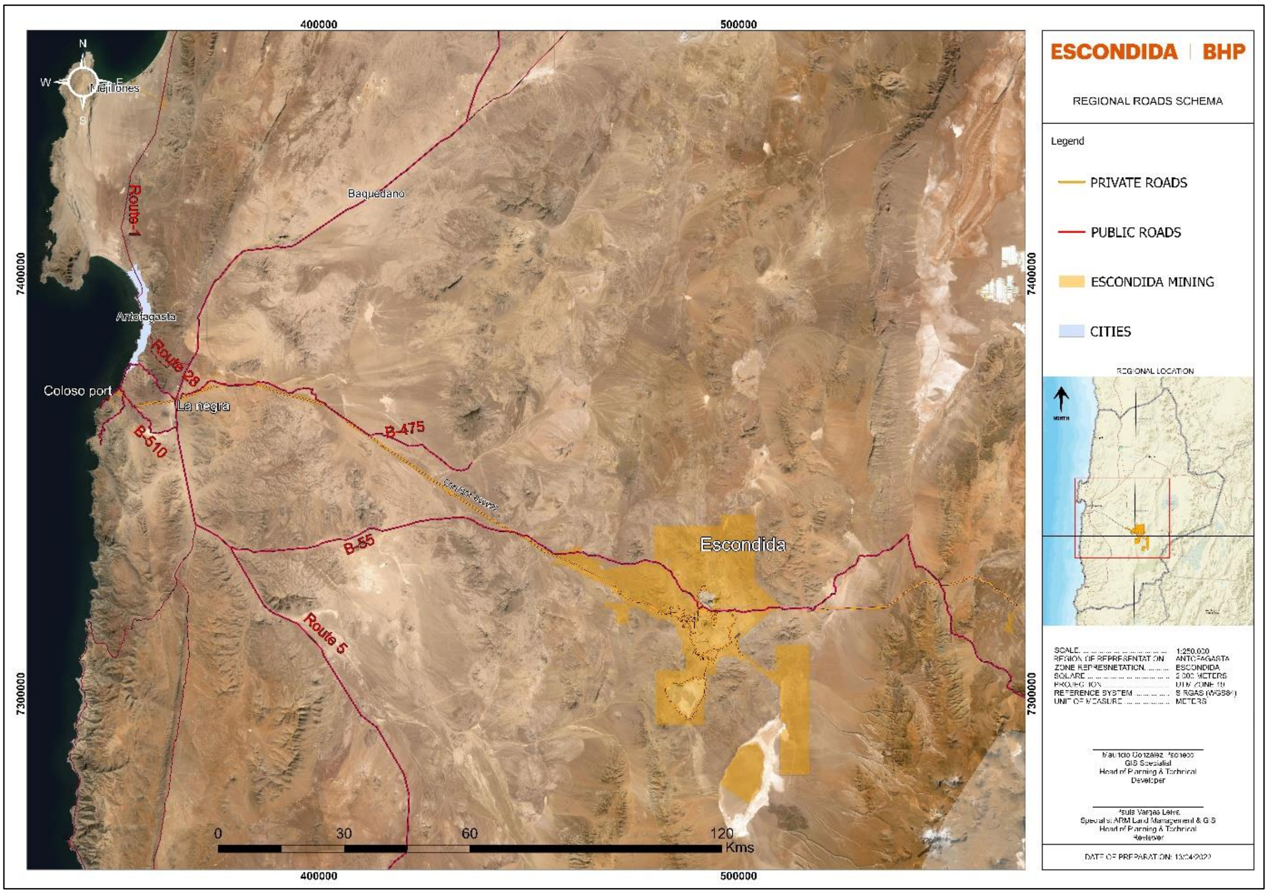
15.2.2 Roads

MEL has an access road approximately 150 km long, which connects the mine with the main public roads in the Antofagasta Region. In the vicinity of Antofagasta city, in the sector known as La Negra, it joins with Route 5, which is one of the main longitudinal routes in the country, and with Route B-28, which connects with the city of Antofagasta (Figure 15-4).

The access road is owned by MEL and its layout is within its mining easements. It connects the Coloso Port with the mine. MEL is fully responsible for its maintenance, applying high standards in terms of vehicular traffic, in accordance with the regulations in force in Chile to ensure the safe movement of people, vehicles and supplies. This road allows the movement of MEL personnel and collaborating companies, as well as the transport of various supplies, equipment and components required for the operation of the mines, plants, camps and other operating units. In the same way, this road is the main artery for the transport to their final disposal sites of all discarded materials, components to be repaired and other industrial waste that cannot remain in the operational areas.

For access to the port and facilities of Coloso, the main connection route is Route B-1, also known as the coastal route, as it provides a link to all the coastal cities located to the north, such as Antofagasta, Mejillones, Tocopilla and Iquique.

Another public road of alternative use to access the different MEL facilities is the international road Route B-55, which also connects with the Republic of Argentina, and whose roadway is not paved. The importance of this road is that part of its route divides the Escondida and Escondida Norte deposits, and for MEL's mining vehicles to cross it, special permits must be obtained and kept in force with the Roads Department for the crossing of this route by mining equipment with overweight and overwidth.



Source: MEL (2022)

Figure 15-4: Regional Roads Schema

Within the operational area, there are more than 275 km of internal roads, of which approximately 85 km are paved. These roads connect the various camps with the mining areas, processing plants and other industrial areas, such as the Laguna Seca dam, sulphide and oxide leaching heaps. This number of kilometres does not include the roads to the well fields of Salar de Punta Negra and Monturaqui, whose operation is currently halted, and their facilities are not in use.

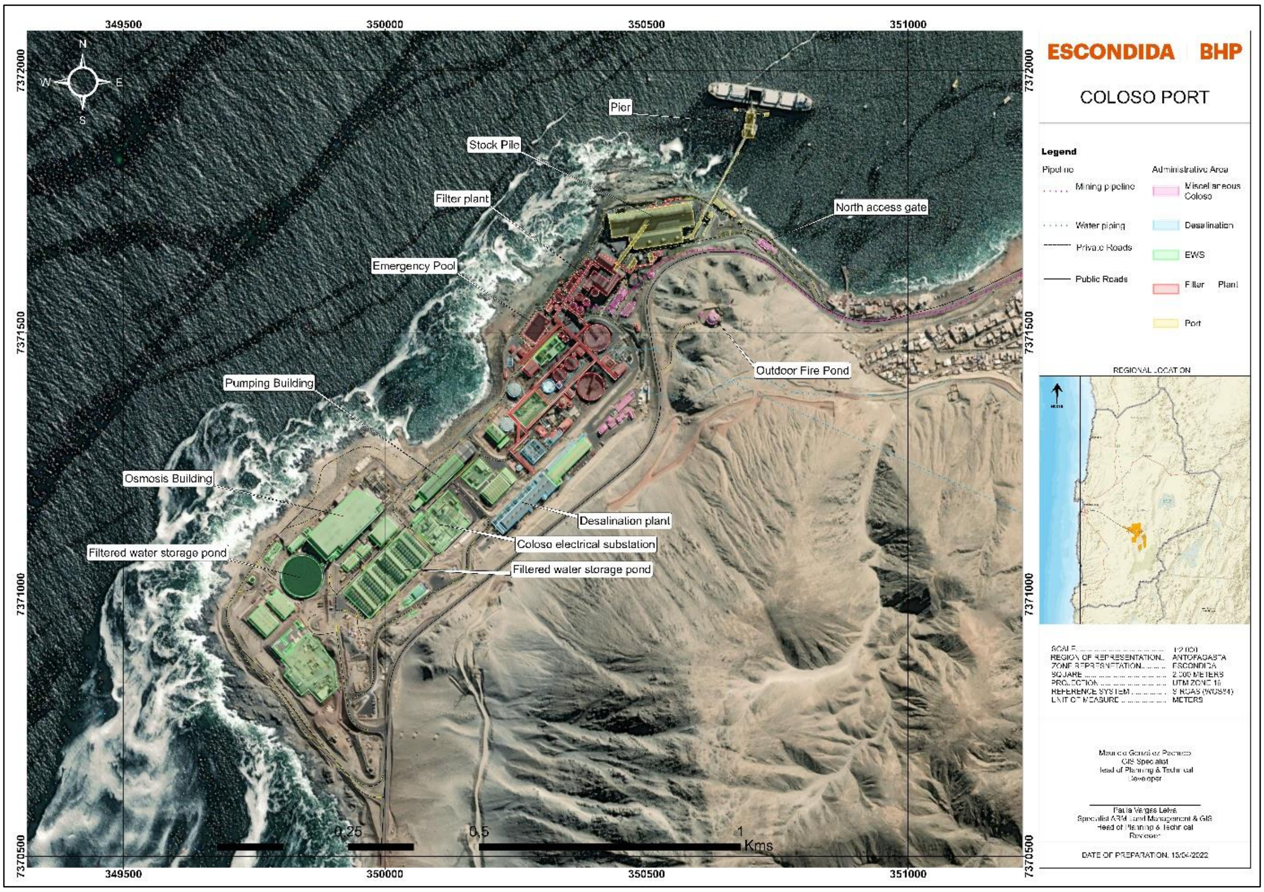
In general, the existing roads, both internal and access roads, have two lanes in both directions and have a 7-m wide roadway. In addition, the access road and paved roads have a 1-m wide berm. In terms of traffic safety measures, the current regulations of the Roads Directorate are fully complied with, which MEL has also complemented by implementing standards to reinforce traffic safety, which apply to both people and all types of vehicles travelling on these roads.

15.3 Port Facilities

The concentrate is pumped from the concentrator tanks via 2 pipelines, 6 inches and 9 inches, each with valves stations down the way to Antofagasta (Figure 15-5).

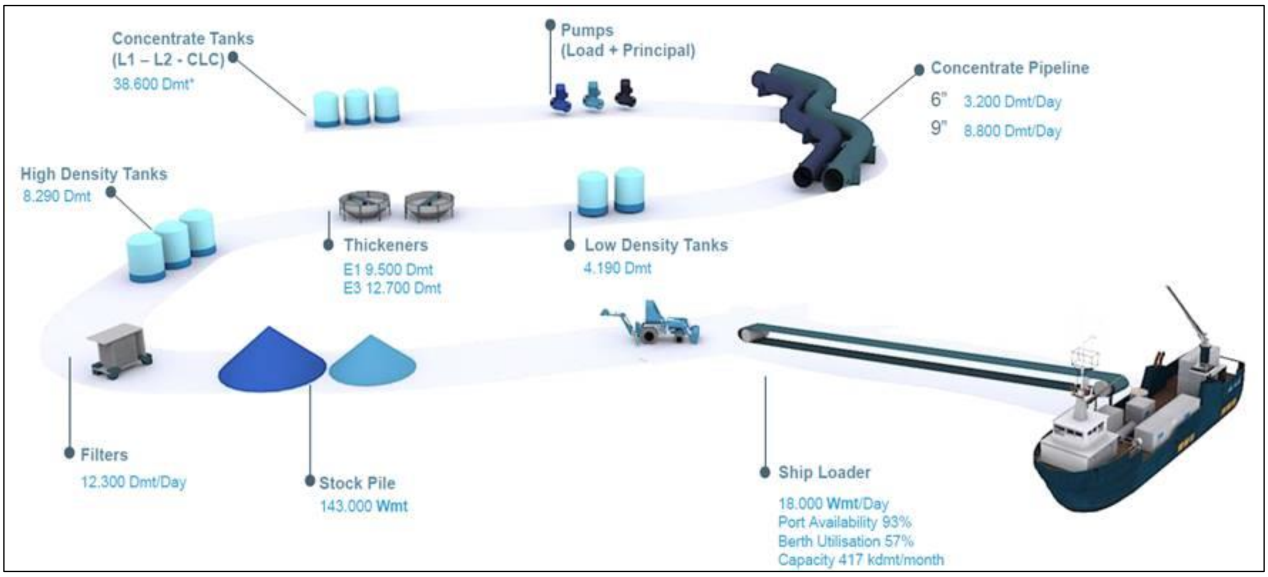
Both pipelines end in low density tanks that receive the concentrate and pump it into the thickening process to increase solids percentage and feed the filter plant (Figure 15-6).

Six vertical cloth filters operate by mechanic method generating a water elimination process to be able to achieve 9% solids. Filters discharge in conveyor belts that go all the way up to the top of the stockpile where it is discharged into the loading area. Transporters conduct the dry concentrate into the port area from where the concentrate is deposited into the vessels holds.



Source: MEL (2022)

Figure 15-5: Coloso Port

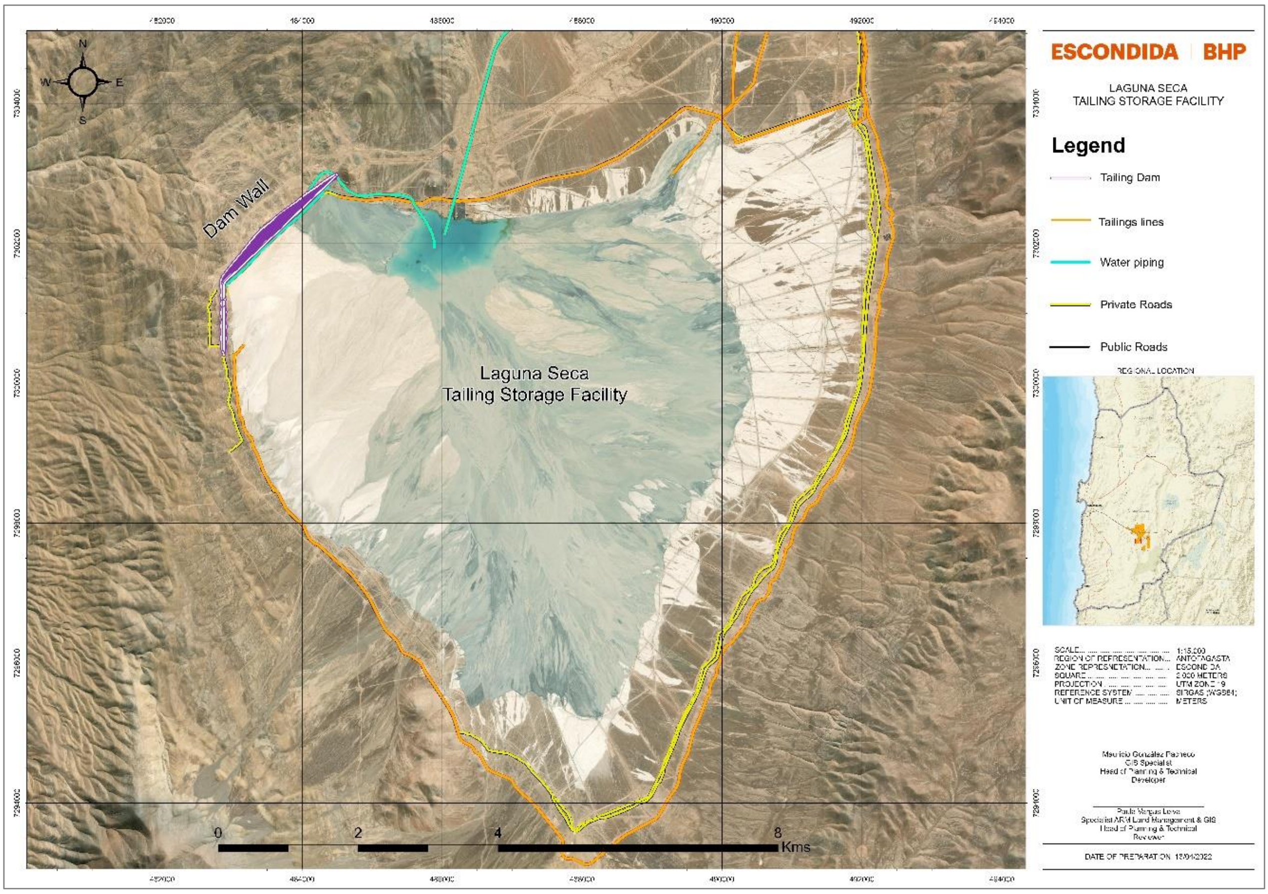


Source: MEL (2022)

Figure 15-6: Coloso Port Process Schematic

15.4 Tailings Disposal

The Laguna Seca tailings deposit became operational in 2002. It is located in a small intermontane basin in the Domeyko mountain range, about 15 km southeast of the Escondida pit and 170 km southeast of the city of Antofagasta. This deposit stores tailings from the three concentrator plants currently in operation (Figure 15-7).



Source: MEL (2022)

Figure 15-7: Laguna Seca Tailing Storage Facility

Tailings are conveyed through 48-inch high density polyethylene (HDPE) pipes (tailings pipelines) and then discharged to the 12-cell tailings impoundment with dividing dams. The northwest boundary of the Laguna Seca basin has a retaining wall that is built with borrow materials, has a 15-m berm, at present (2021) the wall is at an elevation of 2,955 m above sea level, and its growth maintains the 5 m of revanch and a compaction of 95% proctor. For the monitoring and control of water infiltration, there are three piezometers and a curtain of wells below the wall.

The Laguna Seca deposit has an authorised tailings disposal capacity of approximately 4,500 Mt and involves reaching a maximum height of 3,010 m amsl, with a wall 107 m high and approximately 3 km long. According to current studies and the current permit, the deposit is expected to be completely filled by 2058 and occupy an area of approximately 62 km^2 by that year.

The clear water recovery system is installed on a dam of compacted fill material, which is periodically relocated to a higher elevation as the deposit grows. The deposit wall is waterproofed with an HDPE geo-membrane on its slope to prevent water ingress from the basin. The wall includes a drainage system at its base to collect any water that eventually percolates through to keep the base of the slope dry to ensure its strength and stability.

The drainage water is collected in a pool for recirculation to the deposit lagoon and then reused in the process.

The general design characteristics of the Laguna Seca tailings impoundment are described in Table 15-2.

Table 15-2: General Characteristics Laguna Seca Dam

Design Parameter	Status
Tailings production (ktpd)	450
Height of wall crown	3.010
Final altitude (m)	107
Upstream slope (H:V)	2.0:1.0
Downstream slope (H:V)	2.7:1.0
Waterproofing	With Geomembrane
Minimum freeboard (m)	5
Crowning width (m)	15
Final capacity (Mton)	4.500
Wall material	loan
Final deposit area (km^2)	62

Source: MEL (2022)

The design of the Laguna Seca tailings dam is currently at its sixth increase in wall elevation (raise) and presents the main geometrical characteristics shown in Table 15-3.

Table 15-3: Design Features for the Sixth raise

Geometric Parameters	Dimensions
Height 6° Camber	2,955 m amsl
Wall Material	Loan
Growth Method	Downstream
Upstream slope	1.8:1.0 (H:V)
Downstream slope	2.0:1.0 (H:V)
Crowning width (m)	15 m
Maximum Height of Main Wall	51 m (to elevation 2,955 m amsl)
Length Main Wall	2,180 m (to elevation 2,955 m amsl)
Length Secondary Wall	226 m (to elevation 2,955 m amsl)
Minimal Operational freeboard of the Wall	> 5 m

Source: MEL (2022)

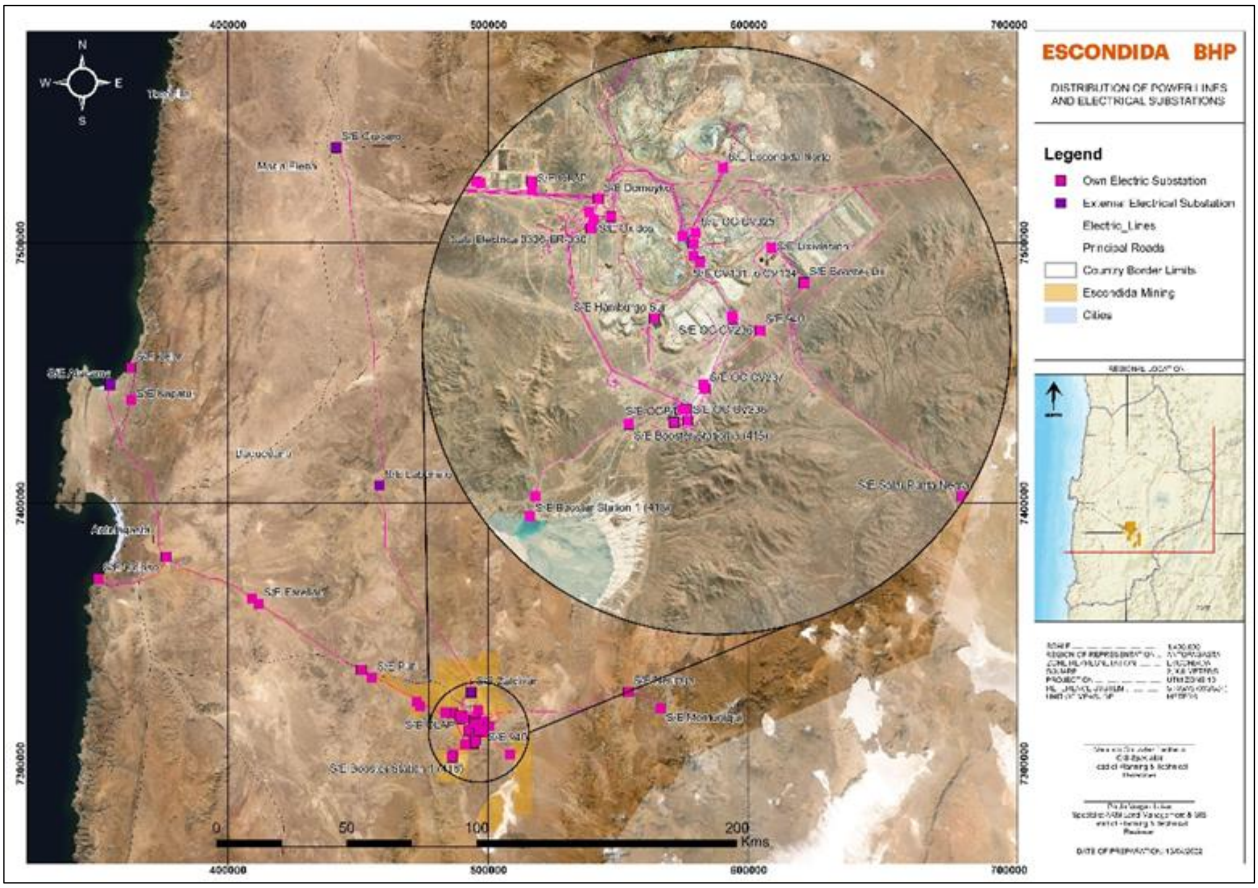
15.5 Power, Water, and Pipelines

15.5.1 Power (Electric Energy)

The infrastructure of the electricity transmission systems is designed and built to support and carry out the adequate supply of this input at high, medium, and low voltage levels.

The 220-kilovolt (kV) high voltage electricity supply infrastructure connects directly with the generating sources and is an integral part of the National Electricity System (SEN), forming part, in addition to the South-Cordillera system, of the North Zone SEN. In general, the generating sources or connection points to the SEN are located far from the consuming sources, such as crushers and conveyor belts, concentrator plants, cathode plants, tailings pipeline systems and reclaimed water pumping, facilities located in areas of the mine and the desalination plant and concentrate filter plant located at Coloso.

To ensure that the transmission of electrical energy reaches the places where MEL carries out its operations, it currently has more than 1,000 km of electrical lines at high voltage levels of 220 kV, 215 km of electrical lines that transmit electrical energy at voltage levels of 69 kV and more than 600 km of electrical lines that allow distribution at voltage levels of less than 34.5 kV. This entire distribution system allows the continuous supply of this critical input for the operation of all its mining plants, desalinated water plants and all complementary plants and facilities to fully develop its activities. Table 15-4 and Table 15-5 shows a summary of the high voltage power lines (HVL) at 220 kV and 69 kV, respectively, with their corresponding origin substations and arrival substations, as well as the length of these lines.



Source: MEL (2022)

Figure 15-8: Electric Transmission Lines Schematic

For connections to the electricity system at 220 kV voltages, there are transmission lines at 15 substations owned by the company and another four lines at three substations belonging to other companies. For transmission at 69 kV voltage levels, there are 25 substations with a main voltage of 69 kV and 69 kV panels at 4 substations with a main voltage of 220 kV.

Electricity is distributed to the different plants and operational facilities at voltages of 34.5, 33.0, 23.0, 13.8, 7.2, 6.9, and 4.16 kV from the distribution switchgear (Figure 15-8). As for the distribution of electricity for the extraction of materials from the Escondida and Escondida Norte pits, there are a total of 19 mobile substations and 16 distribution cells, and the transmission cables operate at voltages of 13.8 kV and 7.2 kV.

The high voltage electrical substation is considered to be a group of equipment that, as a whole, enables the connection of high voltage electrical lines that supply or collect energy from it and, in the event of a failure of one of the lines, allows it to be disconnected without interrupting the power supply. In MEL's electrical system, there are two types of substations:

- Open Yard, consisting of a large fenced yard inside which equipment is installed to interrupt the electrical flow of each line, called high voltage switches, and all the equipment associated with the operation of these (current transformers, voltage transformers, disconnectors, lightning arresters). Each line arrives at the substation through one of the sets of equipment ("line panel"). The substation is also composed of a series of structures that support the high-voltage conductors that interconnect all the high-voltage lines coming into the substation and all the aforementioned equipment. Most of the substations in MEL's electrical system correspond to this type of technology.

- In GIS (Gas Insulat Substation), which is made up of compact equipment that includes similar equipment to that described for the open yard substation, but which is confined in metal ducts filled with a highly insulating gas. This makes it possible to configure a substation with the same characteristics as the open-air substations, but with physical dimensions that are equivalent to 85% of those of the open-air substations. In the GIS, the equipment is housed inside a building isolated from the environment, to which the high-voltage conductors of the respective power lines reach. At MEL, there are currently 5 substations in GIS technology, which are: SE OGP1, SE Puri, SE Farellón, SE Chimborazo and SE 360. This technology was also included in the extensions of SE O'Higgins and SE Coloso.

Table 15-4: 220-kV High Voltage Electrical Energy Transmission Systems with their Source and Destination Substations

No	SE Origin	SE Destination	Circuit		Level of Tension	Length (km)	Status
1	SE Crucero	SE Laberinto	2	Double	220 kV	133	In Use
2	SE Laberinto	SE Nueva Zaldívar	2	Double	220 kV	95	In Use
3	SE Nueva Zaldívar	SE Escondida	2	Double	220 kV	14	In Use
4	SE O'Higgins	SE Domeyko	1	Double	220 kV	128	In Use
5	SE Mejillones	SE O'Higgins	2	Double	220 kV	74	In Use
6	SE Kapatur	SE O'Higgins	2	Double	220 kV	69	In Use
7	SE O'Higgins	SE Coloso	1	Simple	220 kV	33	Desarming
8	SE O'Higgins	SE Coloso	2	Double	220 kV	66	In Use
9	SE Domeyko	SE OGP1	1	Simple	220 kV	15	In Use
10	SE Domeyko	SE Laguna Seca	1	Simple	220 kV	13	In Use
11	SE Nueva Zaldívar	SE Sulfuros	1	Simple	220 kV	13	In Use
12	SE Domeyko	SE Escondida	1	Simple	220 kV	7	In Use
13	SE Nueva Zaldívar	SE OGP1	2	Double	220 kV	28	In Use
14	SE Domeyko	SE Sulfuros	1	Simple	220 kV	1	In Use
15	SE Domeyko	SE Oxido	1	Simple	220 kV	1	In Use
16	SE Kelar	SE Kapatur	2	Double	220 kV	15	In Use
17	SE Atacama	SE O'Higgins	2	Double	220 kV	148	In Use
18	SE O'Higgins	SE Farellón	1	Simple	220 kV	41	In Use
19	SE O'Higgins	SE Puri	1	Simple	220 kV	93	In Use
20	SE Puri	SE Domeyko	1	Simple	220 kV	42	In Use
21	SE Chimborazo	SE Domeyko	1	Simple	220 kV	17	In Use
22	SE Farellón	SE Chimborazo	1	Simple	220 kV	77	In Use
23	SE Domeyko	SE SVC Domeyko	1	Simple	220 kV	0, 07	In Use

Source: MEL (2022)
Note: The above stations allow connection to the National Electrical System for the supply of electrical energy for MEL's processes.

MEL owns much of the power transmission system that supplies its operations. However, due to changes in national electricity regulations, several of the 220 kV high voltage lines became part of the national electricity transmission network, which is why MEL created a subsidiary company in the electricity sector called Kelti, so these assets became the property of Kelti, which currently operates these assets, leaving MEL in charge of the maintenance of the lines and other installations of these lines. In addition, the SE

Kapatur - SE O'Higgins power line was built and is operated and maintained by the company STN, a subsidiary of the company SAESA, under a Building, Owner, and Transfer (BOT) contract with MEL.

Table 15-5: 69-kV High Voltage Electrical Power Transmission Systems with their Origin and Destination Substations

No	Origin	Destination	Circuit		Level of Tension	Length (km)	Status
25	S/E Escondida	Camino SPN	1	Simple	69 kV	19,19	De-energised
26	S/E OGP1	S/E Esc. Norte	2	Double	69 kV	18,59	In Use
27	S/E OGP1	Monturaqui	2	Double	69 kV	18,59	De-energised
28	S/E Escondida	S/E Neurara	1	Simple	69 kV	18,04	De-energised
29	S/E Neurara	S/E Monturaqui	1	Simple	69 kV	15,74	De-energised
30	S/E Sulfuro	S/E Lixiviación	2	Double	69 kV	14,10	In Use
31	S/E Laguna Seca	S/E Tranque	1	Simple	69 kV	11,74	In Use
32	S/E OGP1	S/E 940	2	Double	69 kV	6,79	In Use
33	S/E 401	S/E Hamburgo Sur	1	Simple	69 kV	6,77	In Use
34	S/E 940	S/E Laguna Seca	1	Simple	69 kV	5,91	In Use
35	LAT OGP1	S/E Hamburgo Sur	1	Simple	69 kV	5,89	In Use
36	S/E Sulfuros	S/E OLAP 0752-ER-051	1	Simple	69 kV	5,21	In Use
37	S/E Escondida	S/E Esc. Norte	1	Simple	69 kV	4,20	In Use
38	S/E 401	S/E 402	1	Simple	69 kV	3,69	In Use
39	S/E 401	S/E 940	1	Simple	69 kV	1,70	In Use
40	S/E 640	S/E 401	1	Simple	69 kV	0,77	In Use
41	S/E Escondida	S/E 640	1	Simple	69 kV	0,73	In Use
42	S/E Lixiviación	S/E Booster Lix	2	Double	69 KV	2,43	In Use

Note: The above stations allow for the distribution of electrical energy for MEL's processes.
Source: MEL (2022)

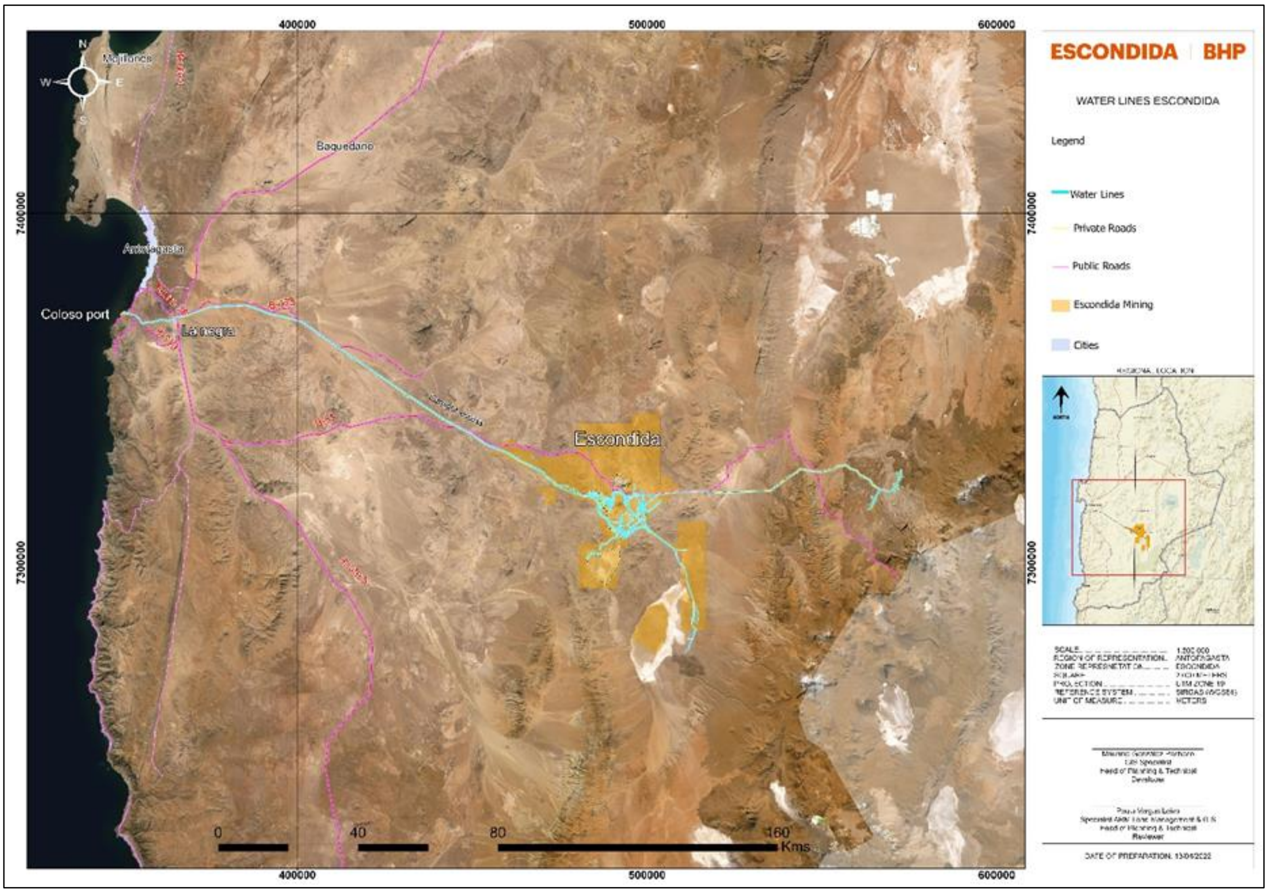
For the operation of the Electrical Power System there is a specialised Superintendence called Power Supply, which has a SCADA system that includes 35 substations and electrical rooms, which have their respective communication equipment, data concentrators and operating consoles. In addition, there are two groups of SCAD servers or Operation Centre, the main one being located near Pavilion 15 in the former Camp 3.5 and another backup centre located in Building H next to the Sulfur SE.

15.5.2 Water

Currently, most of the industrial water supply for operational needs comes from seawater, which is desalinated in specially designed and purpose-built plants located on the Antofagasta coastline, at a site known as Punta Coloso. There, there are two desalination plants, whose production is sent to the mine, approximately 170 km away and at a difference in elevation of 3,000 m. The water is carried by three pipelines, one of 24-inch diameter and two of 42-inch diameter. Figure 15-9 shows an overview of the water lines for MEL.

Part of the water needs are covered by the water recovered from the tailings dam, which is sent by aqueducts to the concentrator plants to be used again in the ore beneficiation processes.

A smaller amount of industrial water comes from pit drainage and from the area called Hamburgo, where MEL's first tailings dam was previously located. The use of these waters is covered by mining legislation (Article 110 of the Mining Code) and water legislation (Article 56 of the Water Code), which empowers the mining concession holder, by the sole authority of the law, to use these waters found in mining operations to the extent necessary to carry out the exploration, exploitation, and benefit of its minerals.



Source: MEL (2022)

Figure 15-9: Water Lines Schematic

Desalination Plants

MEL has two seawater desalination plants which, as mentioned above, are located in the Punta Coloso sector. These plants are called Plant 0 and EWS Plant. Plant 0 came into operation in 2007 and the EWS Plant came into operation in 2017 and an extension of this came into operation in 2019.

The Plant 0 and EWS Desalination Plants meet the water demand of the following areas:

- Rajo Escondida Norte mine area, from which feed is supplied to the crushers, projects, crusher #5, drilling and exploration workings.
- Rajo Escondida Mine Area, from which feed is supplied to watering stations, crushers N°2 and N°3, truck workshop and projects.
- TK-272 and TK-02 ponds at the Cathode Plant.
- Sealing water for areas 640 and Drawer DI-165.
- Pond TK-83 for feeding Line N°1 of Laguna Seca Concentrator Plant (L1).
- Pond TK-251 for feeding Line N°2 of Laguna Seca Concentrator Plant (L2)
- Laguna Seca Concentrator Plant north pool feed, from which line L1 of the same concentrator is fed.
- Reverse Osmosis (RO) Plant Cerro Tecno Oxide
- Reverse Osmosis Plant (RO) 5300
- Reverse Osmosis Plant (RO) 7000

Plant P0

Plant P0 was designed and built for a production capacity of 500 L/s and a transport system that included a 24-inch aqueduct. Currently, due to the deterioration of this aqueduct, the product of this Plant is transported through the aqueducts of the EWS Plant.

The main installations and equipment that make up the processes of Plant 0 are as follows:

- Seawater collection system, including pipeline and suction pumps.
- Filtration system using cartridge and bi-layer filters for the pre-treatment of seawater.
- Reverse osmosis plant for seawater desalination.
- Reagent addition plant for process conditioning.
- Desalinated water impulsion system to the mine, consisting of five (5) electrical ES, impulsion pumps and 24-aqueduct.
- Water storage systems in its different stages and processes, consisting of ponds and pools.
- Brine water discharge system.

EWS

The EWS plant, comprising Desalination Plants 1, 2, and 3, which came into operation in 2017, was designed and built for a production capacity of 2,500 l/s and a transport system comprising two 42-inch aqueducts each. In turn, Desalination Plant 4 was designed and built for a production capacity of 833 l/s and transports its product through the same 42-inch aqueducts already mentioned.

The main installations and equipment that make up the processes of the EWS Plant are as follows:

- Seawater collection system, with tunnels and suction pumps.
- Filtration system using cartridge and bi-layer filters for the pre-treatment of seawater.
- 4 reverse osmosis plants for seawater desalination.
- Reagent addition plant for process conditioning.
- Desalinated water impulsion system to the mine, consisting of four (4) electrical SE, impulsion pumps and two 42-inch aqueducts.
- Water storage systems in its different stages and processes, consisting of ponds and EWS reservoir.
- Brine water discharge system.

Seawater Collection System

This system is composed of two tunnels of approximately 580 m long, with a nominal useful diameter of 2,000 mm, designed to capture 8,000 L/s. The intake is located approximately 580 metres from the coastline, and consists of two seawater intake structures, at an estimated depth of 26 metres below sea level.

The collected seawater is pumped to the pre-treatment stage by suction pumps located in a start-up pit on land.

Wastewater Discharge System

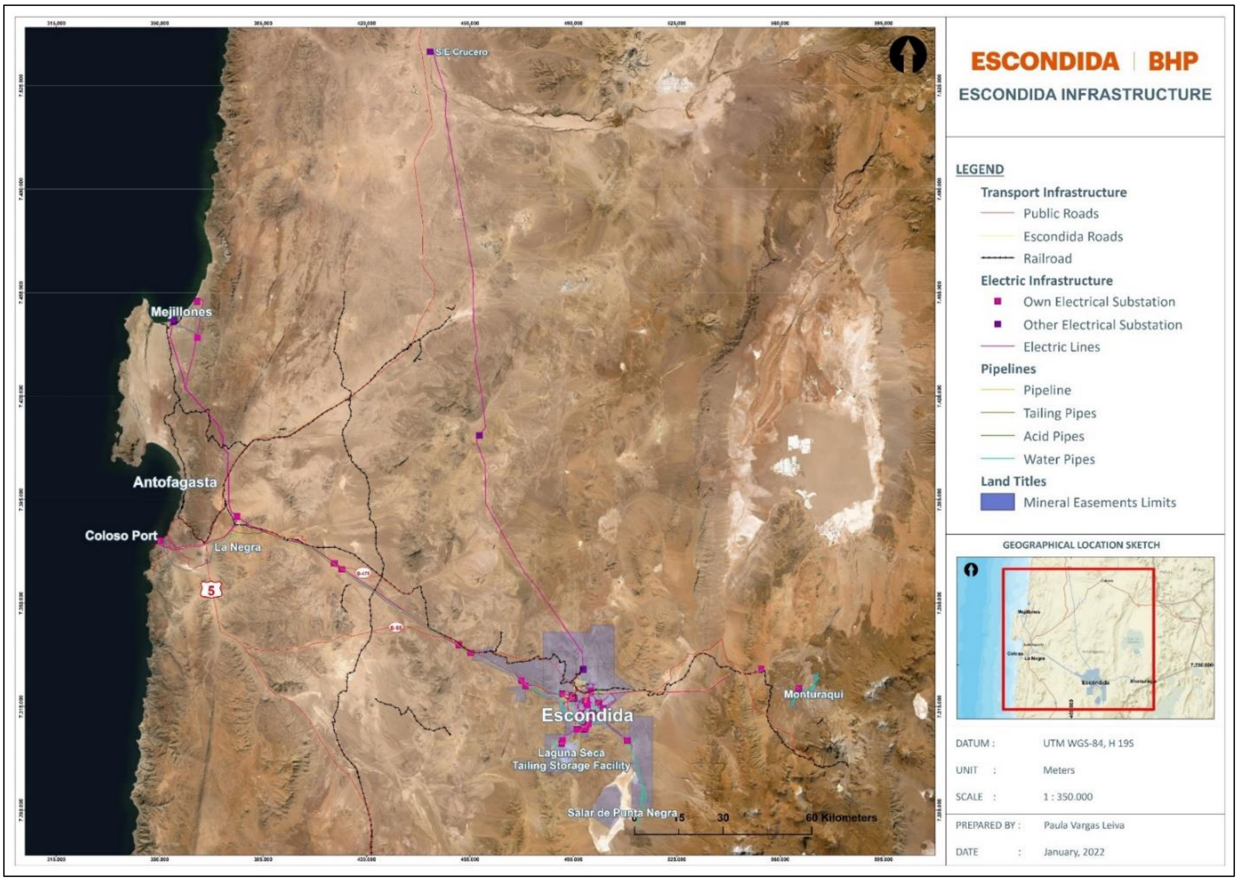
The salt water generated in the reverse osmosis process is discharged into the sea through a submarine outfall consisting of a submarine tunnel (the project considered building two tunnels), approximately 320 m long and 2,000 mm in nominal useful diameter, whose ends are composed of a system of diffusers consisting of two pipes of 1,600 mm in diameter and 77 m long, which will be distal to 20 m below sea level, on the seabed and outside the coastal protection zone (LPA). Each pipe has a system of 12 diffusers located in the last 77 m, through which the final discharge of the saltwater rejection into the marine environment takes place. It should be noted that the outfall is designed to discharge a maximum flow of 8000 L/s, estimated at the time of the start-up of the desalination plant.

Considering the aspects indicated in the previous paragraphs, it is possible to specify that all the land installations of the plant with its service, administrative and maintenance areas, ponds, machinery, equipment, and production systems were installed on the fields owned by MEL, according to the 1994 inscription in the Real Estate Registry, as indicated in Chapter 3. The beach, seabed, and seabed fields were used, given in Maritime Concession and according to the Supreme Decrees, for the construction of an access pit to seawater intake and saltwater discharge tunnels.

In conclusion, the submarine tunnel system consists of two underground intake tunnels of 2,000-mm nominal useful diameter, with an approximate length of 580 m and a buried discharge tunnel of 2,000-mm nominal useful diameter with an approximate length of 395 m, the last 77 m of which correspond to diffusers formed by two 1,600-mm diameter pipes on the surface of the sea.

15.6 Infrastructure Layout Map

Figure 15-10 shows the high level infrastructure layout map of the MEL complex.



Source: MEL (2022)

Figure 15-10: Infrastructure Layout Map

16 Market Studies

The supply and demand for copper is affected by a wide range of factors including changes in the global copper consumption due to economic development.

In CY2021, global copper cathode demand increased by +6% YoY due to rebounding economies and continued recovery in China. Prevailing geo-political uncertainty and Covid-19 lockdowns has moderated demand growth in CY2022. Growth is likely to remain muted over the medium term (CY2023-25) as the stimulus wears off and while the decarbonisation megatrend remains in the early stage. Over the long-term, copper still sees promising growth outlook, underpinned by development of emerging economies and growth in EVs and renewables.

The CY2021 cathode balance ended with a deficit due to healthy end-use demand, and as global inventories fell significantly throughout the year as a result. A small deficit is expected for CY2022 before shifting to a surplus in the medium term following new mine ramp-up. Different from the previous surplus period (a demand down-cycle) during CY2015-16, copper consumption is likely to be more resilient supported by decarbonisation needs.

The concentrates balance could turn in CY2022 as global smelting capacity additions have lagged mine supply growth over the past few years under low TCRC (Treatment Charge and Refining Charge) environment. New mining projects (Tenke Fungurume, Kamoa Phase 2 and Quebrada Blanca) have been sanctioned in response to the high prices and promising demand outlook and concentrate balance could shift into a surplus in CY2022-2024 after being deficit for several years.

BHP Marketing AG (BMAG) sells 100% of MEL production on behalf of all shareholders under an Agency Agreement. Copper cathodes are directly sold to customers that primarily consist of semi-fabricators and trading firms; while copper concentrate is sold to smelters firms.

16.1 Copper

16.1.1 Copper Long Term Price for Establishing the Economic Viability

For the resource and reserve estimation processes in accordance with the SEC S-K 1300 Regulations, as well as for the economic analysis of the mine plan that supports the reserves, BHP uses a global and objective approach for all its assets for defining commodity prices as inputs to establish economic viability.

This approach employs historical actual monthly prices for the past three financial years (July 2018 to June 2021). For the mineral resources estimate the third quartile average value is employed, whereas for the mineral reserves estimate and economic evaluation the median average value is employed.

The source of the actual historical copper data is the official LME cash settlement price, expressed in US dollars per pound. Historic prices for the past five calendar years are shown below in Table 16-1.

The Copper price used for resources and reserves estimation in this report are 3.04 US$/lb and 2.79 US$/lb, respectively.

Table 16-1: Historic Copper Price

Calendar Year	2016	2017	2018	2019	2020	2021
Price (US$/lb, nominal)	2.21	2.80	2.96	2.72	2.80	4.23

Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

Over the past three Financial Years, we have seen market conditions range from:

- Macroeconomic softness in 2019, due to the US-China trade tensions and a cyclical slowdown in autos and electronics
- The collapse of demand due to COVID lockdowns in early 2020, followed by a sharp rally on the back of unprecedented levels of fiscal and monetary stimulus
- Subsequent supply shortages as global demand recovered in 2021, with copper hitting record prices (on a nominal basis)

16.1.2 Supply and Demand

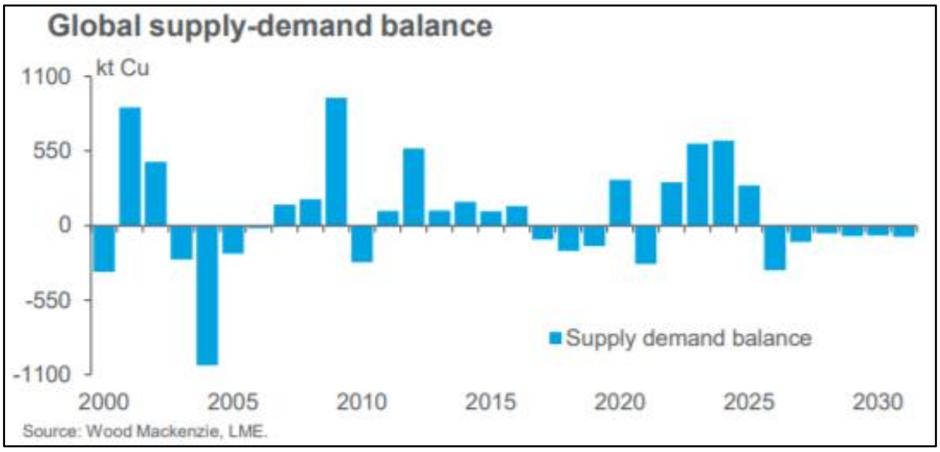
Regarding the supply and demand balance, the two following issues must be considered according to Wood Mackenzie "Copper 2021 update to 2040" (Q3 2021):

- Current supply tightness to give way to surplus in the near term, as mines under construction come online.
- Longer term continued growth in demand and declines in supply from currently-operating mines will require the development of new mines to make up the shortfall.

Specifically for the supply, it is worth mentioning that many copper mines are subject to grade decline, which reduces the productivity of the operation over time. In addition, copper mines on average are shorter-lived than iron ore or coal mines, which means the industry requires a steady pipeline of new projects to maintain production levels and provide growth.

From a demand perspective, it is worth mentioning that copper demand growth in the future is expected to be underpinned by development in emerging economies, as they electrify, industrialise, and urbanise. The global energy transition provides further upside, as copper is widely used in electric vehicles and renewables.

The global supply-demand balance can be seen in Figure 16-1.



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(Source: Wood Mackenzie 2021, LME.)

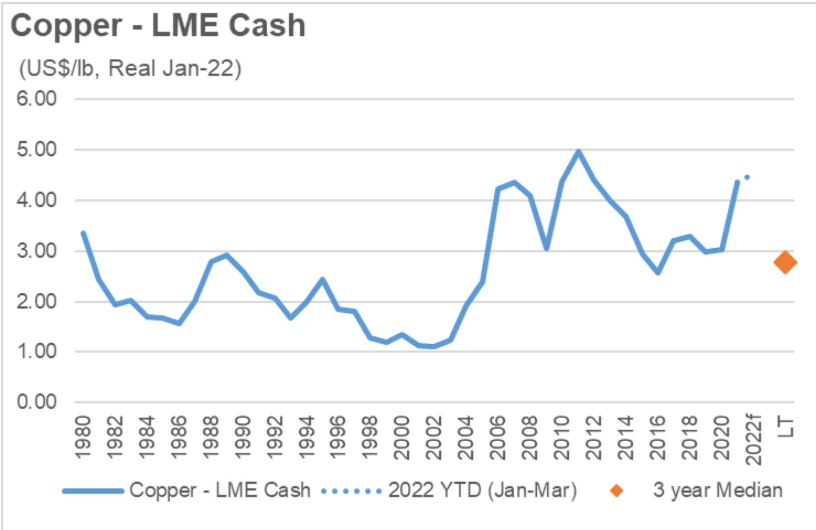
Figure 16-1: Global supply-demand balance

Looking longer term, copper demand is expected to continue to rise on the back of both the global energy transition as well as growth in emerging economies. Wood Mackenzie forecasts refined copper demand 2030 to 2040 will grow at 1.6% p.a. While it is anticipated that demand growth will continue to decelerate (by comparison the 2020s are expected to grow at around 2.3% p.a.), the QP[s] believes it is reasonable to assume that the trend will remain positive.

New mine supply is expected to be required to not only meet this rising demand, but also to replace declining production as currently available ore grades are expected to decline and resources at other mines are to be depleted [over what period?]. Wood Mackenzie estimates that production from currently operating (or committed) mines will decline at a rate of over 700kt Cu year-to-year during the 2030s. The QP[s] believes it is reasonable to assume that this declining trend will continue in [subsequent decades].

The QP[s] believes the combination of rising demand and declining supply means that, on average, prices will need to be sufficiently attractive to induce the construction of new mines and expansions.

Regarding long term prices, the range of real copper prices moved higher in the mid-2000s, after a downward trend throughout the 1980s and 1990s. The real price of copper has averaged nearly US$3.5/lb in the past 15 years as shown in Figure 16-2.



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(Source; LME, BHP Analysis)

Figure 16-2: Historical LME copper price

Current prices for copper (~US$4.30/lb) are believed to be reflective of a scarcity dynamic at this time and as such are not considered sustainable. They are expected to decline in coming years, which is consistent with the lower price level indicated by the three-year trailing price.

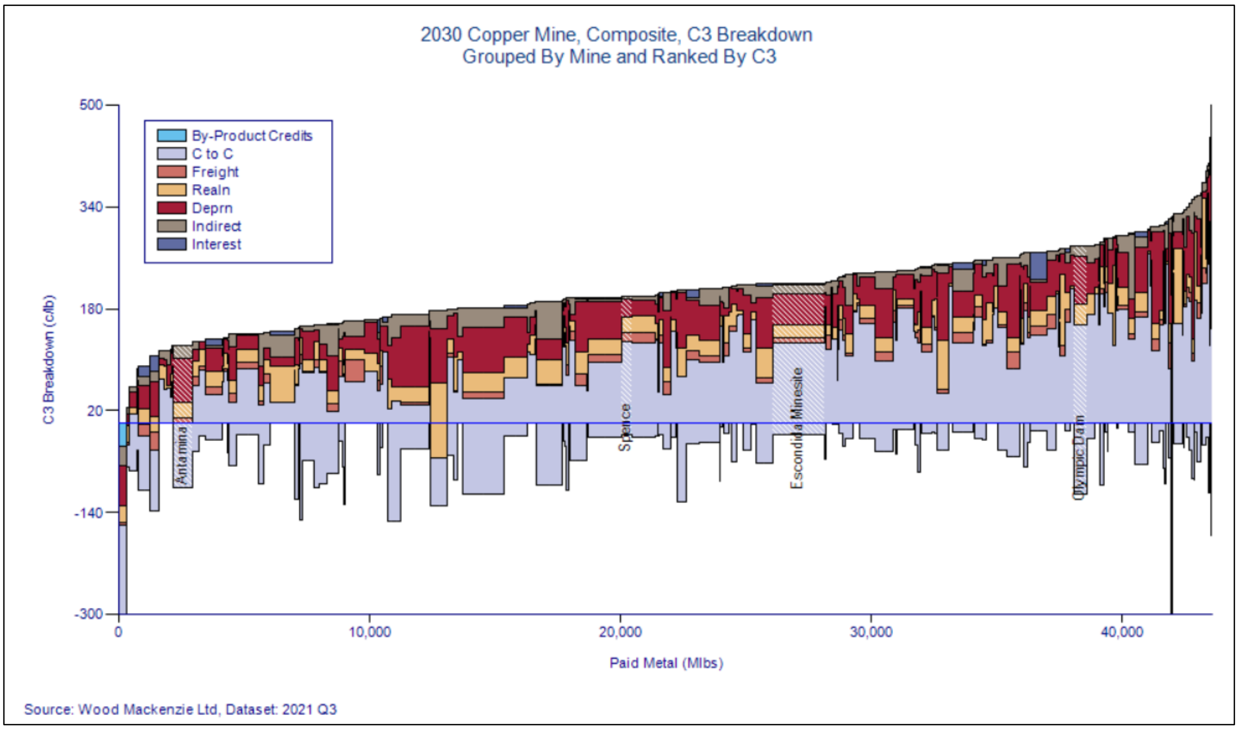
However, it should be noted that the three-year trailing price also sits a little low in the range of prices seen since 2006, and so could be considered relatively conservative.

Therefore, regarding the copper price, the QP is confident of the appropriateness of the value used for both the estimation and the economic valuation of the reserves, which is supported by Wood Mackenzie's forecast, that expects the long-term price (2032 onwards) to be above 3.50 US$/lb (real$ 2022), which is higher than the price used in the current reserves estimation process (2.79 US$/lb).

Copper concentrates produced at MEL contain gold and silver, which the asset receives by-product credits for. Gold and silver are expected to account for less than 10% of revenue for MEL over the life of the mine. The price assumptions are set out in this report outlined for clarity. For gold and silver, the three-year trailing price is taken as the median monthly price for the past three Financial Years: US$1,536/troy oz and US$17.2/troy oz; respectively.

16.1.3 Evaluation of Competitors

Copper supply is quite fragmented by geographical region and number of operating mines. Based on the estimated 2030 C3 costs (Wood Mackenzie) MEL sits in the 3rd quartile.



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(Source: Wood Mackenzie, 2021 Q3 Dataset)

Figure 16-3: Copper Supply Curve 2030 C3 Costs

The QP does not view competitors as a material risk to the mineral reserves estimate due to the expected long-term structural supply deficit.

16.2 Products and Markets

By far, the two most-traded forms of copper are cathode (refined copper) and copper concentrates. Copper cathode is a 99.99% pure form of the metal and is the product that is traded (and deliverable) on the three major exchanges: LME, SHFE and COMEX. Copper Concentrates is the most-traded intermediate product that is fed into copper smelters for refining to cathode form. MEL primarily produces copper concentrate, which is complemented with the production of LME Grade A copper cathodes (refer to LME website for minimum requirements). These products are mainly sold to international markets.

16.2.1 Cathode

'Cathode' refers to the copper deposited on the negative terminal of an electrorefining or electrowinning plant. They are around one metre square and weigh 50-80kg.

Copper cathode is usually sold on a CIF or Delivered basis and priced with reference to LME (or SHFE or COMEX), with a Quotation Period (average month in which the copper price is based on for a particular shipment) of 'M' (Month of shipment) or 'M+1' (One month after shipment), with an additional physical premium. This premium value typically ranges between 30 and 120 US$/tonne depending on regional specific cathode supply and demand, base price arbitrages (e.g. LME vs COMEX vs SHFE) and logistics costs. Generally, this premium represents less than one per cent of the total cathode price.

A 'Grade A' cathode is largely fungible, with only small differences in premium between different brands. The main penalty adjustment is for cathode, which is not deliverable to an exchange, which attracts a discount to the price achieved by Grade A material. The size of this discount is still insignificant compared to the overall price.

16.2.2 Concentrate

The copper grade of ore in a mine is low, often <1% Cu. Therefore, the ore is concentrated via a process of milling and froth flotation, to a grade of 20-40%, which is more economic to transport.

Copper Concentrates have greater variability in qualities, since they are more exposed to the geological variations of the mine's ore body.

Copper Concentrates are typically priced on the content of key metals (Copper, Gold, Silver), with discounts for recoverability. The copper content is priced on LME basis, with Quotation Period typically ranging from 'M+1' (One month after shipment) to 'M+4' (Four months after shipment).

The copper payable is [typically?] determined by the lower between 96.7% of the copper content and the copper content less 1.0 unit. For example, if the copper assay is 27%, MEL will get paid for (27 - 1) = 26% but if assay is 35% it will get paid for 35 x 96.7% = 33.845%. For gold, the payable terms respond to the following content criteria: there is no payment for content below 1 g/dmt; 90% for 1 to 3 g/dmt; 94% for 3 to 5 g/dmt; 95% for 5 to 7 g/dmt; 96% for 7 to 10 g/dmt; and 97% for above 10 g/dmt. In case of silver, a 90% payable factor applies when its content exceeds 30 g/dmt. These payable terms consider Wood Mackenzie as standard basis and Asia as primary market.

The other main component of the copper concentrate pricing is the TCRC which compensates the smelter/refinery for the cost of converting the concentrate to refined copper. The value of the TCRC is roughly 2-3% of the value of the concentrate. According to Wood Mackenzie, the TCRCs are expected to reach a long-term forecast of US$90/t & 9.0c/lb (real$ 2022) by 2027, which would be equivalent to the average TCRC over the last 20 years.

Copper concentrates attract penalties for high levels of Arsenic, Zinc, Lead, plus a list of lesser elements. A key rejection level for Arsenic (As) has historically been 0.5%, which is the import limit for China. However, in recent years, Chinese smelters have been granted permits to build blending facilities to enable them to blend high Arsenic concentrates with cleaner material, so long as the blended material is below 0.5% As. Typically, there is no penalties for MEL concentrate, as it is a 'clean' product that is low in impurities.

16.3 Contracts and Status

Most production is negotiated for sale in advance with a minor proportion allocated to manage operational and market. The terms contained within these contracts are typical and consistent with standard industry practice for each product, considering the special characteristics of our products, low impurities in concentrates and LME Grade A quality cathodes requirements.

In the case of concentrates, the contracts include industry benchmark terms for metal payables and TCRC. Depending on the specific contract, the terms for the sale are either referenced to benchmark-based TCRC or negotiated fixed terms. Treatment charges assumed for estimation of mineral reserves are based on forecasts published by third party data providers such as Wood Mackenzie or the CRU Group.

For cathodes, premium negotiations are conducted on a case-by-case basis, considering the chemical and physical characteristics of the product and the destination market or region. Annual contracts for sales of copper cathodes are completed between Sept and Nov for the calendar year ahead.

17 Environmental Studies, Permitting, Plans and Agreements

The management of the environmental aspects of MEL's operations are managed under the company's ISO14001 certified Environmental Management System (EMS). The EMS describes the organisational structure, responsibilities, practices, processes and resources for implementing and maintaining environmental objectives at all MEL sites. The EMS also outlines a commitment to setting objective and targets to achieve sustainable outcomes and to continually improve performance.

Operational controls for environmental management are guided by BHP's Charter Values. The Charter Values outline a commitment to develop, implement and maintain management systems for sustainable development that drive continual improvement and set and achieve targets that promote efficient use of resources. To give effect to the Charter Values, a series of Our Requirements (OR) documents have been developed, including Our Requirements for Environment and Climate Change (OR E&CC). The OR E&CC applies to environment-related risks and potential impacts on the physical environment: air, water, land, biodiversity, communities, and their interrelationships.

17.1 Environmental Studies and Impact Assessments

MEL supports its operation upon the Environmental Qualification Resolution (RCA) 398 of 2009, which approves the existence of two pits and three concentrator plants with a maximum material processing rate of 460 ktpd. For the tailings deposit, it considers the surfaces and locations previously approved in RCA 001 of 1997. Additionally, it authorizes a height of 3,010 m amsl as the maximum growth for the Laguna Seca tailings deposit, with a storage capacity of 4,500 million tons. Its validity is approximately until the year 2050. It also considers the existence of the infrastructure of Puerto Coloso, in addition to a desalination plant of 525 l/s. In addition, RCA 205 of 2009 approves the operation of a second desalination plant, with a production of 3,200 l/s.

The sulphide leach pad has environmental approval until 2046, while OLAP is authorised to operate until 2051.

Current permits that allow MEL operation have validity until FY50. Any project that modifies these conditions or/and the level of the environmental impacts currently approved could require an EIA.

17.2 Waste and Tailings Disposal

17.2.1 Tailings Management

The plan utilizes the Laguna Seca TSF over the life of the mine.

The goal will be to achieve safety by design, accelerating the implementation of new technologies to reduce tailings management risks, also getting significant benefits on water recovery, reduction of waste volumes and impacted areas and physical stability improvements.

17.2.2 Waste Management and Circular Economy

In line with ICMM performance and the implementation of the REP Law in Chile, MEL's focus is on delivering improved performance to prevent pollution, manage waste, and address potential impacts on human health and the environment. Growing health concern with potentially carcinogen releases and the emerging risk related to Per and Polyfluoroalkyl Substances (PFAS) release in Australia, has resulted in a separation of hazardous and non-hazardous work streams, as different reduction pathways will apply.

Key actions to implement a waste management system that includes a commitment to the waste hierarchy and is applicable to all waste types (hazardous, non-hazardous, and inert, excluding mine waste) are being developed. Diagnostic baseline assessments were developed during FY22 and gaps identified are expected to be closed during FY23, aiming for an appropriate understanding of the magnitude and types of waste to set reduction targets.

17.2.3 Water Strategy

The Strategy was developed based on the following strategic pillars to include; i), operational security; ii), cost competitiveness; iii), sustainability & social value; and iv), innovation and water efficiency. These pillars act as drivers to identify challenges, opportunities, and water-related risks, considering MEL business plans.

MEL's short and medium term strategy (to FY27) is focused on:

- Increasing Overall Equipment Effectiveness (OEE) at the desalination plant at a competitive cost,
- Making efficient use of water through optimisation
- Following an appropriate closure process for SPN and MTQ aquifers offsetting the residual impacts, studying and diagnosing the impacts in the catchment where MEL operates
- Developing and implementing the dewatering and depressurisation strategy through new and innovative technologies handling geotechnical challenges
- Continuing to improve water management through controlling and monitoring water-related risks
- Enabling water stewardship action plans
- Defining new context-based water targets during FY22 that will apply for FY23 to FY30.

The long term strategy (FY28 onward) is focused on: increasing the water supply allowance as a consequence of the innovative projects that increase the water recovery; ensuring supply to enable future growth options; minimising impacts in the catchment from a sustainability standpoint; and managing safety challenges through innovation and an effective, sustainable, and flexible implementation of dewatering and depressurisation.

17.2.4 Land Management

The Antofagasta region contains a large number of projects which require the occupation of vast surfaces. This is the reason why it is so important for MEL to keep an appropriate management and optimisation of the portfolio and its Land Titles and Rights. In 2022, as part of the improvement strategy in the land management process, Planning and Technical at MEL implemented the Landfolio platform which was designed to improve the safeguards of the mining concessions portfolio, water rights and superficial land rights.

The strategy for the long term goes along with a territorial availability evaluation and the definition of a mine lease for MEL, circumscribing a strategic safeguard area that protects from the current and future occupation of the land, the commercial interest areas, the superficial infrastructure protection, and the patrimonial and environmental restricted areas. Also, the inclusion of certain territorial prospects without a mining direct interest is considered to be offered in the development of social value pathway.
Regarding those projects that require the soil as construction material, an early characterisation is being developed with the required volumes and granulometry with focus on optimising the errands timings and contracts assignment. The current areas environmentally authorised for this are destined for the Laguna Seca Tailing Storage Facility.

17.2.5 Biodiversity

BHP has committed to deliver improved environmental performance in relation to biodiversity conservation through a series of actions. These include the implementation of the biodiversity framework in the operations, verifying MEL's performance and measuring MEL's contribution to conservation and adopting a sustainable use and restoration of the marine and terrestrial ecosystems according to the site's operational footprint. In line with the biodiversity mitigation, hierarchy progressive rehabilitation has also been identified as a deliverable. The key focus area for land theme over the life of the mine is to raise performance in relation to the management of cultural heritage. Improved processes and procedures are required to ensure MEL's legal commitments and community obligations are met.

As part of the work related to biodiversity & land management, during FY22 we have developed a new Material Risk, called Biodiversity loss, which aims to consider the risk of potentially affecting biodiversity due to MEL's water extractions from Monturaqui well field, which ended operation in 2019. This is intended to allow as to have in place controls to prevent and mitigate those potential future effects

17.2.6 Air Quality

Air quality issues related to mining and other activities are increasingly becoming an important area of focus for MEL's employees, communities, environmental authorities, and other external stakeholders. The current focus is on continued implementation of an interdisciplinary air quality strategy, which has been developed in conjunction with Minerals Americas. As part of that work, the Air Quality Table was implemented in FY21, where improvements and projects are expected to be identified, prioritised, and followed by the asset leaders, according to hygiene and environmental criteria and based on deeper understanding of the problem and its effects in diverse areas.

A real time monitoring system is being implemented that is designed to provide information to associate sources of pollution with workers exposure, as well environmental conditions, which is expected to help to take relevant decisions in short- and long-term planning related to air quality issues, reducing impacts in MEL's workforce health conditions.

17.3 Project Permitting

Projects that MEL is expected to develop over the next five years are located inside the industrial area; most such projects are within the environmental scopes of other projects already authorised. As a result, a new EIA is not expected to be required in the short term. Nevertheless, the evolution of the following environmental context needs to be monitored:

- Base case permits compliance
- Laguna Seca Tailing Dam infiltration control measures effectiveness
- Laguna Seca Tailing Dam Particle mater dispersion behaviour
- Hydrogeological stronger characterisation in the infiltration risks zones
- Regulatory changes, or community context

To enable a project, an evaluation and planning of permits is carried out, which must be in line with the date of execution of the project, and which is permanently re-evaluated through change management.

Additionally, during the annual planning process, a detailed evaluation of permits is carried out, which allows validating the current strategy and identifying and resolving possible gaps.

Finally, plausible alternatives to keep improving permits management would consider a Permit Committee to identify and track synergy among projects, improve the connection between projects responsible and permits management, generate an integrated strategy to approach the authorities and identify from different perspectives the possible deviations in terms of schedule and compliance.

17.4 Social Plans and Agreements

MEL expects to deepen its Social Value Strategy to enable its operation and projects through the development of a sustainable relationship with the environment and meaningful engagement with its host communities, stakeholders and government.

17.4.1 Indigenous Partnerships

Aligned with the Indigenous Peoples Policy, MEL closed an historical and unprecedented conciliation agreement between the State Defence Council, the Peine Atacamanian Indigenous Community, the Council of Atacamanian Peoples and MEL, which is expected to guide the implementation of compensation and repair actions for the Salar de Punta Negra through an Environmental Management Plan. Participatory decision-making mechanisms and instances of dissemination, environmental education and transparency were established. The technical measures for compensation, mitigation and restoration are aligned with the biodiversity reference framework and responsible water management, long-term policies of the company.

17.4.2 Cultural Heritage

A stronger Cultural Heritage management approach is expected to be developed, based on a set of approved recommendations by the BHP Board. The short-term goal is to articulate the enablement and deployment of structure, processes and systems to effectively manage the Cultural Heritage material risk at MEL during exploration, construction, operation and closure phases. Leveraging MEL's global framework of cultural heritage as well as MEL's Regional Indigenous People Plan, the medium term goal is to develop a bespoke framework for cultural heritage management that embeds the participatory engagement with indigenous people in Chile, reflecting their expectations and rights, the legal obligations and current commitments, as well as BHP's principles regarding future societal expectations.

17.5 Closure Planning

BHP's closure objective is to deliver optimised closure outcomes for MEL's sites. MEL achieves their objective by following the closure management process, which produces an optimised closure management plan.

The LOM considered in this closure is until 2066[2]. This LOM was determined based on the mining of mineral reserves estimated in 2014. However, the closure phase was considered from 2042 to 2066, as per how it was defined in the closure plan, approved by SERNAGEOMIN (Res. Ex. N°1149/2009). It is relevant to mention that MEL has a closure plan that currently is being assessed by SERNAGEOMIN since September 2020.

Based on the physical and socioeconomic environment of the operation, MEL intends to mitigate environment post-closure impacts, through a compatible status with regional ethnographic, ecological, and environmental values returned to the environment. In addition, it is intended to preserve the local biodiversity and remedying the possible affected area until a status in which they are safe and stable[3].

Specific objectives have been defined as per the closure vision stated prior that are being constantly reviewed based on the current state of the knowledge base for each closure domain. These objectives are:

- Post-closure site conditions generate minimal health, safety, and environmental risk
- Prioritize sustainable economic returns from decommissioning to offset the financial costs of closure
- Execute closure in an orderly manner to achieve the established deadline criteria

[2] Mine closure regulation in Chile (Law N°20.551) determines a specific methodology to estimate the remaining mine for financial assurances purposes, and it does not define the date of definitive closure.
[3] LoA22 Closure Management Plan Minera Escondida Ltda, BHP, 2021.

- Avoid long-term liabilities for MEL, the government and the community
- Demonstrate MEL's accountability
- Migrate socioeconomic impacts
- Provide sustainable land use that is consistent with the need of local authorities and communities considering the characteristics of the resource and its environment
- Post-mine landform reconstruction (profiling) must be safe, stable and visually compatible with the surrounding landscape
- Post mine ground profiling to allow water to run off freely and not be contaminated
- Surface materials, such as soils, do not represent a risk to human health or the environment
- No unacceptable impacts of closure on MEL's business
- Maintain the employee's well-being and quality of life after the end of production and mining activities
- Maintain communication with the community and stakeholders throughout the closure
- Validate compliance with the objectives of the Closure Plan and the project success criteria

MEL is pursuing, as part of the closure management strategy, progressive closures that have been identified and scheduled based on the mine plan.

Major closure activities (e.g., closure of remaining pits and ramps and infrastructure) are currently scheduled to commence rehabilitation when areas become available at the end of the LoM in FY67.

BHP closure management process considers two different kind of post-closure monitoring activities. The first one is based on what is mandated by Chilean closure law, which are related to physical and chemical stability of the facilities (reviewed by SERNAGEOMIN authority). The second ones are those activities related to aspects beyond or complementary to the ones committed to the regulator, aligned to BHP standards.

Closure strategies are based on the current understanding of the site and legal requirements, and it is acknowledged that modifications are likely to occur as additional information is available. Information gathered during operations is used to regularly test the validity of closure assumptions and is expected to assist in refining closure options and defining completion criteria.

The closure cost has been estimated based on the current closure provision. This estimate is considered as per a scope class 4 and the total closure cost estimated for MEL is US$ 2,653 M as presented in Table 17-1.

Table 17-1: Cost Estimates - SEC SK 1300 Regulations

Section	Cost (US$ M)
Direct costs	1,604
Indirect costs	284
Others	66
Contingency	464
Risk events	235
Total Cost	2,653

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Source: MEL (2022)

As shown, the total closure cost estimate includes direct and indirect costs, other closure related aspects (i.e., pre-closure studies, closure opportunity framing, studies and post-closure monitoring, studies, and closure monitoring), and contingencies associated to the engineering level of the estimate (Class 4). The expected costs for the risk events identified for the closure phase of MEL are also included.

17.6 Local Procurement and Hiring

17.6.1 Local Procurement

MEL is committed to supporting the local economies and communities in which it operates. One way of achieving this is through local procurement practices where we have established internal goals and supporting practices and processes for local procurement. In particular, procurement with small local businesses is encouraged through the BHP Local Buying Programme, which facilitate more direct engagement between MEL's operations and small local businesses through an online portal (Local Buying Programme | Building Our Future Together) In addition, in June 2021, BHP announced it was introducing 7-day payment terms for all small, local and indigenously owned businesses where it operates globally.

MEL's plan is expected to expand the impact we have in the regional economy, the need of labour and suppliers for the asset in the long term as well as trained internal and external workers. Diversity, inclusion, and local content is planned to be incorporated in this strategy, while strengthening the local business ecosystem, local hiring, intensification of employability programme through the collaboration of Centro Entrenamiento Industrial y Minero (CEIM) and partnership with local Universities (HEUMA).

17.6.2 Social Investment

Social investment is referred to in the plans and negotiations included in the sections above. Social investment involves more than supporting local procurement. MEL's voluntary contribution to invest at least 1% of pre-tax profits over a three-year rolling average into the community

17.6.3 Reconversion and Developing MEL Capabilities

Developing MEL´s workforce capabilities strategy over the next 25 years will bring challenges and opportunities between external recruitment and skills development for current employees in order to address skills projected needs in critical capabilities for existing roles, as well as for emerging roles through new capability architecture so that every individual has the opportunity to assess their capabilities against their current and future roles and develop more meaningful development and career plans that prepare them for the future. It is probable that future skill profiles, as digital skills, problem solving and analytics skills are more suited to new technologies and to a more automated environment, will need to be sourced from other industries or friendlier technology based generations. This will also place a challenge to on-board newer workforce with less, or no, traditional operational experience into BHP´s values and priorities.

MEL's expected plans will require the Antofagasta Region to develop new skills and capacities, capable of adapting and embracing the challenges of a mining industry based on technology, renewable energy, Artificial Intelligence (AI), and autonomy. MEL intends to leverage operational challenges to collaborate with local universities, particularly the HEUMA consortium, working on various lines of technical development and advanced research that include digital and data analytics, desalination, non-conventional tailings, and new extractive metallurgy. This is expected to help MEL ensure knowledge is within the organisation, integrate it into work processes, facilitate access to training, and create local capacities in Research and Development (R&D). Employability programmes through CEIM are intended to expand their coverage, adding OEMs and large contractors in their practical training process. Programmes to generate digital skills and promote STEM careers are also expected to be strengthened. The alliances with MEL's critical educational institutions (CEIM, HEUMA, and partnership with Antofagasta and National Universities) are expected to help MEL drive and implement the following initiatives, as discussed in the coming subsections, supporting MEL's agenda of social values.

17.6.4 Local Procurement Strategy

The local procurement strategy attempts improve relationships and reputation with local stakeholders, building support for the growth of MEL's local business into the site's supply chain through the direct and indirect supply of goods and services:

- In direct spend the focus is expected to be balancing local spend priorities with the need to constantly seek cost productivity; and improving the diversification of spend in appropriate categories of spend that are valued by local stakeholders. The expected proportion of local spend over total spend in contractors should reach 24% by FY25.
- For indirect spend, local contribution mechanisms are expected to be implemented in tenders, leveraging in the supply chain to amplify MEL's contribution in the space of local employment, local subcontracting, and diversity. Expected proportion of local employment in project and contractors should match the BHP internal target of 50% by FY25.

17.7 Discussion of Relative Accuracy/Confidence

In the LOM plan MEL's strategy is to enable operations and projects based on enhancing sustainable relations with the environment and to help to accelerate the decarbonisation of the global economy. A series of actions are planned to be developed to reduce emissions along with building climate resilience at MEL's operations to face plausible climate change impacts from the decades to come and are essential to meet the expectations of MEL's stakeholders.

Every year during the business planning cycle the risks associated with MEL's growth projects are reviewed, in order to ensure that they are carried out as scheduled.

Strategies mentioned in the chapter are based on Environmental Impact Assessment Service (SEIA), in compliance with Chilean legislation requirements, Sernageomin standards, and BHP's corporate guidelines with the required level of accuracy for each organization

In the opinion of the qualified persons the plans, processes and strategies briefly described in this chapter are adequate in addressing any issues related to environmental compliance, permitting, social plans, closure planning, and local procurement.

18 Capital and Operating Costs

18.1 Basis of Cost estimation

For this report, capital and operating costs are estimated to a PFS-level with a targeted accuracy of +/-25% and contingency not exceeding 15%. However, this accuracy level is only applicable to the base case operating scenario and forward-looking assumptions outlined in this report. Therefore, changes in these forward-looking assumptions can result in capital and operating costs that deviate more than 25% from the costs forecast herein.

Capital cost estimates are included in the LoM plan and are based on the estimates derived from the Pre-Feasibility level studies utilising experience from the construction of similar projects at MEL.

Sustaining capital costs estimates are based on the major equipment rebuild, replacement schedule and other capital required to sustain the LoM production level.

Closure costs have been included for the LoM schedules.

Therefore in the QPs' opinion, a timeframe of preceding three years sufficiently covers cycles of price variability and the selection of the median price from a data set of month averages over this period is a reasonable estimate of the long term cost for this purpose. Inflation could potentially change the cost structure and the QP has identify this as an uncertainty. Additionally changes in the exchange rate and future diesel and power costs can materially change the accuracy of the cost estimate.

It should be noted that cost data presented in this section, as discussed in the Note Regarding Forward-Looking Statements (see page ii), has been prepared using costs which are different to those that have been employed in the preparation of BHP's production guidance. Therefore cost data included herein may differ significantly from costs utilized in determining BHP's production guidance published in accordance with ASX Listing Rules.

18.2 Capital and Operating Cost Estimates

18.2.1 Capital Costs

Capital costs at MEL are broken up into four main areas: Mine, Concentrators, Leaching and Non-Process Infrastructure (NPI). In the opinion of the Qualified Person, the estimation methodology and resulting estimates are a fair representation of the capital costs. Table 18-1 outlines the total capital spend that has been included in the life of mine plan.

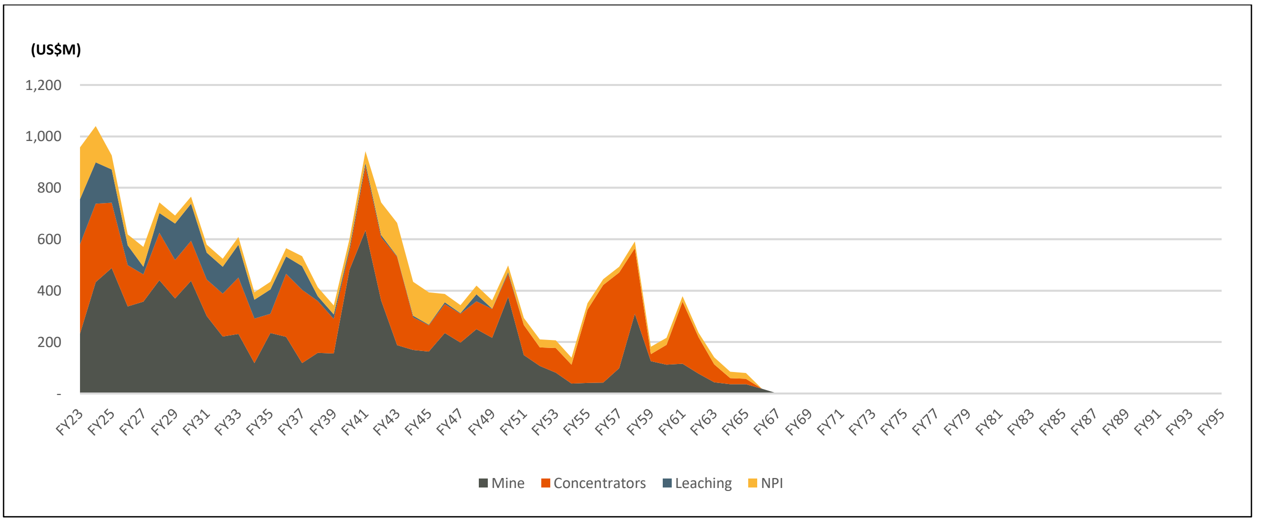
Figure 18-1 shows the timings of these costs over the life of the mine.

Table 18-1: Total Capital Cost by Area (Life of Mine)

Area	Total estimated capital investment over life (US$ M Real)
Mine	9,566
Concentrators	7,231
Leaching	1,724
NPI	2,042
Total	20,563

Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
MEL (2022)

The capital costs are forecast using three approaches. The historical average of the past three years capital costs to estimate general capital costs per year. An hourly approach for equipment replacements, allowing us to ensure these costs occur in the correct year based on the equipment life. Finally, specific projects are schedule based on the year they need to occur based on the schedule.



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Source: MEL (2022)

Figure 18-1: Annual Capex Breakdown

Mine

Capital costs for the mine are divided into two main areas, Mobile Equipment and Pit infrastructure. Mobile Equipment includes capital costs associated with the purchase of replacement equipment to sustain operations as well as any capital associated with the operations and maintenance of the equipment. These costs are based on the required hours of the equipment and total hours. Pit infrastructure is related to any costs associated with advancement of pushbacks. These costs are forecast for specific years based on when we require each pushback.

Concentrators

Capital costs for the concentrators are divided into two main areas, Concentrator Plants and Tailings. Concentrator Plant costs include capital costs associated with the operation of the three concentrators and the infrastructure at Coloso. Tailings costs are associated with the operation of the Laguna Seca Tailing dam. The costs in this area use a mix of historical averages and schedule driven costs.

Leaching

Leaching costs cover both the Sulphide Bioleaching and the Acid Leaching as well as the Electrowinning infrastructure. The costs in this area use a mix of historical averages and schedule driven costs.

NPI

NPI Costs cover the capital for NPI at MEL. Examples of these include, but are not limited to, capex associated with desalination plants, and maintenance of the private road to the MEL minesite. The costs in this area use a mix of historical averages and schedule driven costs.

18.2.2 Opex Costs

The operational costs at MEL are split into the following areas:

- Mining Costs
- Leaching Costs
- Concentrator Costs
- General and Administration (G&A)
- Closure and Rehabilitation

The mining, leaching, concentrator and G&A costs have been estimated used the historical 3-year average costs. An assessment was undertaken to ensure no significant one-off variations were impacting these historical rates, and adjustments made if appropriate. The closure and rehabilitation costs have been based on the expected timing of the costs on a yearly basis.

Table 18-2: Major Components of Capital and Operating Costs (100% Basis)

Cost Category Level 1	Cost Category Level 2	Cost Unit	Value
Mining Costs	Fixed Mining Cost	Real US$ /t material moved	0.87
	Haulage Cost		Variable
Concentrator Costs	Processing Costs	Real US$ /t ore processed	7.10
	Selling Costs	Real US$/t Cu produced	359
Leaching Costs	Oxide Processing Costs	Real US$/ton Leached Ore	7.98
	Sulphide Processing Costs	Real US$/ton Leached Ore	1.31
	Selling Costs	Real US$/t Cu produced	524
Closure & Rehabilitation	Closure & Rehabilitation	Real US$ M Total	2,653
Overheads + Other Costs	General and administration costs (G&A)	Real US$/t Cu produced	838

Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

Mining Costs

Mining costs relate to the cost of extracting material from the pit and delivering it to the final dentation onsite. The major components of mining costs are drilling, blasting, loading, and hauling. The historical 3-year average costs for these components were used as the basis. An assessment was undertaken to ensure no significant one-off variations were impacting these rates. Drilling, blasting, and loading a fixed rate was used, while for haulage a variable rate was used.

Leaching Costs

Leaching costs relate to the processing of ore sent to either the Oxide leaching or Sulphide Bioleaching processes. Leaching costs were estimated for both Oxide and Sulphide Bioleaching and includes processing of the ore, crushing costs (if applicable), solvent extraction (SX) and electrowinning (EW). The historical 3-year average costs for these components were used as the basis. An assessment was undertaken to ensure no significant one-off variations were impacting these rates.

Concentrator Costs

Concentrator costs relate to the processing of ore sent to one of the 3 concentrators at MEL. The costs are averaged over the 3 concentrators. They include the crusher costs, costs of running the plants- and the filter costs at the port, Treatment Charges (TC) and Refining Charges. The historical 3-year average costs for these components were used as the basis. An assessment was undertaken to ensure no significant one-off variations were impacting these rates.

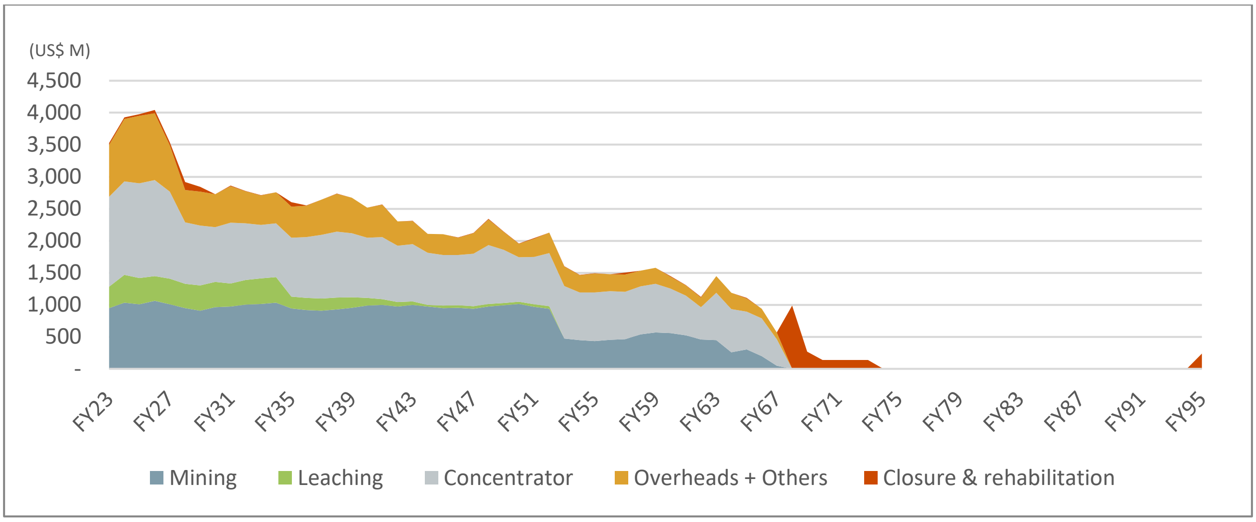
General and Administration

The General and Administration (G&A) costs relate to the general running of MEL and include items such as utilities, rent and salaries as well as others. The historical 3-year average costs for these components were used as the basis. An assessment was undertaken to ensure no significant one-off variations were impacting these rates.

Closure and Rehabilitation

Closure and Rehabilitation costs relate to any costs to do with the closure and rehabilitation at MEL. These costs are irregular and thus have been estimated based on when the costs are expected to be incurred in the mine plan (as opposed to the 3-year historical average costs). More detail on these can be found in Section 17.5.

Figure 18-2 shows the estimated annual spending on Opex by area. Opex costs are expected to reduce in FY28 when the Los Colorados plant closes, we also see some of the associated closure are rehabilitation costs for this in the following years. Between FY28-41 Opex costs are expected to remain steady, and then reduce between FY42 and FY52 as the leaching processes finish. Between FY53 and the end of mine life we expect to see a steady decrease in Opex costs as the mine movement reduces as we approach the end of mine life.



Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

Figure 18-2: Annual Opex Breakdown

19 Economic Analysis

19.1 Key assumptions, parameters and methods used

The economic analysis presented in this section is based on annual cash flows including sales revenue, operating & closure costs, capital expenditure and taxes for the full mineral reserves production schedule, reflecting the MEL production system and supply chain to mine, process and transport of copper concentrate to the sales point.

All results are presented in 57.5% BHP economic interest terms, unless otherwise stated.

19.1.1 Mine Plan Physicals

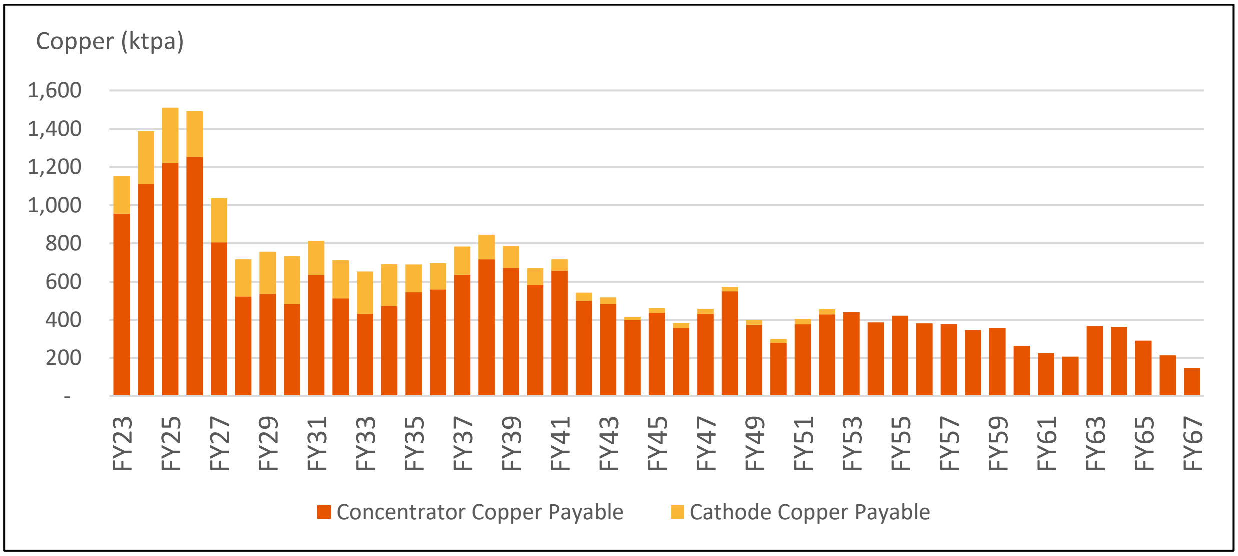
Total material movement and mineral reserves tonnages included in the economic analysis are shown in Table 19-1.

Table 19-1: Mineral Reserves Physicals (100% MEL Terms)

Physical	Tonnage
Material Movement including waste	17,137Mt
Mineral Reserve	6,187Mt

Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

The mine plan is based on a Mineral reserves estimate supported by mine design and schedule. The schedule (shown as Figure 19-1) has been prepared in accordance with the regulations SEC S-K 1300, and excludes the use of inferred mineral resources in pit optimisation and mine scheduling. All inferred material is treaded as waste.



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Source: MEL (2022)

Figure 19-1: SEC Production Schedule for MEL (100% MEL Terms)

19.1.2 Prices and payable metals

The median value of the calendar month average Copper product, Gold and Silver subproducts prices for the preceding three financial years (July 2018 to June 2021) has been provided by the registrant. The prices (rounded to the nearest whole number) are presented in Table 19-2, whilst only the long term copper price has been used for the estimation of mineral reserves, gold and silver are included since they do generate additional revenue from the copper driven mine plan. Average payable metals are shown in the Table 19-3

Table 19-2: Long Term Product and Subproduct Prices

Inputs	Units	Value
Copper Price	USD / lb	2.79
Gold Price	USD / troy oz	1,536
Silver Price	USD / troy oz	17.2

Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

Table 19-3: Average Payable Metals

Cu Concentrate*	Cu Cathodes	Au	Ag
96.2%	100.0%	90.0%	90.0%

Notes: 1) *Based on the SEC LOM Plan
2) The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

19.1.3 Foreign Exchange Rate

Input operating and capital costs for MEL are Chilean Pesos (CLP). An average foreign exchange rate for the preceding three financial years (July 2018 to June 2021) of 730.5 CLP/USD has been provided by the registrant to convert and present cash flows in US dollars.

19.1.4 Capital and Operating Costs

Capital costs (refer Section 18.2.1) are included in the cash flow to sustain from mine to the port production capacity required for the mineral reserves mine plan schedule along with typical mine replacement of mining equipment, pit pushbacks, development clear, replacement of plant instrumentation and sustaining tailings storage facilities. There are no material individual development expenditures (e.g., new mining hubs) expected to be required above the sustaining capital amounts to produce the mineral reserve.

Operating costs (refer Section 18.2.2) included in the cash flow are representative of operating conditions at MEL over the previous three financial years (July 2018 to June 2021) and are applied to the full mineral reserves activity schedule from mines to sales point.

19.1.5 Closure Costs

Closure and rehabilitation costs throughout the production period and after end of mineral reserves mine life in 2067 have been included in the economic analysis (refer Section 17.5).

19.1.6 Taxes

The following taxes are assumed to be paid in the financial year incurred in the annual cash flow analysis:

- Chilean corporate tax rate of 27% based on the current statutory rate of Chile.
- Variable Mining Tax gross rate from 5% to 14% depending on the operating margin. Mining tax is deductible for corporate tax purposes.
- ~ 8% Withholding Tax rate on dividend remittance (35% Withholding Tax rate less the corporate tax rate of 27%).
- Depreciation is estimated using the straight line method

19.1.7 Valuation Assumptions

Discounted annual cash flows are calculated using a 6.5% discount rate at a valuation date of 1 July 2022. The discount rate is provided by the registrant for utilisation in the economic analysis.

19.2 Results of Economic Analysis

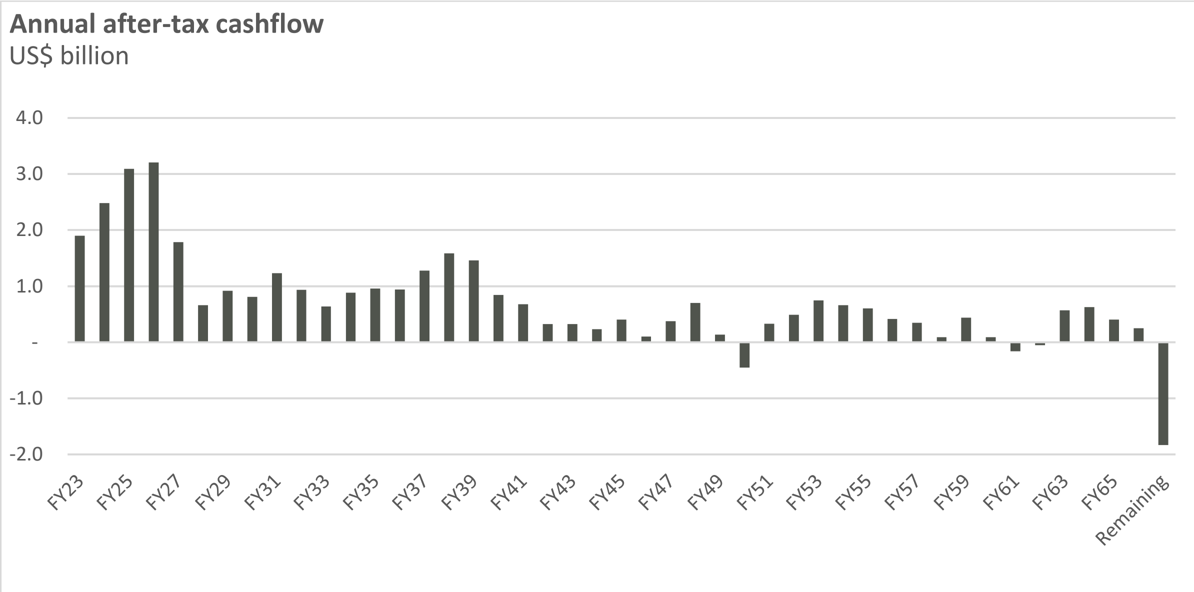
Results of the economic analysis based on the annual production schedule of MEL mineral reserves is summarised at Table 19-4. Total cash flow of US$18.7 billion, discounted to July 2022 at 6.5% results in a net present value (NPV) of US$10.5 billion.

Table 19-4: Financial Metrics Summary

Mineral Reserve Cash Flow Summary	Value (US$B, real)
Revenue	100.9
Operating costs	57.3
Capital expenditures	11.8
Closure & rehabilitation	1.5
Taxes	11.6
After-tax cash flow	18.7
Net present value (6.5%, Jul-22)	10.5

Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

The annual cash flow presented in Figure 19-2 includes all remaining closure and rehabilitation related annual cash flows summed after the final year of mineral reserves production, for clarity of presentation.



Note: The sole purpose of the annual cash flow data presented above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

Figure 19-2: Annual Cash Flow

As there is no initial capital investment to be recovered, the internal rate of return (IRR) and payback period are not applicable for this cash flow analysis or economic viability.

It is the Qualified Person's opinion that extraction of the mineral reserves is economically viable.

19.3 Sensitivity Analysis

Economic sensitivity analysis results are presented at Table 19-5 based on variations in significant input parameters and assumptions.

Table 19-5: Results of Sensitivity Analysis

NPV US$ billion	-25%	Reference	+25%
Copper price	3.7	10.5	17.1
Foreign exchange rate (CLP / USD)	9.3	10.5	11.3
Capex	11.4	10.5	9.7
Opex	14.1	10.5	6.8
Cu Grade	5.0	10.5	15.9

Note: The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.
Source: MEL (2022)

In the opinion of the Qualified Person the NPV of MEL mineral reserves is robust to variation in significant input parameters.

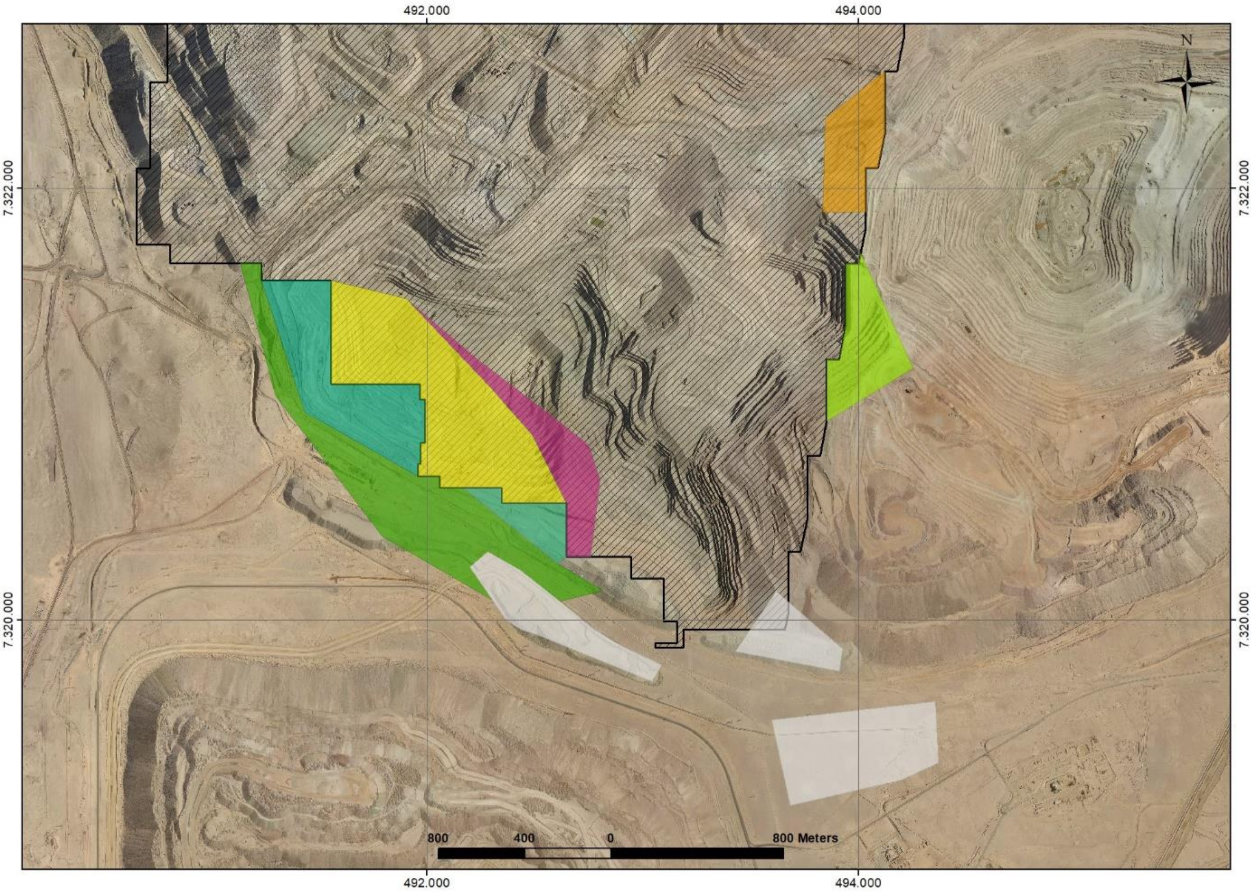
20 Adjacent Properties

MEL is located adjacent to Compañía Minera Zaldivar (CMZ), owned by Antofagasta Minerals. MEL and CMZ are mining the same mineralization and currently MEL's Escondida Norte pit and the CMZ main pit share a common pit wall (Figure 20-1).

CMZ and MEL have historic agreements in place with regards to CMZ accessing areas that fall within the MEL property, as well as MEL gaining access to portions of the Escondida Norte pit that fall within the CMZ mine property.

In Antofagasta Minerals most recent annual report ("Annual Report 2021") state that the Zaldivar mine is expected to operate until 2036. They also note that 20% of the ore reserves at Zaldivar impact a portion of MEL's mine property, as well as infrastructure owned by third parties (road, railway, powerline and pipelines).

Maps presented in this chapter use UTM projection PSAD56.



Note: Coloured areas show sections covered by the historic agreements between CMZ and MEL

Figure 20-1: CMZ Located Next to Escondida Norte Pit

21 Other Relevant Data and Information

21.1 Independent Audits

An independent audit of the MEL Ore Reserves were carried out during May 2020 undertaken by Golder Associates S.A. for the Ore Reserves statement as at June 30, 2020.

The main conclusions of Golders audit are presented below. Specific technical conclusions are presented throughout the report.

- The method used to define and estimate Ore Reserves is adequate.
- The modifying factors used to convert mineral resources to Ore Reserves were correctly applied.
- The economic analysis indicates a positive cash flow based on the production schedule adopted.
- The Ore Reserves were reproduced by Golder (tonnes and grades) according to the statement as at June 30, 2020, provided by BHP.
- No fatal flaws were identified during the audit.
- No recommendations classified as Priority 1 or Priority 2 were identified during the audit.
- The Ore Reserves reported by BHP as at June 30, 2020, comply with BHP internal documents Tenement Management and Mineral Reporting (BHP, 2016) and US SEC Mineral Reserves Reporting (BHP, 2018).

Annual internal Risk Reviews are conducted jointly by MEL and the BHP Resource Centre of Excellence to ensure significant and material risks to tenure, mineral resources and mineral reserves are adequately managed. The Risk Review process identifies key reporting changes regarding the annual declaration of mineral resources and mineral reserves and agreed actions requiring completion prior to BHP's annual reporting. Issues and opportunities identified during the Risk Reviews inform the Annual Assurance Plan and scopes for potential Controls Effectiveness Collaborative Assessment reviews and identify good practice that can be shared across BHP.

The risk review conducted in FY22 found no Significant Deficiencies.

21.2 Plan Compliance

Mine Plan Compliance was estimated for FY22, comparing expit movement per phase to 2YBudget22 Plan (F11), from July 2021 to April 2022 (March 2022 YTD F11).

During the fiscal year the delay in the mine sequence is 7Mt (98% volumetric compliance), with delays in PL01, N017 and N011 being offset be advances in other pushbacks (Figure 21-1).

- PL01 - Delayed zones due to change in sequence compared to F11 & deviation at initial start surface FY22. Actual extraction sequence focused on the north of pushback rather than south.
- N017 - Delay due to less expit movement at the beginning of FY22, 2 shovels operated vs 3 shovels planned. In the 2nd Half of FY22 with change in sequence between centre of pushback rather than west of pushback.
- E007 - Is ahead of plan because F11 considered extraction of the pushback in June FY22 (detention from July to May). The advances are due to delays in the removal of the antenna (N11 pushback) at the beginning of FY22 and the detention of N568 pushback in September
- N011 - Delayed because the antenna was removed in July FY22 and until to February with less movement than planned in F11

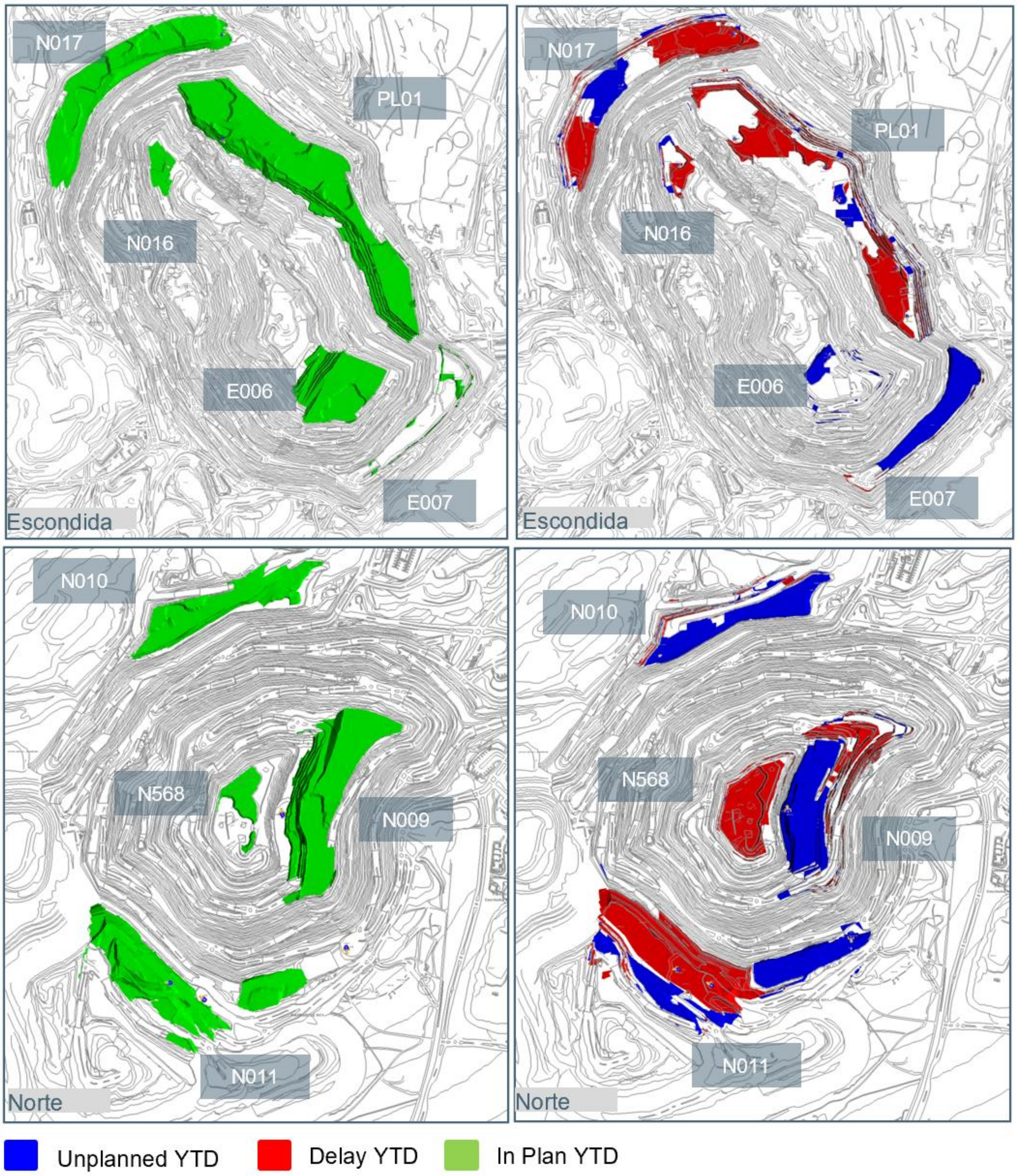


Figure 21-1: In Plan vs Delayed vs Unplanned

Figure 21-2 shows volumetric YTD delayed and unplanned expit movement per pushback for FY22, referred 2YBudget22.

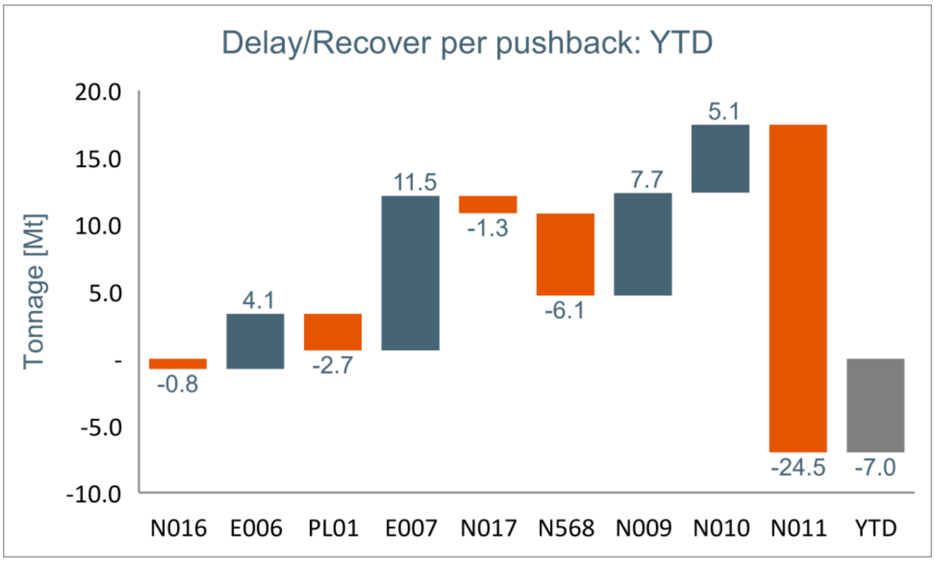


Figure 21-2: Volumetric delay-recover per pushback, from July to March FY22

22 Interpretation and Conclusions

MEL has mineral resources and mineral reserves supported by drilling programmes, all within the boundaries of the MEL Special Mining lease and within 15 km radius of existing infrastructure. The vertically integrated nature of the mining and processing facilities located close to the ore body provides the flexibility to add and optimise growth tonnes to existing infrastructure

Mineral resources confidence is reflected in the applied resource classifications in accordance with the SEC S-K 1300 Regulations with factors influencing mineral resources classification including but not limited to data density, data quality, geological continuity and/or complexity, estimation quality and weathering zones. Reconciliation data from operating mines supports the confidence of resource estimates.

22.1 Mineral Resources

Geology and mineralisation are well understood through three decades of active mining, and MEL has used relevant available data sources to integrate into the modelling effort at the scale of a long term resource for public reporting. A 3D implicit geological model informed by drilling and pit mapping to constrain and control the shapes of lithology, alteration, and mineralisation of the deposit. Copper grades were interpolated into a block model using ordinary kriging methods. Results were validated visually, via various statistical comparisons, and against recent reconciliation data. The estimate was depleted for current production, categorised in a manner consistent with industry standards. Mineral resources have been reported using an optimised pit shape, based on economic and mining assumptions to support the reasonable potential for eventual economic extraction of the resource. A cut-off grade has been derived from these economic parameters, and the resource has been reported above this cut-off. The above process occurs annually in preparation for MEL's annual business planning cycle.

In QP's is of the opinion, that the mineral resources stated herein are appropriate for public disclosure and meet the definitions of Indicated and Inferred resources established by the SEC S-K 1300 Regulations and industry standards.

22.2 Mineral Reserves

Mineral reserves have been estimated in consideration of both internal and regulatory requirements. Economic assumptions that were applied are consistent with company protocols. An iterative and comprehensive planning process is in place whereby final pit phase designs are reviewed by the geotechnical department in order to endorse the final pushback designs.

FY22 statement considered three concentrator plants operating until FY27, Los Colorados ceases operation at this year and then two concentrators are expected to remain until the end of this operation (Laguna Seca L1 and L2). In terms of the process of cathodes, Sulphide Leach operates until FY56 and OLAP until FY34.

Uncertainties that affect the reliability or confidence in the mineral reserves estimate include but are not limited to:

- Future macro-economic environment, including product prices and foreign exchange rate;
- Changes to operating cost assumptions, including labour costs;
- Ability to extend the mine life after FY50 when we are required to renew our surface rights which are expected to require a new Environmental Impact Assessment (EIA);
- Ability to maintain environmental and social license to operate;

Confidence in the mineral reserves is reflected in the applied reserve classifications in accordance with the SEC S-K 1300 Regulations with factors influencing classification including but not limited to mining methods, processing methods, economic assessment and other life of asset and closure assessments.

Reconciliation data from the existing operation supports the confidence of reserve estimates. As with the generation of the Geological and mineral resources models, mine planning is undertaken on an annual basis to inform the MEL business planning process.

In the opinion of the Qualified Person, the positive project NPV provides confidence in the mineral reserve estimates and the supporting mine plan, under the set of assumptions and parameters used in which they were developed.

23 Recommendations

23.1 Recommended Work Programmes

23.1.1 Geology and Mineral Resources

Maintain, according to the MEL standard, target a minimum of 90% of measured resources for the first two years of production and a minimum of 80% of measured resources for the following three years. This is achieved through the yearly drilling of the deposits focussed upon reducing geological uncertainty in required areas. This data gathering activity both informs the long term planning process and also reduces risk to the medium term (5 year) operational window. This continuation of the annual activity is the fundamental recommendation for geology and mineral resources being the key risk management tool for geological uncertainty.

Better understanding of the geological features will be needed for the deeper portions of the Escondida deposit but at this time this part of the mineralisation isn't mined until after year 2045.

23.1.2 Mineral Reserves

Continue the process of annual updates of the mineral reserves in line with the annual planning processes. This may be required more frequently if new information becomes available that materially impacts one or more of the modifying factors. Continue with the periodical independent review of mineral reserves estimation methodology and implementation of any identified recommendations from the review outcomes.

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25 Reliance on Information Provided by the Registrant

The qualified persons have relied on information provided by BHP in preparing their findings and conclusions regarding certain aspects of modifying factors, which are listed in Table 25-1.

Table 25-1: Reliance on Information Provided by the Registrant

Category	Report Section/ Portion	Portion of Technical Report Summary	Disclose Why the Qualified Person Considers it Reasonable to Rely upon the Registrant
Macro- economic Assumptions	Section 19.1	Standard discount rate and foreign exchange rate	Matters related to discount rates and interest rates are maintained by financial professionals within BHP and the accounting practices are audited annually by external auditors.
Governmental factors	Section 19.1	Royalty and taxation	These are external factors that BHP has to comply with and data is maintained by financial professionals within BHP

Source: MEL (2022)

Exhibit 96.2

BHP

Title: Technical Report Summary - Western Australia Iron Ore
SEC S-K 229.1300 Technical Report Summary
Stage of Property: Production
Property: Western Australia Iron Ore (WAIO)
Location: Western Australia, Australia

Report Prepared for

BHP Group Limited
(ABN 49 004 028 077)

171 Collins Street, Melbourne
VICTORIA 3000 AUSTRALIA

Report Prepared by

<table>
<tr><th>Name of Qualified Person</th><th>Specific Type of Activity undertaken on behalf of the registrant and Area of Accountability</th><th>Section(s) of Technical Report Summary each Qualified Person is responsible for</th><th>Signature</th><th>Date</th></tr>
<tr><td>Fleur Muller</td><td>Mineral Resources – All WAIO</td><td>Sections 6, 7 and 11 in full and Sections 1-5, 10, 14, 17, 20-25 jointly with Mineral Reserve QPs</td><td>/s/Fleur Muller</td><td>30/06/2022</td></tr>
<tr><td>Ashley Grant</td><td>Sampling and Analysis</td><td>Sections 8 and 9</td><td>/s/Ashley Grant</td><td>30/06/2022</td></tr>
<tr><td>Alex Greaves</td><td>Mineral Reserves – Newman JV</td><td rowspan="3">Sections 12, 13, 15, 16, 18 and 19 in full and Sections 1-5, 10, 14, 17, 20-25 jointly with Mineral Resource QP</td><td>/s/Alex Greaves</td><td>30/06/2022</td></tr>
<tr><td>Anastasia Balueva</td><td>Mineral Reserves – Mount Goldsworthy JV Mining Area C</td><td>/s/Anastasia Balueva</td><td>30/06/2022</td></tr>
<tr><td>Chris Burke</td><td>Mineral Reserves – Jimblebar</td><td>/s/Chris Burke</td><td>30/06/2022</td></tr>
</table>

Note regarding Forward-Looking Statements

This Technical Report Summary (TRS) contains forward-looking statements, including: statements regarding trends in commodity prices and currency exchange rates; demand for commodities; resources, reserves and production forecasts; plans, strategies and objectives of management; operations or facilities (including associated costs); anticipated production or construction commencement dates; capital costs and scheduling; operating costs and supply of materials and skilled employees; anticipated productive lives of projects, mines and facilities; provisions and contingent liabilities; and tax and regulatory developments.

Forward-looking statements may be identified by the use of terminology including, but not limited to, ‘intend’, ‘aim’, ‘project’, ‘see’, ‘anticipate’, ‘estimate’, ‘plan’, ‘objective’, ‘believe’, ‘expect’, ‘commit’, ‘may’, ‘should’, ‘need’, ‘must’, ‘will’, ‘would’, ‘continue’, ‘forecast’, ‘guidance’, ‘trend’ or similar words. These statements discuss future expectations concerning the results of assets or financial conditions, or provide other forward-looking information.

Forward-looking statements are based on current expectations and reflect judgments, assumptions, estimates and other information available as at the date of this TRS. These statements do not represent guarantees or predictions of future financial or operational performance and involve known and unknown risks, uncertainties and other factors, many of which are beyond BHP’s control and which may cause actual results to differ materially from those expressed in the statements contained in this TRS. Readers are cautioned against reliance on any forward-looking statements or guidance, including in light of the current economic climate and the significant volatility, uncertainty and disruption arising in connection with COVID-19. Other factors that may affect actual results are set out in BHP’s reports that are filed with, and furnished to, the U.S. Securities and Exchange Commission, including BHP’s Annual Report on Form 20-F for the period ended June 30, 2022.

Except as required by applicable regulations or by law, BHP does not undertake to publicly update or review any forward-looking statements, whether as a result of new information or future events.

The production schedule data included in Sections 13 and 19 of this TRS has been prepared to demonstrate the economic viability of the mineral reserves of WAIO only and may differ from production guidance published by BHP from time to time in accordance with the relevant ASX Listing Rules. See Sections 11, 12, 16, 17, 18 and 19 for more information on the pricing and cost assumptions utilised to produce WAIO’s production schedule data in this TRS.

Specifically, the production schedule data for the entire life of mineral reserves included in Sections 13 and 19 of this TRS has been prepared utilising the median of historical monthly average commodity prices and the average of annual costs for the preceding three financial years (1 July 2018 to 30 June 2021), whereas BHP’s forward production and cost guidance published in accordance with the ASX Listing Rules are prepared utilising BHP’s internally generated projected long-term commodity prices and cost assumptions. Therefore, the production schedule data included in this TRS may differ from BHP’s production guidance published in accordance with the ASX Listing Rules.

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List of Abbreviations

The metric system has been used throughout this report. Tonnes are metric of 1,000kg, or 2,204.6 lb. All currency is in U.S. dollars (US$) unless otherwise stated.

Abbreviation	Unit or Term
%	percent
°	degree (degrees)
°C	Degree(s) Celsius
µm	micron(s)
2D	Two dimensional
3D	Three dimensional
ACH	Aboriginal Cultural Heritage
AH	Aboriginal Heritage
AMD	Acid and Metalliferous Drainage
AusIMM	Australian Institute of Mining and Metallurgy
BHP	BHP Group Limited
BHPIOJ	BHP Iron Ore (Jimblebar) Pty Limited
BHPM	BHP Minerals Pty Limited
BID	Bedded Iron Deposit
BIF	Banded Iron Formation
BKM	Brockman (a type of iron ore deposit)
BWT	Below Water Table
CFR	Cost and freight
CHMP	Cultural heritage management plans
CID	Channel Iron Deposits
cm	centimeter
CRM	Certified Reference Materials
CY	Calendar Year (12-month period from 1 January to 31 December)
DD	Diamond Drilling
DHAT	Down Hole Assay Tool
DID	Detrital Iron Deposits
DMIRS	Department of Mines, Industry Regulation and Safety
dmt	Dry Metric Tonne
dmtu	Dry Metric Tonne Unit
DSO	Direct shipping ore
DWER	Department of Water and Environmental Regulation
EDA	Exploratory Data Analysis
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
EPA	Environmental Protection Authority
EPBC	Environmental Protection and Biodiversity Conservation
E-W	East-West
FIFO	Fly-in-fly-out
FOB	Free On Board
FSE	Fundamental sampling error
FY	Financial Year (12-month period from 1 July to 30 June)
g	gram(s)
GDA94	Geocentric Datum of Australia 1994
GPS	Geographic Positioning System
ha	hectares
HSE	Health Safety Environment
IDW	inverse-distance weighted
IF	Iron Formation
IJV	Incorporated Joint Venture
ILUA	Indigenous Land Use Agreement

Abbreviation	Unit or Term
ISO	International Standards Organisation
Itochu	Itochu Minerals and Energy of Australia Pty Limited
JV	Joint venture
kg	kilogram(s)
km	kilometer(s)
km^2	square kilometer(s)
kv	kilovolt
LoA	Life of Asset
LOI	Loss on Ignition
LoM	Life of Mine
m	meter(s)
m^2	square meter(s)
m^3	cubic meter(s)
MAC	Mining Area C
MCP	Mine Closure Plan
M-G	Martite-Goethite
Mitsui	Mitsui Iron Ore Pty Limited
mm	millimetre(s)
MM	Marra Mamba (a type of iron ore deposit)
MNES	Matters of National Environmental Significance
mplH	Microplaty hematite
MS	Ministerial Statement
Mt	Million tonnes
Mtpa	Million tonnes per annum
MW	Million watts
NATA	National Association of Testing Authorities
NPV	Net Present Value
N-S	North-South
NVCP	Native Vegetation Clearing Permits
OHP	Ore handling plant
OSA	Overburden Storage Areas
PAF	Potentially Acid Forming
PEAHR	Project Environmental and Aboriginal Heritage Review
ppb	parts per billion
ppm	parts per million
QAQC	Quality Assurance/Quality Control
QP	Qualified Person
RC	Reverse Circulation
RIWI	Rights in Water and Irrigation
ROM	Run-of-mine
RQD	Rock Quality Description
SA Act	State Agreement Act
SEC	United States Securities and Exchange Commission
SMU	Selective Mining Unit
t	tonne (metric ton) (1000 kilograms or 2,204.6 pounds)
TGA	Thermo-Gravimetric Analysis
TLO	Train Load-Out
TR	Temporary Reserve
TRS	Technical Report Summary
TSF	Tailings Storage Facility
WA	Western Australia
WAIO	Western Australia Iron Ore
wmt	Wet Metric Tonne
XRF	X-ray fluorescence

1 Executive Summary

This Technical Report Summary was prepared at a Pre-Feasibility Study-level, in accordance with the Securities and Exchange Commission (SEC) Regulation S-K (Title 17, Part 229, Items 601(b)(96) and S-K 1300), for BHP Group Limited (BHP), to support its disclosure of Mineral Resources and Mineral Reserves on its production-stage Western Australia Iron Ore (WAIO) property, Western Australia, Australia.

BHP is a leading mining and resources company. Its WAIO property is a large integrated direct shipping iron ore producer exporting iron ore in the form of fines (sinter plant feed) and lump (direct blast furnace feed), which are essential raw materials for the iron and steel-making industry. WAIO has been continuously producing iron ore since the late 1960's. The annual iron ore production rate of WAIO has increased gradually from about 20 Mt in the 1990's to 283 Mt (249 Mt on BHP's equity ownership basis) in FY2022 to meet rising global demand for iron ore.

1.1 Property Description and Ownership

The WAIO property is situated in the Pilbara iron ore province in the north-west of Western Australia (WA) and is centred on the small regional town of Newman located at approximately 1,000km north of the capital city Perth of WA. WAIO is an integrated operation consisting of five mining hubs and four processing hubs, all connected to its port facilities at Port Hedland by a network of more than 1,000km of its own rail infrastructure.

WAIO comprises four main joint ventures (JVs): Mount Newman, Yandi, Mount Goldsworthy and Jimblebar. BHP's economic interest in each of these JVs is 85%, with Mitsui Iron Ore Corporation Pty Ltd and Itochu Minerals and Energy of Australia Pty Ltd owning the remaining 15%. The JVs are unincorporated, except Jimblebar. BHP, Mitsui, Itochu and POSCO are also participants in the POSMAC JV, in which BHP's interest is 65%. The POSMAC JV only has a sublease over a part of Mount Goldsworthy JV and sells ore to the main JV.

WAIO's joint ventures, processing hubs, mining hubs and main mineral deposits are listed in Table 1-1. Regionally, Newman and Jimblebar mining and processing hubs fall within Eastern Pilbara region, Mining Area C and South Flank within Central Pilbara region and Yandi within Yandi region as shown in Figure 3-2 (Section 3.1).

Table 1-1: List of WAIO Joint Ventures, Mining and Processing Hubs

Joint Venture	Processing Hub	Mining Hub	Main Mineral Deposits
Mount Newman	Newman Operations	Newman	Mount Whaleback, Eastern Ridge, Shovelanna
Jimblebar			Western Ridge
	Jimblebar	Jimblebar	South Jimblebar, Wheelarra, Hashimoto
Yandi	Yandi	Yandi	Yandi (end-of-life ramp down started in July 2021)
Mount Goldsworthy (POSMAC JV holds a sublease over the Mining Area C mine)	Mining Area C	Mining Area C	North Flank, Packsaddle
		South Flank	South Flank (new mine, first production started in May 2021)

Mines, processing facilities, railways and port facilities comprising WAIO are spread over a geographical area of 350km N-S and 250km E-W between Port Hedland and Newman towns. Newman (Latitude: 23°21'15" S, Longitude: 119°43'55" E) and Port Hedland (Latitude: 20°18'45" S, Longitude: 118°34'50" E) are accessible by road via public highways (Great Northern Highway and North West Coastal Highway) and by air via commercial flights to Newman and Port Hedland. A number of WAIO-owned roads and airports provide access to individual mining hubs. Iron ore produced from various mines is transported via WAIO-owned rail lines to the port facilities at Port Hedland in WA.

Mineral rights are held pursuant to five State Agreement (SA) Acts of WA (acts relating to mining rights held by BHP and its WAIO JV partners only) and the Mining Act, 1978 (WA) (act relating to mining rights for any party that obtains mineral titles in WA). WAIO currently holds 8 mineral titles pursuant to the SA Acts (covering a total area of approximately 2,678km^2) and 46 tenements pursuant to the Mining Act (totalling to 1,845km^2). BHP and its JV partners are the registered holders for 38 tenements and BHP is the sole registered holder for 16 tenements. The total area held under all these 54 titles is approximately 4,523km^2.

1.2 Geology and Mineralisation

The majority of WAIO's iron ore deposits are hosted in the late Archaean to early Proterozoic-age banded iron formations of the Hamersley Group in the Pilbara region of WA. Brockman (BKM) and Marra Mamba (MM) Iron Formations (IF) of the Hamersley Group are the two main hosts for bedrock mineralisation.

Fresh BKM IF tends to have higher phosphorous and alumina (both deleterious elements) and lower loss-on-ignition than fresh MM IF and this characteristic is carried through into the composition of the bedrock ores derived from these two different stratigraphic units. For this reason, the primary division of bedrock ore types is based on stratigraphy (BKM versus MM). The BIF-hosted iron ores can then be further subdivided in terms of their genesis and current mineralogy into (i) hypogene martite-microplaty hematite ores and (ii) supergene martite-goethite ores.

In addition to these two BIF hosted mineralisation types, economic mineralisation is also found in the fluviatile channel iron deposits (CID) of late Eocene to early Miocene age. The iron content in the CIDs is less than the bedrock mineralisation, but they tend to have much lower phosphorus and alumina contents that still make them attractive raw material.

Younger detrital sequences form colluvial-alluvial fans adjacent to some bedded iron deposits, which are called Detrital Iron Deposits (DID). Despite their widespread occurrence, mining of these DIDs is very limited and mostly opportunistic, occurring where they are mineralised and situated above bedrock mineralisation.

As such, the BKM, MM and CID are the three main ore types in the Pilbara. At WAIO, mined BKM and MM ore types (as well small quantities of DID) are blended together to produce the final lump and fines products. CID is mined separately and sold as a fines only product. WAIO's reported Mineral Resources and Mineral Reserves are a combination of these ore types.

Hematite (~70% Fe) and goethite (~63% Fe) are the primary iron bearing minerals and occur in different proportions in the deposits of various ore types. The run-of-mine is direct shipping ore (DSO).

Mineralisation extends more or less continuously over strike lengths of 5-10km for the majority of deposits, but may extend for up to 50-60km. The width of mineralisation at surface typically ranges from about 200m up to 1500m. Mineralisation extends to depths of between 100 and 400m and deposits typically have some form of surface expression, making them accessible to surface mining.

1.3 Status of Exploration, Development and Operations

WAIO is an operating stage property and has been producing continuously since the late 1960's. The required exploration and development activities are planned and executed internally.

Drilling is the primary method of exploration and undertaken on an on-going basis. The exploration activities are carried out in areas adjacent to operating mines (brownfield areas) in order to replenish Mineral Resources depleted due to mine production. In addition, some exploration activities are undertaken in strategic areas (greenfields areas) to increase confidence in the Mineral Resources that are scheduled for potential future development in the life of asset plan.

From the 1950's to end of calendar year 2021, WAIO completed over 145,000 exploration drill holes for a total of 11.4 million metres (or 11,400km, including 8,312km of Reverse Circulation drilling and 773km of Diamond Drilling) for the purpose of resource identification and definition, resource characterisation, modelling of geotechnical and hydrogeological parameters, and geometallurgical test work. Since 2008, between 400km and 600km of exploration drilling have been completed annually. Drillhole lengths range from 30m to ~280m, with the majority of drill holes between 60m and 120m in length.

WAIO is an integrated system comprising four operational processing hubs (Newman Operations, Jimblebar, Mining Area C and Yandi) with associated open-pit mines and ore handling / processing plants. WAIO has its own rail network and port facilities, for transporting iron ore products to the coast and shipping them to its customers. All other WAIO infrastructure, including roads, airports, fly-in-fly out camps, sources of water and electricity, have been established by BHP over the last 50 years.

The growth of WAIO's iron ore production from the early 2000's has been mainly driven by the increased demand resulting from the industrial expansion in mainland China during this period, where steel production and consumption increased significantly.

All WAIO mines are open-pits and the run-of-mine (ROM) ore is dry crushed and screened to produce the two standard marketable DSO products, namely lump and fines.

WAIO is a long-life, large-scale, low-cost, export-oriented, high-quality, hematite-type, DSO producer with over 50 years of experience developing and operating mining assets. Currently, WAIO is the third largest iron ore producer in the world.

1.4 Mineral Resource and Mineral Reserve Estimates

1.4.1 Mineral Resource Estimates

The resource estimation process followed by WAIO is well established and is consistent with standard industry practice. A set of procedures governs geological interpretation, estimation and reporting of Mineral Resources, including peer reviews and independent auditing. Estimation was performed by BHP personnel, using Vulcan™ and Isatis™ Neo software.

Block models are constructed with geological, mineralisation and weathering domains, and above/below water table domains, based on the wireframed 3D geological interpretation. Estimation parent blocks (within mineralisation) are usually half the drill hole spacing in the easting/northing direction with a 3m cell height, creating a possible range from 25mE x 25mN x 3mRL up to 600mE x 300mN x 12mRL.

Sub-blocks are used to ensure robust representation of geological boundaries and domain volumes, and usually comprise 5mE x 5mN x 1mRL cells. Grade interpolation into parent cells is typically achieved by Ordinary Kriging (OK) for mineralised domains and Inverse Distance Weighted (IDW) for waste domains, where data is generally more limited. Some deposits which have wider drill spacing have been interpolated wholly using IDW. Ordinary kriging is used in preference to IDW where possible, as it takes the spatial correlation between samples into account during the estimation process. IDW is based on the inverse of the distance of the sample from the estimation location, with no allowance for the spatial relationship of the samples. In domains where samples are limited, and a spatial relationship cannot thus be determined, IDW is used for estimation.

Mineral resources are reported using the Mineral Resource definitions set out in S–K 1300 and are reported exclusive of those Mineral Resources converted into Mineral Reserves.

The reported Mineral Resource tonnages are presented in million wet metric tonnes *in-situ* (point of reference) and attributable to BHP's economic interest. The quality of iron ore is shown by the iron (Fe) grade along with the content of main contaminants, which are phosphorous (P), silica (SiO_2), alumina (Al_2O_3) and loss on ignition (LOI).

Summary Mineral Resource estimates for WAIO at the end of the Fiscal Year Ended 30 June 2022 are provided in Table 1-2.

1.4.2 Mineral Reserve Estimates

Mineral Reserve estimates are derived from WAIO's current Life of Asset (LoA) mine plan. The process flow, with key steps in the mine planning process to convert the Mineral Resource estimates to the Mineral Reserve estimates, is shown below.

The WAIO mine plans are regularly (at least annually) optimised using the open-pit designs together with Mining Models (internal term for Reserve Models), cost, revenue and production rate factors to generate LoA schedules.

Ore loss (mining recovery) and dilution are inherent in the process of regularising the Resource Models to the Selective Mining Unit (SMU) size to generate the Mining Models. Iron ore deposits are bulk deposits and while some ore loss and dilution may occur along the edges, this is accounted for in the model regularisation process. No additional ore loss factor and dilution have been applied. The net recovery after regularising the resource models is between 95% and 90%. The long-term reconciliation factor between Mining Models and shipped product demonstrates that the regularisation process reasonably accounts for ore loss and dilution.

Optimised pit shells are imported into industry standard mine design software to generate pushback and final pit design limits with crest and toe strings, haul road access and incorporating minimum mining widths.

The material contained within the final pit designs is then used as input for the mine scheduling process. WAIO's mine plans are run at annual increments with a target of maximising the Ore for Rail (OFR) production to the current capacity of approximately 290 Mtpa.

Mineral Reserves contain only that part of Mineral Resources which are scheduled as economic ore in the mine plan. Inferred Mineral Resources are allowed to contribute to the pit optimisation and the mine schedules but treated as waste for Mineral Reserve estimates (i.e., no positive revenue contribution is assigned to the Inferred Mineral Resources).

Summary of Mineral Reserve estimates for WAIO at the end of the Fiscal Year Ended 30 June 2022 are provided in Table 1-3. Yandi mine (CID ore type) started its end-of-life ramp down in July 2021 and therefore no Mineral Reserves have been estimated at Yandi for the purposes of this report.

The reported Mineral Reserve tonnages are presented in million wet metric tonnes *delivered to the process or ore handling plant* (point of reference) and attributable to BHP's economic interest.

Table 1-2: Summary of Mineral Resources at the end of the Fiscal Year 2022

Mineral Resources reported in this table are exclusive of Mineral Reserves and attributable to BHP's economic interest. See notes below for commodity price, cut-off grade, point of reference and metallurgical recovery.

Name of Joint Venture	Measured Mineral Resources						Indicated Mineral Resources						Measured + Indicated Mineral Resources						Inferred Mineral Resources					
	Mt	%Fe	%P	%SiO_2	%Al_2O_3	%LOI	Mt	%Fe	%P	%SiO_2	%Al_2O_3	%LOI	Mt	%Fe	%P	%SiO_2	%Al_2O_3	%LOI	Mt	%Fe	%P	%SiO_2	%Al_2O_3	%LOI
Mt Newman	250	61.0	0.11	3.5	2.3	6.2	770	59.7	0.13	4.8	2.8	6.3	1,020	60.0	0.12	4.5	2.7	6.3	2,240	59.7	0.12	4.8	2.6	6.4
Goldsworthy	100	56.7	0.13	7.9	3.6	6.8	490	58.8	0.08	6.0	3.0	6.0	590	58.4	0.09	6.4	3.1	6.2	3,900	59.9	0.10	5.2	2.3	6.2
Yandi	360	58.3	0.11	4.7	2.4	8.9	1,300	59.4	0.14	4.5	2.3	7.6	1,660	59.2	0.13	4.5	2.3	7.8	1,930	57.9	0.13	5.5	2.6	8.3
Jimblebar	210	60.1	0.10	5.1	2.9	5.2	560	59.5	0.14	5.3	3.1	5.7	760	59.7	0.13	5.2	3.0	5.6	280	58.6	0.10	5.7	3.4	6.2
BHP (Non-JV)	170	60.5	0.13	4.8	2.5	5.6	200	59.3	0.13	6.1	2.5	6.0	370	59.9	0.13	5.5	2.5	5.8	2,050	59.0	0.13	4.9	2.8	7.1
WAIO Total	**1,090**	**59.5**	**0.11**	**4.8**	**2.6**	**6.8**	**3,320**	**59.4**	**0.13**	**5.0**	**2.7**	**6.6**	**4,400**	**59.4**	**0.12**	**5.0**	**2.6**	**6.7**	**10,410**	**59.3**	**0.12**	**5.1**	**2.6**	**6.8**

(1) Qualified Person: Fleur Muller (MAusIMM). She is a full-time employee of BHP.

(2) For estimation of cut-off grades and Mineral Resources, a long-term iron ore price of US \$86 per dmt for Platts 62% Fe Fines Index and unit operating cost of US \$17.4 per wmt were used for the purpose of this report, both on FOB Port Hedland basis. The price used represents the median of the 3-year trailing calendar monthly averages over the timeframe from July 2018 to June 2021. The unit operating cost is the average of the actual yearly operating cost of WAIO for the last three years from FY2019 to FY2021.

(3) All Mineral Resources were reported on in-situ basis as the point of reference and were exclusive of those parts of Mineral Resources which had already been converted to Mineral Reserves. The current practice of open-cut mining method has been assumed for all the Mineral Resource estimates.

(4) The Mineral Resources have an effective date of 30 June 2022 and are reported on the basis of BHP's economic interest. BHP has a 85% economic interest in Newman, Jimblebar, Goldsworthy MAC and Yandi joint ventures and 100% in BHP (Non-JV). POSMAC joint venture, in which BHP has 65% interest, holds only 2 Mt Measured and Indicated Mineral Resources and 3 Mt Inferred Mineral Resources and is shown as part of Goldsworthy MAC in this table.

(5) Mineral Resources shown in the table comprise mostly Brockman (BKM) and Marra Mamba (MM) ore types with minor amounts of Detrital Iron Deposits (DID) for all joint ventures, except Yandi which additionally include some Channel Iron Deposits (CID). Cut-off grades used for estimating the Mineral Resources are: BKM – 54% Fe, MM – 54% Fe, CID – 52% Fe and DID – 58% Fe and <= 6% Al2O3.

(6) Mineral Resource classification is based on drill spacing, assessments of geostatistical parameters, geological confidence and data quality considerations as appropriate.

(7) The grades listed above (Fe – iron, P – phosphorous, SiO_2 – silica and Al_2O_3 – alumina) refer to in situ mass percentage on a dry weight basis. LOI (loss on ignition) refers to loss of mass (dry basis) during the assaying process. Tonnages are reported as wet tonnes for all ore types, including approximate moisture contents: BKM – 3%, CID – 8%, DID – 4% and MM – 4%.

(8) WAIO produces a single commodity (Fe). Additional deleterious elements are reported for quality purposes.

(9) WAIO is predominantly a producer of direct shipping ore and based on design of process plants and historical performance the metallurgical recovery has been assumed as 100% for the purpose of reporting all Mineral Resources.

(10) Tonnes are shown in million metric tonnes (Mt) and are rounded to nearest 10 million tonnes to reflect order of accuracy of the estimates. As a result, some figures may not add up to totals shown in the table.

The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

Table 1-3: Summary of Mineral Reserves at the end of the Fiscal Year 2022

Mineral Reserves reported in this table are attributable to BHP's economic interest. See notes below for commodity price, cut-off grade, point of reference and metallurgical recovery.

Name of Joint Venture	Proven Mineral Reserves						Probable Mineral Reserves						Total Mineral Reserves					
	Mt	%Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI	Mt	%Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI	Mt	%Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI
Mt Newman	240	63.7	0.10	2.9	1.8	3.3	510	61.9	0.11	3.4	2.1	5.3	750	62.5	0.11	3.3	2.0	4.6
Goldsworthy	910	62.0	0.09	3.2	1.8	5.8	1,030	61.0	0.08	3.9	1.9	6.4	1,940	61.5	0.08	3.6	1.8	6.1
Jimblebar	480	61.8	0.12	3.4	2.5	5.1	410	61.4	0.11	4.1	2.7	4.7	900	61.6	0.12	3.7	2.6	4.9
WAIO Total	**1,630**	**62.2**	**0.10**	**3.2**	**2.0**	**5.2**	**1,960**	**61.3**	**0.09**	**3.8**	**2.1**	**5.7**	**3,590**	**61.7**	**0.10**	**3.6**	**2.1**	**5.5**

(1) Qualified Persons: Alex Greaves for Mt Newman, Anastasia Balueva for Goldsworthy and Chris Burke for Jimblebar. They are all full-time employees of BHP.

(2) For estimation of cut-off grades and Mineral Reserves, unit operating cost of US$17.4 per wmt and long-term iron ore price of US $86 per dmt for Platts 62% Fe Fines Index for fines and US $103 per dmt for lump were used for the purpose of this report, all on FOB Port Hedland basis. The price used represents the median of the 3-year trailing calendar monthly averages over the timeframe from July 2018 to June 2021. The unit operating cost is the average of the actual yearly operating cost of WAIO for the last three years from FY2019 to FY2021.

(3) The point of reference for Mineral Reserves is as delivered to the process or ore handling plant. The current practice of surface mining method was assumed for estimating all Mineral Reserves.

(4) The Mineral Reserves have an effective date of 30 June 2022 and are reported on the basis of BHP's economic interest. BHP has a 85% economic interest in Mt Newman, Goldsworthy and Jimblebar joint ventures. POSMAC joint venture, in which BHP has 65% interest, held only 11 Mt Proven and 4 Mt Probable Mineral Reserves which are included as part of Goldsworthy in this table.

(5) Mineral Reserves shown in the table comprise Brockman (BKM) and Marra Mamba (MM) ore types for all joint ventures. The cut-off grade used for estimating the Mineral Reserves for both BKM and MM ore types is typically Fe ≥ 58% with minor exceptions.

(6) The grades listed above (Fe – iron, P – phosphorous, SiO_2 – silica and Al_2O_3 – alumina) refer to in situ mass percentage on a dry weight basis. LOI (loss on ignition) refers to loss of mass (dry basis) during the assaying process. Tonnages are reported as wet tonnes for all ore types, including approximate moisture contents: BKM – 3% and MM – 4%.

(7) WAIO produces a single commodity (Fe). Additional deleterious elements are reported for quality purposes.

(8) WAIO is predominantly a producer of direct shipping ore and based on design of process plants and historical performance the metallurgical recovery has been assumed as 100% for Goldsworthy and Jimblebar JVs and 99% for Mt Newman JV for the purpose of reporting Mineral Reserves.

(9) Tonnes are shown in million metric tonnes (Mt) and are rounded to nearest 10 million tonnes to reflect order of accuracy of the estimates. As a result, some figures may not add up to totals shown in the table.

The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report

Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

1.5 Mining Method

The method of mining at all WAIO mines is open-cut. Iron ore is a bulk commodity and the deposits are wide, generally shallow dipping and with most parts occurring within depths of 200 to 300m from the surface under a relatively thin overburden, thus leading to low strip ratios. These characteristics make open-cut mining the natural choice.

WAIO open-cut mining uses face shovels, front-end loaders or backhoe excavators. The full bench is drilled and blasted for a 12 m height, sampled at three times in 4 m increments and three 4 m flitches are mined.

Pit and pushback designs are completed using the recommended geotechnical slope angles based on studies. The geotechnical parameters are developed after comprehensive studies at least of pre-feasibility level for each deposit, assessing the geological conditions and factors of safety. The pit slope angles are based on the outcomes and recommendations from these studies.

The ultimate pit designs are guided by the selected economic pit. Overall pit and pushback designs are created using industry standard mine design software (Vulcan™ or Datamine™) with crest and toe lines, haul road accesses and incorporating minimum mining widths. The minimum mining width is determined by the equipment to be used for the mining operation.

1.6 Processing and Recovery Methods

The run-of-mine (ROM) ore is direct shipping ore (DSO) with average iron content not less than 60% for Brockman (BKM) and Marra Mamba (MM) ore types and not less than 56.5% for the Channel Iron Deposit (CID) ore type. The ore is also higher quality, with deleterious contents within acceptable limits, and is capable of being fed to the blast furnace for iron and steel making, without the need for any concentration or beneficiation.

The ROM is crushed and screened to produce the two industry-standard DSO marketable ore types, namely lump (with nominal particle size >6.3mm) and fines (with size <6.3mm). This processing method is simple and well understood and widely used by most DSO producers in the Pilbara. The ROM ore is first crushed in a primary crusher set up near the mine. The crushed ore is then transported via an overland conveyor to an Ore Handling Plant (OHP) housing secondary and/or tertiary crushers and screens for further crushing and screening. The OHPs are located close to a train load-out (TLO) station. For larger mines, two or more OHP's are centrally located around the TLO station(s) and form a processing hub. Currently there are four processing hubs in WAIO, Newman Operations, Jimblebar, Mining Area C - South Flank and Yandi.

In WAIO, only one OHP (Whaleback Beneficiation Plant, located in Newman Operations) uses heavy-media separation to beneficiate a select part of BKM ore from the Mount

Whaleback deposit. The production from this plant was 4.7 Mt in FY2022, contributing less than 2% of WAIO's total production.

All dry OHP's recover typically 100% mass of the ROM feed in the form of either lump or fines, whereas the Whaleback Beneficiation Plant typically recovers approximately 95% wet mass of the plant feed.

1.7 Infrastructure

Most of the infrastructure required for WAIO to support current mining operations and develop the Mineral Reserves stated in this report is already in existence. This has been developed by BHP gradually over the last six decades in pace with staged expansion of production capacity to meet increasing global iron ore demand.

WAIO is a fully integrated system of four processing and five mining hubs, all connected by more than 1,000 kilometres of BHP-owned rail infrastructure to its two port facilities at Port Hedland.

WAIO owns and operates a natural gas fired power plant (Yarnima Power Station, in Newman town), with an installed generators' capacity of 190 megawatts. The plant supplies the entire power requirement for all its mining and processing facilities as well as mine camps. WAIO mines and Newman township typically consume about 80 – 100 MW of power on average, with peak demand reaching 130 to 140 MW.

Power consumed for WAIO's port operations at Port Hedland is purchased via a power purchase agreement with Alinta Energy, a large energy supplier in Australia. The port operations typically consume about 37 MW on average, peaking at 70 MW.

Groundwater is the primary freshwater source for WAIO and is extracted from production and dewatering bores with abstraction volumes as per licence requirements for use in all mining and processing operations. The water is supplied to various sites through a network of overground and underground water pipelines along with associated tanks and control infrastructure. Water consumption is linked to mining rates, and water supply and infrastructure capacity is included in development plans accordingly.

WAIO relies mainly on a fly-in-fly-out (FIFO) workforce sourced primarily from within WA (Perth and other regional towns) and to a lesser extent from other eastern states in Australia. Personnel work on rosters on a fly-in-fly-out basis and WAIO operates charter flights from Perth to ferry personnel to various mine sites. While on mine site, personnel reside in the fully serviced WAIO-owned FIFO camps.

1.8 Market Studies

WAIO produces direct shipping iron ore, which is sold as two ore types, namely lump and fines. The realised price for iron ore (both lump and fines) is dependent on the iron content as well as the contents of deleterious elements like phosphorus, silica, alumina and loss-on-ignition. Most of the WAIO ore types is considered higher quality based on assessments of these impurities.

Iron ore is the primary raw material for iron and steel-making, which is an important building block for construction, transportation, energy infrastructure and household appliances. Therefore the demand for iron ore is expected to continue over the length of cash flow for WAIO currently projected to 2052.

Global crude steel production has more than doubled over the past two decades, from 0.85 billion tonnes in 2000 to 1.95 billion tonnes in 2021 (source: World Steel Association), to fuel the global economic growth, urbanisation and industrialisation. During the same period, China's production has increased from 131 Mt in 2000 to 1033 Mt in 2021 (source: World Steel Association), contributing the bulk of the global increase.

Out of the 2.3 billion tonnes total iron ore consumption in 2021 globally, 1.5 billion tonnes are traded on the seaborne market. Asia is the largest customer location, accounting for ~90% of the seaborne iron ore demand, with most of the seaborne iron ore going to China, Japan and South Korea. China is the single largest customer location, accounting for more than 70% of the seaborne iron ore demand (source: Iron ore market service – Q3 2021 outlook to 2035).

On the supply side, Australia, Brazil and South Africa are the major seaborne iron ore supply countries supplying over 80% of the market in 2021. Notably, Australia is the single largest iron ore producing country, supplying close to 60% in CY2021 of the seaborne trade (source: Iron ore market service – Q3 2021 outlook to 2025).

Iron ore is a bulk commodity and the commodity price of iron ore types varies depending on the supply and demand situation at the time. Since the late 2000's and with introduction of spot pricing, the commodity price has seen greater variability over both short (week/month) and long (year) time horizons. During this period at least two cycles of price variation have been observed with monthly average Platts 62% Fe Fines Index prices swinging between US$210 per dmt and US$40 per dmt.

A long-term iron ore price of US$86 per dmt for Platts 62% Fe Fines Index has been used for the purpose of this report to establish the reasonable prospect of economic extraction for Mineral Resources and economic viability of Mineral Reserves. This price represents the median value of the historical calendar month average nominal prices over a timeframe of the preceding three financial years from July 2018 to June 2021.

1.9 Capital and Operating Cost Estimates

WAIO is an operating stage property and has been actively producing for a number of decades. No new mining production hub is required for the estimated Mineral Reserves as of the effect date of this report. Therefore both capital and operating cost estimates for the purpose of this report have been estimated based on WAIO's actual operating performance over the last three financial years (July 2018 to June 2021).

As an operating asset, the sustaining capital costs are only the capital costs required to sustain the current production rate. The sustaining capital has been estimated at US$3.81 per wmt of Mineral Reserves.

The average of the previous three financial years of actual operating costs has been used for the purpose of this report to estimate Mineral Reserves. The overall unit operating cost has been estimated at US$17.4 per wmt of Mineral Reserves.

Since the cost estimates are based on actual operating performance, these estimates are expected to be within the accuracy level of ±25%.

1.10 Economic Analysis

Economic analysis demonstrates economic viability of the Mineral Reserve using assumptions described in this report. The net present value of future cash flows is US$88.3 billion (based on the assumptions and methodology set out in Section 19, including as discounted to July 2022 using a discount rate of 6.5%) and robust to variations in significant input assumptions, such as commodity price, foreign exchange rate, operating and capital costs.

1.11 Permitting Requirements

WAIO operations are regulated through a combination of Part IV Ministerial Statements and Part V Prescribed Premises Licences under the Environmental Protection Act 1986 and their associated requirements. Other environmental legislation under which BHP operates includes but is not limited to the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), the Biodiversity Conservation Act 2016 (BC Act), the Mining Act 1978 and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.

To meet its current operational requirements, BHP holds a multitude of approved environmental permits, some of which are listed below.

- 18 Ministerial Statements
- 31 Mining Proposals
- 14 Environmental Operating Licences
- 40 Environmental Management Plans
- 60 Water Licences
- 72 Native Vegetation Clearing Permits (NVCP) and 36 Programmes of Works
- 6 Works approvals

In addition to the approved environmental permits, BHP currently (as of 1 May 2022) has six applications for environmental permits currently under assessment with government. These include two NVCP amendments to allow for changes in the NVCP conditions; one Mining Proposal to lift the wall of the Mount Whaleback tailings storage facility; and three licence amendments to allow for changes in licence conditions.

1.12 Qualified Person's conclusions and recommendations

WAIO has a substantial Mineral Resources and Mineral Reserves base supported by extensive sampling through exploration drilling and other geological information. The majority of the deposits are located within an area 250km long by 100km wide, close to existing infrastructure. This concentration of deposits provides the flexibility to add growth tonnes to existing hub infrastructure and link greenfields developments to an existing mainline rail. The large resource base is capable of supporting the current rate of production for several decades.

WAIO has over 50 years of exploration and extraction experience on the property, which has been used to validate and calibrate the resource and reserve estimates. The high proportion of Indicated and Measured Resources and the reconciliation results give high confidence in the estimation and reporting of the Mineral Resources and Mineral Reserves. As such, in the QP's opinion, the estimates of WAIO Mineral Resources and Mineral Reserves are duly supported by adequate technical data and reasonable assumptions as stated in this report.

WAIO has been undertaking some 450 to 500km of exploration drilling annually for the past few years to define resources and improve confidence in resource estimates. Similar amounts of annual exploration drilling are proposed in coming years, which the QP's expect may mitigate risks associated with resource estimates.

Mineral Resource confidence is reflected in the applied resource classification in accordance with the SEC S-K 1300, with factors influencing resource classification including but not limited to data density, data quality, geological continuity and/or complexity, estimation quality and weathering zones. Reconciliation data from operating mines supports the confidence of resource estimates.

The generation and classification of Mineral Resource estimates, and their associated risks have been described in sufficient detail in this report. It is the QP's opinion that any significant risks and uncertainties are addressed appropriately in the identification and compilation of Mineral Resources within BHP's property portfolio. Conclusions are summarised as follows:

- Exploration drilling, sampling and QAQC of sample data follow standard industry practice, with extensive data validations at each step of the data collection process.
- Geological models are generated and peer reviewed extensively, with models verified by senior field and modelling geologists.

- Resource estimates follow a rigorous process, with an ultimate extensive review by the QP. Classification documentation is provided to describe all factors contributing to the confidence in a resource estimate and the level of uncertainty present.

Regular audits have upheld the quality of work performed in defining WAIO's Mineral Resources and Mineral Reserves. Some minor recommendations are made to improve these works and address uncertainties as follows:

- Refinement of domain practices to fit geology, geometallurgy and grade continuity purposes.
- Consideration of conditional simulation to identify areas of uncertainty and support resource classification.

The Mineral Reserves are classified in accordance with definitions set-out in S-K 1300 and were converted from Measured and Indicated Mineral Resources after application of modifying factors. No Mineral Reserves are derived from the Inferred Mineral Resources. Based on the high confidence in the modifying factors and the information presented in this report, the QPs are of opinion that the Mineral Reserves estimate is supported by adequate technical data and assumptions.

Conclusions are summarised below:

- Historical demonstrated performance and robust reconciliation underpin the high confidence technical modifying factors for Mineral Reserves.
- The mining method, assumptions and application of modifying factors are aligned to the industry standard and appropriate for estimation and classification of Mineral Reserves.
- Any significant risks or uncertainties are addressed appropriately in estimation of the Mineral Reserves.

For continuous improvement, the following recommendations should be implemented for future work:

- Continue to review and update the Mineral Reserve estimate at least on a yearly basis or when new information becomes available that may materially impact the modifying factors.
- Continuous review of the technical modifying factors considering emerging technology, carbon emission control and technical studies outcomes.
- Periodical independent review of Mineral Reserves estimation methodology and implementation of any identified recommendations from the review outcomes.

2 Introduction

2.1 Registrant for Whom the Technical Report Summary was Prepared

This Technical Report Summary was prepared for BHP Group Limited (BHP) (the registrant) to support its disclosure of Mineral Resources and Mineral Reserves on its production stage Western Australia Iron Ore (WAIO) property, located in the Pilbara region of the State of Western Australia (WA), Australia.

WAIO comprises four main joint ventures (JV), namely Mount Newman, Jimblebar, Yandi and Mount Goldsworthy. BHP's economic interest in each of these JVs is 85%, with Mitsui (Mitsui Iron Ore Corporation Pty Limited) and ITOCHU (Itochu Minerals and Energy of Australia Pty Limited) owning the remaining 15%. The JVs are unincorporated, except Jimblebar. In addition to these JVs, WAIO has a registered sublease in favour of a POSMAC JV (of which BHP and its JV partners along with a subsidiary of POSCO are participants). BHP's economic interest in the POSMAC JV is 65%.

WAIO is an integrated system of five open-cut mining hubs and four processing hubs as listed in Table 2-1. Location of the mining hubs and the main deposits within each hub are shown in Figure 3-2 (Section 3.1).

Table 2-1: List of WAIO JVs, Mining and Processing Hubs

Joint Venture	Processing Hub	Mining Hub	Main Mineral Deposits
Mount Newman	Newman Operations	Newman	Mount Whaleback, Eastern Ridge, Shovelanna
Jimblebar			Western Ridge
	Jimblebar	Jimblebar	South Jimblebar, Wheelarra, Hashimoto
Yandi	Yandi	Yandi	Yandi (end-of-life ramp down started in July 2021)
Mount Goldsworthy (POSMAC JV holds a sublease over the Mining Area C mine)	Mining Area C	Mining Area C	North Flank, Packsaddle
		South Flank	South Flank (new mine, first production started in May 2021)

2.2 Terms of Reference and Purpose of the Report

This Technical Report Summary was prepared in accordance with the Securities and Exchange Commission (SEC) Regulation S-K (Title 17, Part 229, Items 601 and 1300 until 1305) for the purpose of reporting WAIO's iron ore Mineral Resources and Mineral Reserves for the fiscal year ending on 30 June 2022. This report does not include any exploration results that are not part of WAIO's Mineral Resources or Mineral Reserves.

WAIO is a large, long-life asset and has been producing direct shipping iron ore for export purposes since the late 1960's. Based on an indicative life of asset plan which considers current Mineral Reserves as well as Mineral Resources yet to be converted to Mineral Reserves, WAIO is likely to continue production beyond 2050's. Keeping such a long asset life in view, Mineral Reserves and associated cost assumptions stated in this report were estimated at the level of a Pre-Feasibility Study.

Until the financial year ended 30 June 2021, BHP was reporting Ore (Mineral) Reserves for WAIO to the SEC under the Industry Guide 7 for inclusion in its Annual Report Form 20-F. This Technical Report Summary is submitted herewith to comply with Regulation S-K 1300, which came into effect on 1 January 2021.

The effective date of this Technical Report Summary is 30 June 2022.

2.3 Sources of Information

The information used in this report is obtained from sources available to WAIO and the broader BHP. Over the past 50 years of continuous iron ore mining operations in the Pilbara, WAIO has developed its systems, processes and standards for all aspects of mining internally, keeping pace with changing technologies for data collection, analysis, interpretation, geology / resource modelling and Mineral Resource / Mineral Reserve determination.

All exploration information and data collection, geological interpretations and resource modelling supporting the estimation of Mineral Resources and Mineral Reserves contained in the report was undertaken internally by WAIO.

Although several specialised teams and subject matter experts within WAIO and BHP have supplied information for the preparation of this report, relating to tenure / mineral rights, legal, mineral processing, marketing, environmental permitting and finance, the QP's have reviewed the information and provided their opinion, where required, on the adequacy or reasonableness of such information.

The QP's have relied upon certain information related to legal, environmental, governmental, marketing and social engagements which were provided by BHP (details in Section 25).

2.4 Qualified Persons (QP's) and Details of Personal Inspection

2.4.1 Details of Qualified Persons

BHP has relied on the QP's listed in Table 2-2 to estimate Mineral Resources and Mineral Reserves for this disclosure as well as prepare the supporting Technical Summary Report. All of them are full-time employees of BHP WAIO. The responsibility of each qualified person in preparation of this report is provided in Table 2-3.

Table 2-2: List of Qualified Persons

Name of Qualified Person	Relation to registrant and their Role	Qualification	Professional Organisation and Membership	No of years of Relevant Experience	Responsible for the disclosure of
Fleur Muller	Full-time employee / Superintendent Strategic Modelling	Bachelor of Science (Hons) Geology (Australia)	AusIMM / Member (#204578)	8 years in iron ore out of total 31 years in mineral industry	Mineral Resources – All WAIO
Ashley Grant	Full-time employee / Superintendent Geophysics and Geochemistry	B.Sc. Hons (Geology and Geophysics) and M. Phil (Geophysics) (Australia)	AusIMM / Member (# 3054201)	12 years in iron ore out of total 28 years in mineral industry	Sections on Sampling and Analysis and Data Verification
Alex Greaves	Full-time employee / Superintendent Mine Planning	B.A.Sc. Mining and Mineral Processing Engineering (Canada)	AusIMM / Member (#212009)	10 years in iron ore out of total 24 years in mineral industry	Mineral Reserves – Newman Operations
Anastasia Balueva	Full-time employee / Superintendent Mine Planning	Degree Mining Engineering (Russia)	AusIMM / Member (#3049794)	8 years in iron ore out of total 15 years in mineral industry	Mineral Reserves – Mining Area C Hub including South Flank
Chris Burke	Full-time employee / Superintendent Mine Planning	Graduate Diploma Mining and Bachelor of Surveying (Australia)	AusIMM / Chartered Professional (#309508)	10 years in iron ore out of total 22 years in mineral industry	Mineral Reserves – Jimblebar Hub

Table 2-3: Details of Sections each Qualified Person is Responsible for

Qualified Person	List of Sections in the Technical Report Summary responsible for
Fleur Muller	Sections 6, 7 and 11 in full and Sections 1-5, 10, 14, 17, 20-25 jointly with Mineral Reserve QPs
Ashley Grant	Sections 8 and 9
Alex Greaves	Sections 12, 13, 15, 16, 18 and 19 in full and Sections 1-5, 10, 14, 17, 20-25 jointly with Mineral Resource QP
Anastasia Balueva	Sections 12, 13, 15, 16, 18 and 19 in full and Sections 1-5, 10, 14, 17, 20-25 jointly with Mineral Resource QP
Chris Burke	Sections 12, 13, 15, 16, 18 and 19 in full and Sections 1-5, 10, 14, 17, 20-25 jointly with Mineral Resource QP

2.4.2 Details of Personal Inspections

The QP's are full-time employees of BHP and have inspected the sites under their responsibility regularly in the past years. COVID-19 restrictions permitting, each QP has visited the site at least once during FY2022.

2.5 Report Version and Updates

This is the first Technical Report Summary filed for the property and as such is not an update of a previous Technical Report Summary filed pursuant to SEC Regulation S-K (Title 17, Part 229, Items 601 and 1300 until 1305). As already stated under Section 2.2 this report was prepared to report Mineral Resources and Mineral Reserves.

3 Property Description

3.1 Location of the Property

The WAIO property is an integrated system of five open-pit mining hubs and four processing hubs along with railways and port facilities, which spread over a geographical area 350km north-south and 250km east-west between the towns of Port Hedland and Newman in the Pilbara region of the State of Western Australia, Australia (Figure 3-1). Newman (Latitude: 23°21'15" S, Longitude: 119°43'55" E) and Port Hedland (Latitude: 20°18'45" S, Longitude: 118°34'50" E) are accessible by road via public highways and by air via commercial flights. Newman, established initially as a mining town in the 1960's to service the Mount Whaleback mine, has grown since then and is currently the largest town in the Shire of East Pilbara. Newman and Port Hedland are located, respectively, at distances of approximately 1,000km north and 1,300km north of Perth, the capital city of WA.

The central point location of the individual mining hubs is provided below.

- Newman: Latitude: 23°21'40" South, Longitude: 119°40'15" East
- Jimblebar: Latitude: 23°22'40" South, Longitude: 120°07'45" East
- Mining Area C: Latitude: 22°55'30" South, Longitude: 118°58'55" East
- South Flank: Latitude: 22°59'35" South, Longitude: 118°59'45" East
- Yandi: Latitude: 22°43'15" South, Longitude: 119°05'15" East

The WAIO operational areas are divided into six tenure regions as shown in Figure 3-1. Newman and Jimblebar mining hubs fall within the Eastern Pilbara region, Mining Area C and South Flank fall within the Central Pilbara region and Yandi falls within the Yandi region. The main deposits in each of the mining hubs are shown in Figure 3-2.

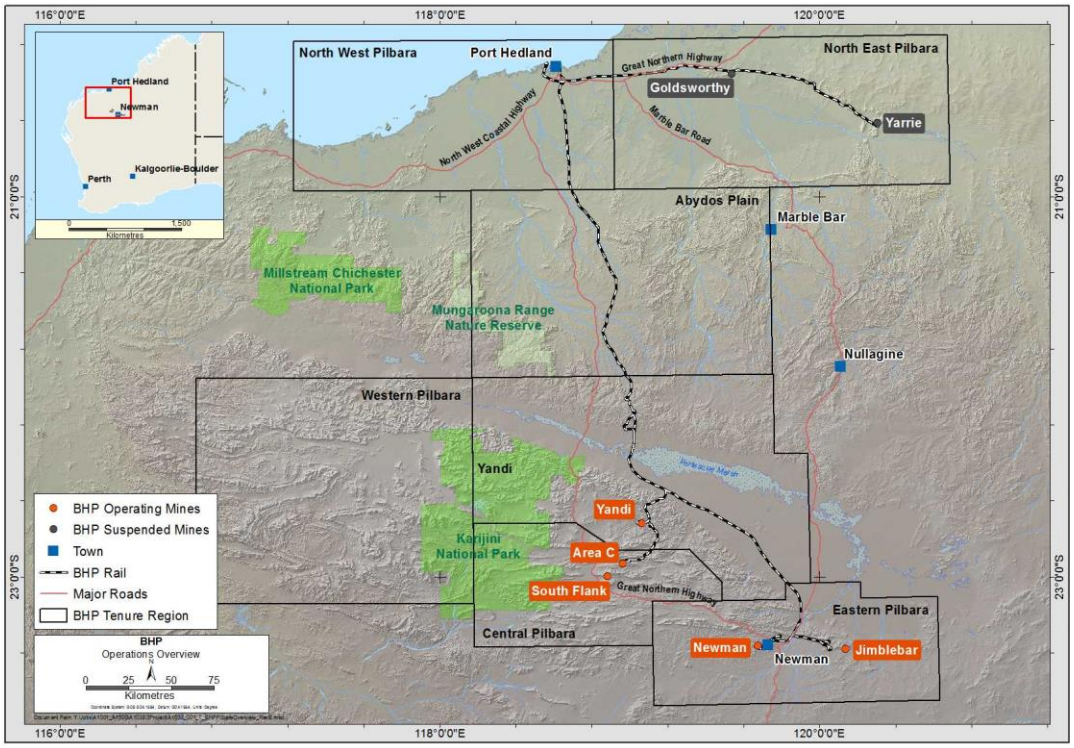


Figure 3-1: Location Map of the Property

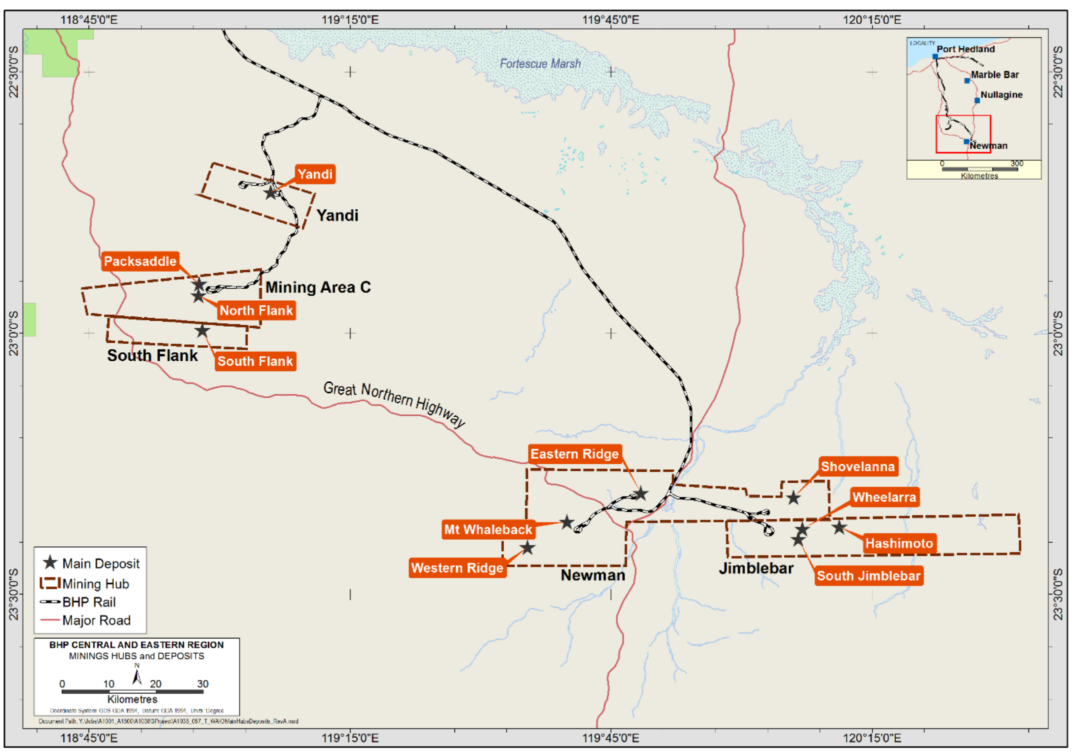


Figure 3-2: Main Deposits within the Mining Hubs

3.2 Area of the Property

As of 30 June 2022, the total area with mineral rights held by WAIO is approximately 4,523km^2 in 54 mineral titles. Of this 2,678km^2 is held in 8 mineral titles pursuant to 5 SA Acts of the State of Western Australia (WA) and the remaining area (1,845km^2) is held in 46 mineral titles regulated by the Mining Act, 1978 (WA) (Mining Act). All mining and mineral leases are granted with legal area in hectares, whereas some exploration licences are granted with legal area in square kilometers and others in graticular blocks (1 minute of latitude by 1 minute of longitude). Therefore, total areas stated above are an approximate calculation of individual titles in square kilometers.

3.3 Mineral Title, Claim, Mineral Right, Lease, or Option Disclosure

As stated in the section above, BHP and its JV partners hold 54 mineral titles – 8 pursuant to the SA Acts and 46 pursuant to the Mining Act. These titles provide BHP and its JV partners, as the registered owners, the right to hold and operate the property.

The number of each title and other required details are provided in Section 3.3.1 and 3.3.2.

In addition to land held for mineral rights, BHP and its joint venture partners also hold several parcels of land for various infrastructure developments in connection with the WAIO mining operation. These are described in Section 3.3.3.

3.3.1 Mineral titles held under State Agreement Acts

WAIO holds eight leases and operates under five SA Acts with respect to its operations. Between 1964 and 1991, these SA Acts were enacted by the Parliament of Western Australia to set out terms and conditions specifically for the long term and orderly development of iron ore in the eight mineral titles held by BHP and its JV partners in the Pilbara. The SA Acts and associated mineral titles (granted in the form of mining leases or mineral leases) are listed below.

1. Iron Ore (Mount Newman) Agreement Act 1964 (WA) - ML244SA held by the Mount Newman Joint Venture
2. Iron Ore (Mount Goldsworthy) Agreement Act 1964 (WA) - ML235SA and ML249SA held by the Mount Goldsworthy (Northern Areas) Joint Venture and ML281SA held by the Mount Goldsworthy (Area C) Joint Venture
3. Iron Ore (Goldsworthy-Nimingarra) Agreement Act 1972 (WA) - M263SA and ML251SA held by the Mount Goldsworthy (Northern Areas) Joint Venture
4. Iron Ore (McCamey's Monster) Agreement Authorisation Act 1972 (WA) - M266SA held by BHP Iron Ore (Jimblebar) Pty Ltd
5. Iron Ore (Marillana Creek) Agreement Act 1991 (WA) - M270SA held by the Yandi Joint Venture

Title number, name of registered holder(s) along with their interest, expiry date, legal area and associated annual payments (rent and rate) of each of these eight leases are provided in Table 3-1 and maps showing their location are provided in Figure 3-3, Figure 3-4 and Figure 3-5 in Section 3.3.4.

Table 3-1: Details of leases held under State Agreement Acts

Lease Number	Registered Tenement Holders(1) / interest	Start date	Expiry date(2)	Legal area (ha)	Annual Rent and Rate4
ML235SA	BHP (85/100), Itochu (8/100), Mitsui (7/100)	5/08/1965	4/08/2028	4,142	$4,818
ML244SA	BHP (85/100), Mitsui-Itochu (10/100), Itochu (5/100)	7/04/1967	6/04/2030	78,934	$116,342
ML251SA	BHP (85/100), Itochu (8/100), Mitsui (7/100)	22/09/1972	21/09/2035	1,300	$7,433
ML249SA	BHP (85/100), Itochu (8/100), Mitsui (7/100)	8/05/1974	4/08/2028	30,647	$36,618
M266SA	BHP (100/100)3	11/10/1988	10/10/2030	51,756	$123,468
M263SA	BHP (85/100), Itochu (8/100), Mitsui (7/100)	22/01/1989	21/09/2035	14,323	$325,346
M270SA	BHP (85/100), Itochu (8/100), Mitsui (7/100)	4/09/1991	3/09/2033	30,344	$1,571,645
ML281SA	BHP (85/100), Itochu (8/100), Mitsui (7/100)	26/04/2002	4/08/2028	56,335	$157,882

Notes –

(1) Full legal entity names of the registered tenement holders are: (i) BHP: BHP Minerals Pty Ltd, (ii) Mitsui-Itochu: Mitsui-Itochu Iron Pty Ltd, (iii) Itochu: Itochu Minerals & Energy of Australia Pty Ltd and (iv) Mitsui: Mitsui Iron Ore Corporation Pty Ltd.

(2) All SA Act leases, except M270SA, have right to successive renewals of 21 years each. M270SA has right to only two renewals, each for 21 years ultimately expiring in 2054. The lease will then revert to Mining Act and BHP will need to engage with the State Government before the expiry to renegotiate the terms of the SA Act. The QPs have assumed that WAIO will continue to have mineral rights in M270SA after 2054.

(3) BHP Iron Ore (Jimblebar) Pty Ltd (BHPIOJ), a subsidiary of BHP Minerals Pty Ltd (BHPM), is the sole registered holder of M266SA. In 2013, BHPM entered into an incorporated Joint Venture (Jimblebar IJV) with Itochu and Mitsui in respect of the Jimblebar mining hub, owned by BHPIOJ. The Jimblebar IJV is structured so that BHPM, Itochu and Mitsui hold A Class Shares in BHPIOJ, which confer an 85:8:7 economic interest, respectively in the "Jimblebar Assets", being certain assets of BHPIOJ including the Jimblebar mine. BHPIOJ also owns other assets, called "Excluded Assets", in which BHPM alone holds a 100% economic interest through B Class Shares in BHPIOJ. In 2021, one of these Excluded Assets, namely Western Ridge, was also transferred from BHP Class Shares to A Class Shares.

(4) Statutory Rents and Rates are paid annually to the State Government and the Local Government/Shire respectively. These have been paid for the year ending 30 June 2022.

3.3.2 Mineral titles with mineral rights held under the Mining Act 1978

As of 30 June 2022, BHP and its joint venture partners held a total of 46 mineral titles granted pursuant to the Mining Act, 1978 (WA). Of these, 18 are mining leases (M leases) with mining rights and 28 are exploration / prospecting licences (E/P licences) with exploration rights. The Mining Act allows the holder to apply to the State Government for the conversion of an E/P licence to one or more M Lease(s) with a mining proposal supported by mineralisation. Accordingly, BHP has made 102 Mining Lease applications to convert some of the granted E licences, which are all pending with the State Government.

Of these 46 titles, BHP and its JV partners are the registered holders for 31 and BHP is the sole registered holder for the remaining 15.

Title number, name of registered holder(s) along with their interest, expiry date, legal area, associated annual payments (applicable rent and rate) and minimum annual expenditure of each of these titles are provided in Table 3-2 and maps showing their location are provided in Figure 3-3, Figure 3-4 and Figure 3-5 (see Section 3.3.4).

Table 3-2: List of leases/licences with mineral rights held under the Mining Act 1978

Tenement Number	Registered Tenement holders[(1)] / interest	Start date	Expiry date[(2)]	Legal area	Unit of measure	Annual Rent and Rate[3]	Minimum Annual Expenditure
E47/13-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	4/10/1982	3/10/2022	128.50	km2	$33,414	$100,000
E47/14-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	4/10/1982	3/10/2022	129.50	km2	$29,603	$100,000
E47/15-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	4/10/1982	3/10/2022	129.50	km2	$35,473	$100,000
E47/16-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	4/10/1982	3/10/2022	75.15	km2	$19,121	$100,000
E47/17-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	4/10/1982	3/10/2022	56.98	km2	$15,559	$100,000
E52/21-I	BHP (100/100)	20/08/1984	19/08/2022	22.20	km2	$5,685	$100,000
E52/23-I	BHP (100/100)	20/08/1984	19/08/2022	30.00	km2	$6,658	$100,000
E45/1072-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	29/05/1991	28/05/2023	137.22	km2	$32,985	$100,000
E45/1073-I	BHP (100/100)	26/09/1991	25/09/2022	131.60	km2	$36,033	$100,000
E45/1074-I	BHP (100/100)	26/09/1991	25/09/2022	132.70	km2	$36,305	$100,000
E47/628-I	BHP (100/100)	4/05/1993	3/05/2023	6	BLOCK	$4,777	$70,000
M45/558	BHP (85/100), Itochu (8/100), Mitsui (7/100)	24/06/1993	23/06/2035	193.20	ha	$9,789	$19,400
M45/573	BHP (85/100), Itochu (8/100), Mitsui (7/100)	24/06/1993	23/06/2035	74.46	ha	$3,839	$10,000
M45/592	BHP (85/100), Itochu (8/100), Mitsui (7/100)	20/09/1993	19/09/2035	35.00	ha	$1,838	$10,000
M45/594	BHP (85/100), Itochu (8/100), Mitsui (7/100)	20/09/1993	19/09/2035	53.49	ha	$2,788	$10,000
E47/1222-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	11/06/2003	10/06/2023	70	BLOCK	$56,457	$210,000
E47/1239-I	BHP (100/100)	17/02/2004	16/02/2023	11	BLOCK	$8,710	$70,000
M45/1015-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	14/06/2005	13/06/2026	660.00	ha	$33,093	$66,000
M45/1016-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	14/06/2005	13/06/2026	976.80	ha	$48,945	$97,700
M45/1017-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	14/06/2005	13/06/2026	724.00	ha	$36,293	$72,400
M45/1018-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	14/06/2005	13/06/2026	102.55	ha	$5,239	$10,300
M45/1019-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	14/06/2005	13/06/2026	535.65	ha	$26,892	$53,600
E52/1776-I	BHP (100/100)	7/10/2005	6/10/2022	8	BLOCK	$6,196	$70,000
E47/1429-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	29/01/2007	28/01/2023	70	BLOCK	$56,509	$210,000
E47/1540-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	21/04/2007	20/04/2023	38	BLOCK	$29,435	$114,000
E47/1870-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	20/11/2009	19/11/2023	1	BLOCK	$1,669	$20,000
E52/2591-I	BHP (100/100)	14/03/2011	13/03/2023	3	BLOCK	$2,746	$50,000
P47/1611-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	21/12/2011	20/12/2023	56.17	ha	$903	$2,280
E52/2009-I	BHP (85/100), Mitsui-Itochu (10/100), Itochu (5/100)	27/05/2013	26/05/2023	8	BLOCK	$5,701	$70,000
E47/1587-I	BHP (100/100)	1/05/2014	30/04/2023	35	BLOCK	$27,111	$105,000
M47/683-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	6/06/2014	5/06/2035	945.69	ha	$55,861	$94,600
M47/684-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	6/06/2014	5/06/2035	886.33	ha	$52,383	$88,700
M47/685-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	6/06/2014	5/06/2035	990.08	ha	$58,514	$99,100
M47/686-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	6/06/2014	5/06/2035	630.23	ha	$37,290	$63,100
M47/687-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	6/06/2014	5/06/2035	821.67	ha	$48,551	$82,200
M47/688-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	6/06/2014	5/06/2035	703.11	ha	$41,594	$70,400
M47/689-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	6/06/2014	5/06/2035	139.38	ha	$8,342	$14,000
M47/690-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	6/06/2014	5/06/2035	40.20	ha	$2,505	$10,000
M47/691-I	BHP (85/100), Itochu (8/100), Mitsui (7/100)	6/06/2014	5/06/2035	287.64	ha	$17,068	$28,800
E47/3238-I	BHP (100/100)	16/11/2015	15/11/2025	32	BLOCK	$26,367	$108,000
E47/3275-I	BHP (100/100)	17/12/2015	16/12/2025	6	BLOCK	$3,411	$50,000
E52/3360-I	BHP (100/100)	22/04/2016	21/04/2026	1	BLOCK	$1,121	$15,000
E52/3361-I	BHP (100/100)	22/04/2016	21/04/2026	5	BLOCK	$2,505	$30,000
E52/3448-I	BHP (100/100)	20/12/2016	19/12/2026	4	BLOCK	$2,147	$30,000
E52/3456-I	BHP (100/100)	24/01/2017	23/01/2027	6	BLOCK	$2,863	$50,000
E47/4245	BHP (85/100), Itochu (8/100), Mitsui (7/100)	15/12/2020	14/12/2025	1	BLOCK	$639	$10,000

Notes –

(1) Full legal entity names for the registered tenement holders are: (i) BHP: BHP Minerals Pty Ltd, (ii) Itochu: Itochu Minerals and Energy of Australia Pty Ltd and (iii) Mitsui: Mitsui Iron Ore Corporation Pty Ltd.

(2) All M leases have one right of renewal for 21 years each, but subsequent renewals are subject to Ministerial discretion. The E/P licences can be renewed for one year at a time at the discretion of the State Government. The QP's have assumed WAIO will lodge the renewal applications to the State Government as per the timeframe specified under the Mining Act. The State Government has renewed the term in all cases of renewal applications by WAIO in the past.

(3) *Statutory Rents and Rates are paid annually to the State Government and the Local Government/Shire respectively. These have been paid for the year ending 30 June 2022.*

3.3.3 Licences held under the Mining Act 1978 for infrastructure purposes

In addition to land held for mineral rights as detailed in Sections 3.3.2 and 3.3.3, BHP and its joint venture partners also hold a large number of Miscellaneous Licences and General Purpose Leases pursuant to the applicable SA Act for other mining related purposes. The Miscellaneous Licences are mainly granted for various infrastructure purposes for continued mining operations under the SA Acts (e.g., power lines, groundwater monitoring, aerodromes and access roads), whereas the General Purpose Leases are granted for uses such as accommodation, plant sites, stock piles and overburden storage. These tenure types are granted for purposes in connection with the iron ore mining operations and ore extraction pursuant to the applicable SA Acts.

3.3.4 Maps showing Location of Various Mineral Titles

The maps showing location of mineral titles held under the SA Acts and the Mining Act in each region are provided Figure 3-3, Figure 3-4 and Figure 3-5 below.

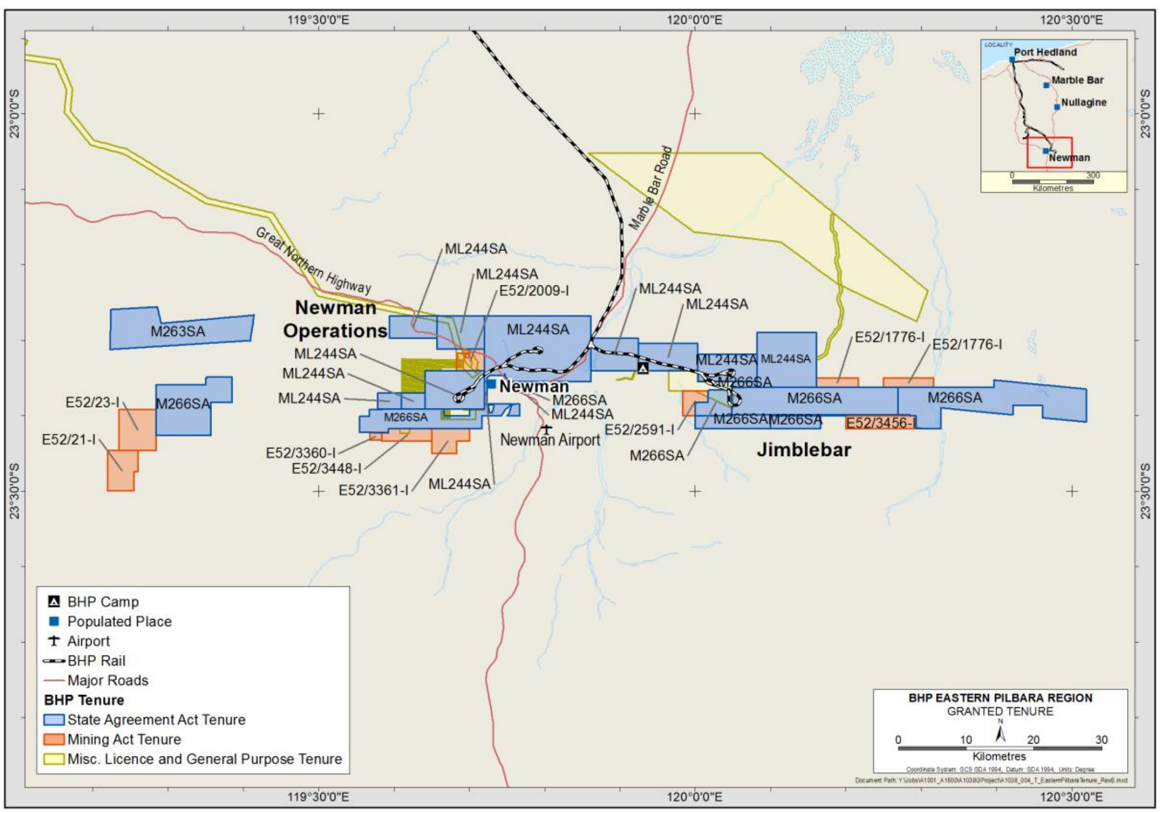


Figure 3-3: Location Map of leases held in Eastern Pilbara Region

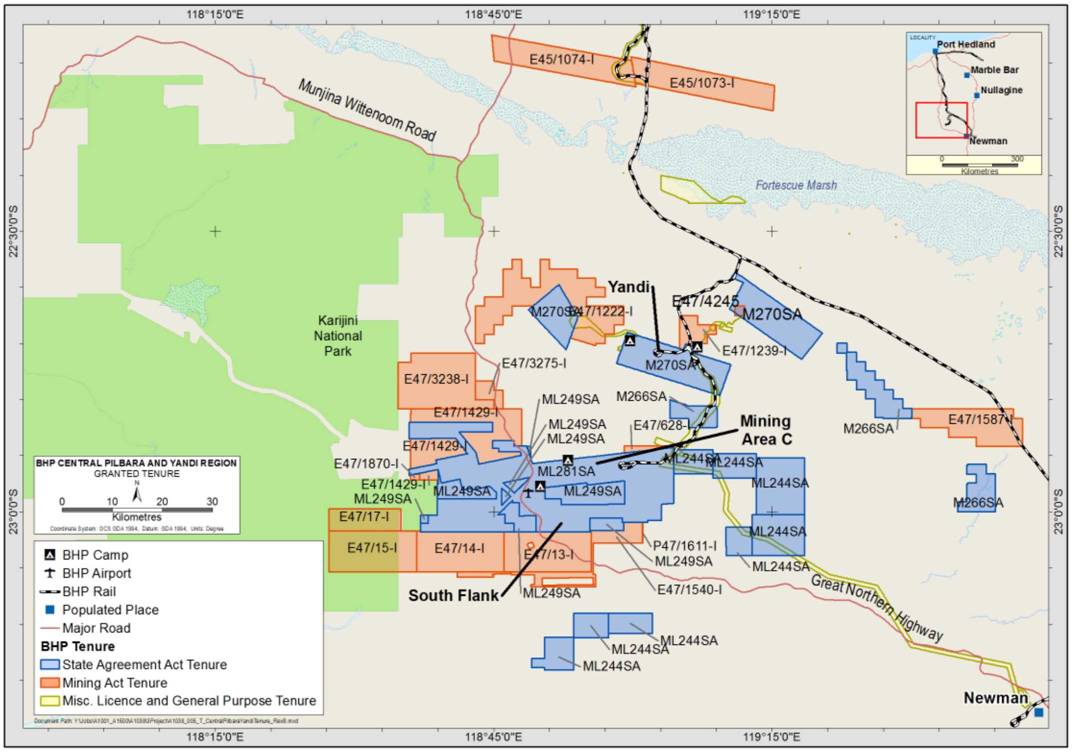


Figure 3-4: Location Map of leases held in Central Pilbara and Yandi Regions

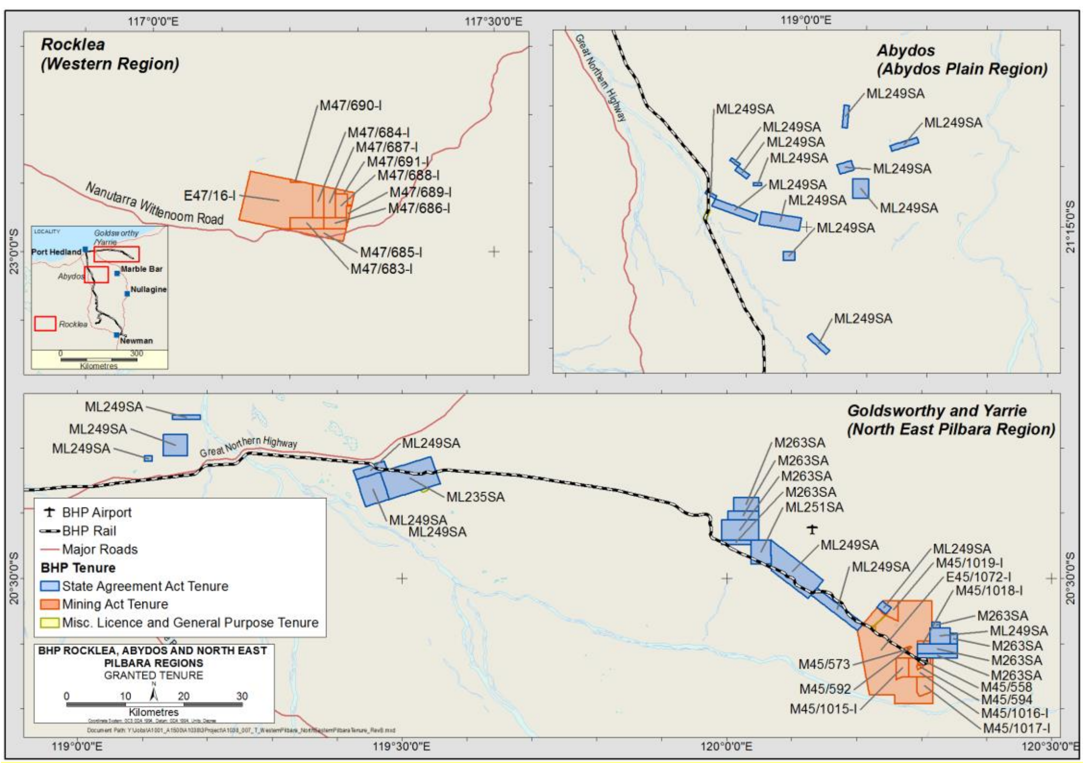


Figure 3-5: Location Map of leases held in Western and North East Pilbara Regions

3.4 Description of Mineral Rights and How They Were Obtained

3.4.1 Mineral Rights for the leases held under the State Agreement Acts

As mentioned earlier, five SA Acts were enacted by the Parliament of Western Australia between 1964 and 1991 to set out terms and conditions specifically for the long term and orderly development of iron ore in eight leases held by BHP and its JV partners in the Pilbara.

There are well-defined processes for exercising mineral rights and operating within the leases that comprise each of the SA Acts. These processes include the requirement for approval of an initial Proposal before mining, processing and transport of iron ore can commence. Likewise, any significant modification, expansion or variation in such activities requires approval by way of an Additional Proposal.

Proposals approved under the SA Acts are a binding commitment between the State and the relevant lease holders and provide long-term security to the tenure and thereby the rights to mine. The approvals are granted by the Government Minister responsible for SA Acts and will remain current whilst operations are actively conducted. The SA Acts, which are ratified by the relevant Act, provide security for the renewal of tenure for the life of the operations. The only exception to this is M270SA, under the Iron Ore (Marillana Creek) Agreement Act 1991, which has the right to only two renewals, each for 21 years, ultimately expiring in 2054. The lease will then revert to the Mining Act and BHP will need to engage with the State Government before the expiry to renegotiate the terms of the SA Act. For the purpose of this report, the QPs have assumed that WAIO would renegotiate and continue to have mineral rights in M270SA after 2054.

In addition to approvals under the relevant SA Act, WAIO requires a range of approvals under Western Australian and Commonwealth environmental and other legislation to enable the ongoing operation and further development of its mineral rights (for details see Section 17). The QPs have assumed that WAIO would obtain these approvals aligned with the business development strategy in a timely manner.

Mineral rights for the SA Act leases were obtained initially as Temporary Reserves (TR's) through application under the Mining Act 1904 (WA) (Repealed) to the State Government dating back to the 1960's, long before the enactment of the Mining Act, 1978 (WA). BHP was first in time to apply for the TR's and was granted these tenements following lifting of an export embargo on iron ore by the Australian Federal Government in late 1960, and the decision of the Western Australian Government in early 1961 to grant iron ore tenements (in the form of TRs).

The area that can be held pursuant to each SA Act Mineral / Mining Lease is limited to 777km^2, with the ability to increase the size to 1,000km^2 subject to consent of the Government of Western Australia. This gives BHP the ability to apply for inclusion of exploration and mining tenements previously held under the Mining Act into SA Act leases (subject to the area limit) providing long-term tenure security and right to mine.

WAIO has a large Mineral Reserve and Mineral Resource (exclusive of Mineral Reserves) base as at 30 June 2022 as detailed in Section 12.2.5 and 11.2.5. All Mineral Reserves and 86% of Mineral Resources are located on these eight leases held pursuant to the SA Acts (and the remaining 14% are located on the 46 tenements held pursuant to the Mining Act). Based on an indicative life of asset plan which considers current Mineral Reserves as well as Mineral Resources yet to be converted to Mineral Reserves, WAIO is likely to continue production beyond 2050's.

3.4.2 Mineral Rights for the leases / licences held under the Mining Act 1978

As stated in Section 3.3.2, as at 30 June 2022 BHP and its JV partners held 46 tenements granted pursuant to the Mining Act – 18 M leases, 27 E licences and 1 P licence. In WA, exploration / prospecting licences (i.e E/P licences) and mining leases (i.e M leases) are applied for and granted to the applicant(s) under the process set out in the *Mining Act 1978 (WA)* and *Mining Regulations 1981*. Under provisions of these, the tenement holder is required to meet terms and conditions of the grant including payment of applicable rents and rates as well as annual minimum expenditure and exploration reporting.

The exploration licences entitle the holder to explore for minerals for a period of five years initially, which can be renewed for one year at a time at the discretion of the State Government. If sufficient mineralisation is found on an exploration licence, the holder has the right to apply to the State for grant of its conversion to a mining lease under the Mining Act 1978 (WA).

The mining leases are granted for an initial period of 21 years and entitle the holder to work and mine the land, take and remove minerals, and do all of the things necessary to effectively carry out mining operations in, on or under the land, subject to the conditions of title. The mining leases have one right of renewal for 21 years but subsequent renewals are subject to Ministerial discretion.

Retention of these licences / leases under the Mining Act 1978 (WA) is subject to payment of annual rents/rates, lodgment of prescribed annual exploration reports detailing work completed over the 12-month anniversary period and meeting prescribed annual minimum expenditure commitments (unless granted exemption from all or part of the commitment). WAIO has met these requirements for the year ended on 30 June 2022.

In BHP's case it also has the right to make application to roll in the ground covered by an exploration licence, mining lease or any mining tenement under the Mining Act, to one of the 8 leases held under BHP's SA Acts for long-term tenure security. Roll-ins are subject to Ministerial approval and there are limits on the land area which can be held under each SA

Act. Mining leases must be held by BHP pursuant to SA Acts prior to approval of a Proposal for commencement of any iron ore mining development and ore extraction.

Out of 46 exploration licences and mining leases currently held by WAIO (Table 3-2 in Section 3.3.2), 21 were a result of conversion of land initially held as Temporary Reserves granted to BHP and its joint ventures under the Mining Act 1904 (WA)(Repealed). The introduction of the Mining Act, 1978 provided for the holders of Temporary Reserves to apply to transition to new tenure granted under the Mining Act, 1978. The remaining 25 tenements, mostly E licences with start dates after 2000, were obtained either through application over vacant land or outright purchase from previous tenement holders.

As at 30 June 2022, only 14% of WAIO's total Mineral Resources (exclusive of Mineral Reserves) were situated on all 46 mineral titles held pursuant to the Mining Act. Although exploration activities are continuing on these tenements, these resources are scheduled towards the back end of the life of asset plan. BHP intends to include eligible tenements into leases held under the SA Acts for long-term tenure security and prior to approval for undertaking any iron ore mining operations and ore extraction. As such in the QPs' opinion this small amount of Mineral Resource located in tenure held under the Mining Act does not pose any material risk to WAIO's life of asset plan.

3.5 Significant Encumbrances

The QPs are not aware of any significant encumbrances to the property, including current and future permitting requirements and associated timelines or permit conditions.

3.6 Other Significant Factors and Risks

In order to extract the entire Mineral Reserves and Mineral Resources on the BHP leases BHP will be required to renew or obtain new or additional permits and approvals for certain extraction activities that will occur in future. While there is no guarantee that those approvals will be obtained, or that they will be obtained on commercially acceptable terms, based on past practice, the QPs have assumed for the purpose of this report that all material approvals will be sought and obtained in a timely manner as part of the normal course of business. However, if there are any significant unforeseen delays in obtaining these approvals, this could potentially impact the production schedule and therefore the cash flow presented with associated costs contained in this report could change.

The QPs have also assumed that BHP will renew material leases, permits and licenses as required from time to time.

Pursuant to the new *Aboriginal Cultural Heritage Act 2021 (WA),* BHP cannot rely solely on the consents to BHP's operations, provided under the existing comprehensive and project agreements, as authorising impacts on aboriginal cultural heritage. The Act will require on-going consultations between BHP and the traditional owners as new information on heritage becomes available through ethnological and archaeological surveys. BHP's relationships with the traditional owner groups established and maintained through the existing agreements should facilitate these on-going consultations, however there is no guarantee that all land with mineral rights will be accessible for mining and extraction of ore and there is no way to quantify in advance how much ore will be inaccessible. Based on BHP's existing relationships with the traditional owner groups and recent experience in dealing with similar situations, in the QP's opinion WAIO should be in a position to make changes to the mine plans to mitigate any impacts.

Many of WAIO's current and future mining areas involve mining below water table (BWT) in order to fully realise the reserves/resources. This requires the water table to be lowered prior to mining through a dewatering process which generates a volume of surplus water which needs to be disposed of. If any environmental constraints related to future dewatering operations are identified, this may lead to restrictive licence conditions and impact the ability to conduct below water table mining.

3.7 Royalty or Similar Interest held by Registrant

In addition to being the majority owner of the property, BHP holds one royalty stream which entitles BHP to earn royalty income in relation to ore produced only from Mining Area C and South Flank. This royalty stream contributed 0.1% of FOB revenue in FY2022.

4 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

4.1 Topography, Elevation, and Vegetation

WAIO's mining operations are all located in the eastern Hamersley Ranges of the Pilbara region of WA. This area is marked mostly by gentle undulating topography with several narrow ranges and isolated hills representing the resistant units of the banded iron formations. The elevation above ground level averages around 300m for most areas. The general ground level varies between 550m and 650m above sea level, whereas the highest points on the ranges and hills reach up to 850 to 900m above sea level.

Several networks of creeks and smaller tributaries traverse WAIO tenement areas and drain north-eastwards, ultimately joining the Fortescue River at different points. Most of these drainages are ephemeral and carry water only during short periods of heavy rainfall. A few of the creeks are also spring-fed and flow for relatively longer periods.

Arid grasses and shrubs are found widely throughout the Pilbara. Hummock grasslands are the most extensive vegetation type with some significant areas of tussock grassland, acacia woodland and open woodland. Smaller areas of chenopod shrub land and eucalypt woodland occur primarily on floodplains and along drainage lines.

4.2 Means of Access

The Great Northern Highway runs through the Newman town and parts of WAIO tenure and provides road access to the property from Perth and other regional towns, as shown in Figure 3-1. Newman town, located within 5km of the Newman mine, also has a commercial airport. Other mining hubs are accessible from the Great Northern Highway mainly through WAIO's own service roads, which were built over time as part of mine development work. In addition to road access and commercial flight access to Newman, WAIO has its own private airports at Mining Area C and Yandi and operates regular charter flights to transport fly-in fly-out mine personnel and supplies.

WAIO also has an existing network of railway lines for transporting iron ore from its processing hubs to its own port facilities located at Port Hedland (details in Section 15.1). The town of Port Hedland is accessible by road from Perth, via the Northwest Coastal Highway, and it also has a commercial airport.

4.3 Climate and Length of Operating Season

The Pilbara region is marked by an arid and tropical climate, with two very distinct seasons – summer (November to April) and winter (May to October). Temperatures range from below 5°C in winter to over 40°C in summer. During the summer months, maximum temperatures exceed 32°C almost every day and temperatures in excess of 45°C are not uncommon. Winter minimum temperatures in the Pilbara drop below 10°C on most days and occasionally to as low as 0°C, but with no impact on the operations.

The average annual rainfall range is between 200 and 350 millimeters. Almost all the rainfall occurs between December and May, usually as occasional heavy downpours associated with thunderstorms or tropical cyclones and mainly affecting the coastal areas of the Pilbara. The June to November period is usually dry, with warm to very hot and sunny conditions. However, water for mining operations and other activities is mostly extracted from ground water sources.

Various parts of the Pilbara are subject to tropical cyclones, mainly during the period of October to April. Depending on their intensity and location of impact, cyclones may lead, and in the past have at times led, to temporary closures of mining, railway and port operations. A total of seven days has been built into the annual production plan to account for such interruptions due to extreme weather conditions.

4.4 Availability of and Sources of Required Infrastructure

Reliable sources of water, electricity, personnel and supplies are already established by WAIO for its operations, as currently planned.

4.4.1 Sources of Water

The source of water for all WAIO mines, process plants and mine camps is ground water. Water supply is drawn from BHP-managed bore fields around mine sites established by WAIO under license for its operations and mine camps. For mines and plants, operational water supply comes primarily from dewatering borefields with separate supply borefields and infrastructure used for drinking water. Standalone water supply bores are used to support exploration and construction projects away from mines, including a network of supply bores along the rail network. Port Hedland operations are supplied with water under contract from the municipal provider, and this water is sourced from nearby coastal aquifers.

4.4.2 Sources of Electricity

WAIO owns and operates a natural gas fired power plant (Yarnima Power Station, in Newman town), with an installed generator capacity of 190 megawatts. The plant supplies the entire power requirement for all its mining and processing facilities as well as mine camps. WAIO mines and Newman township typically consume about 80 – 100 MW of power on average, with peak demand reaching 130 to 140 MW.

Power consumed for WAIO's port operations at Port Hedland is purchased via a power purchase agreement with Alinta Energy, a large energy supplier in Australia. WAIO's port operations typically consume about 37 MW on average, peaking at 70 MW.

4.4.3 Personnel

WAIO relies mainly on a fly-in-fly-out (FIFO) workforce sourced primarily from within WA (Perth and other regional towns) and to a lesser extent from other eastern states in Australia.

The Newman town is capable of housing a small number of workers with most of those employed at the Newman Operations. All fly-in-fly-out personnel work on rosters. WAIO operates charters flights from Perth to ferry personnel to various mine sites. Personnel also use commercial flights to Newman and Port Hedland. While on mine site, personnel reside in the fully serviced FIFO camps.

4.4.4 Supplies

BHP encourages local buying where possible, however supplies from the Newman town are very limited. Most supplies are sourced from Perth or the eastern States and transported to mine sites by road or by air.

5 History

5.1 Previous Operations

BHP and its joint ventures / associates were first movers into the Pilbara and have been operating this property from the very beginning of the Pilbara iron ore mining industry in the 1960's.

In 1966, BHP's joint venture partner, Goldsworthy Mining Limited (GML), was the first company to develop an iron ore mine in the Pilbara. This mine, Mount Goldsworthy (closed in 1982), was located relatively close to the port at the Port Hedland (about 100km to the west) and production was for export. This iron ore deposit was located in the North East Pilbara region (see Figure 3-1). BHP was initially a joint venture partner in GML but acquired full ownership in 1990. Since the 1960's, BHP has been exploring, developing and extracting iron ore at gradually increasing rates of production to keep pace with global sea-borne market demands.

In 1969, BHP developed the Mount Whaleback deposit at Newman, for export purposes, as a part of the Mount Newman Mining Joint Venture (NJV). The majority ownership of NJV was acquired by BHP in 1986. In the 1960's and 1970's, generally, Japanese contracts underwrote the development of the BHP iron ore mines. Later on, BHP entered into similar contracts with other growing Asian countries like South Korea.

The next major mine development by BHP was at Yandi in 1991, and this led to a growth phase for BHP. In 1992, BHP acquired the Jimblebar deposits located approximately 40km east of Newman. In the 1990's, subleases tied to ore purchase agreements by a Chinese consortium over part of the Jimblebar deposits and by South Korea's POSCO for the C Deposit at Mining Area C helped boost BHP's annual production rates.

The growth of BHP's iron ore production from early 2000's has been mainly driven by increase demand resulting from the industrial expansion in mainland China, where steel production and consumption have increased significantly.

BHP's iron ore production has increased from about the 20 Mtpa rate in the 1990's to approximately 249 Mtpa (283 Mtpa on 100% basis) in FY2022. The production history for the last 10 years is shown in Table 5-1.

Table 5-1: Production history of WAIO for the last 10 years

	Financial Year-wise Production (in million tonnes)									
Financial Year	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
On Ownership basis	159	193	218	221	231	238	238	248	252	249
On 100% basis	187	225	253	257	268	275	270	281	249	283

BHP's current production comes from five mining hubs, Newman and Jimblebar located in the Eastern Pilbara region; and Mining Area C, South Flank and Yandi located in the Central

Pilbara and Yandi regions (see Figure 3-1). The first production from South Flank started in May 2021 and it is currently in a ramp-up stage to reach its expected full capacity of 80 Mtpa.

After producing more than 1.3 billion tonnes of CID ore since the Yandi operations commenced in 1991, its end-of-life production ramp down, closure and decommissioning of associated infrastructure started in July 2021 and has continued in 2022. A lower level of production from Yandi is expected to continue for a few more years. Once the Yandi mine is fully exhausted, some of the Yandi processing facilities are likely to be used to process feed from nearby deposits. The new South Flank mine is expected to gradually replace the Yandi production volume in the coming years.

5.2 Exploration and Development by Previous Owners or Operators

Although the Pilbara's potential as a source of iron ore was known in the late 19th century, its true potential was recognised only in the late 1950's, following the initial discoveries by A.S. (Stan) Hilditch (discoverer of the BHP-owned Mount Whaleback and surrounding satellite deposits in 1957) and the activities of L.G. (Lang) Hancock. The lifting of an export embargo on iron ore by the Federal Government in late 1960, and the decision of the Western Australian Government in early 1961 to grant iron ore tenements (in the form of Temporary Reserves) led to an upsurge in exploration which subsequently established the Pilbara as one of the world's major iron ore provinces, due to development and mining operations by BHP and others.

All the exploration and development work on the property, starting in the 1960's has been undertaken by BHP and details are presented in Section 7.2.

6 Geological Setting, Mineralisation, and Deposit

6.1 Regional Geology

The WAIO property is located in the Hamersley Province of the Pilbara craton, situated in the northwest of Western Australia, and is one of the world's premier iron ore regions. It covers an area of 80,000km^2 and contains late Archaean to early Proterozoic-age (2,800-2,300 million years) sediments of the Mount Bruce Supergroup (Figure 6-1).

The Hamersley Group forms the central part of the Mount Bruce Supergroup and is conformable with both the underlying Fortescue Group and overlying Turee Creek Group (*Harmsworth et al., 1990*). It is a 2.5km thick sequence of dominantly deep-water chemical sediments, with subordinate turbiditic sediments and various intrusive and extrusive rocks. Sediments include (in approximate order of decreasing abundance) banded iron formation (BIF), shale, dolomite derived from peri-platformal ooze, chert, pyroclastic shale and tuff, turbiditic carbonate and turbiditic volcanics. The stratigraphic column for the Hamersley Province is shown in Figure 6-2. The banded iron formations in the Hamersley Group mostly stand out as topographic highs of the Hamersley Ranges of the Pilbara.

The Hamersley Province overall can be considered as two structurally distinct regions:

- a northern / northwest region of mild deformation typified by shallow, open folds with a west to northwest trend;
- a southern region displaying more intense deformation where the major iron deposits occur; this latter area can be further subdivided into a southwestern area dominated by *en echelon* type open folds, and a south-eastern area dominated by recumbent E-W trending folds.

Within the BIFs of the Hamersley Group there are two main iron-bearing stratigraphic sequences (Figure 6-2) which host the major bedded ore deposits: Brockman Iron Formation (BKM IF) and Marra Mamba Iron Formation (MM IF) (*Trendall and Blockley, 1970*). The BKM IF varies considerably in thickness from about 500m at Paraburdoo and in the Newman area, to about 620m at Mt Tom Price. The thickness of MM IF also varies and can be up to 220m thick. The majority of the mines in the Pilbara extract iron ore from deposits hosted by either BKM IF or MM IF.

On the northern margin of the Archaean Pilbara Craton, in the North East Pilbara (Figure 6-1), the Nimingarra (NIM) Iron Formation hosts the Yarrie-Nimingarra iron ore deposits, now mostly mined out.

Another important iron bearing sequence is the Marillana Formation (Figure 6-4). This hosts the fluviatile Channel Iron Deposits (CID) of late Eocene to early Miocene age, with their distinctive pisolitic structures and fossilised wood fragments (*Ramanaidou et al., 2003*). The CID mineralisation at Yandi was a major source of WAIO's iron ore production for the last 30 years but has now been mostly mined out.

In addition to the CIDs, younger detrital sequences form colluvial-alluvial fans adjacent to some bedded iron deposits, with the chemical composition of the fans reflecting that of the source material. These are termed Detrital Iron Deposits (DID) (*Kneeshaw and Morris, 2014*). Despite their widespread occurrence, mining of these DIDs is very limited and mostly opportunistic where they are mineralised.

A schematic structural relationship of the various ore types in the southeast Pilbara is presented in Figure 6-3.

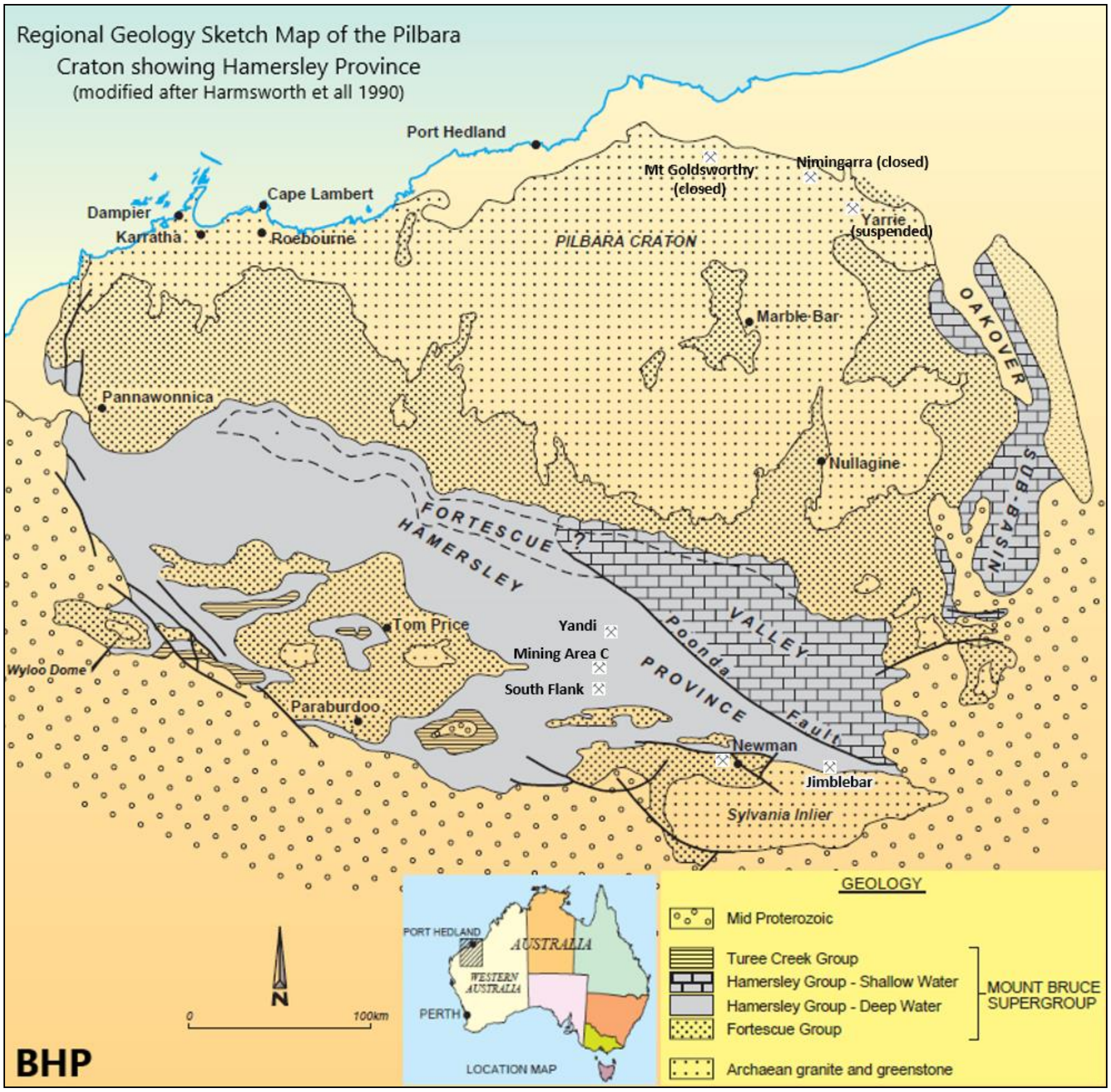


Figure 6-1: Regional Geology Map of the Pilbara Craton showing the Hamersley Province

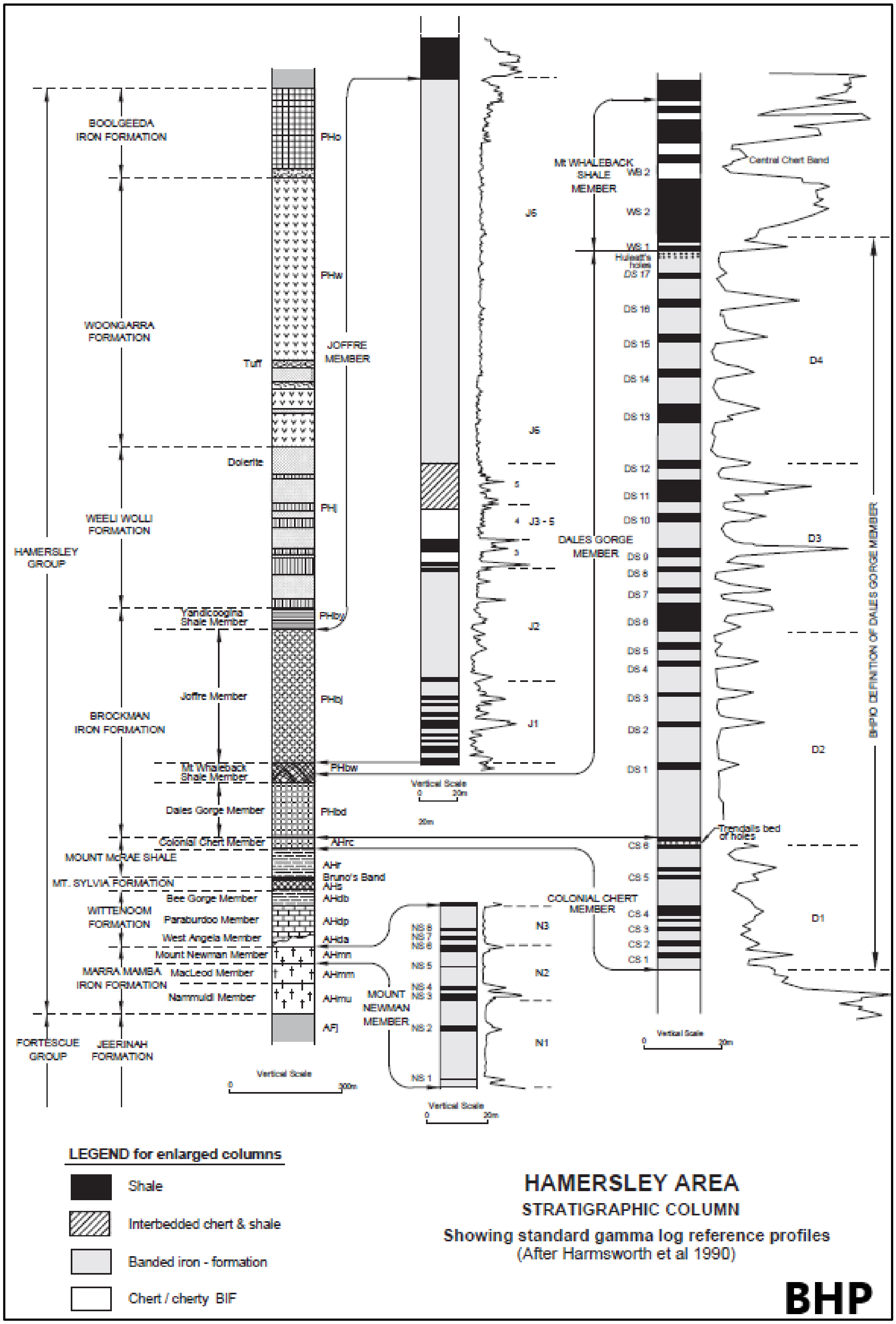


Figure 6-2: Hamersley Province Stratigraphic Column including that for Local Geology

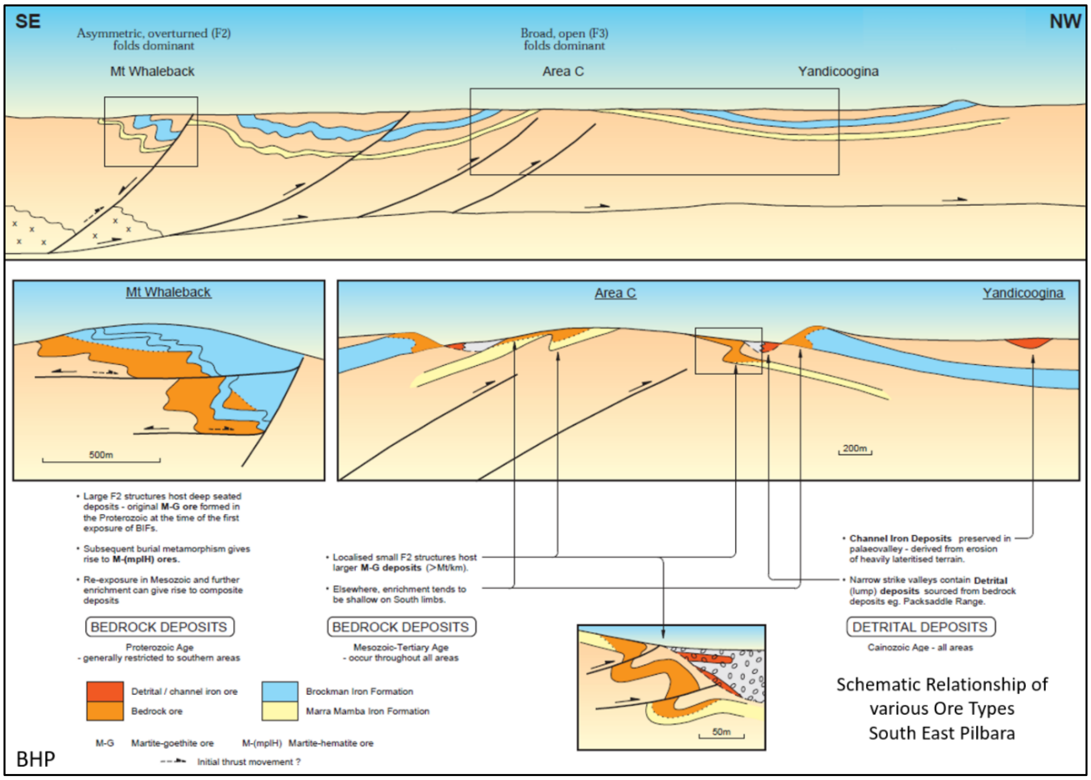


Figure 6-3: Schematic Structural Relationship of Various Ore Types of South East Pilbara

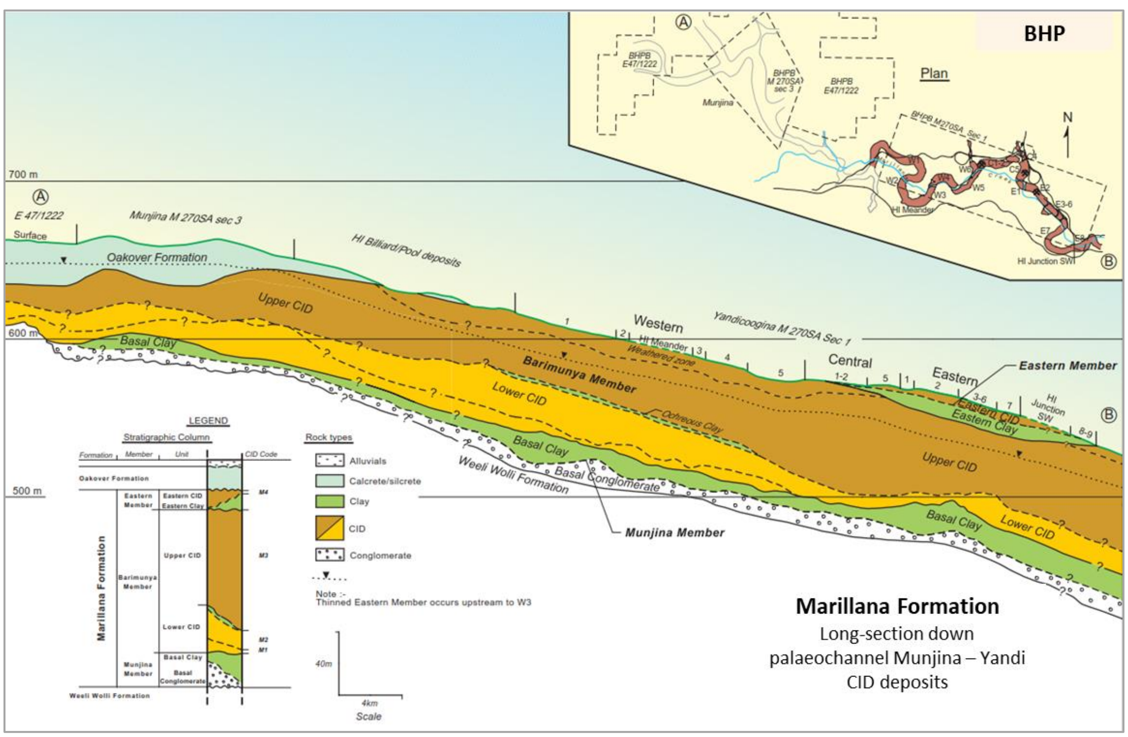


Figure 6-4: Marillana Formation – Stratigraphic Column and Schematic Long Section

6.2 Local Geology and Mineral Deposits

Most of WAIO's iron ore deposits, including all those which are currently under active mining, are spread over an area of approximately 200km E-W x 100km N-S in the eastern part of the vast Hamersley Province (Figure 6-1). This area has been broadly sub-divided into three geographical regions, namely Eastern Pilbara, Central Pilbara and Yandi as shown in Figure 6-5. Footprints of the main mineral deposits in the five active mining hubs are also shown in Figure 6-5 and the local geology of each of the deposits is described in the following sections.

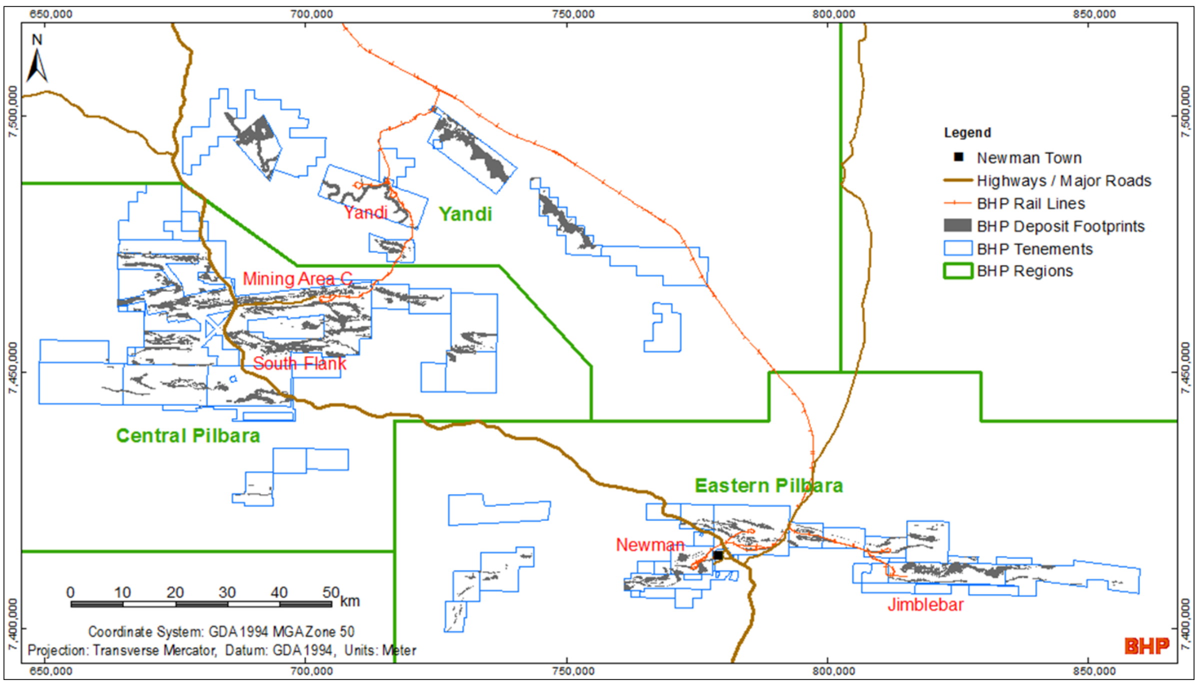


Figure 6-5: Index Map showing Geographical Regions and Operating Mining Hubs

6.2.1 Eastern Pilbara Region – Deposits in the Newman Area

WAIO's Newman tenure extends approximately 60km E-W and 15km N-S and is located close to the eastern end of the Hamersley Province near the town of Newman (Figure 6-1). This area hosts the world-class Mount Whaleback BKM deposit which was the first major iron ore mine for BHP and has been in production since 1969. The Eastern Ridge, Western Ridge and Shovelanna deposits located in the Newman area are also currently under active mining and feed into the Newman processing hub.

The outcrop in the Newman area is dominated by iron formations, with the BKM IF forming prominent ranges of hills and the MM IF having a more subdued topographic expression. The intervening Wittenoom Formation is typically deeply eroded and overlain by a mix of Mesozoic to Cenozoic sedimentary rocks.

The BKM IF crops out more or less continuously, with a west northwesterly strike, over the entire 60km length of WAIO tenure (the Ophthalmia Range). Apparent sinistral offset on a subvertical, NNE-trending fault (called Fortescue River Fault) divides the range into two geologically coherent blocks (Figure 6-6). At the western end of the range, late normal movement on WNW-trending, moderately S-dipping faults (e.g., Homestead and Pika Faults) has resulted in duplication of the BKM IF and MM IF within the Ophthalmia Range. A further belt of BKM IF and MM IF stratigraphy strikes northwest through the town of Newman, and BKM IF dominates the remaining hilly areas, known as the Western Ridge and the Eastern Ridge. This entire block has been downthrown, relative to the Ophthalmia Range stratigraphy, by late normal movement on the NE-trending, moderately SE-dipping Whaleback Fault.

While the fault architecture controls the distribution of BIFs, the outcrop pattern is dominated by regional-scale, north-verging to recumbent folds that plunge gently to the west northwest. These are superimposed on an earlier generation of meso-scale folds, also consistently north-verging and WNW-plunging, that are particularly clear in outcrop in the Eastern Ridge area. The youngest generation of folds are upright, open folds with axes that trend NW to NE.

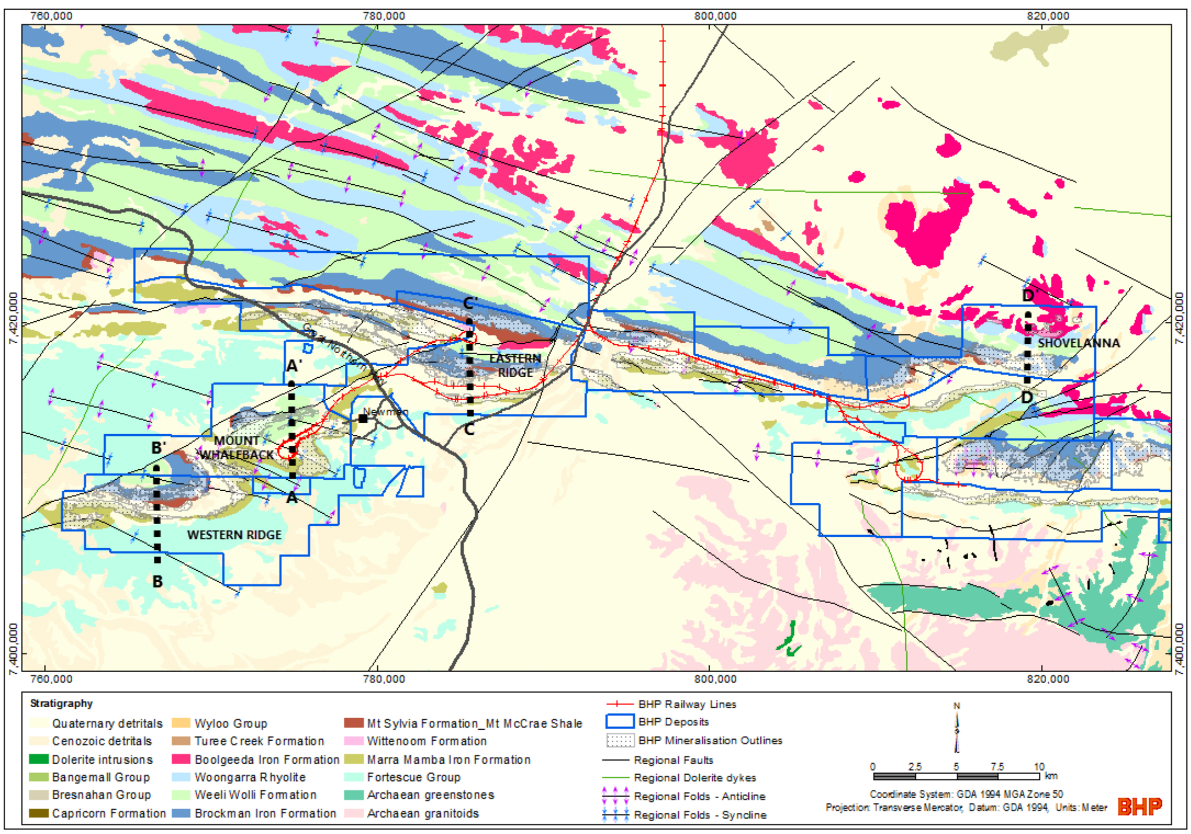


Figure 6-6: Geology Map for Eastern Pilbara Region – Newman Deposits

Mount Whaleback – The Mount Whaleback deposit is in production, and is located approximately 5km west of Newman (Figure 6-6). This is the only deposit in the WAIO portfolio to be dominated by the hypogene martite-microplaty hematite (M-mplH) style of mineralisation (see Section 6.3) and as a result the resource is particularly high-grade and 'clean'. Mineralisation is hosted by a doubly-plunging pair of synclines of BKM IF and extends for approximately 5.5km E-W, 1.7km N-S and to a depth of 470m (Figure 6-7). The BIF has been down-faulted against the Jeerinah Formation by late normal movement on the NE-trending Whaleback Fault. Low-angle faults, such as the Central Fault and Eastern Footwall Fault, appear to have acted as local feeder conduits for the hydrothermal fluids. The upper surface of the hypogene mineralisation is subhorizontal and transgressive to the stratigraphy (Dales Gorge and Joffre Members, Whaleback Shale). The Mount McRae Shale forms the stratigraphic base of the orebody. A thin blanket of M-G mineralisation (see Section 6.3) was originally present and mantled the top of Mount Whaleback, but this has long since been mined out. Overall, this deposit is high-grade and the mineralisation has a natural cut-off of 50% Fe.

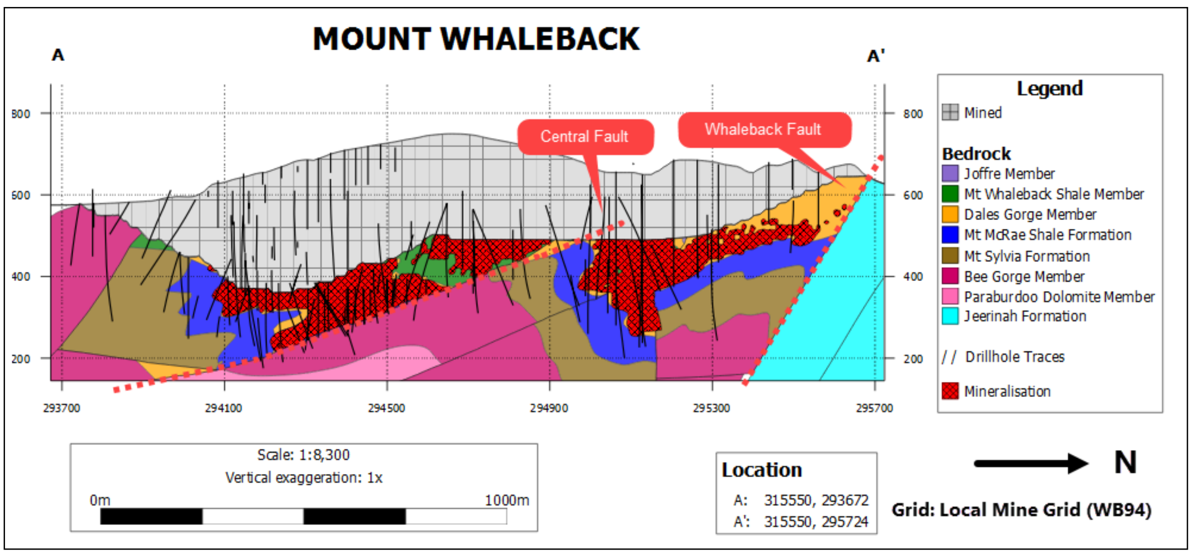


Figure 6-7: Geological cross-section A-A' through Mount Whaleback (a BKM deposit)

Western Ridge – The Western Ridge deposit is under development as a sustaining mine. The Hamersley Group rocks of the Whaleback-Western Ridge belt extend for 17km to the southwest of Newman (Figure 6-6). The outcrop pattern is dominated by two regional-scale synclinal keels of BKM IF. The synclines plunge gently to the west northwest and are truncated against the Whaleback Fault. The MM IF crops out to the southeast of the BKM IF and, in addition to the regional-scale folds, a number of N-verging, recumbent meso-scale folds are evident from the outcrop pattern and from drilling.

Mineralisation (excluding Mount Whaleback) is semi-continuous in both BKM and MM IF, with individual orebodies having the following range of dimensions: 1.5-9.5km in strike length, 500-1000m in width and extending to depths of 100-400m. Some of these orebodies contain cores of hypogene M-mplH mineralisation which have been overprinted by the supergene ore-forming event. Steeply-dipping faults, including the Whaleback Fault, appear to have acted as fluid conduits for the hypogene ore fluids. The other orebodies in this group are all supergene martite-goethite (M-G) types (both BKM and MM). The better thicknesses of supergene mineralisation are localised in the hinge zones or short limbs (occasionally thrust-thickened) of asymmetric, N-verging, meso-scale folds. Mineralisation also occurs in the synclinal keels of the later regional-scale folds and the limbs of these folds, where they have a moderate dip. The natural cut-off grade that separates unmineralised BIF from mineralisation in this area is 48% Fe. A representative cross-section Western Ridge is shown in Figure 6-8.

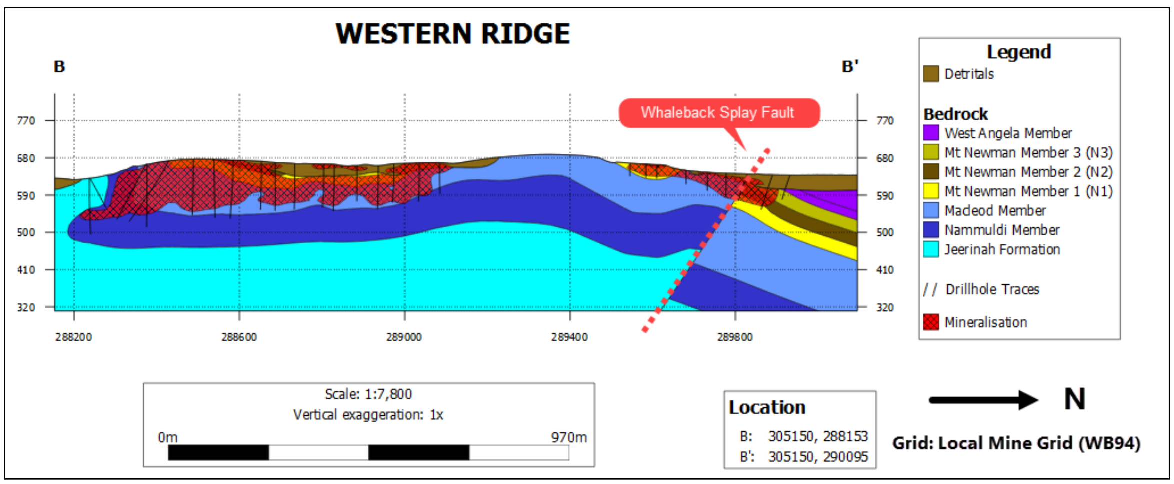


Figure 6-8: Geological cross-section B-B' through Western Ridge (a MM deposit)

Eastern Ridge – The Eastern Ridge deposit is in production. It is located to the northeast of Newman (Figure 6-6) and the stratigraphy is duplicated by late normal movement on the moderately S-dipping Homestead Fault.

A regional-scale overturned syncline dominates the structure to the south of the Homestead Fault. To the north of the Homestead Fault, mineralisation occurs within the steeply N-dipping limb of a regional anticline. Some of the better thicknesses of mineralisation throughout this area are associated with an earlier generation of meso-scale folds, clearly visible in outcrop, that plunge gently to the west northwest and verge towards the north.

Mineralisation occurs in both the BKM IF and the MM IF. It is semi-continuous in both BKM and MM IF, with individual orebodies having the following range of dimensions: 4-10km in strike length, 200-700m in width and extending to depths of 100-400m. The majority of the mineralisation in this area is of the M-G type but there are small localised patches of hypogene M-mplH mineralisation in the west and more extensive M-mplH mineralisation in places (some of it clearly associated with the steeply-dipping, NE-trending Central Fault). The natural cut-off grade that separates unmineralised BIF from mineralisation in this area is 48% Fe. A representative cross-section through Eastern Ridge shown in Figure 6-9.

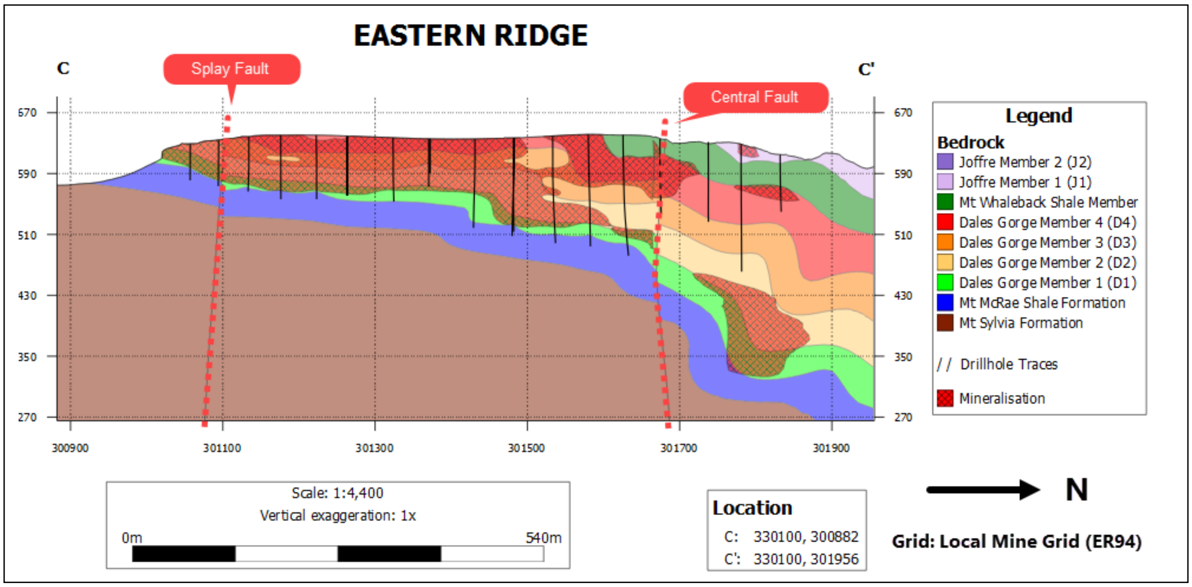


Figure 6-9: Geological cross-section C-C' through Eastern Ridge (a BKM deposit)

Shovelanna – The Shovelanna deposit is in production. It is located about 40km east of Newman (Figure 6-6). Mineralisation occurs in the Dales Gorge and Joffre Members of the BKM IF and is semi-continuous along strike with the following dimensions: 6km in strike length, 200-800m in width and extending to depths of 100-200m. The majority of the mineralisation is M-G type ore, with occasional patches of M-mplH. A representative cross-section through Shovelanna is shown in Figure 6-10.

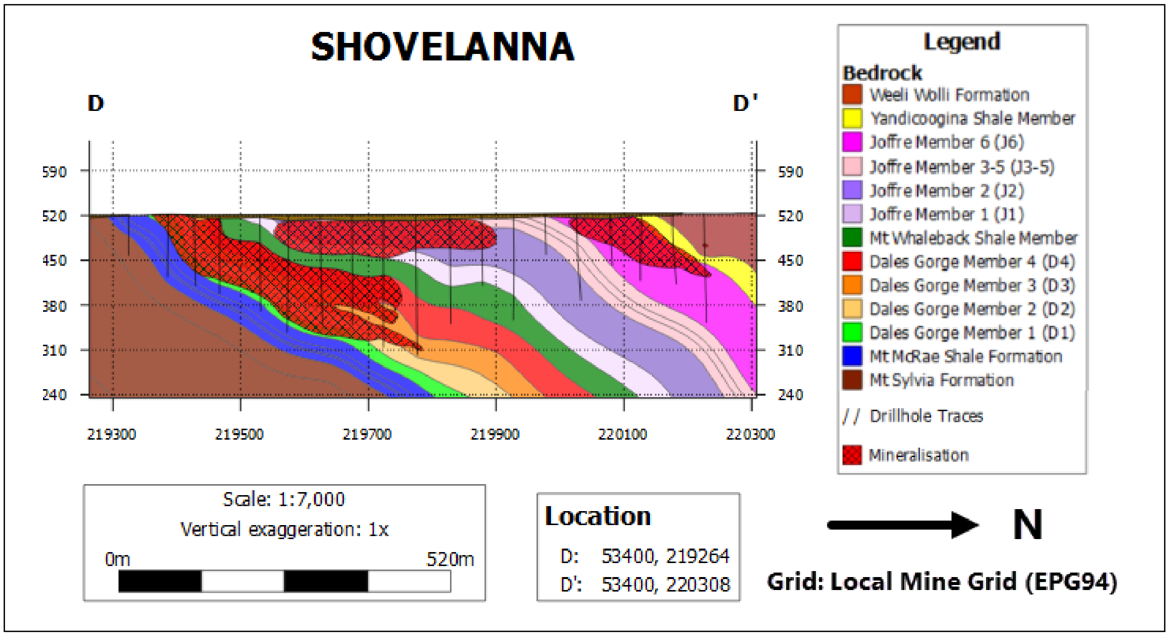


Figure 6-10: Geological cross-section D-D' through Shovelanna (a BKM deposit)

6.2.2 Eastern Pilbara Region – Deposits in the Jimblebar Area

Mineralisation in the Jimblebar area extends approximately 50km E-W and 10km N-S and is located at the eastern extreme of the Hamersley Province, approximately 40km east of the town of Newman (Figure 6-1). Although some small-scale mining started in the early 1990's, its main phase of development and production began in 2013.

The outcrops in the area are dominated by the BKM and MM IFs, with the BKM IF forming prominent ranges of hills (Wheelarra-Hashimoto) and the MM IF having a more subdued topographic expression to the south (South Jimblebar) (Figure 6-11). The intervening Wittenoom Formation is deeply eroded and overlain by a mix of Mesozoic to Cenozoic sedimentary rocks.

The BKM IF crops out, with an easterly strike, for approximately 30km over the central part of the Jimblebar tenements. There is one major structural offset due to an apparent dextral offset on the NE-trending and moderately SW-dipping Wheelarra Fault. This fault divides the Ophthalmia Range to the west from Wheelarra Hill to the east.

While, like Newman, the fault architecture controls the distribution of BIFs, regional-scale folding is less evident in the outcrop pattern, though still present. An earlier generation of meso-scale folds, consistently north-verging and WNW-plunging, can be mapped in outcrop and the youngest generation of folds are upright, open folds with axes that trend to the northwest.

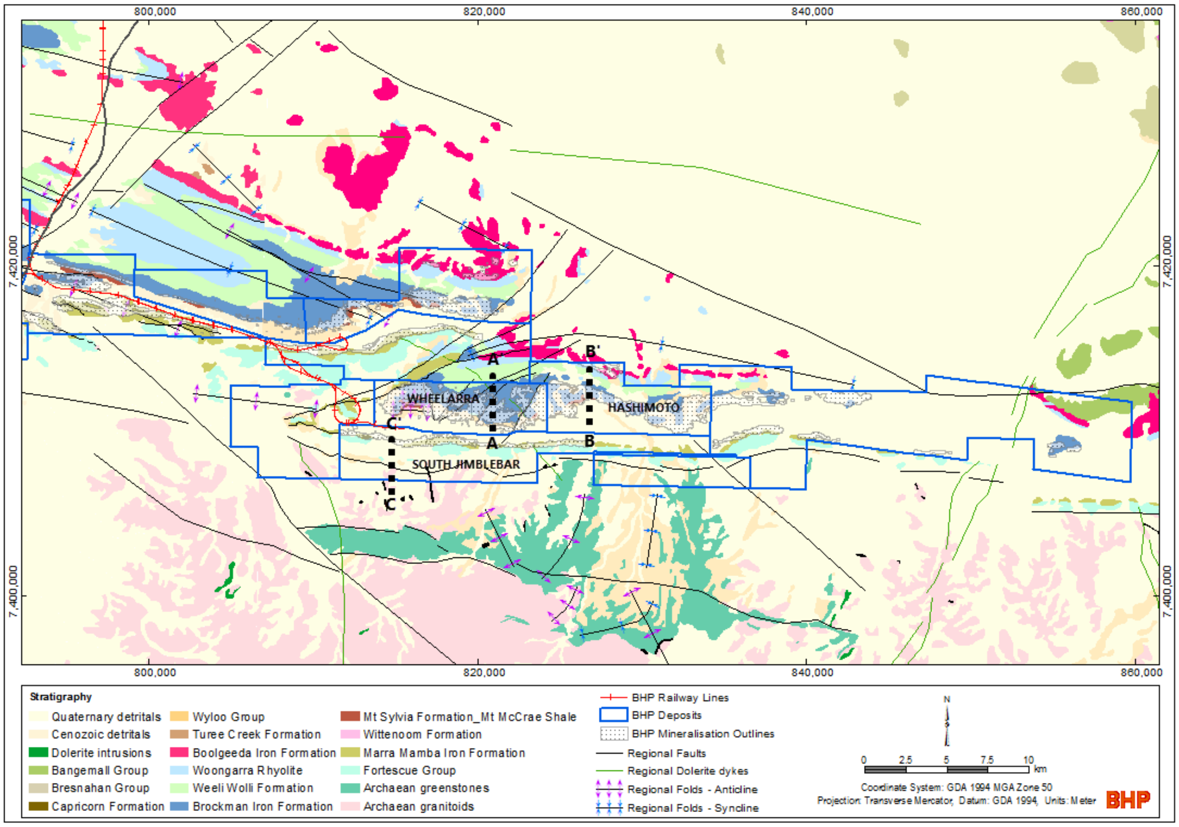


Figure 6-11: Geology Map for Eastern Pilbara Region – Jimblebar Deposits

Mineralisation is semi-continuous in both BKM and MM IF over a strike length of 30km (Figure 6-11). Individual deposits have the following range of dimensions: 1.5-9.0km in strike length, 200-2500m in width and extending to depths of 50-400m. Recognisable nuclei of supergene M-mplH mineralisation are preserved at Wheelarra and Hashimoto (BKM) and, more rarely, at South Jimblebar (MM). Supergene M-G mineralisation overprints all these hypogene centres and is the dominant form of mineralisation in all deposits in this area. All these deposits are in production. The natural cut-off grade that separates unmineralised BIF from mineralisation in this area is 48% Fe. Representative cross-sections of these deposits are shown in Figure 6-12, Figure 6-13 and Figure 6-14.

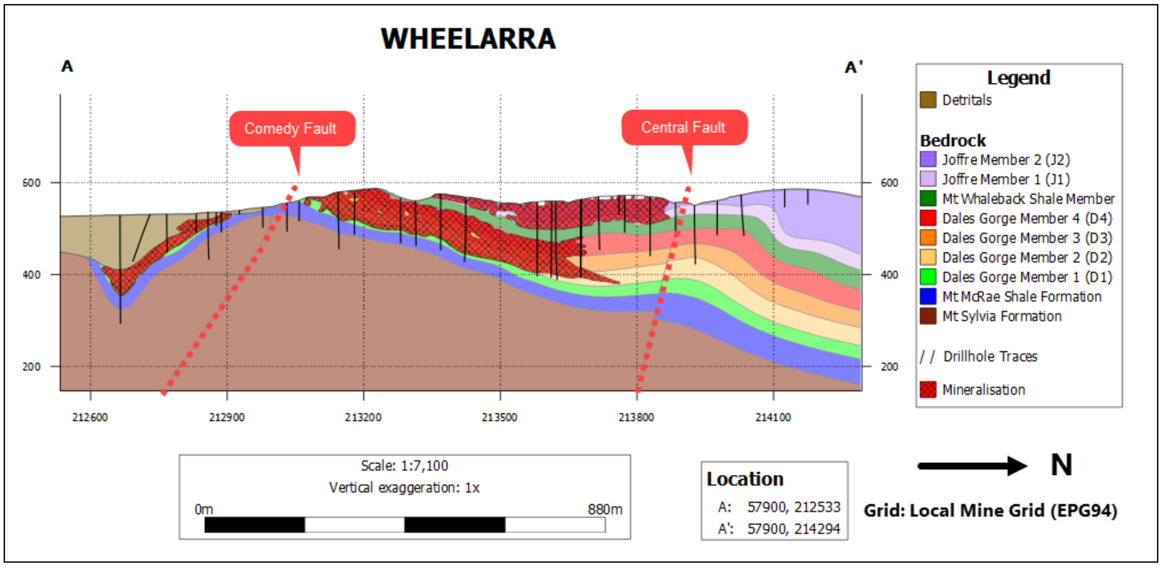


Figure 6-12: Geological cross-section A-A' through Wheelarra (a BKM deposit)

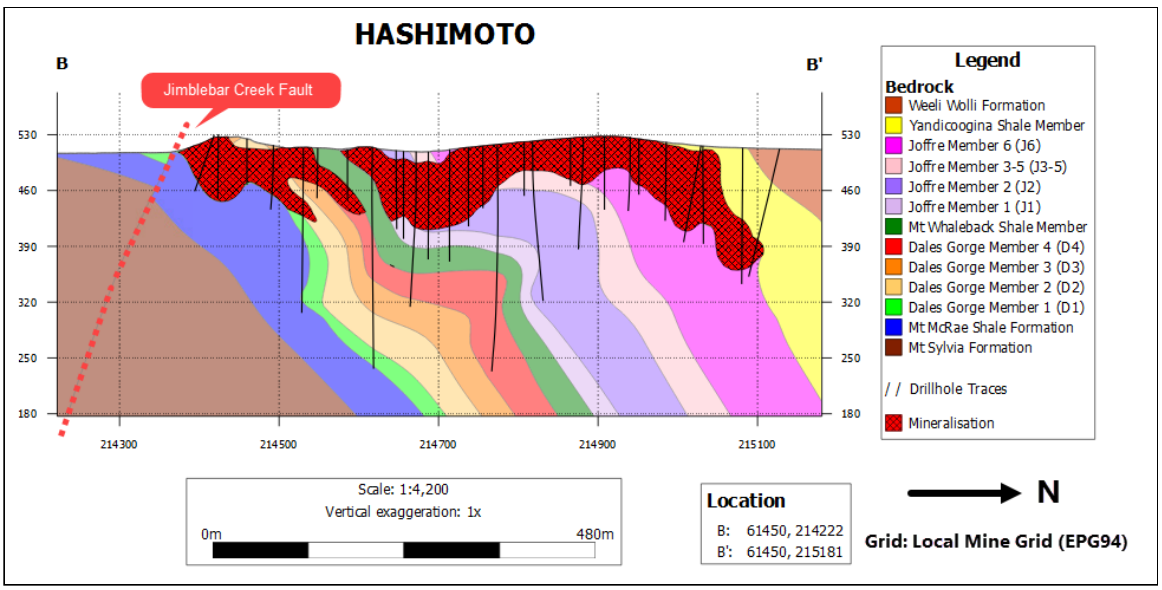


Figure 6-13: Geological cross-section B-B' through Hashimoto (a BKM deposit)

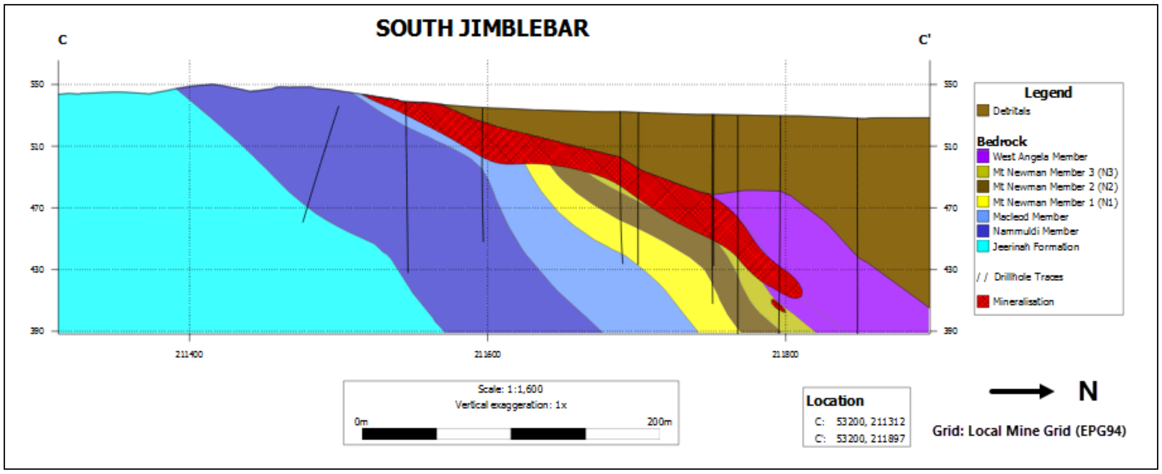


Figure 6-14: Geological cross-section C-C' through South Jimblebar (a MM deposit)

6.2.3 Central Pilbara Region – Mining Area C and South Flank

The Central Pilbara area extends over an area of 70km E-W by 30km N-S, surrounding the Mining Area C (MAC) processing hub. It comprises three grouped deposits under active mining (namely North Flank, Packsaddle and South Flank) and two exploration stage deposits (namely Jinidi, and Mudlark Well) (Figure 6-15). The North Flank and South Flank deposits are located on MM IF that crops out on the northern and southern limbs of the doubly-plunging Weeli Wolli anticline. The Packsaddle deposit covers BKM IF on the northern limb of the Weeli Wolli anticline, whereas the Jinidi deposit covers BKM IF in the eastern nose of the same anticline. The Mudlark Well deposit is located west of the Weeli Wolli anticline. Mineralisation is hosted by both the BRK IF and the MM IF and is associated with the moderately-dipping limbs and gently W-plunging synclinal keels of a series of regional-scale folds. Mining Area C is located approximately 90km northwest of Newman (Figure 6-1). BHP's first MM deposit came into production here in 2003 and the new South Flank mine, immediately to the south, is also developed around a MM resource.

The outcrop pattern is dominated by a series of large-scale, open, upright folds with wavelengths of the order of 20km. These are typically E-W-trending and doubly-plunging, forming a series of domes of which the Weeli Wolli anticline at Mining Area C is a typical example (Figure 6-15). The cores of domes form low ridges composed of MM IF and shales of the uppermost Jeerinah Formation. The intervening synclines outcrop as ranges of the more resistant BKM IF. The Wittenoom Formation appears to have undergone significant karstic erosion and is rarely exposed in outcrop. It forms the subcrop to a series of E-W-trending valleys filled with a variety of Mesozoic to Cenozoic sedimentary rocks.

The effects of at least three fold generations are preserved at MAC. In addition to the regional-scale fold generation (Weeli Wolli anticline), an older generation of second-order, meso-scale folds have sinuous hinge-lines and are uniformly north-verging. These folds are overturned to recumbent and a series of sub-horizontal thrusts have developed locally in response to over-tightening of these asymmetric folds (e.g., North Flank and South Flank). The third and youngest generation of folds consists of N-S-trending, open, upright folds with broad wavelengths. The combined effect of the fold generations results in a complex outcrop pattern which reveals a number of smaller domes superimposed on the broader anticline/syncline pattern.

In addition to the sinuous thrusts that thicken fold limbs within the MM IF, a major, steeply S-dipping, normal fault (Neale's Fault) strikes ENE-WSW through the Packsaddle Range. A break in the eastern part of the Packsaddle Range reflects the position of the NE-trending Weeli Wolli Fault corridor and corresponds with the location of the Weeli Wolli spring and its associated drainage.

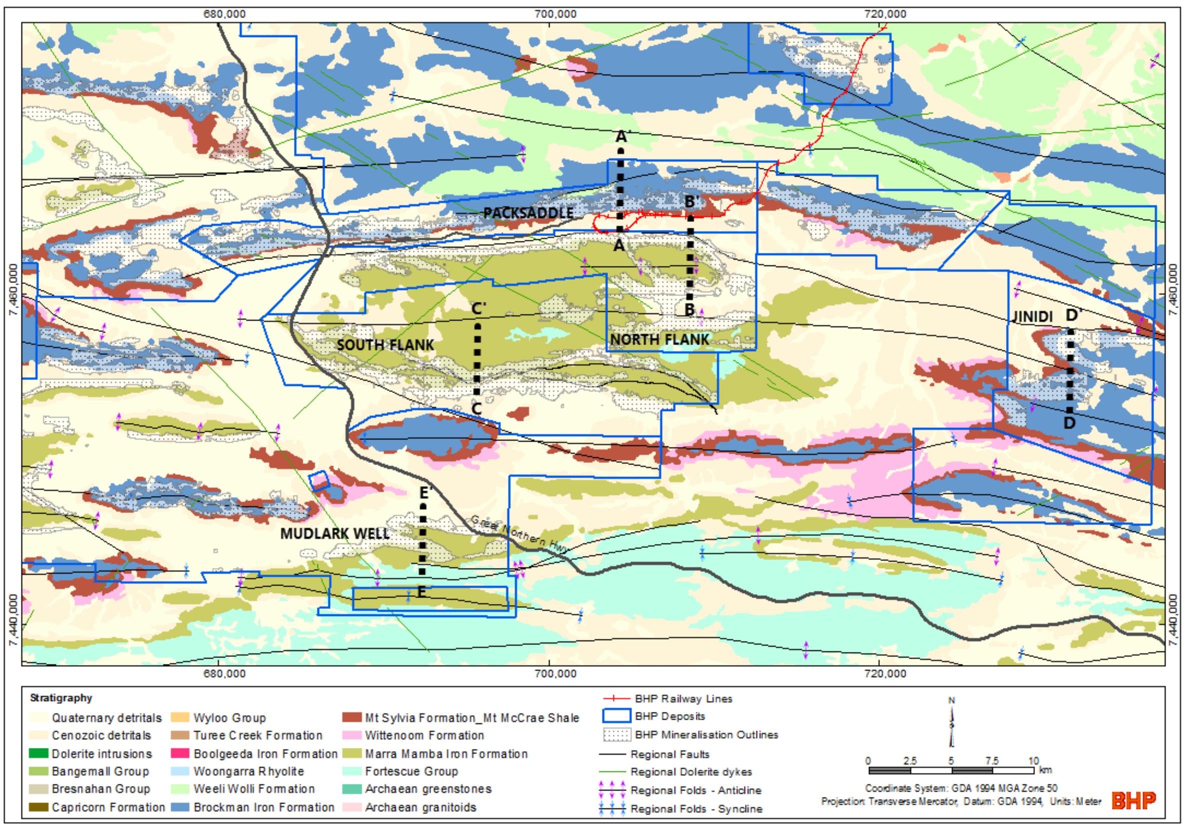


Figure 6-15: Geology Map of Central Pilbara Region

Packsaddle – The Packsaddle Range deposits are in production. At Packsaddle, supergene M-G mineralisation is developed in BKM IF over a strike length of almost 50km, with widths of up 1.5km and extending to depths of up to 300m. A representative cross-section is presented in Figure 6-16. The Packsaddle Range is located on the northern flank of the regional-scale, EW-trending Weeli Wolli anticline and the Brockman IF stratigraphy dips moderately to gently to the north. Refolded, meso-scale, WNW-trending folds are asymmetric and verge to the north. These play a major role in localising the supergene enrichment. Deep pockets of mineralisation are controlled by a major ENE-WSW-trending normal fault (Neale's Fault).

The detrital mineralisation at Packsaddle is located at the base of the south-facing scarp of the Packsaddle Range. It consists of scree fans, fed by deeply incised N-S-trending gullies and shedding off the scarp of mineralised BKM IF (Packsaddle Range) to the north.

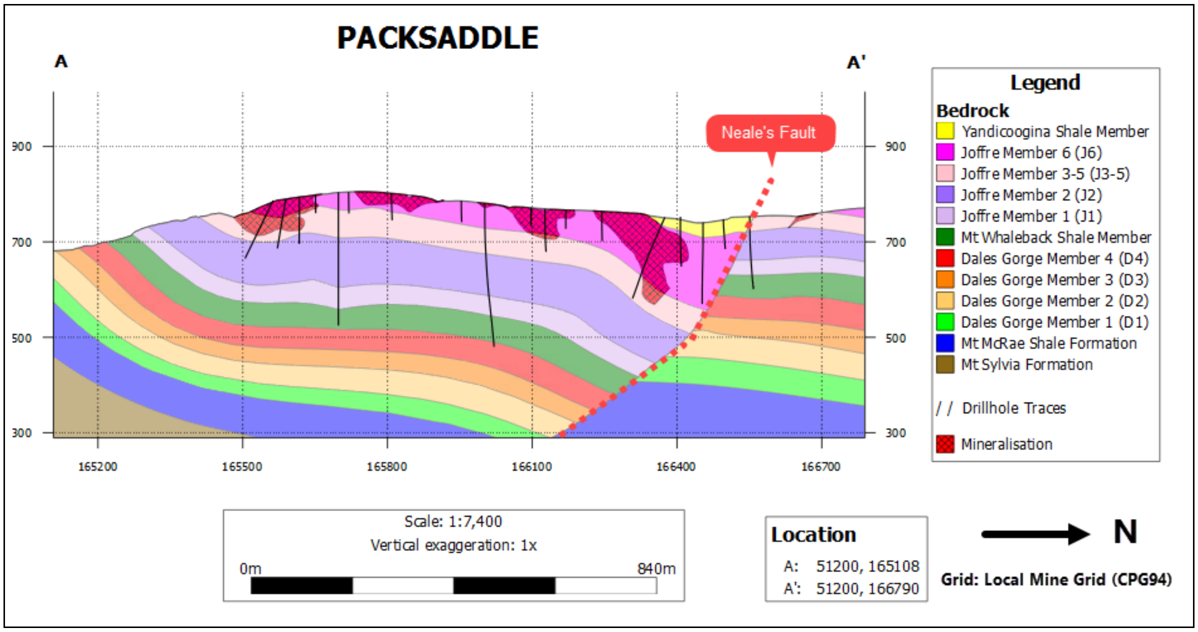


Figure 6-16: Geological cross-section A-A' through Packsaddle (a BKM deposit)

North Flank – The North Flank series of deposits is in production. North Flank is located on the northern flank of the Weeli Wolli anticline Figure 6-15. Mineralisation is continuous over a strike length of 25km, with widths up to 1km and extending to depths of 270m. North Flank comprises supergene M-G mineralisation hosted by N-dipping members of the MM IF and the BIF-bearing West Angela Member of the Wittenoom Formation. The majority of the Wittenoom Formation has been deeply eroded, particularly in the area immediately adjacent to the North Flank mineralisation, and the EW-trending valley between North Flank and the Packsaddle Range has been infilled with thick sequences of Phanerozoic detrital material.

The thicker intercepts of mineralisation are associated with the thrust-thickened, steeply N-dipping to overturned limbs of north-verging meso-scale folds and with the synclinal keels of these folds, particularly where they lie within 150m of surface. A representative cross-section is shown in Figure 6-17.

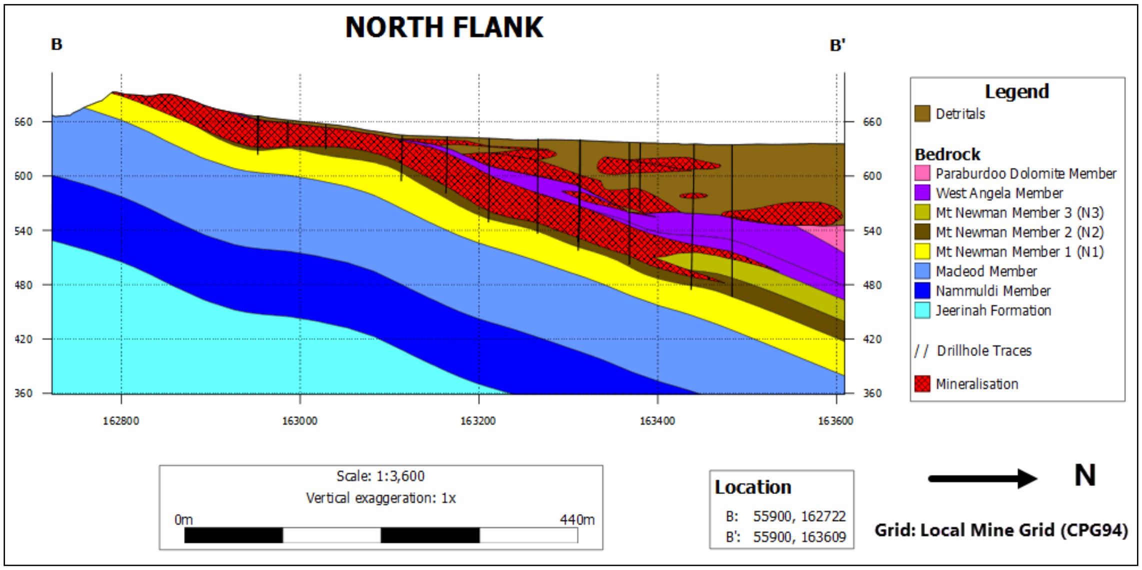


Figure 6-17: Geological cross-section B-B' through North Flank (a MM deposit)

South Flank – The South Flank series of deposits is in production. South Flank is located on the southern flank of the Weeli Wolli anticline (Figure 6-15). Supergene M-G mineralisation is hosted by MM IF and the West Angela Member of the Wittenoom Formation. Phanerozoic sediments infill the EW-trending valley, underlain by the dolomitic Wittenoom Formation, between South Flank and the Governor Range to the south (the latter is made of BKM IF).

Bedrock mineralisation extends continuously over a strike length of 27km. Mineralised widths range up to 1.3km and mineralisation extends to 300m vertical depth in places. Although the regional dip of the bedrock is moderately to the south, there are a number of meso-scale folds with sinuous hinge lines which result in a network of synclinal keels and an anastomosing pattern of mineralisation. The synclinal keels tend to be intensely mineralised and typically have thrust-thickened, steep to overturned, N-facing limbs which are also well mineralised, thanks to the combination of steep bedding dip and structurally-enhanced permeability. Some mineralisation is also developed on moderately S-dipping portions of the southern flank of the Weeli Wolli anticline in the absence of meso-scale folding.

A representative cross-section of the South Flank deposit is shown in Figure 6-18.

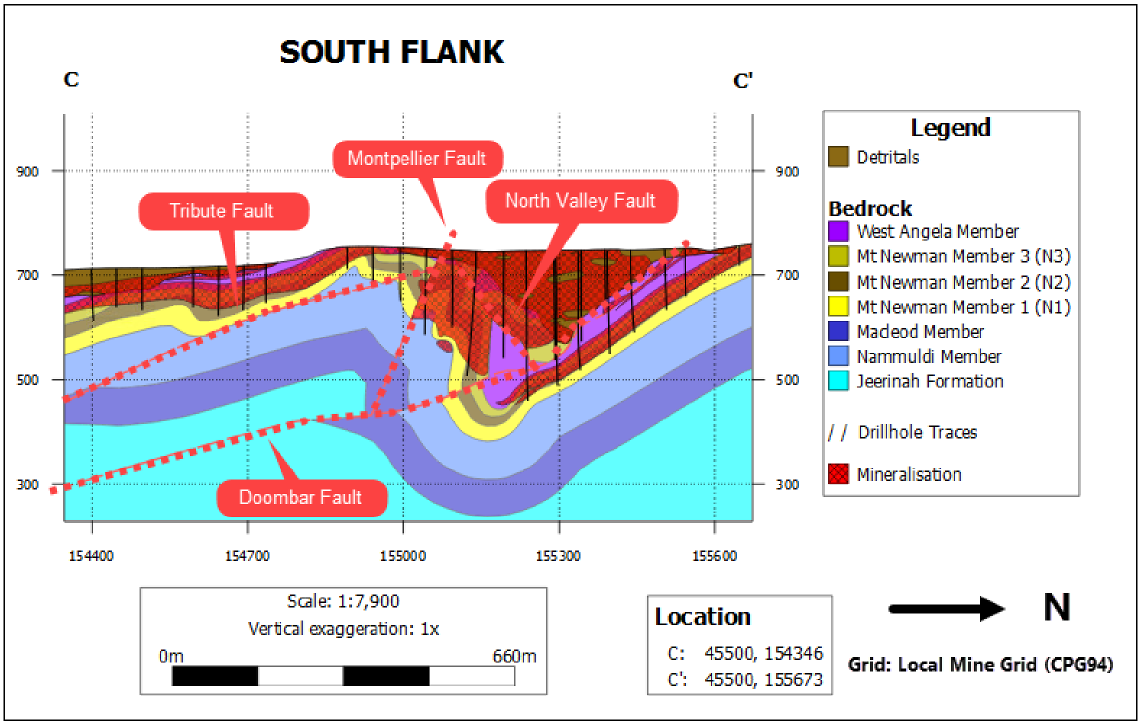


Figure 6-18: Geological Cross-section C-C' through South Flank (a MM deposit)

Jinidi – The Jinidi deposit is at the exploration stage and will sustain future production at some stage in time. It is located at the eastern end of the doubly-plunging Weeli Wolli anticline (Figure 6-15). Mineralisation occurs mainly in the Dales Gorge Member, it is of the supergene M-G type and is virtually continuous throughout the entire deposit. Mineralised widths range from 500-1500m and mineralisation extends to depths of 100-250m. It is associated with E-plunging synclines, some of which are asymmetric and N-verging. A representative cross-section is shown in Figure 6-19.

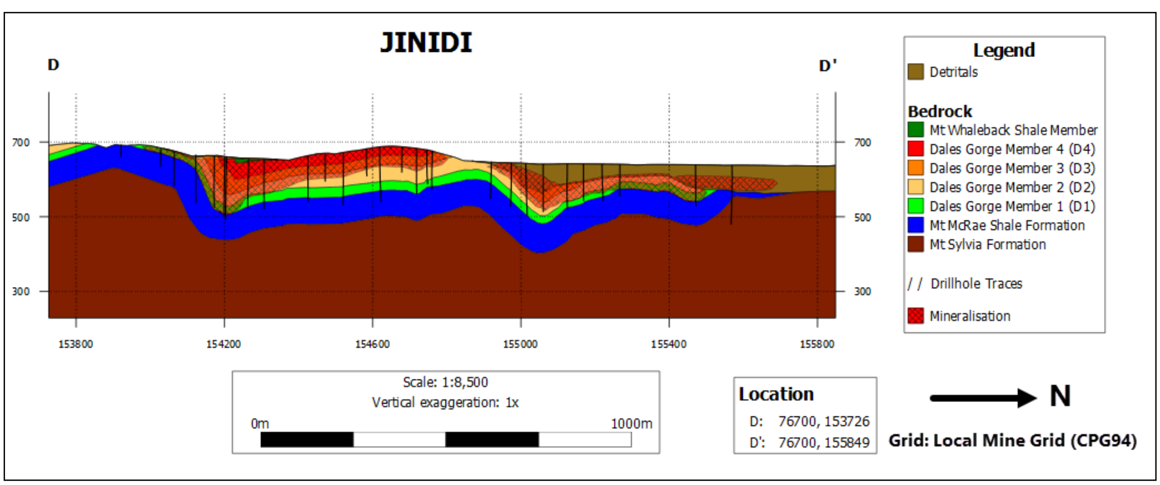


Figure 6-19: Geological Cross-section D-D' through Jinidi (a BKM deposit)

Mudlark Well – The Mudlark Well deposits are at the exploration stage and will sustain future production at some stage in time. These are located to the northwest and southwest of the Weeli Wolli anticline and represent sinuous belts of Marra Mamba and Brockman IF cropping out on the flanks of regional-scale, E-plunging folds (Figure 6-15). The intervening Wittenoom Formation is blanketed by detrital valley fill of various ages.

The deposits located in this area are hosted within BRK IF and MM IF, and all are of the supergene M-G type. Individual orebodies have the following range of dimensions: 2-16km in strike length, 500-2000m in width and extending to depths of 100-250m. The majority of the bedding dips are generally shallower in the north than in the south. Synclinal keels or hinge zones are important ore controls in several deposits. A representative cross-section is shown in Figure 6-20.

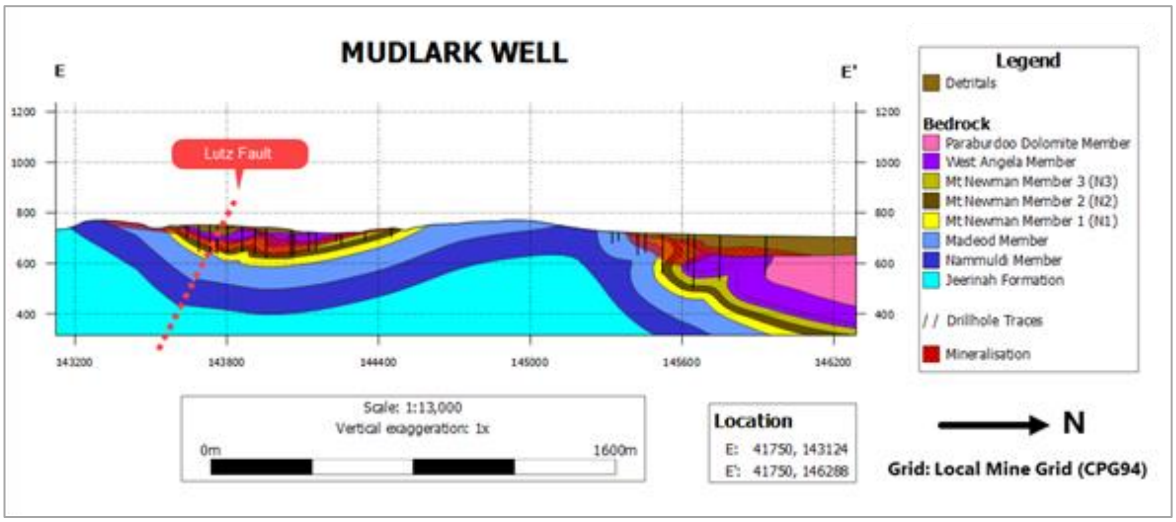


Figure 6-20: Geological Cross-section E-E' through Mudlark Well (a MM deposit)

6.2.4 Yandi Region – Yandi, Marillana and Ministers North

The Yandi region covers an area of approximately 70km E-W and 30km N-S and includes the Yandi deposit (CID), which is in production, as well as the Marillana (BKM) and Ministers North (BKM) deposits, which are at exploration stage (Figure 6-21). Yandi is situated approximately 90km northwest of Newman and has been producing CID ore since 1991 (Figure 6-1).

The main topographic feature of the area is a broad open plateau, dominated by BIFs, shales and dolerites of the uppermost BKM IF and overlying Weeli Wolli Formation, which terminates in a steep NW-SE-trending scarp. To the northeast of the scarp lies the Fortescue Valley, filled with Mesozoic to Cenozoic detrital rocks. Cenozoic rocks also occur on the main plateau, within a major palaeochannel system.

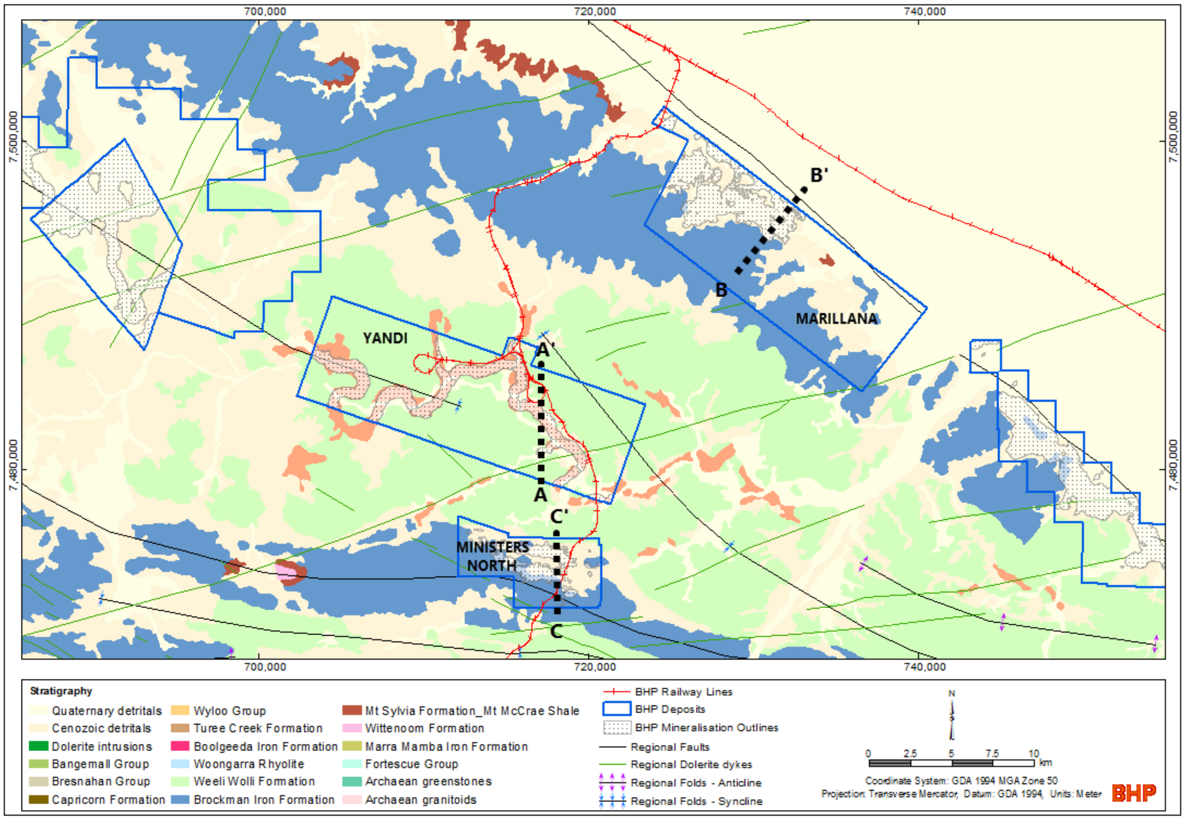


Figure 6-21: Geology Map for Yandi Region

Yandi – The Yandi mineralisation is of the CID type and occurs within a 27km stretch of the Cenozoic Marillana Formation. This formation infills the meandering palaeochannels of Marillana Creek and its tributary creeks (Figure 6-21). The total length of the Marillana Creek palaeochannel is at least 80km and the Munjina and Upper Marillana deposits are located at the upstream end of the palaeochannel, to the west of Yandi.

The palaeochannel was eroded in the core of the broad, NNW-trending Yandicoogina syncline, which plunges shallowly to the east. The palaeochannel is flanked by shales, dolerites and BIFs of the Weeli Wolli Formation. The channels incised into the basement lithologies are some 450 to 750m wide and up to 100m deep. The overall gradient is around 2 m/km. At Yandi, the deposits outcrop as a series of low mesas beside the present-day creek.

The mineralisation at Yandi is of the CID type and extends continuously for the entire length of that portion of the palaeochannel covered by WAIO tenements (approximately 35km). The mineralised width of the channel ranges from 300 to 800m and the depth ranges from 70 to 100m.

A cross-section through a typical Yandi mesa is shown in Figure 6-22. Mineralisation comprises goethite-hematite pelletoids in the upper part of the Marillana Formation (Barimunya and Iowa Members), with peloid contents increasing towards the base and margins of the channel in the Western deposits at Yandi. The base of the palaeochannel is lined with conglomerates and clays of the basal Munjina Member. Alluvial material, associated with the course of the present day Marillana Creek, flanks the mesa.

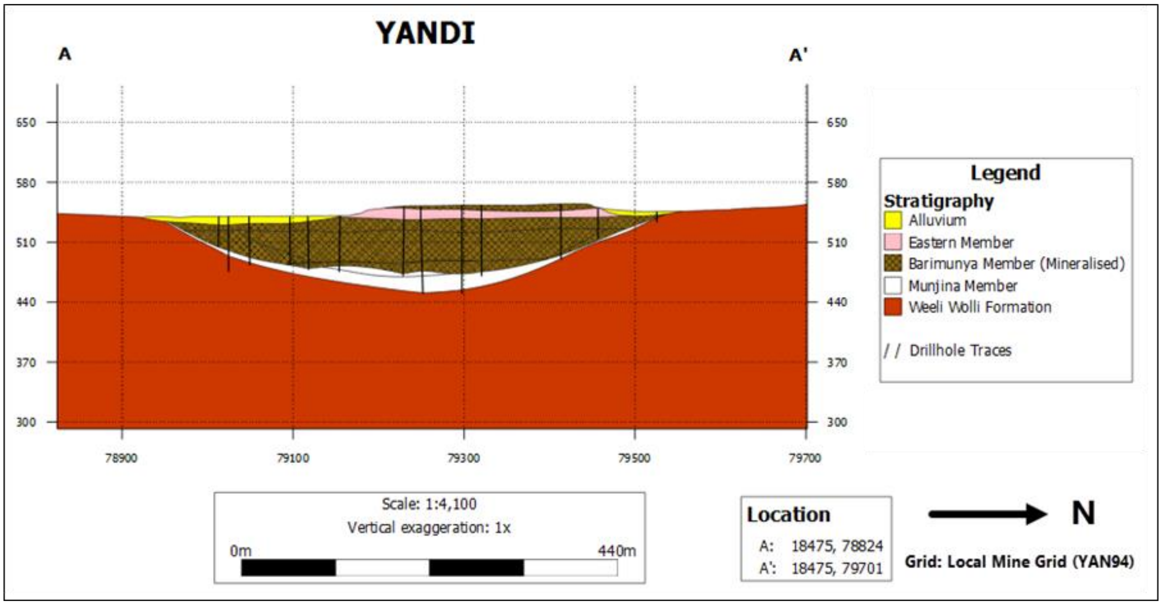


Figure 6-22: Geological cross-section A-A' through Yandi (a CID deposit)

Marillana – The Marillana and Mindy deposits are at exploration stage and will sustain future production at some stage in time. These deposits have mineralisation hosted within BKM IF along the face of the Hamersley Range scarp. The deposits are approximately 40km long in a NW-SE direction, 5km across, and located about 15km NE of Yandi mine (Figure 6-21). Brockman IF (capped by the Joffre Member) outcrops 1 to 2km southwest of a prominent fault (called Poonda Fault). This fault is a probable growth fault (south-block-down offset) separating shallow-water platformal facies of the Wittenoom Formation (Carawine Dolomite, also known as the 'Fortescue Reef') to the north from deep-water carbonates and BIFs to the south (Figure 6-1) (*Simonson et al., 1993*). It marks the southwestern margin of the Fortescue Valley which is underlain by Carawine Dolomite. Small turbidite units are common and reflect proximity to the original Fortescue Reef to the north and there are some other distinctive stratigraphic variations, including a lower shale content in the BIF units.

At Marillana the bedding is undulating with a regional dip gently to the southeast (Figure 6-23). A lower range of hills at the foot of the main scarp at Marillana represents the Dales Gorge Member, which in places crops out near to the Poonda Fault. An extensive and deep hardcap is seen across the entire area, extending to depths in excess of 50m in some areas. There is evidence for at least 3 styles of hydrothermal alteration: silicic ('quartz breccia'), sideritic and manganiferous. The prominent NNE- to NE-trending faults and joint sets and proximity to the Poonda Fault appear to have played a role in controlling the distribution of the alteration.

Supergene mineralisation is hosted by the Dales Gorge Member with limited enrichment in the basal part of the Joffre Member. The effects of hydrothermal alteration of the bedrock have led to some atypical features, including significant mineralised intercepts composed either of massive hematite or enriched but vuggy goethite and a higher-than-normal phosphorous content.

The Mindy deposit is located southeast of Marillana, to the east of the Weeli Wolli Creek. The majority of the outcrop comprises Joffre Member capped by Weeli Wolli Formation, with low hills of Dales Gorge Member restricted to the far northern area of Mindy.

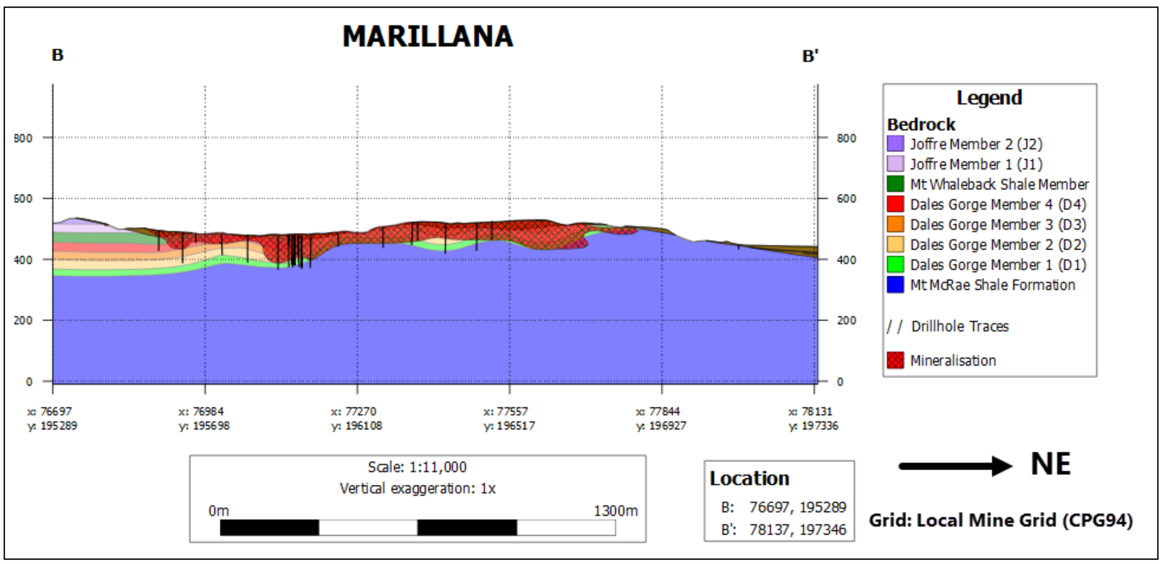


Figure 6-23: Geological cross-section B-B' through Marillana (a BKM deposit)

Ministers North – The Ministers North deposit is at exploration stage and will sustain future production at some stage in time. It extends approximately 10km E-W by 5km N-S, and is located 10km south of Yandi (Figure 6-21). The deposit covers an E-W-trending, doubly plunging anticline of BKM IF (the Wirriba Anticline), which is cored by Mount McRae Shale. Mineralisation occurs predominantly in the Dales Gorge Member of the BKM IF. It extends for 6km N-S and 2km E-W and to depths of 300m. A representative cross-section is shown in Figure 6-24.

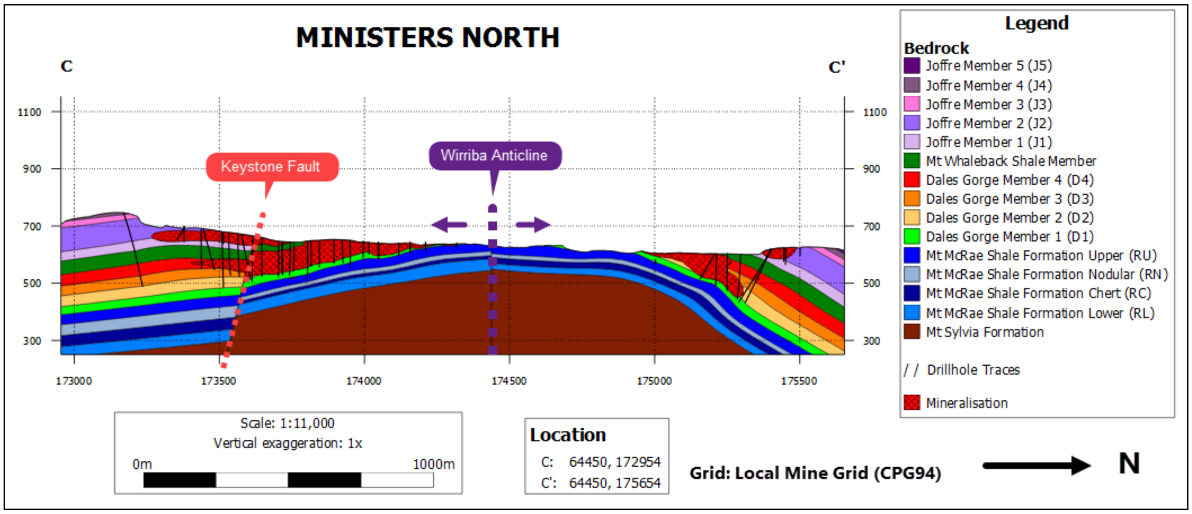


Figure 6-24: Geological cross-section C-C' through Ministers North (a BKM deposit)

6.2.5 Western Pilbara Region – Rocklea

The Rocklea (BKM) deposit is at exploration stage. Its location is remote with respect to WAIO's current mining operations in the Eastern Pilbara, Central Pilbara and Yandi regions as shown in Figure 6-1.

This deposit (15km E-W and 8km N-S) is located in the Western Pilbara some 50km NW of Paraburdoo. Mineralisation occurs in both the Dales Gorge and Joffre Members of the BRK IF, in the keel and limb areas of the westerly-plunging Hardey Syncline (Figure 6-25). The keel area locally shows development of tight, meso-scale, upright folds. Mineralisation is semi-continuous over a strike length of 29km; it extends to widths of up to 1km and to depths of 250m. On the steeply-dipping northern limb, mineralisation is sporadic within the Dales Gorge Member, with only minimal enrichment in the Joffre Member. The majority of the mineralisation intersected to date is in the more gently-dipping southern limb, where enrichment occurs in both BRK IF members. A representative cross-section is shown in Figure 6-26.

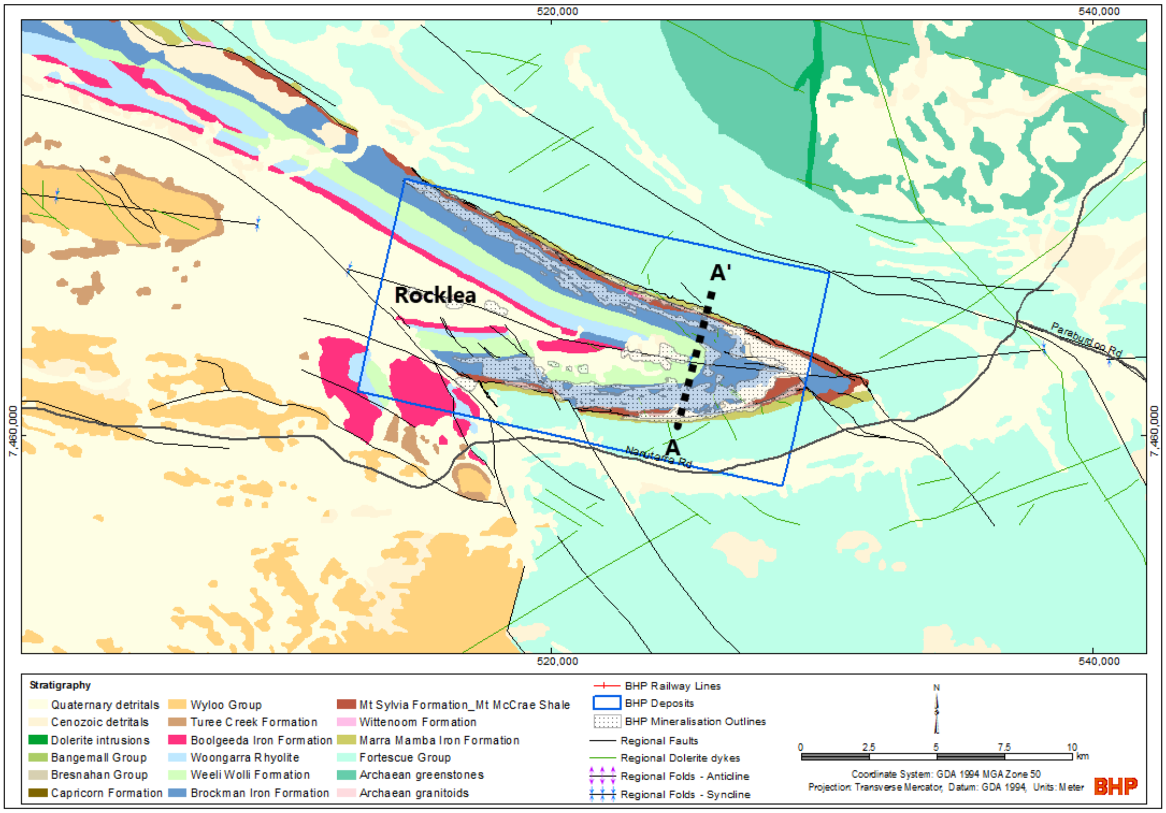


Figure 6-25: Geological Map of Rocklea

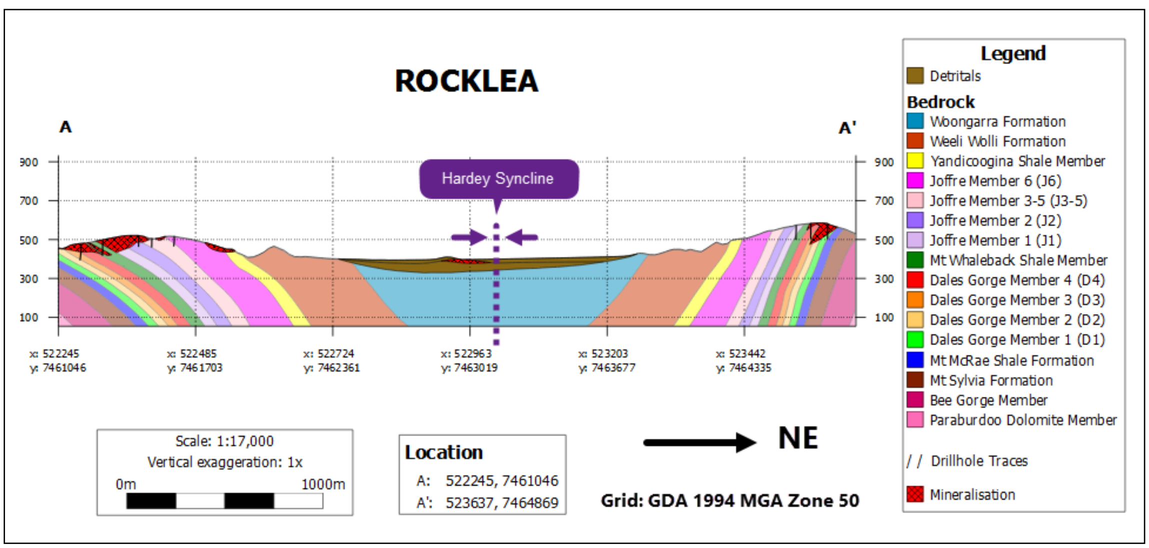


Figure 6-26: Geological cross-section A-A' through Rocklea (a BKM deposit)

6.3 Mineral Deposit Types and Mineralisation Styles

Fresh iron formations of the Hamersley Group have subtle but consistent differences in mineralogy and chemical composition and these differences are carried through into the respective BIF-hosted Fe ores. For this reason, bedrock deposits and the associated mineralisation are classified as being of Brockman (BKM) or Marra Mamba (MM) types.

In addition to these bedrock deposit types, two types of detrital mineralisation are also found in the Hamersley Province. These are the pisolitic channel iron deposits (CID) and a variety of iron-rich detrital materials collectively referred to as detrital iron deposits (DID).

A brief description of these deposit / ore types is provided below.

6.3.1 Brockman (BKM) and Marra Mamba (MM) Deposit/Ore Types

Fresh BKM IF tends to have higher P and Al_2O_3 contents and lower loss-on-ignition than fresh MM IF and this characteristic is carried through into the composition of the bedrock ores derived from these two different stratigraphic units. There are also mineralogical differences that can affect the physical properties of the derived ores: fresh BKM IF tends to contain hematite in addition to magnetite, and fresh MM IF tends to have a higher content of Fe silicate and Fe carbonate phases. For this reason, the primary division of bedrock ore types is based on stratigraphy (BKM versus MM). The BIF-hosted iron ores can then be further subdivided in terms of their genesis and current mineralogy into (i) hypogene martite-microplaty hematite (M-mplH) ores and (ii) supergene martite-goethite (M-G) ores.

Hypogene ores are typically hematite-rich and are Proterozoic in age (*Rasmussen et al., 2007*). These ores are characterised by extreme stratigraphic thinning, as a result of volume reduction during the ore-forming process. Despite this, the original sedimentary layering is largely preserved: magnetite layers are pseudomorphed by hematite (= 'martite', these martite grains have an annealed internal texture) and the form of the intervening gangue layers is preserved by a porous, interlocking framework of microplaty (<150 µm) hematite crystals which commonly nucleate on the martite grains (*Morris, 2012*).

These massive, high-quality orebodies can extend to great depths (>400m vertical depth). They occur more commonly in the BKM IF (e.g., Mount Whaleback) but can occur in the MM IF (e.g., Western Ridge). Hypogene M-mplH mineralisation is associated with complex structural settings generally close to one or more regional-scale structures and to the original margins of the Hamersley Basin (*Taylor et al., 2001*; *Thorne et al., 2014*).

Supergene ores are characterised by the presence of significant goethite in addition to martite. The process of M-G mineralisation is clearly one of replacement: magnetite is converted to martite (with a characteristic 'woven' or mesh-like internal texture) and the chert-silicate-carbonate bands are pseudomorphed by goethite (*Morris, 1980*). An episode of leaching removes any remaining gangue material, resulting locally in high porosities, before a final episode of further goethite growth re-cements the rock, reducing porosity and increasing hardness (*Perring, 2021*).

Preliminary dating indicates that the supergene event is Eocene in age and is thus much younger than the hypogene event. Many deposits in the Eastern Pilbara Hub have patches of hypogene mineralisation that have been overprinted to variable degrees by supergene mineralisation, thus producing a hybrid style.

Geological factors favourable to the development of supergene mineral systems include moderately- to steeply-dipping bedding, synclinal keels and subvertical structural permeability (e.g., faults, joints, cleavage planes) (*Perring et al., 2020*). Together, these elements produce particularly favourable sites for supergene enrichment which can extend to depths in excess of 300m.

The superimposed effects of lateritic weathering affect all BIF-hosted ores. Duricrust zones (‘hardcap’) mark the presence of paleosurfaces within the Hamersley Province. The process of hardcap development tends to extend to between 30 and 80m depth. Intense leaching of SiO_2 is accompanied by alternating dissolution and reprecipitation of kaolinite, gibbsite, goethite and hematite in the vadose zone. Vugs and cavities are lined with alternating layers of colloform secondary goethite and hematite. These weathering-related processes result in increased chemical compositional variability and tend to have the effect of increasing the hardness of the rock.

6.3.2 Channel Iron Deposit (CID) / Ore Type

The channel iron deposits comprise accumulations of peloidal material deposited in fluviatile paleochannels (*Ramanaidou et al., 2003*). The CID are essentially consolidated sandy gravels comprising iron-rich granules (pelletoids, peloids and fossilised wood, 1-10mm in size) with a minor component of porous goethitic matrix and significant pore space (e.g., Marillana Formation). Fragments with recognisable BIF textures are essentially absent. The numerous pores are in part infilled by varying generations of silica, goethite and minor siderite (now oxidised to goethite).

Incision of the channels probably occurred in the Eocene. The landscape surrounding the channels was low-relief and blanketed by a thick, ferruginous regolith which is considered the primary source of the granules. Aggradation (i.e., infill) of the channels took millions of years, extending into the Late Miocene.

The CID have undergone post-depositional modification by weathering, a process which has produced zones with abundant secondary goethite and extensive areas of secondary silicification in some deposits. The Marillana Formation now outcrops as dissected, sinuous mesas adjacent to the present-day Marillana Creek. This geomorphology indicates significant topographic inversion since the Miocene.

6.3.3 Detrital Iron Deposit (DID) / Ore Type

The detrital materials are rather extensive but of limited commercial value in the Hamersley Province and are typically of two types: hematitic conglomerate or gravelly scree (*Kneeshaw and Morris, 2014*).

Hematitic conglomerates consist of angular to sub-rounded clasts of hematite-enriched BIF and shale (now composed of kaolinite+gibbsite), set in a silt- to clay-sized hematitic matrix. These fluviatile sediments are typically preserved in deeply-eroded depressions adjacent to MM IF-hosted M-G mineralisation, and palynological studies indicate a Late Cretaceous age. The top of this unit is, in places, heavily weathered. The hematitic conglomerate generally does not attain economic status due to its overall fine-grained nature, relatively low grade and elevated Al_2O_3 content, but R Deposit (located between Mining Area C and South Flank) is an exception.

Sub-aerial scree fans of economic significance have developed through the erosion of outcropping bedrock ores. They accumulated in colluvial / alluvial fans directly adjacent to the bedrock mineralisation (e.g., the numerous scree fans that occur along the south-facing cliffs of the Packsaddle Range at Mining Area C). The sediments comprise cobble- and pebble-sized ore fragments set in a soil-rich matrix. Some horizons near the base of the detrital deposits may be subject to enrichment by goethite cementation of the clasts to produce ‘canga’.

Each mineral deposit type that is the subject of exploration together with the geological models being applied in the investigation form the basis of the exploration program.

The mineral deposit types are well known in the Pilbara and have been extensively tested over a long period of time.

7 Exploration

BHP has been undertaking iron ore exploration and development work in the Pilbara since the 1950's. Over this period, the volume of exploration work, primarily drilling, has increased significantly to keep pace with increasing production rates and the need to bring more and more deposits into production.

Most iron ore mineralisation found in the Pilbara has some form of surface expression and is laterally extensive over kilometres along the strike of the host banded iron formation. The deepest part of each deposit is typically within 100 to 400m of surface, accessible by using reverse circulation and diamond core drilling techniques. Therefore, drilling has been used as the primary method of exploration and sampling for all resource estimation and characterisation purposes including geotechnical, hydrogeological and geometallurgical studies.

BHP has undertaken extensive amounts of drilling since the 1950's to test the geological units of economic significance for mineralisation and define their extents. At a high level, systematic exploration work is currently completed in three main sequential phases as described below.

- Geological mapping to assist with exploration/drill hole planning.
- Wide-spaced grid drilling (>300m line spacing) to define the mineralisation extents and deposit characteristics.
- Progressive infill drilling (down to 50m or closer line spacing) to define a Mineral Resource and improve estimation confidence prior to commencing extraction.

7.1 Exploration Work Other Than Drilling

Exploration work other than drilling includes surface geological mapping at various scales (deposit, district and regional) and geophysical surveying (airborne and ground based).

7.1.1 Geological Mapping

The regional geology of the Hamersley Group is well understood and geological units of economic significance for iron ore are well mapped as a result of the pioneering work completed by early iron ore explorers in the 1950's and by various private mining companies and government agencies in the subsequent decades.

Stratigraphic and structural mapping is undertaken at scales ranging from 1:20,000, down to 1:2,500 across many deposits within BHP tenure. Regional-scale mapping (1:20,000) has been completed in the last 2-3 decades over prospective deposits to guide exploration targeting and drill hole planning. Targeted mapping is completed at 1:2,500 scale, to inform drilling programs and deposit-scale geological interpretations.

The form of the data collected during mapping campaigns includes:

- Point data – direct measurements of structural orientation data taken from outcrops, including various structures such as bedding, joints, faults, fold axes, shear zones, linear features etc.
- Line data - generated from field mapping activities and desktop interpretation, including fault traces, unit contacts, and bedding formlines.

Based on these field mapping results, outcrop and solid geology maps are synthesised. Structural and stratigraphic information is incorporated into geological interpretations initially to support drill hole planning and subsequently to inform mine planning, geotechnical design and mining extraction activities.

Results of surface samples are not considered representative for the exploration of iron ore deposits and hence are not collected during geological mapping for assay or other purposes.

7.1.2 Geophysical Surveys

Both ground and airborne geophysical surveys have evolved over the past three decades depending on the technology available at the time, survey objective, nature of the target and other factors. As such a wide range of parameters / procedures / methods have been used to collect and process geophysical data, which has determined the way the corresponding data is interpreted and/or used.

Typically, large areas are covered at moderate resolution by fixed-wing aircraft, with high resolution ground or helicopter surveys focusing on smaller areas of interest where required.

The following geophysical survey methods have been completed in recent times over specific areas of interest:

- **Magnetic** surveys are undertaken to map contrasts in the magnetic susceptibility of the subsurface in 2D. Un-oxidised BIF is rich in magnetite and is therefore very magnetic, allowing BIF stratigraphy to be directly mapped by this method. It is also useful for showing faults where there is notable displacement in the stratigraphy. Large dolerite dykes are also typically identifiable. This information is used in structural interpretations and to optimise drill planning. This data was primarily collected in the 1990's and 2000's by fixed-wing aircraft and covers almost all WAIO tenure, predominantly at 100m line-spacing.
- **Gravity and Gravity Gradiometry** surveys are used to map contrasts in the density of the subsurface in 2D. The BIF units and more iron-rich detrital units are denser than the surrounding rocks, such as the dolomites of the Wittenoom Formation. The exception to this is CID deposits, which typically show as relative density lows. This data was primarily collected in the 2000's by fixed-wing aircraft for exploration target generation and covers almost all WAIO tenure, predominantly at 200m line-spacing.

- **Time Domain Electromagnetic** surveys are undertaken to map contrasts in the conductivity of the subsurface in 3D. The clay-rich detrital cover and shale-rich non-BIF stratigraphy are relatively conductive whilst the BIFs are relatively resistive. This data is primarily collected for the creation of large conceptual hydrogeological models where little to no drill hole data exists. It is also sometimes used by Exploration to assist with drill plan optimisation. This data was primarily collected in the 2010's and 2020's by a combination of fixed-wing and rotatory-wing aircraft.
- **Seismic** surveys are occasionally deployed to map contrasts in acoustic impedance with depth, which may correlate with depth of cover, major stratigraphic boundaries, depth to basement, major structures, etc. Historically these surveys have been small, comprising of at most a few 2D lines to trial emerging technologies.

Mapping results and geophysical surveys have been integrated to guide and develop the exploration drill programs and geological models. The QP is satisfied in the use of these results and is of the opinion that this follows standard industry practice.

7.2 Exploration Drilling

7.2.1 Type and Extent of Drilling

Since the 1950's, drilling has been, and continues to be, the primary sampling method for estimation of Mineral Resources and Mineral Reserves at WAIO.

The drilling methods (e.g percussion, air core and blade methods) used between the 1950's and the 1980's were replaced by Reverse Circulation (RC) drilling in the 1990's. Since then, this method has been used by WAIO to collect physical samples for assay and to acquire various downhole geophysical datasets which have informed current geological modelling and resource estimation.

Besides RC drilling, Diamond Drilling (DD) is undertaken to collect core samples for geotechnical and geometallurgical studies. Any assays from these core samples are tailored for those studies and are rarely suitable for inclusion in resource estimation. Geological information collected from these drill cores is used in geological interpretation and modelling.

A brief description of these two drilling types is provided below.

- Reverse circulation (RC): This drill method is designed with an inner sample tube that extends through the centre of the drill rod and into the top of the hammer bit. The RC hammer emits air between the bit splines and over the face of the bit. This pressurised air forces the sample into the recovery holes in the face of the bit, through the centre of the hammer and upward through the drill rod inner tubes to the surface for collection in a rig mounted cyclone. The sample material then drops down through a drop box into a five-tier riffle splitter (historical method, phased out in 2008) or a static cone splitter (current method, initiated in 2005) to produce a final sample split and reject sample. This type of drilling typically utilises a 140mm RC hammer face sampling bit to produce chip samples of the rock mass.

- Diamond Drilling (DD): This type of drilling utilises a diamond impregnated drill bit to advance an attached hollow drill-rod string into hard bedrock, producing a cylindrical core sample representing the formation being drilled. WAIO uses various diameter diamond drill bits depending on the intended use of the drill core samples (e.g., geological, geotechnical, hydrological or geo-metallurgical). Typically, drill core diameters are either 61mm (HQ3) or 83mm (PQ3).

Besides RC drilling for resource estimation and DD for geotechnical / geometallurgical studies, water bores are also drilled for hydrogeology characterisation. These are drilled using Rotary mud, Down Hole Hammer or Dual Rotary (described in Section 7.3) and results of such drilling are not used in resource estimation.

From the 1950's to end of CY2021, WAIO has completed over 145,000 exploration drill holes for a total of 11.4 million m (or 11,400km, including 8,312km RC and 773km DD) on all its tenements for the purpose of resource identification and definition.

Prior to 2010, drilling was focused in only a few areas which were of economic interest at the time. Since 2008, between 400km and 600km of exploration drilling have been completed annually to support the estimation of Mineral Resources, resource characterisation, modelling of geotechnical and hydrogeological parameters, and to provide material for geometallurgical test work. Drillhole lengths range from 30m to ~280m, with the majority of drill holes between 60m and 120m in length.

Table 7-1 provides a summary of drill metres by drilling type completed by WAIO in the Pilbara from the 1950's to end of calendar year 2021. Note that, metres drilled before the 1990's comprise only 11% of the total 11.4 million metres at 31 December 2021. Where possible, BHP has generally validated older drill holes in currently active deposits using modern downhole geophysical surveys or substitution by new modern drilling.

Table 7-1: Summary of Metres Drilled by Main Drill Types

Period Drilled	Conventional Hammer (Percussion)	Reverse Circulation	Diamond	Other Drill Types	Total Per Period	Number of Drillholes
1950's	0	0	132	86,034	**86,166**	5,582
1960's	0	1,898	1,518	81,661	**85,078**	1,668
1970's	1,469	3,543	37,485	443,513	**486,010**	7,909
1980's	9,593	16,754	15,257	541,400	**583,005**	11,926
1990's	10,360	200,739	68,505	776,410	**1,056,014**	15,850
2000	731	67,544	3,172	1,821	**73,267**	1,338
2001	890	105,378	4,326	3,487	**114,081**	2,104
2002	3,115	117,006	12,563	4,911	**137,595**	1,703
2003	8,362	112,613	12,783	2,482	**136,241**	2,230
2004	10,595	136,354	37,502	2,628	**187,079**	2,833
2005	3,059	313,150	29,888	3,921	**350,018**	4,620

2006	4,248	327,293	43,622	779	**375,941**	4,369
2007	1,713	276,636	35,133	2,929	**316,410**	3,320
2008	2,275	389,123	29,051	3,568	**424,016**	4,044
2009	12,336	446,697	36,335	3,904	**499,272**	4,741
2010	15,819	409,631	41,844	6,116	**473,410**	5,427
2011	6,510	512,621	75,486	2,530	**597,146**	6,252
2012	28,261	556,321	85,655	5,872	**676,109**	7,145
2013	31,914	459,515	44,276	10,963	**546,668**	5,719
2014	18,594	485,108	45,702	10,871	**560,275**	5,936
2015	13,978	498,854	27,905	7,781	**548,518**	5,747
2016	10,484	565,938	28,498	5,622	**610,541**	6,928
2017	10,204	545,546	12,847	3,604	**572,201**	6,958
2018	16,274	473,615	9,492	9,500	**508,881**	5,391
2019	12,077	455,323	15,079	10,550	**493,029**	5,632
2020	15,603	425,149	5,716	10,182	**456,648**	5,241
2021	20,223	409,747	13,586	13,111	**456,667**	4,969
Total	**268,685**	**8,312,094**	**773,356**	**2,056,150**	**11,410,286**	**145,582**

Note: Other Drill Types comprise Air Core; Percussion; Blade; Conventional Blade; Conventional Hammer - Crossover Sub; Conventional Rock Roller; Dual Rotary; Drag Bit; Reverse Flush / Flooded Reverse; Flushing; Hydro; RC Blade - Crossover Sub; Rotary Mud; Sonic; Unknown Drill Type

7.2.2 Drilling Procedures

The main components of WAIO drilling procedures are described below.

Drill hole planning – A team of WAIO geoscientists prepare the drilling plans in consultation with relevant stakeholders from resource modelling, geotechnical, geometallurgical, hydrogeology and mine planning teams as required.

Drilling programs for resource definition are undertaken in a sequential manner with each successive stage aimed at advancing the definition of extents, tonnage, density, shape, grade and mineral content of the mineralisation based on the results of the previous stage. Most of the RC holes for resource drilling are drilled vertical, except a few where topographic conditions dictate that holes to be drilled at an angle to reach the mineralisation. The spacing of the drill holes is deposit-dependent but drill holes are typically drilled on certain nominal grids and generally have their greatest spacing occurring along the main strike of the mineralisation and closer spacing occurring perpendicular to the strike. Some deposits also have areas with closer spacing for geological and grade variability analysis.

The three stages of exploration drilling activities for the definition of Mineral Resources from the Strategic (>5 years) to Tactical (<5 years) mine planning horizons are shown in Figure 7-1. Each successive stage of drilling provides increasing confidence in the volume and grade of in-situ Mineral Resources to support life-of-asset planning and 5-year mine plan scheduling. In addition, two further stages of drilling are undertaken in the Tactical horizon to minimise any uncertainty in volume and grade variability during the production stage and therefore the results of this drilling are mainly used in short term geological models and grade control models.

- **Extents drilling programs** aim to test the lateral and vertical extents of the mineralised volume. This is typically done by drilling RC holes on grids varying between 1200m x 100m to 300m x 100m (Figure 7-2). This program is generally completed 8-10 years ahead of the scheduled start of mining and informs the LoA planning and 5-year mine plan scheduling.
- **Infill drilling programs** aim to build on the Extents drilling program to define the total volume and geometry of the mineralised footprint. This is generally achieved by drilling RC holes on a 150m x 50m grid (Figure 7-2) and is completed about 6-8 years ahead of the scheduled start of mining.
- **Drill-out programs** aim to complete the drilling required to understand the local-scale geological complexity and grade variability throughout the deposit. This is the final stage of strategic exploration drilling and mostly achieved by drilling RC holes on a 50m x 50m grid (Figure 7-2).It is generally completed ~5 years before the scheduled start of mining.
- **Tactical definition** involves a small amount of targeted RC drilling to mitigate both immediate and longer-term risks within the pushback which may influence pit designs or impact the volume of high-grade resource.
- **Tactical infill** involves close-spaced drilling of short RC holes (drilled on a nominal 25 m x 12.5 m grid and to 48 m depth to cover four mining benches) inside the pit areas to define and understand local grade variability.

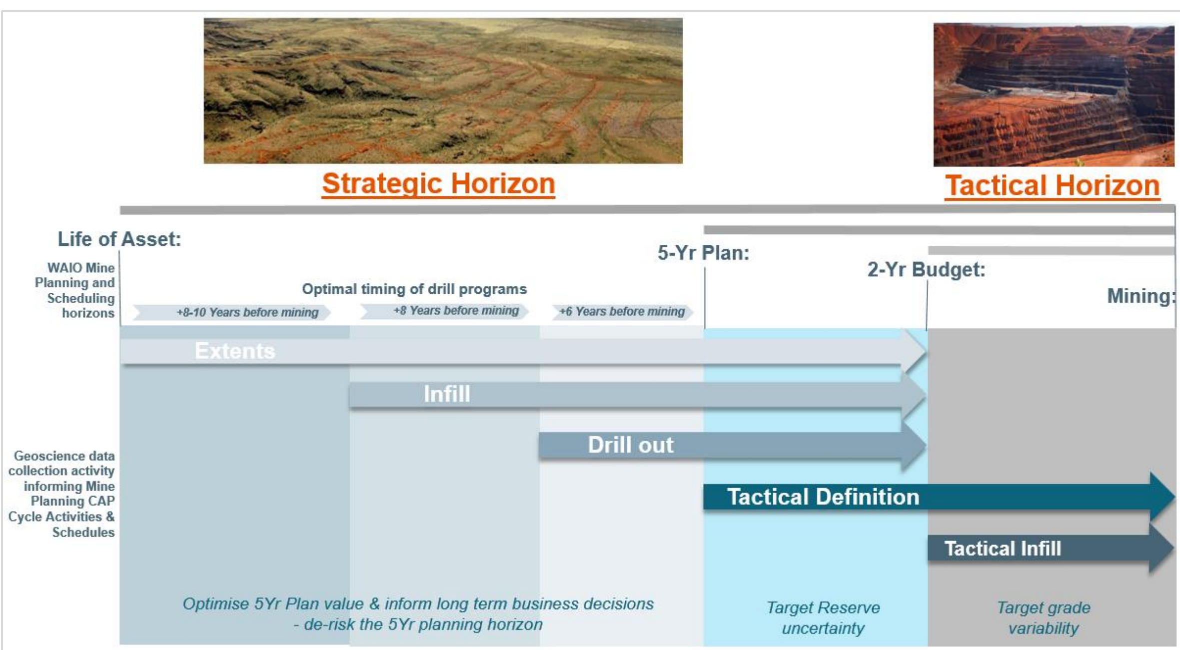


Figure 7-1: WAIO Exploration Drilling Strategy

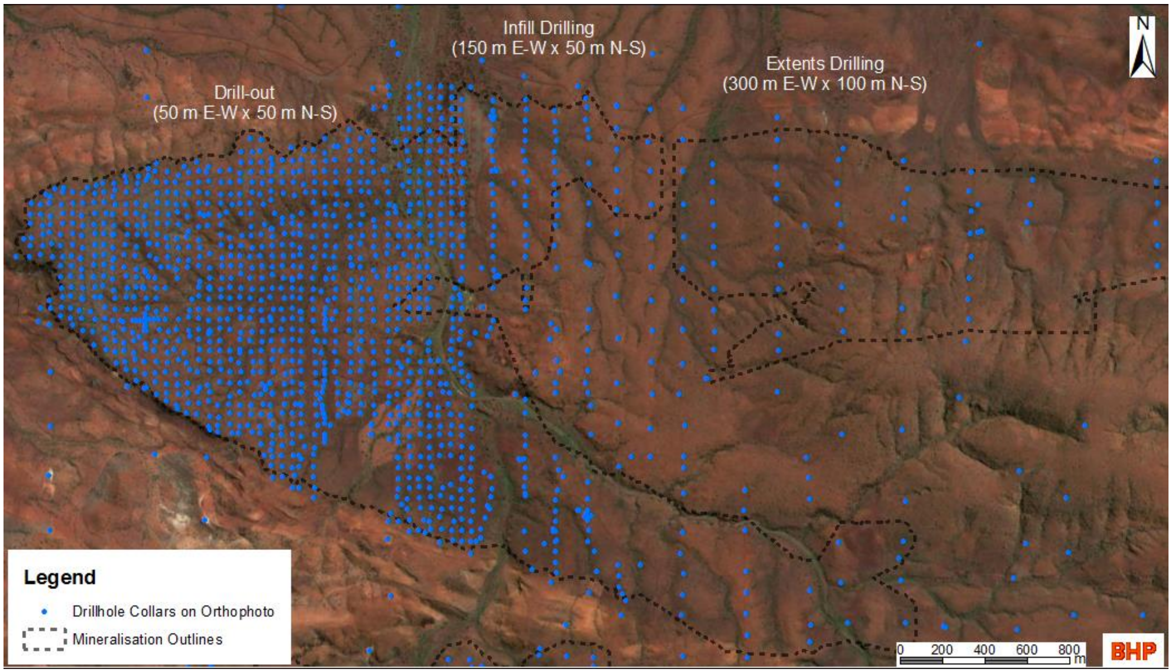


Figure 7-2: Map showing Typical Stages of Strategic Drilling for resource evaluation

Execution of Planned Drill Programs – Once a drill program has been planned, details of the planned holes (including collar locations) are communicated electronically to WAIO field teams for execution. In the past field teams used to physically peg the location of the collars on the ground using high precision GPS systems prior to pad clearing. About six years ago, the earthworks machinery was enabled with Trimble GuidEx navigation systems to guide the operator to planned collar locations and clear the drill pads for the drilling rigs. After batches of drill pads have been cleared, drill rigs move in and drill the holes at the planned locations.

Collar and Downhole Deviation Surveys – After holes in a program are drilled, the WAIO survey team picks up the collar coordinates using high-precision RTK GPS systems. These co-ordinates are uploaded electronically to WAIO's internal drill hole database. The downhole deviation surveys are undertaken using geophysical tools. Further details of collar and downhole deviation surveys are described in the Section 7.2.4.

Drill hole Logging and Sample Collection – Drill holes are logged for down hole geology using standard stratigraphic and mineralisation codes. Logging information is collected in the field and entered into WAIO's internal drill hole database using a computerised field logging system, which includes controlled input through drop down lists and inbuilt validation checks to isolate erroneous data at the earliest possible stage.

Methods for collecting RC chip and DD core samples in the field for assay and other tests are described in Section 8.1.1. The DD core sampling for geotechnical and geometallurgical purposes are described in Section 7.4.1 and Section 10.1 respectively.

Downhole Geophysical and Televiewer Surveys – Downhole geophysical and televiewer surveys are important parts of the drilling procedure as these provide reliable information for downhole geological interpretation in the Pilbara. Details of these surveys are described separately below in Section 7.2.3.

7.2.3 Downhole Geophysical and Televiewer Surveys

All holes are downhole surveyed using various geophysical tools to collect physical and chemical properties inherent in the target rock formation. These surveys help with understanding the lithology, density and structure of the rocks intersected during drilling and inform geological, geotechnical and hydrological interpretations.

Routine downhole geophysical surveys or wireline logs are as follows:

- **Natural Gamma** – All drill holes are surveyed with data acquired both within the drill string and 'open-hole' (i.e., once the drilling process has been completed and the drill rig has moved away from the hole). Downhole data is acquired both while the tool is lowered in the hole and again when the tool is pulled out. Where there is a discrepancy between these datasets, the open-hole survey results are regarded as the standard.
- **Caliper** – The tool measures the diameter of the drill hole by monitoring the change in the angle of the caliper arm(s) that touch the drill hole sidewall. All boreholes are logged first with a 3-arm caliper to test the hole condition before committing to tools with a nuclear source. A caliper log is also used to compensate downhole density data and calculate the correct dip of structures interpreted from televiewer images.
- **Density** – A dual receiver gamma-gamma density tool measures the electron density of the formation surrounding the drill hole, which is then converted to an in-situ bulk density measurement. The measurement is adversely affected by severe caving in the borehole. Caliper data identify caved zones where density data is excluded from subsequent analysis. Downhole density data is utilised in resource modelling to deliver resource tonnage in the ground.
- **Magnetic Susceptibility** – The magnetic susceptibility data informs zones where orientation measurements using a magnetometer-based system may be inaccurate, including drill hole path surveys and structures interpreted from televiewer. Magnetic susceptibility logs are also used to validate interpretation of detrital stratigraphy and for assessing asbestos risk.
- **Electrical Resistivity –** Resistivity tools measure the capacity of the medium to carry electrical current away from the tool in response to an induced current. Electrical resistivity measurements are made both in the fluid in the drill hole and

in the surrounding rock formation and are used primarily to identify the water table depth in the drill hole at the time of logging.

- **Drill hole Imaging for structural information -** Optical and Acoustic Televiewers are oriented drill hole imaging tools and are used to deliver structural information to guide geological interpretations and geotechnical engineering slope stability studies. Structural data collected is accurate to within 5 degrees, which is considered within the limits of manual 'picking' of features.

7.2.4 Drilling, Sampling or Recovery Factors

A number of drilling, sampling, or recovery factors that could materially affect the accuracy and reliability of results and the Mineral Resource estimates are tracked and analysed routinely. Some of these checks are described below.

Sample Representativeness – Based on long-term reconciliation results of production versus resource and reserve estimates, the RC drilling method is considered representative for iron ore mineralisation styles in the Pilbara. Furthermore, as described under drilling hole planning in Section 7.2.2, these RC holes are drilled in a regular grid pattern to ensure samples collected represents the various types and styles of mineralisation and the mineral deposit as a whole. Drillholes are drilled as close to perpendicular to the mineralisation as possible as to avoid any sample bias.

RC Sample Recovery – Sample weight is used as a proxy for recovery in the case of RC drilling. Calculations based on the standard volume of a three-meter RC sample and average rock densities suggest that 80% recovery translates to at least a 3 kg RC sample. Thus, three-meter samples weighing less than 3 kg show under-recovery

Sample weights are recorded and analysed routinely. On average, less than 15% of the RC samples show under-recovery due to a combination of factors including stratigraphy, depth and weathering. However, under-recovery is less than 10% in the major target stratigraphic members of the Brockman Iron Formation and Marra Mamba Iron Formation. In the QP's opinion, this is not considered to be a material risk to the accuracy and reliability of results and the Mineral Resource estimates.

DD Core Recovery – The length of recovered core is recorded for each run and data is analysed routinely. Long term results indicate that less than 10% of drill intervals show less than 80% recovery. In the QP's opinion, this is not considered to be a material risk to the accuracy and reliability of results and the Mineral Resource estimates. Diamond drilling for geotechnical and geometallurgical purposes is carried out in separate dedicated campaigns and core from each program is treated separately giving due consideration to the recovery based on the intended use. Assays from core samples are used sparingly in resource estimation after proper data validation. In the qualified person's opinion core recovery results are considered acceptable for their intended use.

Drill Hole Collar Survey – Historical drill hole collars were surveyed using traditional terrestrial based techniques, including trigonometric heighting and gridding by theodolite, prior to adoption of the current GPS-based practices circa 2000. Since 2000, all drill hole collars are surveyed using a Real Time Kinematic (RTK) or Post-Processed Kinematic (PPK) Global Positioning System. About 5% of each drill program is re-surveyed for quality assurance and quality control (QAQC) purposes. The minimum positional accuracy requirements for collar surveys are 30cm horizontal and 10cm vertical.

All surveys are referenced to the Geocentric Datum of Australia 1994 (GDA94) and the Australian Height Datum (AHD). Current practices are based on industry standards and best practice.

Downhole Deviation Survey – Hole path is surveyed in all holes in open hole (i.e., with no steel casing) with a 3-axis magnetometer, which measures both the dip amount and dip direction (sampled every 10cm downhole, but de-sampled to 5 m to compute the hole path). An in-rod gyroscopic hole deviation survey is conducted for all holes longer than 250m and for drill holes which will inform slope stability and other geotechnical studies, to insure against potential loss of ability to obtain the data due to hole collapse or blockage once the drill rods are withdrawn. For QAQC purposes, at least 5-10% of holes in each drill program are re-surveyed.

The deviation control is designed to identify 'kinks' in the hole path at the scale of the length of a steel drill rod, since it is not physically possible to bend a 3m cylindrical steel rod significantly, or to fit the solid steel rod down the hole if the bit deviates too much (i.e. the rig will bog). All kinks are investigated to flag errors that could potentially affect modelling and hence materially affect the resource estimate.

In the QP's opinion, the processes outlined above are adequate and meet the requirements for the intended use. The QP is also not aware of any material factors that would affect the accuracy and reliability of the results.

7.2.5 Plan View showing Locations of All Drill Holes and Summary Results

This technical report summary does not include any exploration results that are not part of WAIO's disclosure of Mineral Resources or Mineral Reserves. All exploration and drilling results on this property have been used for estimating Mineral Resources and Reserves.

As described in Section 7.2.1 above, over 145,000 exploration drill holes for a total of 11,400km (including 8,300km Reverse Circulation and 773km diamond core) have been completed by WAIO on its tenements for the purpose of resource identification and definition from the 1950's until the end of 2021.

The QP is of the opinion that the spacing, spatial extents, drilling methods, and sample quality for WAIO deposits, are acceptable for the purpose of geological modelling and estimation of the Fe mineralisation.

Plan views showing the locations of drill holes and summary results for each of the mining areas, namely Newman, Jimblebar, MAC, South Flank and Yandi, are shown in Figure 7-3, Figure 7-4, Figure 7-5 and Figure 7-6 respectively. Cross-sections of drilling results with respect to interpretations of geology and mineralisation have already been provided in various figures in Section 6.2.

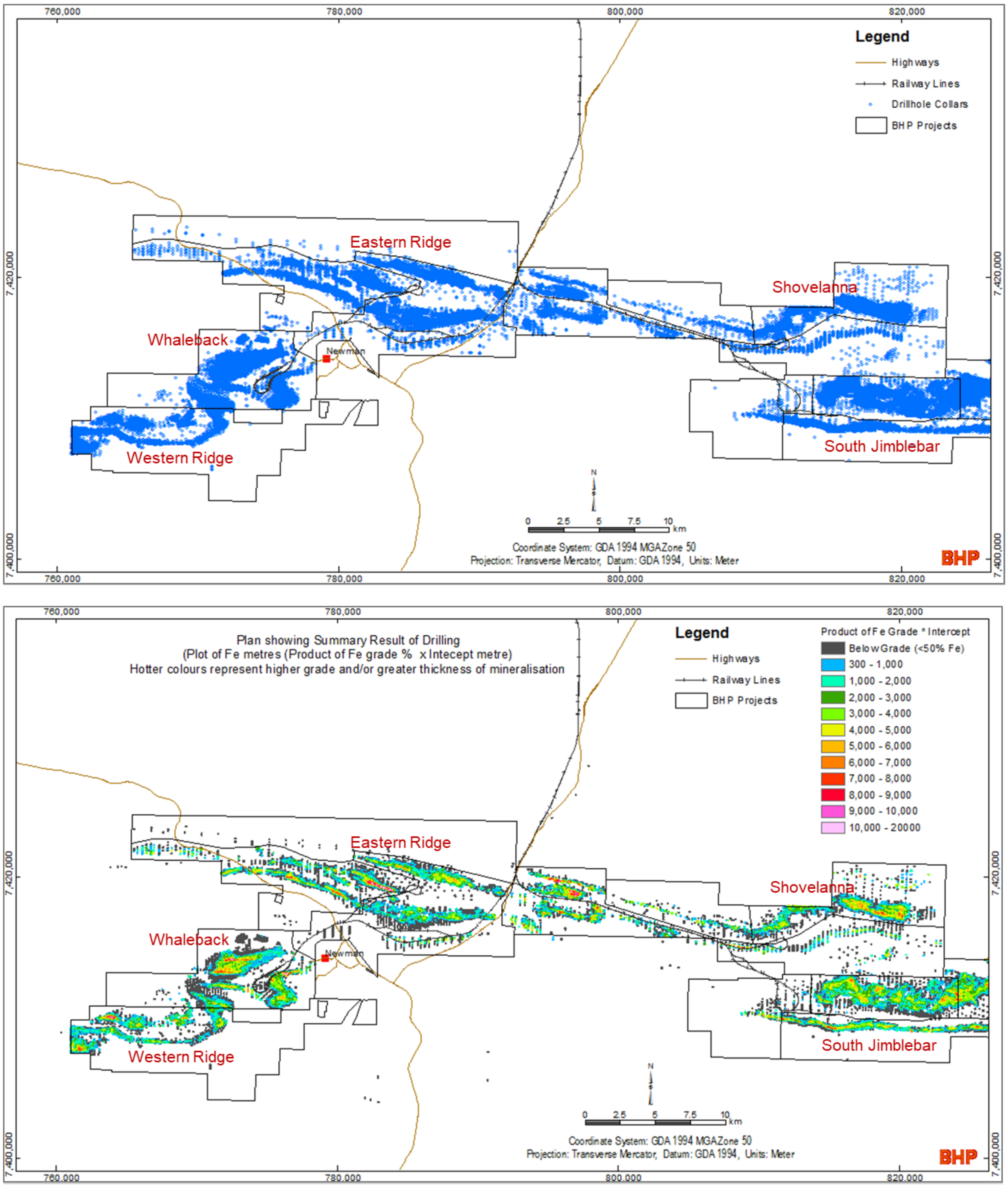


Figure 7-3: Plan showing Location and Summary Result of All Drill Holes – Newman Area

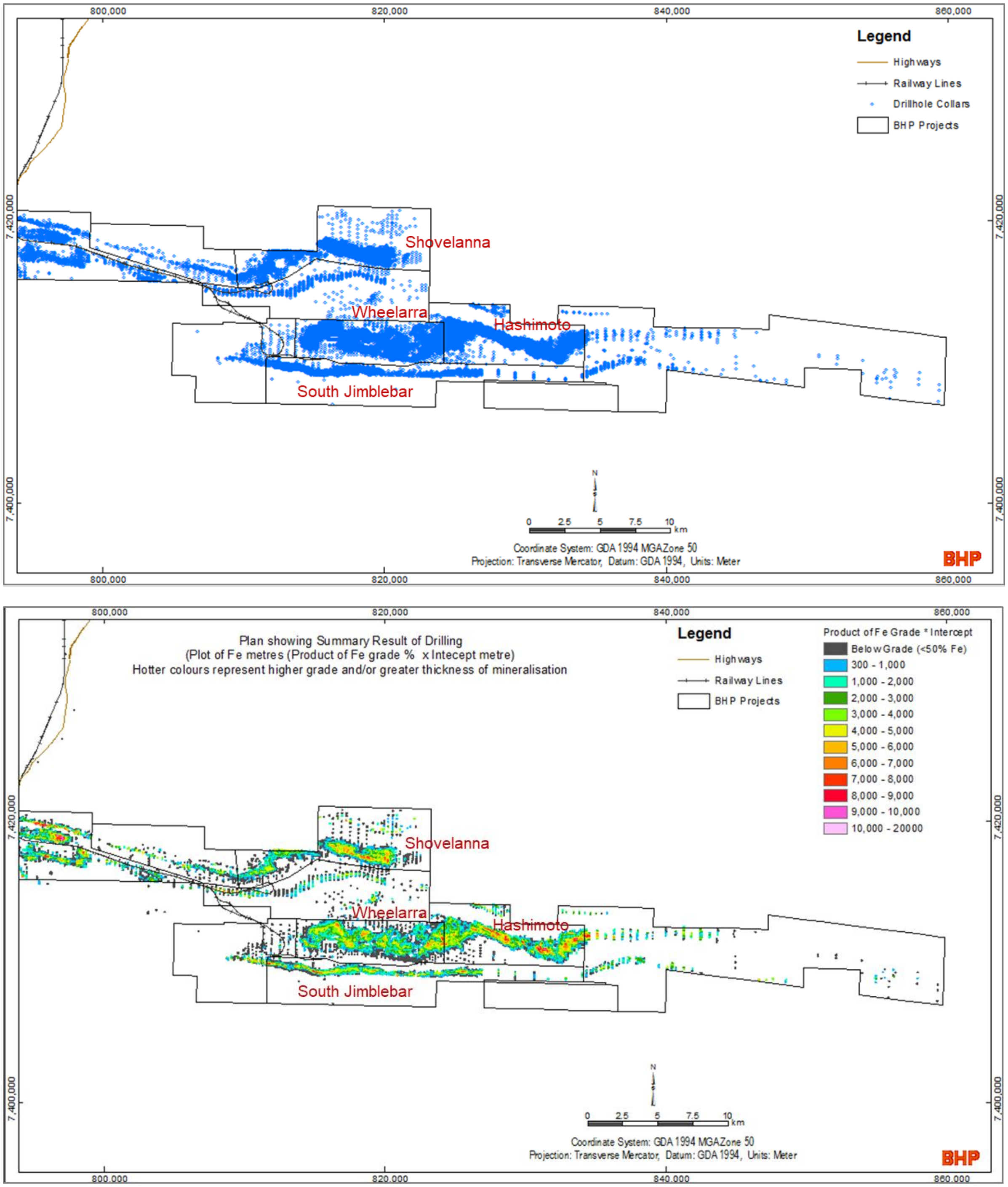


Figure 7-4: Plan Showing Location and Summary Result of All Drill Holes – Jimblebar Area

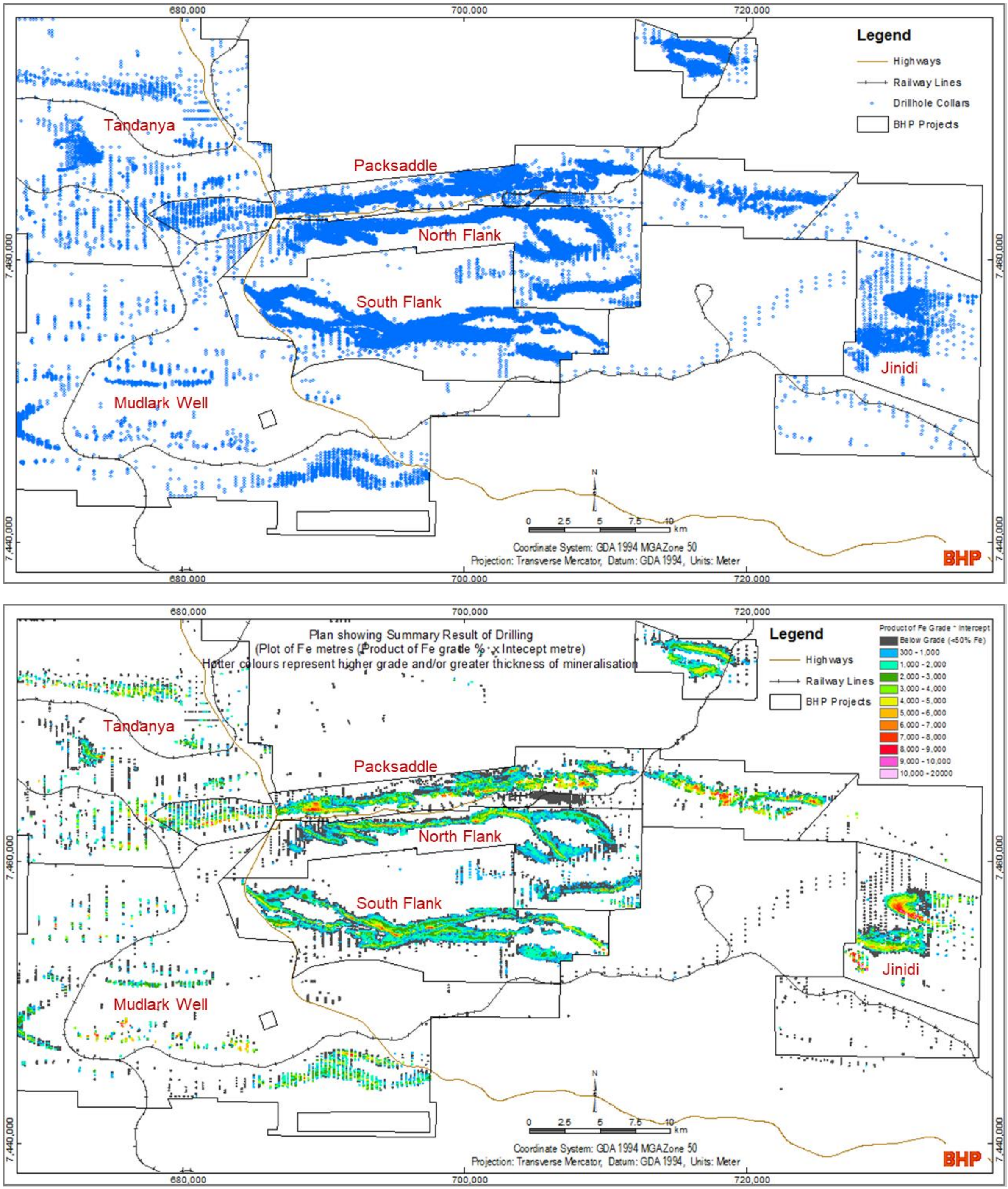


Figure 7-5: Plan View Showing Location of All Drill Holes – MAC and South Flank Area

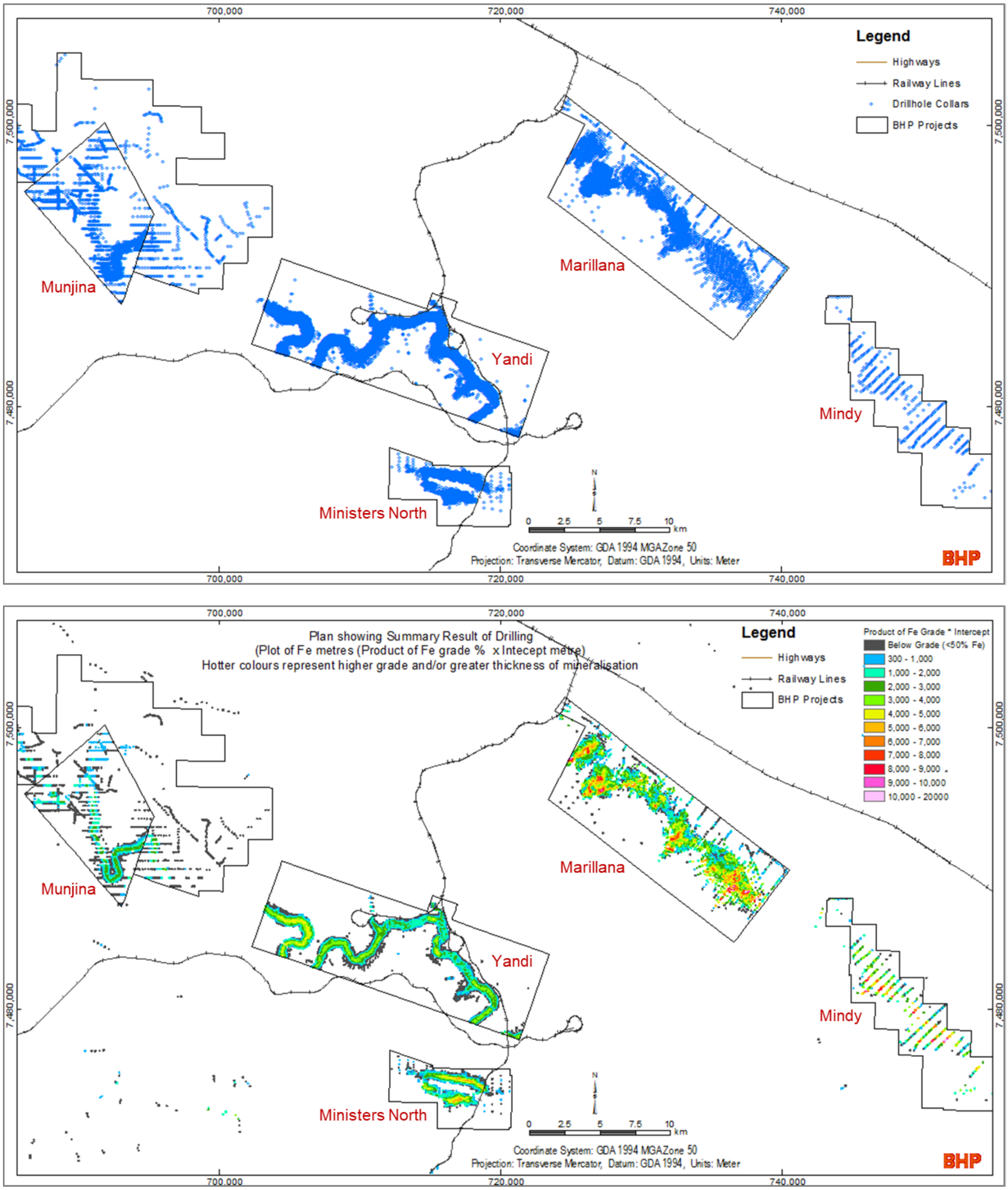


Figure 7-6: Plan Showing Location and Summary Result of All Drill Holes – Yandi Area

7.3 Characterisation of Hydrogeology

Hydrogeological investigations are completed for new bore fields, for greenfields operations, or for environmental purposes. The investigations are appropriate to the scale of the development and its potential implications.

Surface water studies are done to support proposed greenfields or brownfields developments that interact with overland flows. The investigations are appropriate for the business or environmental risk they address.

The approach to operational water management is in accordance with WAIO's internal Water Management Standard and associated guidelines. These documents provide a framework to address the main categories of water risk:

- sustainable life-of-mine water supplies are delivered;
- dewatering commences well in advance of mining;
- surplus water management is flexible and in line with regulatory expectations;
- effective wet weather management exists;
- safe potable water supplies are delivered; and
- environmental and community impacts are managed.

7.3.1 Nature and Quality of Sampling Methods

Hydrogeological data is collected using the following five main methods:

1) by establishing groundwater piezometers during exploration programs to ensure early baseline data;
2) through specialised hydrogeological investigation programs of bore construction and aquifer testing;
3) during installation of dewatering, supply and Managed Aquifer Recharge bore fields;
4) through installation of surface water monitoring points; and
5) through ongoing monitoring of water level and water quality at established monitoring points in regional, baseline or operational areas.

For in-bore installation programs the data types recorded include lithological description, standing water level, water inflows, bore construction and wellhead water chemistry. Bores are drilled (Rotary mud, Down Hole Hammer or Dual Rotary) and constructed in accordance with the "Minimum construction requirements for water bores in Australia" (National Uniform Drillers Licensing Committee 2020).

7.3.2 Type and Appropriateness of Laboratory Techniques

No laboratory techniques are used for testing groundwater flow parameters; instead key hydrological data, such as aquifer response data and stream flow data, are gathered in-field. Where chemical analysis of water is required, sampling and analysis is undertaken by National Association of Testing Authorities (NATA) accredited contractors.

7.3.3 Results of Testing and Material Assumptions

Aquifer testing by WAIO varies from short term efficiency testing through to extended trials that represent operational conditions on the aquifer. Where available, the time-series data from operational dewatering and supply bore fields is considered to provide the best hydrogeological characterisation and is interrogated closely. Aquifer parameters (permeability and transmissivity) are derived from the test pumping analysis, where qualified personnel use current methodologies (recording of pumping rates, pumping bore water level, water levels in surrounding bores, and pumped water quality during the test) and type curves for fractured rock aquifers. This information, along with the geological and hydrochemical data, is used to conceptualise the aquifer and inform groundwater models.

7.3.4 Groundwater Models and Characterisation of Aquifers

Hydrogeological investigations are completed for new bore fields for mine operations or for environmental purposes. The investigations are appropriate to the scale of the development and its potential implications and meet local regulatory requirements.

Surface water studies are completed to support proposed mine developments that interact with overland flows. The investigations are appropriate for the business or environmental risk they address.

Hydrogeological models in relation to mining are described in Section 13.2.4.

7.4 Geotechnical Data, Testing and Analysis

7.4.1 Nature and Quality of Sampling Methods

Targeted geotechnical triple tube diamond drilling is carried out to collect structural, geological and geotechnical data. The amount of this type of drilling varies year on year, depending on the pit design requirements, with approximately 14,400m drilled over the last five years.

The triple tube drilling technique is well known for causing minimal disturbance of the rock strata and for recovery of high-quality core samples. Core is wrapped in plastic at the rig before logging at a local core shed facility to help preserve in-situ character. This enables the effective evaluation of material properties for the acceptable risk and economic design of pit walls. Three types of data are typically collected using geotechnical core logging techniques. These include:

- Interval data (properties that describe the type and quality of the rock mass)
- Point data (characteristics of specific defects that intersect the core)
- Sample data collected for geotechnical laboratory testing (samples taken from the core and tested for physical properties such as strength, mineralogy, etc.).

Samples are selected in accordance with WAIO's geotechnical logging manual, comprising minimum length, uniformity of character and the absence of defects or clasts that may render inaccurate results in triaxial and Uniaxial Compressive Strength (UCS) tests. Samples are wrapped and sealed as soon as practical to preserve natural moisture content prior to testing.

The purpose of the physical properties samples is to understand the strength of different rock types using pieces of core taken from geotechnical DD holes and sent to a laboratory for testing. Testing criteria is initiated at the commencement of each drill program with minimum length and defect parameters guiding physical sample selection during the respective program.

The parameters collected from a drilling investigation are then validated against field and laboratory tests, which then are used as inputs into a geotechnical model to generate a slope stability analysis.

Rock interval data is collected during the logging process and informs rock strength analysis. Rock point data covers rock defect joint condition characteristics such as Joint Roughness Coefficient, Joint Wall Strength, Infill, Infill thickness and Joint Weathering. All geotechnical data collected from rock materials are inputs into the Rock Mass strength estimation and utilised in conjunction with structural or discontinuity measurements.

Soil interval logging applies to the logging of soil strength for materials found across BHP deposits. The logging of these materials describes the soils for geotechnical purposes, in accordance with Australian Standard AS1726-1993.

Rock Quality Designation (RQD) is one of the parameters used in calculating the Rock Mass Rating of the unit. It is a measure of the quality of the rock mass. RQD is only logged for intact core with strength >1MPa.

QAQC of core logging is undertaken on a regular basis for each geotechnical diamond drilling program.

7.4.2 Type and Appropriateness of Laboratory Techniques

Typical laboratory tests are listed below and are performed at E-Precision Laboratory Pty Ltd, Perth, which has been NATA accredited since 2013 (Accreditation # 19078; site # 21509). This laboratory is independent of BHP.

- Uniaxial Compressive Strength (UCS) testing on all rock strength materials.
- Consolidated Undrained Triaxial Strength testing along with measurement of pore water pressure with associated industry-standard Atterberg limits and particle size distribution on all soil strength materials.
- Direct Shear testing on rock defects.

These Uniaxial Compressive Strength (UCS) and direct shear tests are well recognised as best informing the intact rock strength and defect strengths of the samples for consideration in conventional rock mass strength models such as the Hoek-Brown failure criterion and various defect strength models for use in slope design.

The triaxial tests are recognised as rigorous effective stress tests informing soil strengths of the sample whilst the Atterberg limits and particle size distribution results classify various soil types.

These laboratory techniques are widely used in the mining industry and have been successfully used in slope design of open-pits at WAIO over a long time. Therefore, in the QP's opinion these techniques are appropriate for the intended purpose.

7.4.3 Results of Laboratory Testing and Material Assumptions

Laboratory test results are subject to validation by Geotechnical Engineers according to WAIO internal procedures, which require, among other things, that invalid test results be discarded. The results are used to create geotechnical models and define parameters for input into pit slope design as described in Sections 13.2.1, 13.2.2 and 13.2.3.

As the same geological units are consistently encountered across WAIO deposits, in some cases strengths from statistical databases have been used if local data are lacking. These have been externally peer reviewed before use. Both 50th and 25th percentile values are used in analyses. The 25th percentile is assessed to cater for geographic uncertainty. Slope angles are adjusted until stability results meet threshold acceptance criteria.

7.5 Exploration Target

This report does not include any exploration results that are not part of WAIO's Mineral Resources or Mineral Reserves. No exploration targets are being reported.

8 Sample Preparation, Analysis, and Security

WAIO sampling and analysis protocols are established in line with BHP Technical Standards for Sampling, QAQC and Chain of Custody. QAQC steps as per the WAIO Geoscience QAQC Procedure are outlined in this section.

8.1 Sample Collection and Preparation Methods – Field Procedure

8.1.1 Sample Collection Methods

Since the early 2000's, the methods of sample collection for resource definition are mainly through two types of drilling - predominantly (95% to 98%) reverse circulation (RC) face hammers (140mm diameter) and to a lesser extent (2% to 5%) HQ (63.5mm diameter) and PQ (85mm diameter) triple tube diamond core (DD).

The sampling protocol was subjected to heterogeneity test programmes according to Theory of Sampling principles and was found to be appropriate for the style of mineralisation sampled. The WAIO heterogeneity test was supervised by an external independent consultant (Agoratek International Inc, Vancouver, Canada). The Qualified Person has reviewed the findings of the studies and considers the processes to be reasonable for the style of mineralisation.

RC Samples – The method of sampling RC chips uses a vertical, static cone splitter which is adjusted to produce a 6% split of the total mass from each 3m sampling interval for laboratory processing and analysis (which amounts to approximately 5kg).

When required, duplicate samples are taken simultaneously from a secondary chute of the cone splitter to monitor sampling precision. The current RC drilling procedure requires the injection of water at the bit to mitigate any risk of exposure to excessive dust or fibrous material; this practice produces wet samples of slurry consistency and is now required as a drilling standard.

Historically, riffle splitters were used for sampling reduction at RC drill rigs, but this practice was phased out in 2005 with the availability of more robust and versatile sampling systems. Also, for a period from 2011 until 2012, rotary cone splitters were used at some RC drill rigs.

Routine RC samples are collected over 3m drilling intervals in Bedded Iron Deposits (BID) and 2 m intervals in the case of Channel Iron Deposits (CID).

More details on the WAIO sampling and analysis protocol for RC samples are given in Section 8.2.

DD Samples – Diamond core is sampled primarily at 1.5m intervals for HQ diameter and 1.0m for PQ diameter as per geometallurgical and geotechnical requirements. The majority of diamond core is drilled for geotechnical or geometallurgical analysis. The full drill core is sent to the laboratory for test work.

8.1.2 Sample Security and Chain of Custody

Figure 8-1 summarises the sample process steps starting from collection in the field to preparation at the laboratory and finally receipt / reconciliation of assay data. Measures taken to ensure the sample security are listed below.

1. A reconciliation step is completed by field assistants at the time of sample pick-up from the drill pad. Drill hole identifications (IDs) and sample counts, which have been logged by field geologists, are reconciled against samples physically present on the pad.
2. A Request for Analysis (RFA) is generated using a web-based dispatch application, which populates samples directly from the database.
3. A laboratory sample receipt (LSR) is returned to the Geochemistry Team upon sample receipt at the laboratory. The laboratory reconciles samples received against samples identified on the RFA.
4. All assay data is cross-checked using an automated script that compares assay certificates from the laboratory with the data loaded into the database.

Issues identified at any reconciliation stage are investigated immediately.

A portion of at least 100 g of pulverised material (pulp) for every assayed sample is stored at an independent privately owned (Silk Logistics) warehouse facility in Perth for five years. Pulp packets are organised by batch and are then stacked on pallets and records maintained by WAIO.

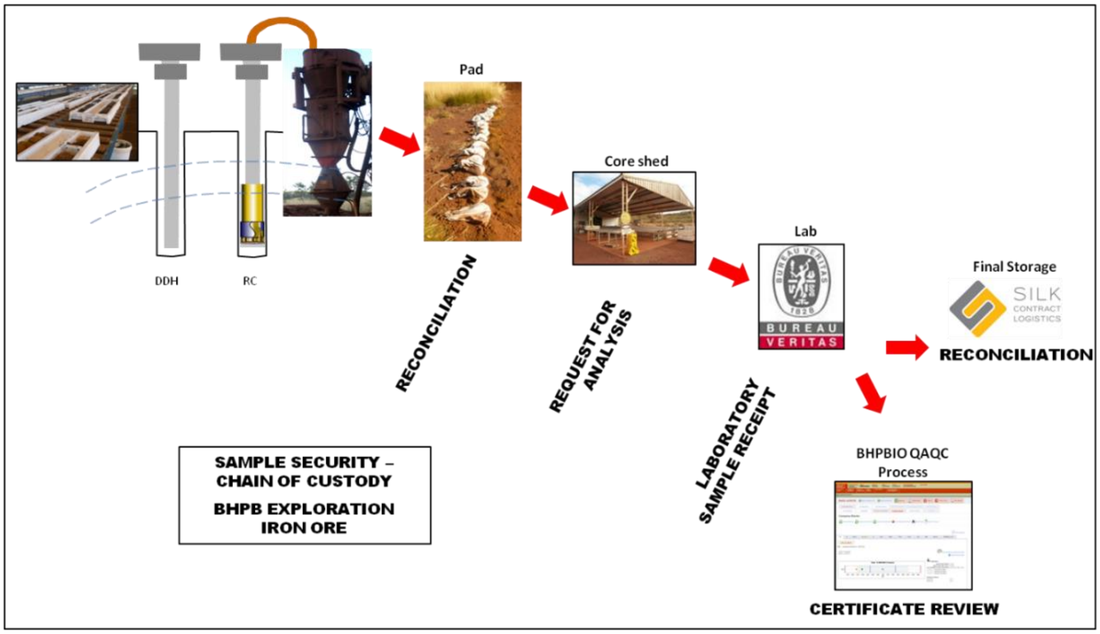


Figure 8-1: WAIO Chain of Custody

Furthermore, the Chain of Custody protocol allows for tracking of drill samples from drill start to final upload to the BHP Master Database. WAIO keeps a regular track of the sample turnaround times. Total turnaround time from sample collection to analytical result averaged around 45 days for RC samples in FY2022 (Figure 8-2). Geometallurgical drill core follows different processes and is not included here.

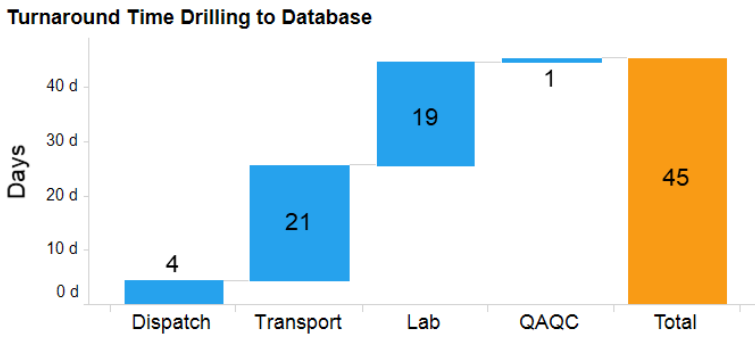


Figure 8-2: Turn-around Time from Drill-stop to Data Approved in Database for FY2022

8.2 Sample Preparation, Assaying and Analytical Procedures

8.2.1 Name and Location of Laboratory, Relationship and Certification

Samples are transported in batches by road from the site to the following laboratories for further sample preparation and assaying.

1. Bureau Veritas Geo-analytical, Perth for all drill samples for routine assays (XRF and TGA) and spectral analysis.
2. ALS Iron Ore Technical Centre (IOTC), Perth for drill core intended for metallurgical test work.

Both these laboratories are ISO 17025 certified and National Association of Testing Authorities (NATA) accredited laboratories and independent of BHP.

8.2.2 Sample Preparation and Analysis Protocol at Laboratory

After sample receipt at the laboratory and finalisation of the reconciliation process, the laboratory proceeds with sample preparation and analysis in coherent batches as per contract items prescribed on the Request For Analysis (RFA). The protocol followed by the laboratory is customised to WAIO requirements and includes controls for the different steps of comminution, assaying and for integrity of reported results.

RC sample preparation requirements at the assay laboratory are as below and WAIO sampling and analysis protocol is shown schematically in Figure 8-3.

- Dried at 105ºC ±5ºC and sample weights recorded (ISO 3082);
- Crushed to a nominal top size of 2.8mm (90% passing);

- Representatively divided to a nominal mass of 2.5kg (or the entire sample if less than 2.5kg), with the mass of every sample recorded after division (unless otherwise specified by BHP);
- Pulverised to a top size of 160 µm (95% passing);
- Representative sub sample of 200 g for XRF fused disc preparation;
- Representative sub-sample for spectral analysis (VNIR-SWIR and FTIR) (see Section 8.2.3);
- Preparation of lithium-borate (flux) fused bead for XRF analysis; and
- Representative sub-sample of 1 g for LOI analysis performed at 1000 ºC (ISO 11536).

A heterogeneity test was conducted in order to quantify the fundamental sampling error (FSE) of the sampling protocol, or the minimum achievable error given the various stages of mass reduction as defined by the sample collection and preparation process. The FSE results indicated that WAIO sampling and analysis protocol is suitable for WAIO mineralisation types.

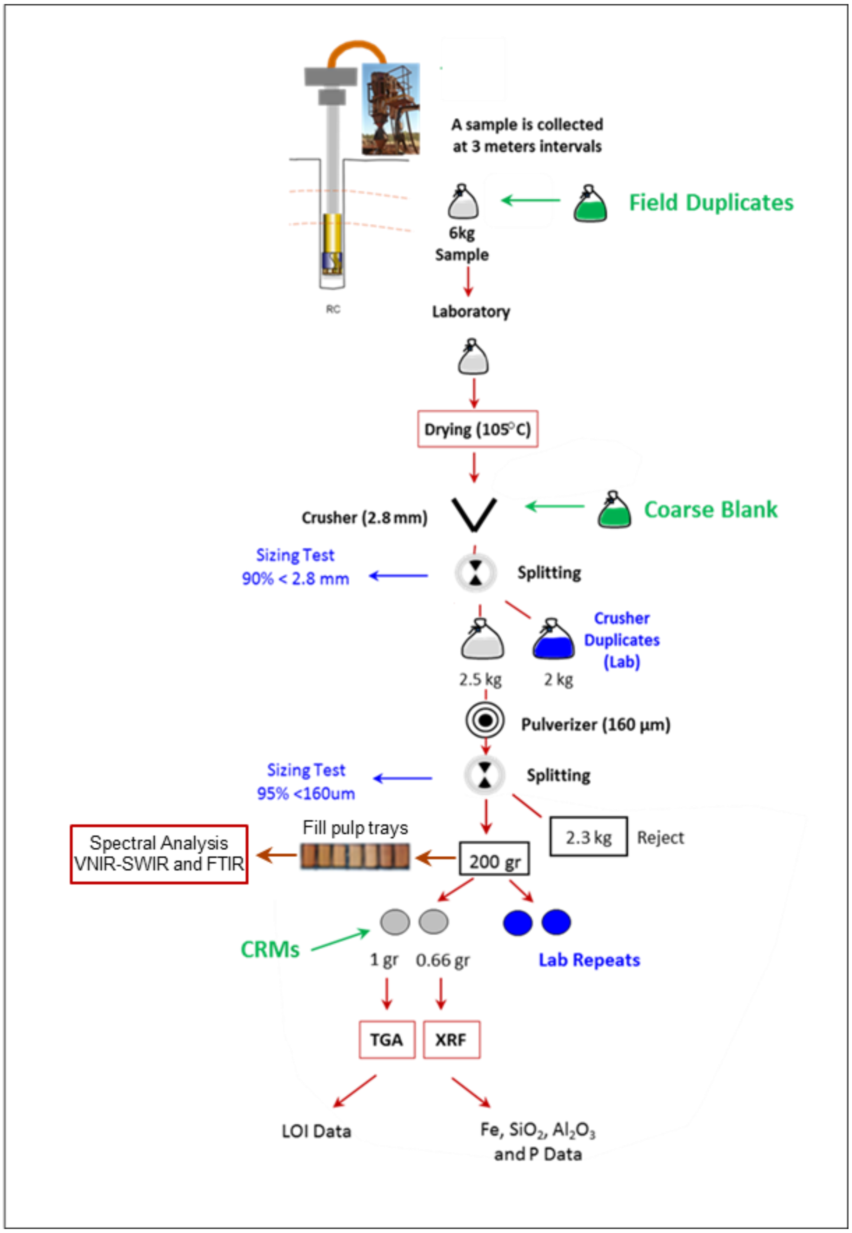


Figure 8-3: WAIO Sampling and Analysis Protocol

8.2.3 Analytical Methods

Chemical Analysis for Assays - X-ray fluorescence (XRF) Fused Disc and Thermo-gravimetric Analysis (TGA) are the main analytical methods.

The XRF Fused Disc Method works by bombarding the sample with focused X-rays. These rays are absorbed by the sample resulting in photons being emitted by different elements in the sample. The number of photons is proportional to the concentration of the element. Robotic TGA measures the amount and rate of change in the weight of a material as a function of temperature or time in a controlled atmosphere. WAIO utilises this technique to measure Loss on Ignition (LOI), which is the percentage loss in weight of an ignited sample once it has achieved a constant weight at the specified temperature of 1000 °C. The laboratory is required to report LOI results to two decimal places.

The detection limits of XRF assay reporting requirements are listed in Table 8-1.

Table 8-1: Routine XRF assay reporting requirements for XRF Fused Disc Method

Analyte	Fe Total	Al_2O_3	SiO_2	P	CaO	K_2O	MgO	Mn total	Na_2O	TiO_2	S total
Detection limit	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.01	0.001
Unit	%	%	%	%	%	%	%	%	%	%	%

Spectral Analysis for Mineralogical Information – In addition to chemical assays, mineralogical data are acquired for all routine samples using visible to infrared spectroscopic wavelength analysis. Data are collected by a combined Auto-Spectral Density (ASD) - Fourier-Transfer infrared (FTIR) spectrometer laboratory set up at Bureau Veritas in Perth. The ASD TerraSpec 4 Hi-Resolution Visible-near to Shortwave infrared (VNIR-SWIR) spectrometer is set up in line with a FTIR instrument, collecting the visible-near to shortwave, to mid-infrared and thermal wavelength range of the electromagnetic spectrum on the same pressed pulp for each sample. System calibration is controlled through daily measurements of a Spectralon plate with spectral standards. The collected hyperspectral data undergoes further quality controls using internal reference material (blanks, duplicates). A calibrated algorithm developed by WAIO converts the spectra into mineralogical information.

The combined spectra of the ASD and FTIR system are used semi-quantitatively for interpretation of the mineralogical information by WAIO geologists.

8.3 Quality Control Procedures/Quality Assurance

The WAIO QAQC program prescribes controls conducted by the assay laboratory as per contractual agreement and controls inserted by BHP WAIO staff in the field (Table 8-2 and Table 8-3). The latter comprises approximately 10% of the samples submitted to the laboratory for chemical analysis. WAIO control samples include Certified Reference Materials (CRM), duplicate sample splits from RC drill holes, and blanks. Each control has specific objectives in the process of mechanical preparation of samples and analysis. All WAIO standards are matrix-matched CRM prepared by Ore Research and Exploration (OREAS), an independent company that specialises in customised CRM preparation. Standards are custom-made by OREAS for BHP WAIO Geoscience and use the “pigeon pair” method, by which two standards of similar grade are slightly offset so that the laboratory cannot differentiate between the two thus increasing effectiveness of the control.

Table 8-2: QAQC Controls for Sample Preparation at the Laboratory

Control	Frequency	Measure

Sizing in Crushers	1 sample by Batch. Target: 90% passing 2.8 mm	Protocol compliance
Sizing in Mills	1 sample by Batch. Target: 95% passing 160 µm	Protocol compliance
Coarse Blank	1 in 50 samples Target: >95% samples not contaminated	Contamination in sample preparation (sample integrity)
Laboratory Duplicate	A split after crushing 1 in 25 samples Target: Unbiased absolute relative difference<10%	Precision in sample preparation (comminution and mass reduction)
Laboratory Repeat	Second split of pulverised material 1 in 25 samples Target: Unbiased absolute relative difference<5%	Precision in sample preparation and assay (comminution and mass reduction)

Table 8-3: WAIO Controls for RC and Diamond Drilling Samples

Control	Frequency	Measure
Field Duplicate (RC only)	Fixed intervals after primary samples ending in **15, 30, 60** and **90**	Precision of sampling process
Coarse Blank	For RC drilling and Diamond core sampling: Fixed intervals as sample bags ending **00, 35** and **70**	Contamination in sample preparation (sample integrity)
CRM (standards)	A random mix of CRM inserted at fixed intervals as samples ending in **01, 36** and **71**	Analytical accuracy
Sample Weight (RC only)	All Field Duplicates	In field control on Sample Collection and Recovery

Data collected as per the above QAQC program protocol is evaluated in the short term, middle term and long-term horizon with actions in place to provide feedback and recognition to build on good results and capture opportunities for further improvement of processes.

- A daily QAQC checklist is used in the field by the drill crews and audited by drilling contractor supervisors to ensure sample collection at the rig. Field duplicate weights are routinely collected at the drill rig as a means of real-time monitoring recovery and field duplicate repeatability.

- The QAQC process is monitored daily "Short Term QAQC" and monthly "Middle Term QAQC":
    - Assay results are securely transferred to the WAIO database immediately following completion at the lab. Assay results and QAQC controls are then reviewed on a web-based QAQC application designed by the Geological Data Management Team (GDMT). QAQC validation criteria are programmed into the database such that any potential QAQC issues are automatically flagged for review by a Geochemist.
    - A monthly review of QAQC results is undertaken with the aim of analysing trends or bias over time. The review includes analysis of sample collection, recovery, precision, accuracy, turnaround time, drill rig performance and data availability.
- A general overview of QAQC results is prepared on a monthly basis. It should be noted that the monthly QAQC updates also include data for RC drilling inside the mining gates for Short Term Geological Modelling that follow the same QAQC process as Strategic drilling.
- QAQC results specifically targeting rig performance are provided to drilling contractors on a monthly basis, and action plans are put in place where issues are identified. This process ensures that good performance is recognised and areas for improvement are actioned, thereby closing the sample cycle from drilling to database.
- WAIO monitors Field Duplicate weights collected by drill crews using an online Dashboard for near 'real-time' performance feedback.
- QAQC measures at the laboratory include routine audits and unannounced visits, with the aim of ensuring that the laboratories are working according to procedure and supervising sample integrity. Issues are discussed with the laboratory managers, and an action plan is developed to address any problems.
- The long-term QAQC process takes the form of focused, deposit-specific reports on drilling campaigns. Annual risk reviews are completed to verify that critical controls are in place and effective.

In the opinion of the QP, the review of the controls across relevant time horizons and focus areas is adequate to ensure quality standards are maintained

8.3.1 Sample Collection Controls and Results

Drill crews at all RC drill rigs have scales to monitor sample collection in the field. Field duplicates are collected approximately every 25 samples (4 in 100). Figure 8-4 shows good performance by the drill crews in sample collection: primary and duplicate sample weights correlate well (r^2=0.77, r^2 being the coefficient of determination) and most duplicate sample weights (75.1%) are within 20% difference from the primary sample weights.

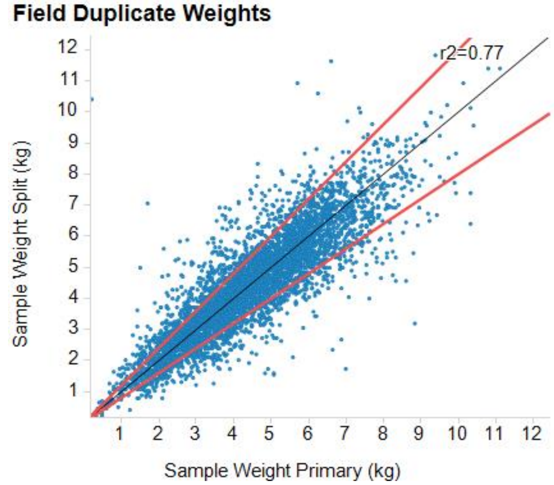


Figure 8-4: Field Duplicate Weight Data for FY2022

Red lines indicate 20% difference from primary sample weight

8.3.2 Field Duplicate Checks and Results

Duplicate samples are collected at a ratio of 4 in 100 samples to evaluate sampling precision at RC drill rigs. During FY2022 a total of 4,896 field duplicates were collected at 12 RC rigs working in active work areas. The acceptance limit for relative error for field duplicates is set at 15%. Results for FY2022 are acceptable and consistent with results from previous years (Table 8-4).

Table 8-4: Summary of field duplicate results

Global	Relative Error	Absolute Error
Fe	3.44%	1.37%
Al_2O_3	10.66%	0.64%
SiO_2	7.51%	1.56%
P	4.46%	0.006%
LOI	4.30%	0.34%

*Note 1: Relative Error (%) = (√Relative Variance)*100. Note 2: Absolute Error = Standard Deviation of the difference of paired samples (duplicate-primary). Note 3: From overall 4,896 field duplicates, 107 outlier results (2.2%) are not included in the analysis (Z-Score ranking >5 for individual analytes).*

8.3.3 Sample Preparation Controls and Results

Sizing Analysis – Sizing checks of crusher duplicates and pulp repeats are routinely performed by the assaying laboratory and monitored by WAIO on a quarterly basis. This practice is a part of the internal QAQC process at the laboratory: when the samples do not meet expectations at the crusher and mill stage, the whole batch is re-processed.

The performance gate for sizing after crushing is 90% passing through a sieve with 2.8mm mesh size. After pulverisation, samples are checked routinely for percent passing through a 160 µm sieve and must have at least 95% passing.

Crusher Duplicates and Pulp Repeats – A second split after crushing was taken from 6,706 samples analysed by Bureau Veritas in FY2022. The performance gates allow a maximum relative error of 10%. In addition, a second aliquot of pulverised material from a total of 6,659 samples was analysed to test repeatability of the results. Duplicates after crushing and pulverisation are taken at a ratio of 1 in 25 samples. The performance gates are set at a relative error of 5%. Results are shown in Table 8-5 and this data is in line with expectations.

Table 8-5: Summary of Duplicate Results after Crushing and after Milling

(Crushing to 2.8mm (N = 6,706) and pulverisation to 160µm (N =6,706))

	Crusher Duplicates		Pulp Duplicates	
Analyte	**Relative Error**	**Absolute Error**	**Relative Error**	**Absolute Error**
Fe	0.72%	0.24%	0.17%	0.06%
Al_2O_3	2.03%	0.09%	0.83%	0.03%
SiO_2	1.45%	0.27%	0.36%	0.06%
P	1.43%	0.001%	1.23%	0.001%
LOI	1.02%	0.07%	0.46%	0.03%

*Note 1: Relative Error (%) = (√Relative Variance)*100. Note 2: Precision = 100% - Relative Error (%). Note 3: Absolute Error = Standard Deviation of the difference of paired samples (duplicate-primary).*

Blanks – Blanks are inserted at a ratio of 3 in 100 samples to assess Fe contamination during the preparation process. During FY2022, a total of 3,801 granite blanks (Blankgran) and 78 quartz blanks (Blankqtz, Geometallurgical only) were inserted.

The granite blanks show chemical variability and are subject to natural fractionation trends (granite, granodiorite and diorite); a correlation between Fe and TiO2 is used to determine the Fe limits according to this natural trend. The natural Fe content of a granite (low TiO_2) is expected to be lower than that of a diorite (high TiO_2). Contamination is monitored by comparing measured Fe relative to measured TiO_2. Of all blanks of the type Blankgran processed, the limit was exceeded once. Overall, in the opinion of the QP the risk of contamination at the laboratory is considered low (Figure 8-5).

The limit for contamination of the blank type Blankqtz is set at 2% Fe. This limit was exceeded in two analyses. Due to low sample count (2% of total blanks), Blankqtz is not shown separately in Figure 8-5.

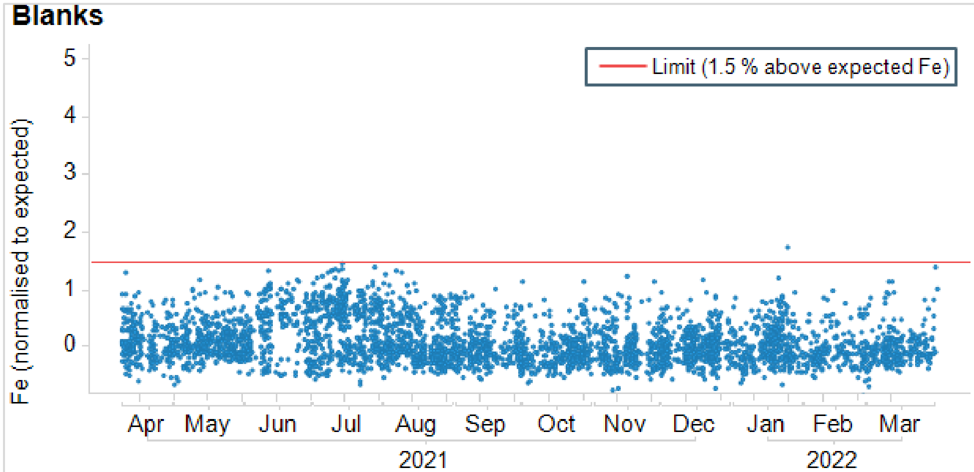


Figure 8-5: Test for Contamination

Note – Samples have been normalised to their expected Fe content according to their TiO2 content

8.3.4 Sample Analysis Controls for Laboratory Accuracy

All assay data is reported in batches by the laboratory, including results of all laboratory internal quality controls, as per contract and accompanied by a certificate of analysis. At the time of first upload to the database, a number of system automated integrity checks are completed. This is followed by running validation scripts over the reported assays using a set of rules. Controls that fail validation are automatically flagged for review by a Geochemist and a batch summary report highlighting flagged batches is sent to Geochemists daily.

To test for laboratory accuracy and bias, matrix-matched CRM standards are inserted into the sample sequence at a ratio of 3 in 100 samples by BHP Field Technicians before sending the samples in batches to the assaying laboratory (Bureau Veritas, Perth). Validation rules for CRMs check for reported assay results outside 3 Standard Deviations of the certified value or more than two consecutive assay results outside 2 Standard Deviations of the certified value.

In FY2022, 3,881 analyses of 31 different matrix-matched CRM standards (including Pigeon Pairs) were carried out. Results for all standards are summarised by calculating the regression slope, b, of reported CRM results compared to the certified values to derive the Global Bias as a metric to evaluate adequacy of the laboratory calibrations. The results for FY2022 are in agreement with WAIO guidelines and worldwide benchmarks, with the mean result for all analytes within a ±5% acceptance range (Table 8-6).

In addition to accuracy checks for individual sample batches in the daily QAQC process, analytical trends for major analytes are monitored in the mid-term QAQC process and reported on a monthly basis (Figure 8-6). Here, performance is evaluated by monitoring reported CRM results compared to long-term averages. Changes in laboratory trends can indicate operative problems and are raised with the laboratory if required. The higher variability observed towards end of 2021 was due to higher variability of a CRM used predominantly during that time. The CRM results of FY2022 show consistent laboratory performance.

Table 8-6: Global bias results for Bureau Veritas

Analyte	CRM Count	Slope b	Global Bias (%)
Fe	3,881	0.9936	-0.64%
Al_2O_3	3,881	1.0042	0.42%
SiO_2	3,881	0.9972	-0.28%
P	3,881	1.0065	0.65%
LOI	3,881	1.0071	0.71%

Note: Global Bias is determined from the regression line slope (b) between all Certified Values against the average reported result: Global Bias (%) = b-1.

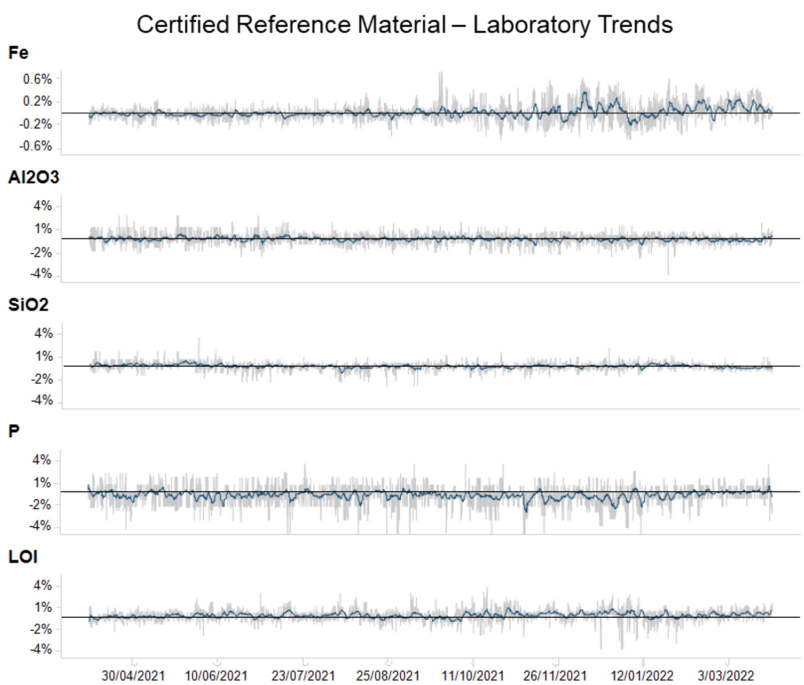


Figure 8-6: Laboratory Trends

Note: Laboratory performance is evaluated by monitoring reported CRM results compared to long-term averages.

8.3.5 Verification of Sampling and Assaying – Downhole Assay Tool

Since FY2015, the Down Hole Assay Tool (DHAT) has been used as a verification tool for RC sampling, replacing the practice of drilling a diamond hole right next to the RC hole for twinning. In addition, since 2012, bulk sampling on selected RC drill holes is used as a practical method in the field to validate the RC sampling method. In bulk sampling, the entire recovered mass (bulk) of the sampling interval is collected and compared to the routine RC sample.

DHAT technology is a highly sensitive method based on the detection and measurement of characteristic gamma rays emitted from radioactive isotopes produced from materials when they are bombarded with neutrons. The tool collects the data within a 30cm radius from the drill hole, and therefore could be considered a twin with the added benefit of minimised short-scale geological variation.

This technology has replaced the historic practice of drilling 5% of diamond twins, because results are not affected by geological variability, and thus has become a more effective methodology to assess potential bias in the RC data. In addition, the DHAT has been used as a cost-effective method of verifying a substantial amount of historical data (via logging of historic open drill holes). Using DHAT technology for sampling method verification was reviewed and endorsed in an external audit in 2015 for Fe, SiO_2 and Al_2O_3.

The DHAT calibration is built based on RC data (80%), tested on diamond core data, and if the results are satisfactory, the remaining 20% of the RC data is used to assess potential bias in the RC sampling method. The calibration algorithm and software are BHP in-house and proprietary. Instrument stability is controlled through repeat logs at the BHP Geoscience facility in Newman. In current strategic drilling programs, approximately 20% of drill holes are logged by the DHAT to verify the RC sampling method.

Bulk Sampling is completed in selected RC holes in well advanced project areas. Results for strategic programs show acceptable error for RC samples compared to DHAT data and Bulk Samples, supporting current sampling and assaying methodologies. The error and difference of DHAT and Bulk Sampling compared to the routine RC sampling method are summarised in Table 8-7.

Table 8-7: Absolute Error for RC Samples against DHAT data

	DHAT in RC (Fe>48%)			RC Bulk Sampling (Fe>48%)		
Analyte	**Count**	**Absolute Error**	**Absolute Difference**	**Count**	**Absolute Error**	**Absolute Difference**
Fe	1,923	1.88%	0.01%	189	0.89%	-0.12%
Al_2O_3	1,923	1.10%	0.03%	189	0.46%	0.03%
SiO_2	1,923	1.28%	0.08%	189	0.59%	0.01%
P	1,923	0.038%	0.005%	189	0.009%	0.004%
LOI	1,923	1.69%	-0.03%	189	0.28%	0.11%

Note: DHAT data includes RC holes logged in calendar year 2021. RC Bulk Sampling data includes holes drilled in 2020 (not previously reported) and 2021. Only data in mineralisation (>48%Fe) is included. Note also that not all data collected in FY2022 is completely processed.

8.4 Downhole Geophysical Data - Quality Control Measures

In addition to physical samples collected for assays from the drilling, drill holes are systematically logged for geophysics with in-rod and open-hole surveys, as mentioned in

Section 7.2.4, to collect parameters like natural gamma, density, caliper, magnetic susceptibility and fluid / rock resistivity. Optical / acoustic televiewer data is collected in selected drill holes.

Quality control standards for downhole geophysical data are applied to monitor data quality and ensure the credibility of the geophysical log data. The WAIO downhole geophysics QAQC process involves calibration (that checks accuracy and repeatability of density and other tools), reproducibility (that monitors the precision of all tools under local conditions) and independent validation (that compares like measurements recorded by different / independent means).

8.5 Opinion on Adequacy

It is the QP's opinion that the sample preparation, security, and analytical procedures are sufficient to provide reliable data to support estimation of Mineral Resources.

8.6 Non-Conventional Industry Practice

The Downhole Assay Tool (DHAT) described in Section 8.3.5 is used to collect downhole assays and are non-conventional industry practice. Frequent calibration of these tools is undertaken to monitor the assay reliability for their intended purposes, in other words, the definition of ore boundaries in blast blocks and grade control in the tactical mine planning horizon and as a verification tool for RC sampling of the exploration holes (strategic horizon). However, these assay results are not used in the estimation of Mineral Resources.

9 Data Verification

9.1 Data Verification Procedures

9.1.1 Drill hole Data Management, Validation and Approval

An in-house data management team manages the drill hole data used for resource estimates to ensure the data is managed to meet the data integrity requirements of WAIO. All drill hole data is maintained internally in a comprehensive drill hole database using the Microsoft® SQL Server relational database technologies, complemented by specialist data management systems (namely Micromine™ Geobank, and in-house systems developed for the purpose) to acquire, load, manage, validate, approve and provide drill hole data for use, access to which is restricted to authorised users only. This database is structured such that quality data and relevant meta-data are integrated with the primary geological, geochemical, geophysical and hyperspectral-based mineralogical data.

All data collected in the field are entered into the database using a computerised field logging system, which includes controlled input through drop-down lists and inbuilt validation checks to trap erroneous data at the earliest possible stage.

Samples are assayed at the laboratory in pre-defined batches and results are digitally uploaded to an intermediate holding database. BHP applies strict validation rules including confirmation of acceptable QAQC results for each batch of samples assayed. Batch validation is managed by specialist Geochemists.

Drill hole collar locations are surveyed by BHP Surveyors, and they provide the collar information electronically to the drill hole database for automatic loading. The BHP surveyors use QAQC processes to ensure the data meets the required data quality.

All drill hole data are loaded into the drill hole intermediate holding database, using agreed standardised file formats by data loaders, to remove the need for any manual data entry, or manual file loads, ensuring no introduction of errors or issues that can be introduced from data entry. These data loads have strict validation rules including confirmation of the existence of drill hole details, sample details or ranges of data. The data management team monitors the validations and success of the data loads, and any issues are sent to the responsible geologist for resolution, including re-provision of the data electronically.

Once all the data is loaded into the intermediate holding database, validations on the data are applied, and all errors are resolved before the data can be approved and be used in other processes such as resource estimation. Once drill hole data is approved it is transferred to a read-only master drill hole database where the data can be accessed for use.

The drill hole data exports for use in geological and resource modelling are by standardised exports from the Geobank system. Data exported from the drill hole database for resource modelling contains summary statistics, and on the load of the exported data into the modelling systems, statistical checks are performed to ensure that the data loaded is the same as exported.

A schematic flowsheet of the WAIO drill hole logging and database model is shown in Figure 9-1 with blue arrows/lines indicating the direction of data flow (i.e input or output).

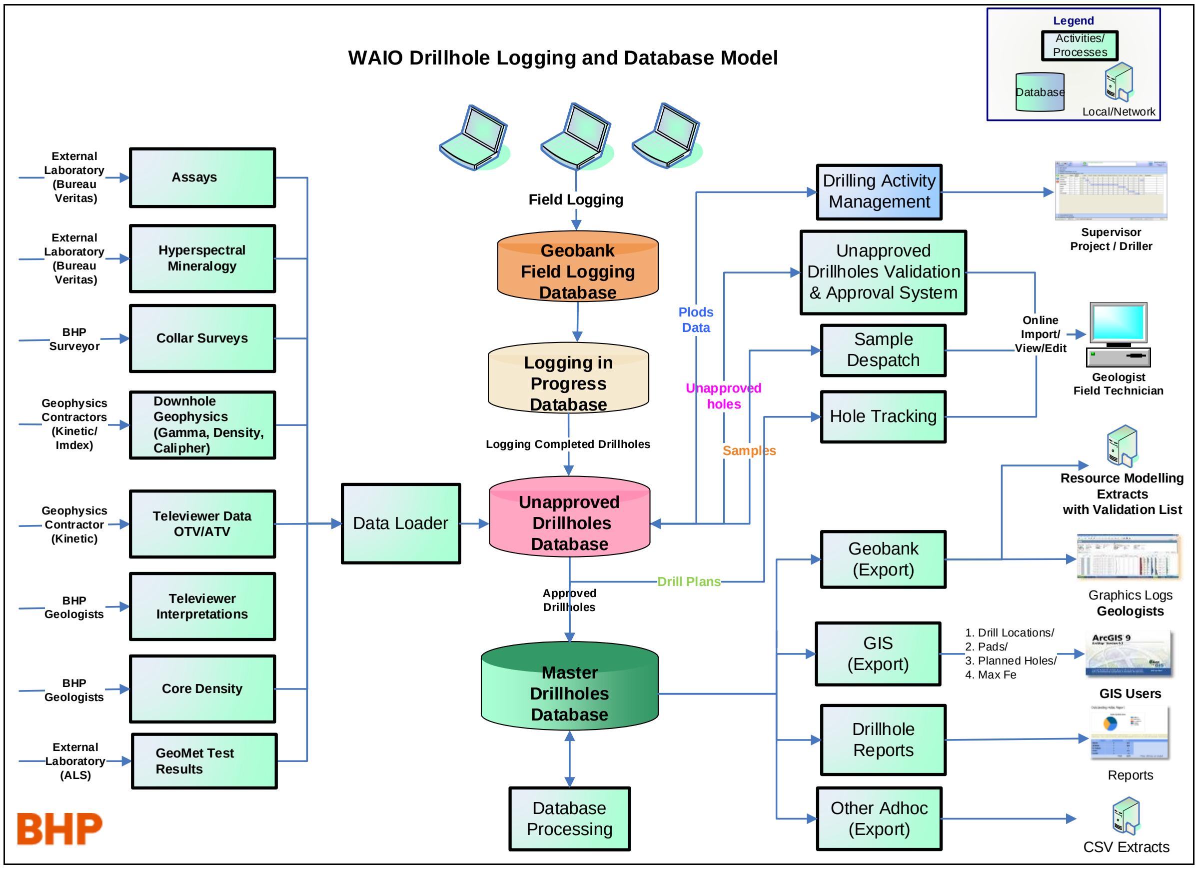


Figure 9-1: A Schematic Flowsheet of WAIO Drill Hole Logging and Database Model

9.1.2 Internal and External Reviews on Drill hole Database

As part of the controls to ensure ongoing drill hole data integrity, several database management controls are undertaken. The effectiveness tests of these controls are completed annually. These controls include:

i. Secure and restricted access. Database access is only granted after approval by authorised approvers. Access is restricted to people who need this access for their work. Access is removed where it is no longer required.

ii. Systematic and reliable data backup of the databases. The system is backed up nightly as per standard BHP Technology backup procedures. Regular copies of the production drill hole database are restored to the quality assurance and test servers to test the backup procedures and recovery of the backups. To date there have been no failures for this test.

iii. System changes are managed and controlled. Input and modification of databases are tracked and restricted to authorised persons. Data validation rules are utilised to ensure data integrity and any changes to data are tracked in audit tables.

iv. Data management issues potentially material to data quality are documented and made available in the drill hole system data quality register.

v. Drill hole database audits are conducted periodically by external and/or internal auditors to ensure data integrity is maintained and shielded from material risks caused by changes in systems, data management processes, data types, resource modelling or resource reporting. The periodicity of audit(s) is an outcome of an annual verification process, which is completed by key users of the databases to identify if any material risks may have been introduced from the above changes in the period.

Following the above risk-based approach, external and/or internal audits have been completed from time to time to ensure data integrity is maintained as per the controls. The last external audit was completed in January 2020 by GAD Solutions (an independent Geoscience Data Management consultancy firm, based in Brisbane Queensland, Australia). The audit focused on a detailed assessment of the data integrity, starting with data acquisition in the field through to its use in modelling, to ensure that the process was complete, maintained integrity and did not contain any material issues. In summary, the audit found no issues that have a material impact to resource estimations, with only minor issues identified and recommendations made for improvements.

9.1.3 Downhole Geophysical Data Validation, Verification and Audits

Geophysical data is applied both qualitatively and quantitatively in construction of geological models, resource models, and geotechnical models. Quality control and verification procedures are aligned to the intended use of the data. For example, if data is used quantitatively, it is not sufficient to just demonstrate a valid tool response, but also to demonstrate a required level of accuracy. The process for verification for certain important parameters is described below.

Density Verification - Geophysical density is required to be accurate as well as precise as the data is used to estimate resource tonnage. The following measures are used to assess repeat log density data:

- Difference between the mean of the original survey and repeat: The difference should be zero, or close to zero. Deviation from zero may indicate bias (faulty calibration) or flag tool fault, if external factors such as rough borehole condition, change in borehole condition over time, or unaccounted depth mismatch between logs do not affect the outcome. Data is reviewed where the difference exceeds the manufacturer tolerance level of the tool at ±0.05 g/cc.

- Analysis of the pairwise difference between original and resurvey measurements: In the absence of external factors, deviation from the zero mean of the pairwise differences will result when there is a bias between the two datasets. Data is reviewed where the difference exceeds ±0.05 g/cc. Spread or variability about the mean is given by the standard deviation, and the RMS error serves as a measure how far on average the error is from zero.
- Linear regression of the repeat against the original survey: Linear correlation is used as an indicator of precision. Data is reviewed where the correlation coefficient is less than 0.8. Low correlation is not necessarily due to low measurement precision and can also arise if there is low contrast in the data and / or data outliers due to external factors, such as borehole condition. Regression in this context is not a reliable measure of accuracy.

Where error is indicated the resurvey borehole, or the calibration repeatability borehole may be re-logged. If the issue cannot be determined and / or corrected, then production log data acquired during the calibration cycle of the faulty tool may be excluded and will then be unavailable for modelling.

In situ bulk density (ISBD) measured from diamond drill core using the caliper and weight method is used as an independent QA check of downhole density data. To statistically compare the geophysical and core density data the 10cm sampled geophysical data is scaled to match the core data sample interval by averaging the geophysical data over the depth interval of each core measurement sample (generally between 1m and 1.5m). Measures to validate the geophysical density from core density data are similar to those for repeat surveys listed above. Trace correlation is used where the data is displayed graphically as depth log plots, cross plots, histograms, and Q-Q plots.

Borehole Deviation Verification - A robust geological model depends on accurate knowledge of the location of model data in the subsurface. Borehole path or deviation is measured routinely utilising both gyroscope and magnetometer-based survey tools. The logging contractor undertakes regular checks on tool performance using a deviation jig and undertakes a full calibration periodically as per industry standard. BHP monitors tool performance where more than one deviation survey is conducted in a borehole, e.g., resurveys, boreholes with televiewer surveys, etc. The maximum difference in hole location must be less than 2m over 100m of borehole length. Remedial actions for non-conformance include re-surveying affected boreholes else exclusion of data / boreholes from modelling where this may not be possible. Intervals of strongly magnetic formation that locally affect the accuracy of magnetometer-based deviation tools are identified and interpolated through a standardised routine within the Geoscience data management system.

Downhole Televiewers for Structural Orientation Verification - Televiewers deliver oriented structural information used to guide geological modelling of deposits and mine pit design. Verification of image orientation and interpretability is required to ensure the accuracy of interpretation and orientation of identified bedding and structures. Boreholes are pre-conditioned by washing prior to survey to remove drilling mud caking the borehole walls and to minimise the possibility of interpretation bias from partial visibility of the underlying formation. Verification processes for televiewer data are:

- Track unique tool ID and tool image offset position for each tool deployed.
- Confirm borehole name, location, and depth registration of image by matching corresponding log data such as natural gamma and magnetometer traces to previously acquired open hole geophysical logs.
- Confirm image orientation by validating televiewer borehole deviation survey with deviation surveys acquired with other tools.
- Monitor image quality for dropouts, tool-jump artefacts, blurred image, dirt on lens that affect the ability to unambiguously identify geological and structural features.
- Rate each image for interpretability based on the amount and quality of visible formation imaged.
- Peer-review all televiewer interpretations to validate correct classification of features, accuracy of picking and correction of structure orientation for deviation of the borehole.

Non-conformance to these criteria triggers a rewash of the borehole and resurvey of the televiewer.

Orientation data is not corrected for magnetic declination, which is less than 2° east of true north in the Pilbara. Annual wander of the magnetic north pole is less than a degree since 1985 and the range in declination is less than 0.3° across the area encompassing all WAIO current mine and exploration sites.

9.1.4 Verification for Data Quality Issues

All data used for resource estimation are subject to a critical review and validation procedures. The reasoning behind the final selected dataset is detailed in the resource estimation report and agreed with the qualified person. Any data irregularities as well as data amendments are captured in a Data Quality Register (DQR).

The extract from the BHP Master Database includes several validation checks, as listed in Table 9-1. These are reviewed and any errors either resolved or flagged for further action such as removal from the resource database or flagging of low confidence.

The database contains several quality variables. Ratings are given to holes and samples based on the completeness of the survey data (collar, down-hole, and gamma survey data). While most of the drillholes are vertical and relatively shallow, angled holes and deep holes with missing surveys have the potential for unknown downhole deviation and therefore significant unrecorded lateral movement during drilling. This uncertainty is taken into account during resource classification.

The following adjustments are made to the raw assay data:

- Default grades of -99 for missing assay values; and
- Below detection limit assay values (negative values) converted to -2/3 of the negative value. Where the resultant value is less than 0.001 the assay field is given a default value of 0.001.

The adjusted assays are then used to produce the Total Assay (oxide equivalent total value) using the equation:

$$\text{Total Assay} = (Fe*1.4297) + (P*2.2914) + SiO_2 + Al_2O_3 + LOI + CaO + (Mn*1.3883) + MgO + TiO_2 + K_2O$$

Total assay values are considered acceptable if they fall within 97-102%. Samples outside of tolerance are investigated and assessed on a case-by-case basis.

Each sample also has an associated numeric identifier record if the total chemistry is within tolerance (97-102%), and extra weighting applied for each major element analysed (Fe, P, SiO_2, Al_2O_3 and LOI) and for each minor element analysed (Mn, CaO, K_2O, MgO, S and TiO_2). Typically, samples with identifier records below a certain threshold are considered unreliable, and appropriate treatment of these samples is assessed on a case-by-case basis.

Relevant teams supply reports detailing assessment of sampling, assaying, geophysical, down-hole and collar survey QAQC data. These QAQC reports are reviewed to ensure that all aspects have been covered and conclusions are consistent with program requirements, including historical data.

For older historic QAQC data that has not been previously assessed or reported, the relevant team is informed of this and QAQC undertaken (geophysics or geochemistry).

In addition to this, the data is continually checked during modelling and resource estimation, with any discrepancies between the expected downhole information and logged information investigated in case there has been an error with hole location.

Table 9-1: Database export validations

Validation Process	Validation checks
Excluded holes	Lists any holes excluded from previous resource models and the reasons for the exclusions.
DQR Quality Issue Holes	Any notes from the database validation checks, including whether or not the issue has been resolved.
DQR Rule Validations	Records that fail the database validation rules.
Data Validation warnings/errors	Warnings or errors in data (e.g., survey co-ordinates at a greater distance from design co-ordinates than expected tolerance).
Data Statistics	Statistics for all files and fields exported (counts, basic descriptive statistics for numeric fields).

Drillhole Collar vs Topo Warnings	Holes with the collar sitting greater than 2.5m above or below topo.
Drillhole Survey Analysis Warnings	Intervals where combined azimuth and dip deviation is greater than 3° over 5m.
Drillhole Unsurveyed Holes	Unsurveyed drill holes
Database export validation	Checks that the export from Geobank database to the software (in this case Vulcan™) has not corrupted the drilling data

9.2 Limitations on Verifications

Data verification is required to be performed as part of BHP's routine processes (Section 9.1). The QP is not aware of any limitations or impediments to conduct such verification.

9.3 Opinion on Data Adequacy

The QP has reviewed all stages of the data verification process. Based on this review work completed, in the QP's opinion, the data verification procedures detailed in this Section are adequate to understand the quality of the data and the resultant level of confidence. The qualified person is also of the opinion that the data being used for the estimation of Mineral Resources is adequate for the purpose used in this Technical Report Summary.

Most uncertainty is attached to historic drilling which might not have sufficient survey or assay QAQC data attached. In the majority of cases, these holes have been replaced by new drilling and are not used in resource estimation. In the rare instances where there is insufficient surrounding data and data of sub-optimal quality is used, the samples are flagged to indicate the lack of confidence. This flagging is incorporated into the estimate to allow the influence of these samples to be tracked. The confidence in the influenced blocks is then downgraded during classification.

10 Mineral Processing and Metallurgical Testing

10.1 Geometallurgical Testing and Analytical Procedures

Metallurgical testing undertaken by WAIO is for the purpose of estimating the volume of lump production and characterisation of lump and fines in the final shipped ore.

WAIO's run-of-mine (ROM) ore is high-quality hematite-type direct shipping ore (DSO) with average iron content greater than 60% and is capable of being used as raw material for iron and steel making without the need for any further concentration or beneficiation.

The ROM ore only requires crushing and screening to produce the two industry-standard DSO marketable ore types; lump (nominal particle size -31.5 to +6.3 mm) and fines (size -6.3 mm). Of these, the lump ore type can be fed directly into the blast furnace and hence attracts a pricing premium compared to fines, which requires sintering.

WAIO Mineral Resources are reported as in-situ wet tonnes and dry head grades, but the percentage of lump can vary within each deposit depending on ore type, stratigraphic unit and depth from surface. Hence it is important for WAIO to estimate, at the stage of resource modelling, the volumes of lump and fines ore types through the supply chain (from primary crushing to the final shipped ore).

The objective of geometallurgical testing is to obtain regression parameters, which can be applied to the resource models, to predict tonnage and grade parameters for lump and fines ore types at different points in the supply chain. These predictive regressions are applied to the resource models on a block-by-block basis, prior to their use for mine planning and scheduling work. Figure 10-1 provides a high-level overview of the standard geometallurgical characterisation process at WAIO.

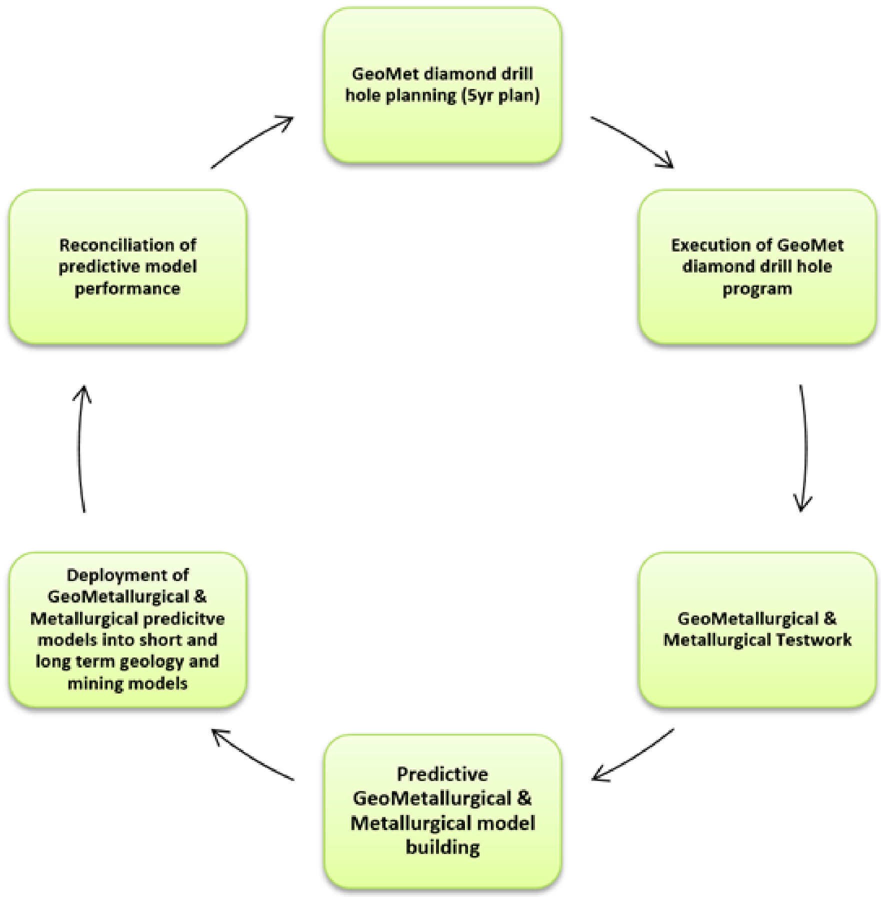


Figure 10-1: Geometallurgical Characterisation Process Flow

The first step of geometallurgical testing involves subjecting diamond drill core samples (PQ3 size, 83mm core diameter) to a three-stage crushing, dropping and tumbling process to simulate approximate conditions at the stockyard and train load out point at the mine (As Crushed, AC and As Dropped, AD), and at the ship loading point at the port (As Shipped, AS).

Based on the results of each stage, samples are composited by stratigraphy and depth bin, before the next stage of treatment and subsequent testwork. The testing and analytical procedures which are then performed on these composite samples from each stage, along with an overview of the key testing and analysis procedures, are briefly described below:

Lump yield is determined by weighing the mass of +/-6.3mm fractions (i.e., lump and fines fractions) after each of above three stages and determining the mass percentage of lump.

Sizing data (for AC, AD and AS) are collected at pre-defined size intervals starting from lump (+6.3mm) to fines (-6.3mm) and down to ultrafine fractions (-0.15mm). Duplicate samples and integrity checks (IC) are performed to ensure sizing data quality at different crushing stages.

Chemical analysis for different elements at various processing stages (AC, AD to AS) is done by XRF, and QAQC checks are performed at the laboratory as well as integrity checks (IC) against the known standards provided by WAIO to the laboratory.

Assay by size involves assay of individual sample size fractions, including ultrafine (-0.15 mm) fractions, and QAQC checks are done using known standards.

Compacted and uncompacted **density** tests are performed on ore type / depth composites of AD lump and fines with reference to the ISO 3852:1988 procedure.

AC assay pulps are routinely scanned with a HyLogger visible-near to shortwave infrared spectrometer and a Fourier transform mid-wave to thermal infrared spectrometer to derive **mineralogy** estimates at the AC stage.

Quantitative XRD is undertaken on AS lump and fines composite samples.

In addition, the following metallurgical testwork is conducted.

- Reduction disintegration Index (RDI) to measure sample response to furnace reducing conditions under load based on the JIS M 8720 (< 2012), ISO 4696-2:2015 test method.
- Reducibility Index (RI) to measure the ease of removing oxygen from the iron ore, which is related to porosity, following the JISM8713 Method 1 (Newcastle Technology Centre and SGS), ISO 7215: 2015 (ALS).
- Decrepitation index (DI) to measure thermal shock when the sample material is exposed to the rapid, extreme increase in temperature within the blast furnace based on the ISO 8371 – 2007 test method standard.
- Tumble Index (TI) and Abrasion Index (AI) to measure susceptibility of the sample to abrasion breakage (ISO 3271 – 2007).
- Shatter Index (SI) to measure susceptibility of the sample to volume breakage based on the JIS M 8711 – 1971 standard.

10.2 Sample Representativeness

Targeted PQ3-size diamond drilling programs are designed and executed to ensure that geometallurgical test samples are collected from all relevant ore types and mineralisation styles that offer present and future potential for mining and processing.

The geometallurgical drill holes for a deposit are planned based on an analysis of the respective resource model to estimate resource proportions in domains with reference to stratigraphy, weathering, depth bins and water table. These resource proportions help in determining the quantity of samples required to allow for representativity of the targeted deposit. An in-house Python-based software program is used to select priority drill holes to obtain sufficient sample mass that is reflective of the modelled proportions of stratigraphy, ore grades, weathering and depth-bin combinations to carry out the test works for geometallurgical characterisation of the deposit. The drill hole selection simulation process is also designed to capture historical geometallurgical test work data and the test work gaps if any, based on the resource proportions from the resource model.

Based on the above procedure, samples representing intervals from PQ diamond drill holes are collected from across the deposit and covering all stratigraphic units and all depth bins to ensure sample representativity, as shown in Figure 10-2. Geometallurgical drilling programs are designed to twin the proposed diamond drill holes against an existing RC drill hole to ensure topographical, mineralisation and grade representativity. The target drilling coverage for a particular deposit, benchmarked against coverage in active mining areas where the geometallurgical reconciliation performance is within tolerance, is five PQ metres of drilling per million tonnes of total resource.

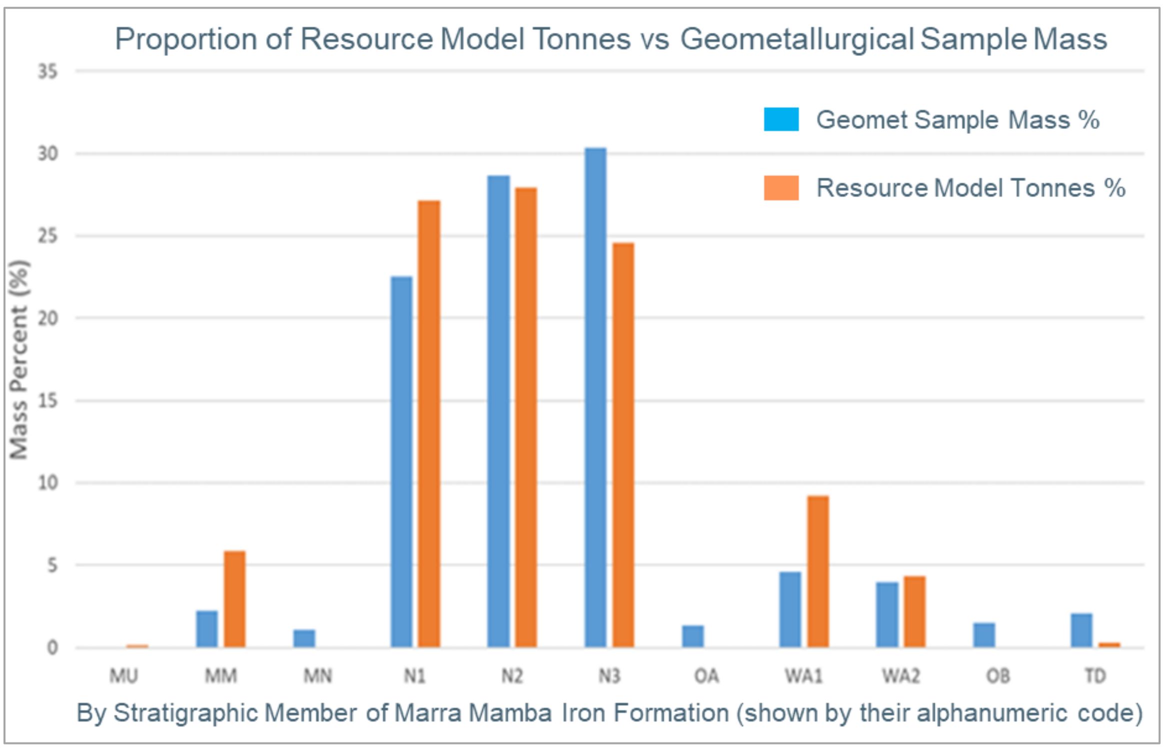


Figure 10-2: Illustration of Geometallurgical Sample Representativity by Stratigraphy

In view of the above, the QP is of the opinion that the geometallurgical samples are representative of the various ore types and mineralisation styles and for whole deposits which are currently under production. For sustaining and exploration stage deposits, more samples are required to be collected prior to starting extraction.

10.3 Testing Laboratories

Various components of the geometallurgical tests and related analytical work are undertaken at the following accredited commercial laboratories within Australia, which are independent of BHP.

- ALS Metallurgy Limited (ALS) Iron Ore Technology Centre in Perth, Western Australia for geometallurgical simulation test work. This laboratory is ISO 17025 certified and National Association of Testing Authorities (NATA) accredited.
- Bureau Veritas Australia in Perth, Western Australia for assaying and mineralogy. This laboratory is also ISO 17025 certified and National Association of Testing Authorities (NATA) accredited.
- The University of Newcastle Research Association (TUNRA) Bulk Solids in Newcastle, New South Wales for metallurgical test work (lump hot and cold burden). This is an ISO 9001, ISO 14001 and AS 45001 certified laboratory.

10.4 Relevant Results

The main results of the geometallurgical test programs are:

- estimated lump and fines yield and grade,
- assay and sizing data, and
- metallurgical properties.

The lump/fines data as well as assay and sizing data are composited by assay, stratigraphy, density and depth for domaining. Exploratory data analysis (EDA) is carried out to ensure that the domains are statistically sound and outliers are understood, to ensure the data quality is sufficient to be used for model building, and the results are validated with the previous model (if available) for grade and lump/fines ratio.

This data is then used to generate predictive regression models for the estimation of lump and fines ore types through the supply chain from the mine to the port. All ore produced (lump and fines) is shipped to customers. The incidence and proportions of deleterious elements (P, Al and Si) are kept within specified limits (internal shipping targets) by using an appropriate cut-off grade for resource estimation from the block model.

Predictive Model Development – The current and standard predictive geometallurgical model build procedure, using multiple linear regressions, has been in practice since 2012. WAIO uses a programming platform, MATLAB, to build the geometallurgical models from the predictor variables, namely, head grades / chemistry, depth and density. Variable selection is via a model build script, which assesses the statistical significance of a predictor variable, one variable at a time, to arrive at a single model. The regression models, based on stratigraphy and/or weathering domains, predict:

(i) lump percent,

(ii) Major-element lump grades (i.e Fe and the deleterious elements P, SiO_2, Al_2O_3 and LOI) and

(iii) ultra-fines percent (as a percentage of fines) at the mine and at the port.

In using this methodology, an assumption is made that a multiple linear regression model is a valid model for the prediction of lump and lump grades. Reconciliation data is reviewed monthly and quarterly to provide a feedback loop for any improvement of the regression model.

The geometallurgical model build process also takes into account the impact of processing inefficiencies and differences (to laboratory conditions) on the operational production of lump and fines. Generation of these ore types under perfectly optimised laboratory conditions does not take into account oversize or undersize material that inherently reports to these ore types during processing.

Model Deployment - The geometallurgical models are applied to long- and short-term resource models (including grade control models), on a block-by-block basis. This occurs as a post-processing step on the resource models, and prior to use for mine planning work. The models are deployed against domains that are considered appropriate to the nature and ore types across WAIO deposits. Typically, a geometallurgical domain, against which a model is deployed, is based on stratigraphy, weathering and ore classification.

The management of geometallurgical model versions and updates occurs using a model register. The model register is also used to track model versions deployed in resource models.

Reconciliation of Model Performance – Monitoring geometallurgical model performance occurs using an industry standard, third party software platform, 'Reconcilor', developed by Snowden Technologies. The implementation of monitoring geometallurgical model performance (actuals against estimates, at the mine and at the port) using Reconcilor occurred in 2014, with the current reconciliation procedure has been in place since April 2016. Each hub approves the data, which forms the basis for the reconciliation of lump and fines yields and Fe grades, including the deleterious elements P, Al and Si, on a monthly basis. Review of the reconciled data occurs on a monthly and quarterly basis. These reviews provide a feedback loop for the requirement of additional drilling to increase deposit knowledge and understanding and/or the improvement of predictive geometallurgical model builds for lump estimation in Brockman and Marra Mamba ore types.

In previous years, the lump ore type has accounted for approximately 35% of WAIO's annual production derived from BKM and MM ores (and around 26% of total production, including CID ore which is 100% fines).

10.5 Adequacy of Data and Non-Conventional Industry Practice

It is the QP's opinion that the geometallurgical data being used for the estimation and characterisation of lump and fines ore types is adequate for the purpose used in this Technical Report Summary. Further, the current analytical procedures for geometallurgical testing are considered conventional and therefore in the opinion of the QP there is limited risk in using the results for estimation and characterisation of lump and fines ore types.

11 Mineral Resource Estimates

11.1 Key Assumptions, Parameters and Methods Used

As described in Section 6, WAIO owns a number of stratigraphically-controlled deposits spreading over three main operating regions, namely, Eastern Pilbara, Central Pilbara and Yandi. Mineralisation in these deposits extend more or less continuously over strike lengths of 5-10km for some and up to 50-60km for others. Therefore, for the ease of building geological and resource models, these laterally extensive deposits have been sub-divided into manageable areas. Accordingly, WAIO currently maintains about 80 resource models from which Mineral Resources are reported and stored in a secure internal database. Although this represents a large number of resource models, these models for each ore type (namely BKM, MM and CID) are mostly similar because of the similarity in their mineralisation styles. As such, these 80 resource models have not been discussed individually.

The resource estimation process followed by WAIO is well established and is consistent with standard industry practice. A set of procedures governs geological interpretation, estimation and reporting of Mineral Resources, including peer reviews and independent auditing (by a third-party organisation for all major changes and before approval of any capital and by BHP's Resource Centre of Excellence for a few minor changes). It is the QP's opinion that these procedures, summarised throughout Section 11.1, produce resource estimates of sufficient quality to be appropriate for their intended purpose of global resource reporting and medium to long-term mine planning studies.

The Mineral Resource qualified person visits sites regularly for program planning and reviews, gaining further understanding of the exploration programs and the interpreted geological framework.

The key elements of the geological modelling and resource estimation process are described below.

11.1.1 Geological Interpretation

Geological interpretations of WAIO iron ore deposits are based predominantly on downhole wireline logs of natural gamma, with support from geochemistry, mineralogy (Figure 11-1) and surface mapping. Downhole televiewer data is also utilised, where available, for understanding orientations of stratigraphic and other structural surfaces.

Alternative interpretations are generated as part of the iterative process to arrive at a consistent 3D geological model. Interpretations undergo an extensive internal peer review process to ensure accuracy and consistency. All work performed is documented in detail in a geological modelling report issued for each model.

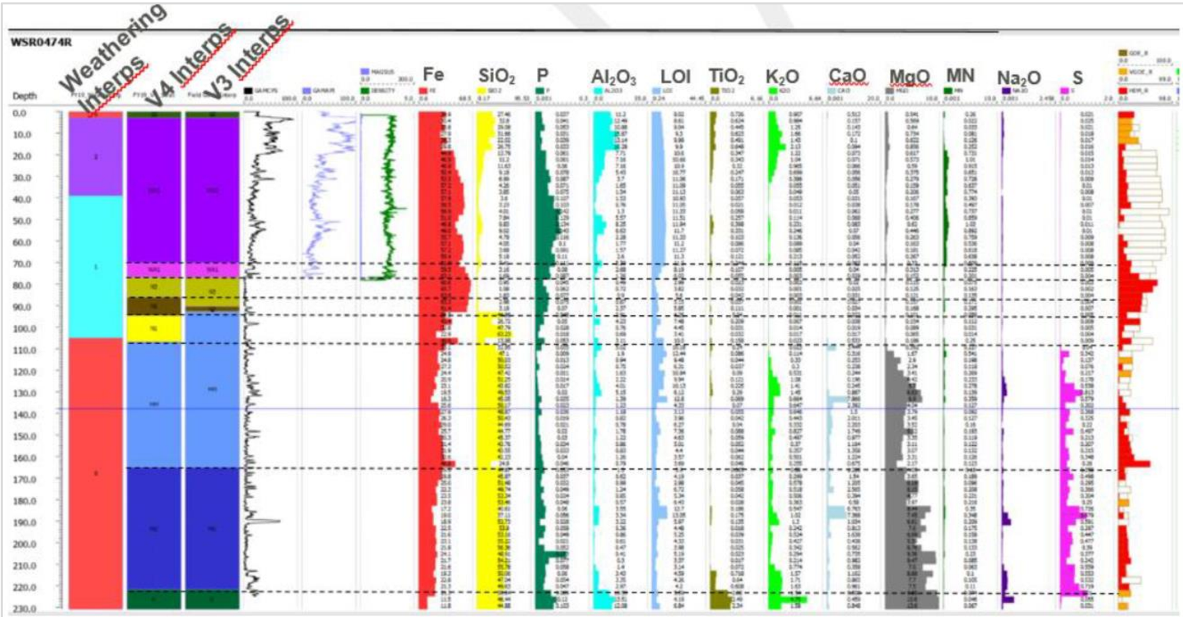


Figure 11-1: Illustration of Typical Downhole Interpretation based on Gamma and Assays

11.1.2 Geological Modelling

WAIO has established processes and systems for three-dimensional modelling of deposit geology, using the implicit modelling strategy within Leapfrog Geo software. Implicit modelling allows for the fast and automated formation of 3D surfaces, such as stratigraphic contacts, faults and mineralisation shells, directly from geological data points, such as those from drilling and mapping. This process is based on algorithms but controlled by the modelling geologist to ensure it is a logical and appropriate interpretation.

Geological models comprise interpreted stratigraphic surfaces (Figure 11-2), weathering surfaces (defining the base of hardcap and top of fresh bedrock), the base of detrital material (Figure 11-3), and mineralisation shells (Figure 11-4). Faulting is captured by splitting the model into fault blocks, with the block model extents and the fault surface(s) bounding each fault block, enabling the implicit modelling to run independently in each fault block (Figure 11-5). These figures are representative of a typical WAIO Fe geological model.

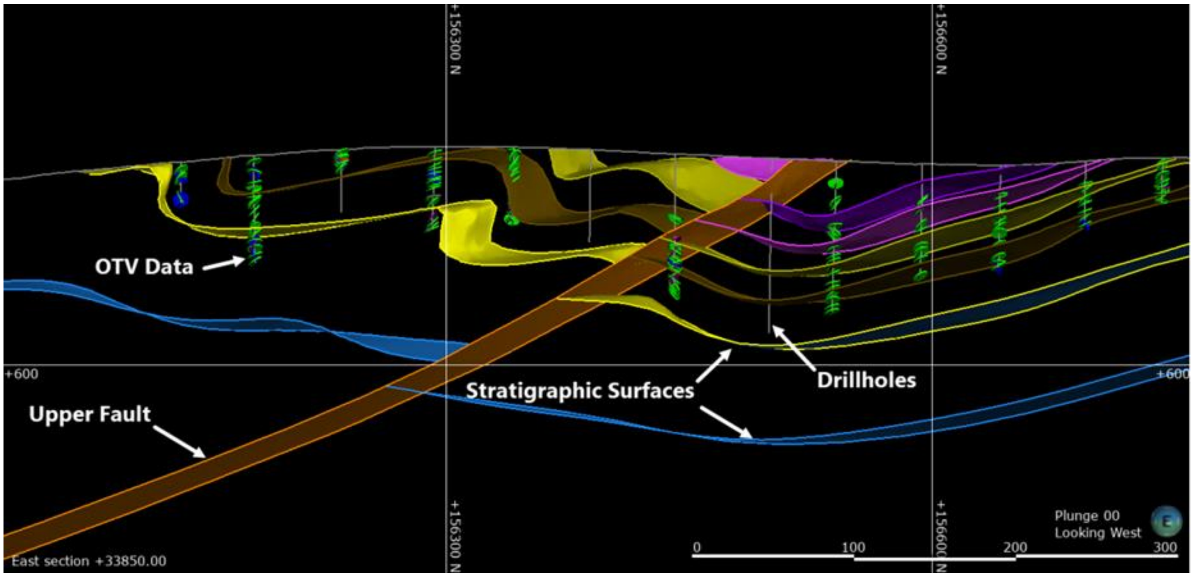


Figure 11-2: Illustration of a Cross-section through a 3D Implicit Model

Note: Model utilises drilling data including OTV data to support stratigraphic interpretation

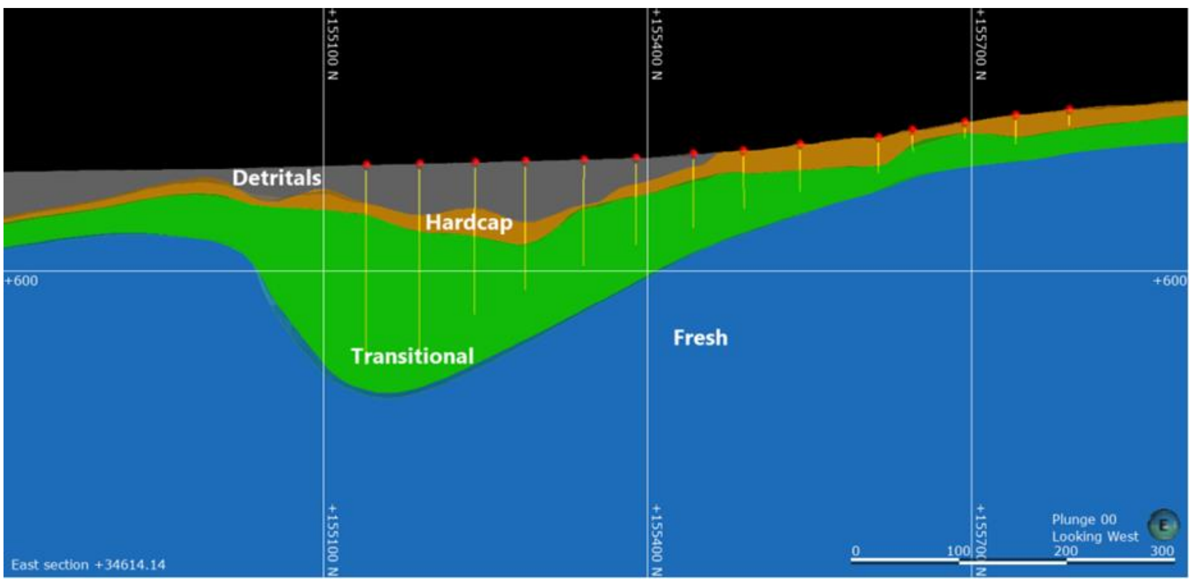


Figure 11-3: Illustration of a Weathering Model

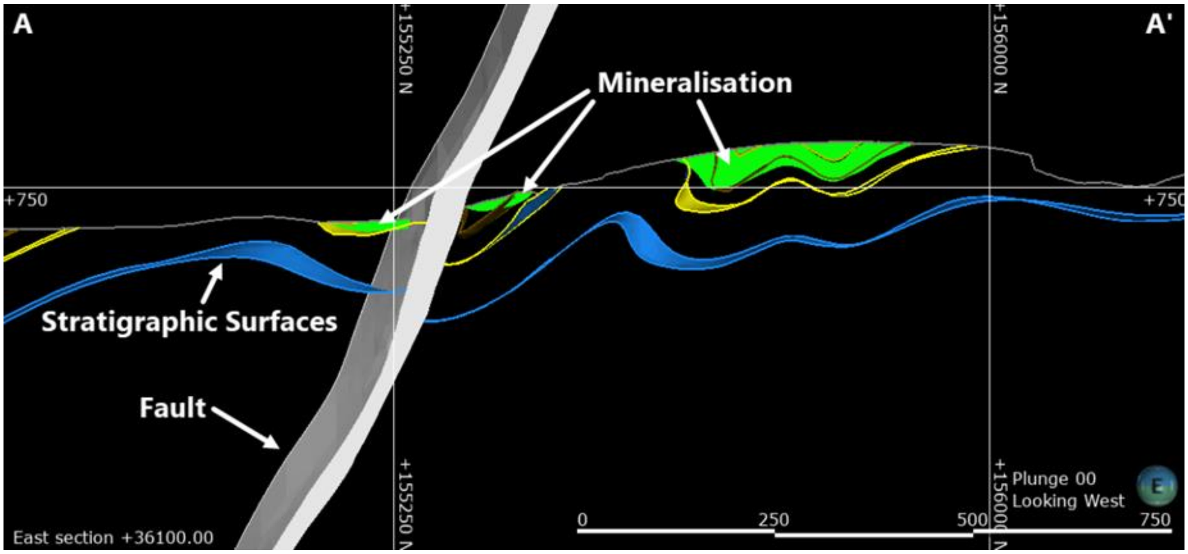


Figure 11-4: Illustration of a Mineralisation Model

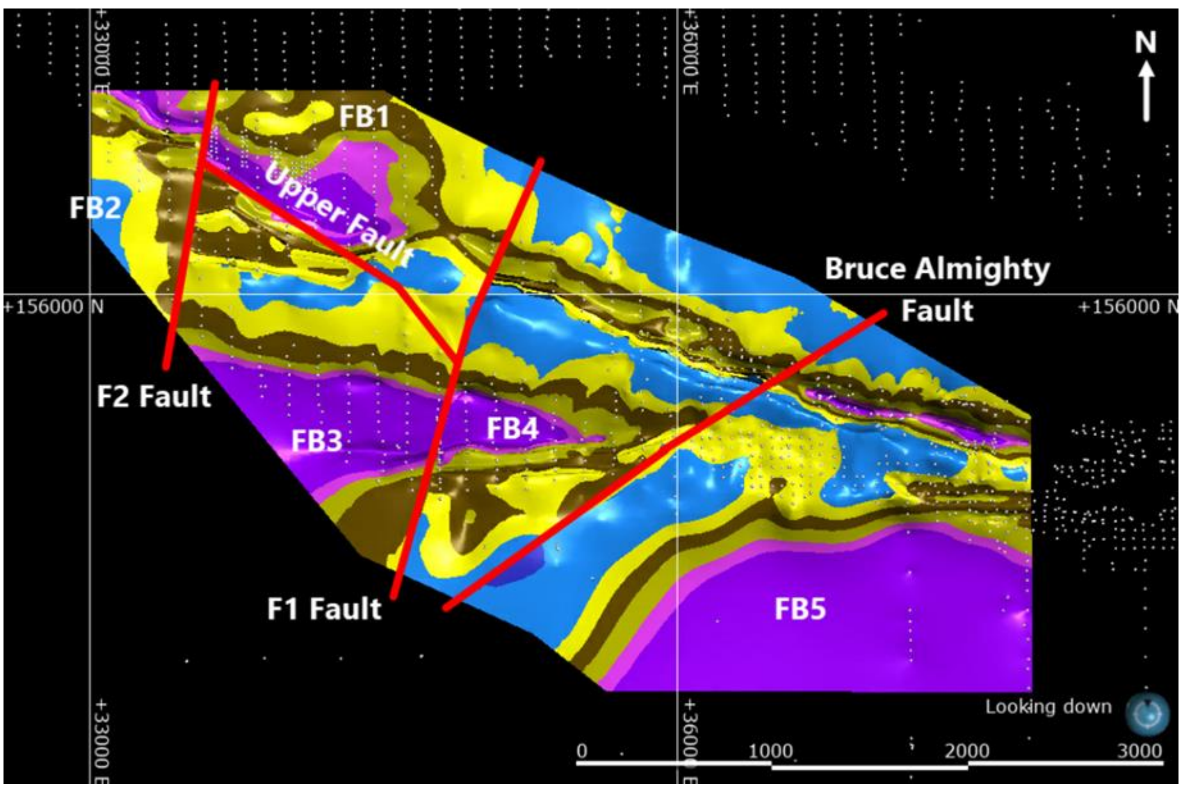


Figure 11-5: Illustration of a Plan View of Implicit Geological Model and Fault Blocks

Mineralisation domains are based on "natural" Fe cut-offs and capture stationary in-situ mineralisation volumes. A grade shell is constructed and used as a mineralisation constraint during estimation. These shells are generated using a single grade threshold of between 48 and 52% Fe, this threshold representing the natural cut-off as determined by statistical analysis of the sample data. The analysis from one deposit (Bill's Hill) is presented in Figure 11-6 as an example. This cutoff can vary by deposit, but always sits within the Fe% range specified above. These domains can also occasionally incorporate unmineralised samples and/or low-grade mineralised samples, depending on the globally assessed mineralisation cut-offs and the degree of local grade continuity. Dilution of mineralised domains can range from a few samples to about 10% of samples within a domain.

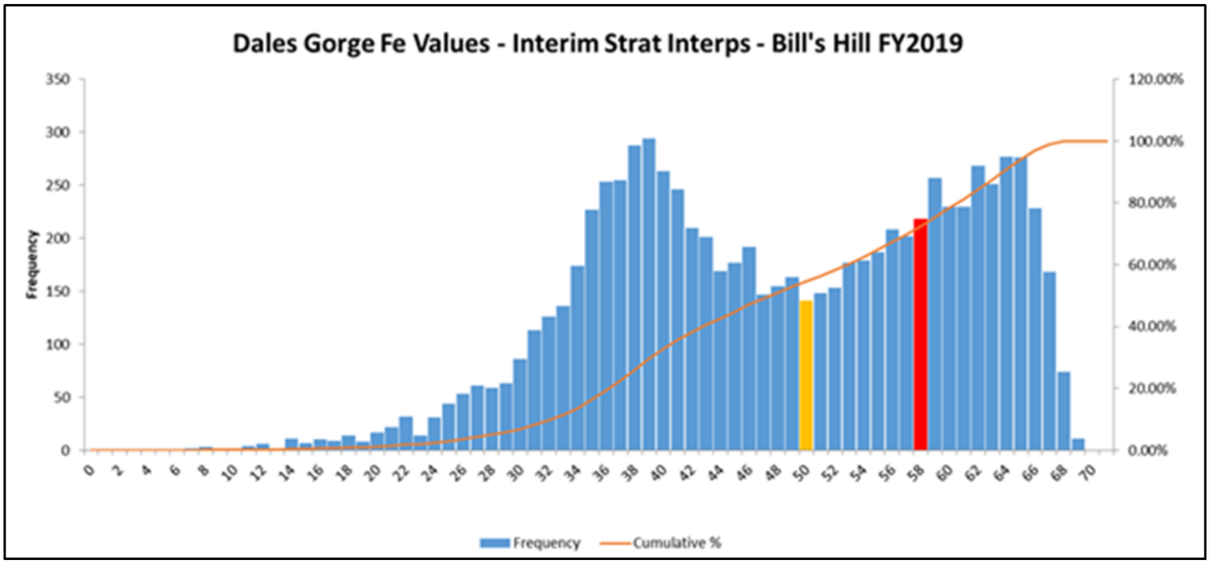


Figure 11-6: Fe Frequency Plot Demonstrating Natural Break in Mineralisation at 50% Fe

11.1.3 Block Modelling

Block models are constructed with geological, mineralisation and weathering domains, and above/below water table domains, based on the wireframed 3D geological interpretation. Block models generally use parent blocks with dimensions of 300mE x 100mN x 12mRL. Sub-blocks are used to ensure robust representation of geological boundaries and domain volumes, and usually comprise 5mE x 5mN x 1mRL. Estimation parent blocks within mineralisation are usually half the drill hole spacing in the easting/northing direction and have a 3m cell height, creating a possible range from 25mE x 25mN x 3mRL up to 600mE x 300mN x 12mRL.

The main steps of block modelling are described below.

Data Preparation - Various validation checks are completed on the drilling database to check the integrity of spatial data (collar location, downhole deviations), assay data and density data. Missing assay data in the database are restricted to historic drill holes and therefore limited, with missing assay intervals ignored during the compositing process. Where sample records contain only a sub-set of the standard 11 analytes, the qualified person makes a judgement on the use of this data for resource estimation; at a minimum, the five major variables (Fe, P, SiO_2, Al_2O_3, LOI) need to be assayed for a sample to be used in estimation.

Historically, dedicated diamond drilling programs were employed to verify RC sampling; however, a move to using the Downhole Assay Tool (DHAT) as a data verification strategy was made in FY2015 as described in Section 8.3.5. Results from these programs are used for continuous improvement and, in cases where any material bias is indicated, RC data may be adjusted to ensure an unbiased resource estimate as described in Section 8.3.5.

Compositing - Ordinary Kriging operates on the assumption that every sample point (composite) has the same sample support as all other sample points. The vast majority of drillhole samples for WAIO deposits are 3m in length, and hence the drillhole database is generally composited to 3m intervals. The only exceptions are those holes drilled for Geometallurgical or Geotechnical purposes where sample lengths range between 0.5m and >10m. These holes comprise less than 1% of the total dataset and thus compositing these holes to 3m sample lengths will not have a material impact.

Exploratory Data Analysis - Exploratory data analysis is conducted to identify spatial grade trends, and to determine the most appropriate domains for resource estimation. Various statistical plots and spatial statistics are generated; these are used to group grade populations by stratigraphy, weathering and continuity trends. Figure 11-7 illustrates an example of a box plot generated for various domains to visualise grade continuity trends.

Mineralisation can also be grouped by ore type where both supergene (martite-goethite) and hypogene (martite-microplaty hematite) mineralisation types occur and are sufficiently spatially distinct. Detrital mineralisation is domained separately. An additional level of domaining is added if there are multiple structural domains – defined by fault blocks and/or changes in structural orientation or complexity.

Contact analysis is conducted to determine if domain boundaries should be treated as hard or soft. As an example, the boundary between hardcap and transitional mineralisation is typically a hard boundary. Declustered descriptive statistics are generated to use during validation of the resource estimate.

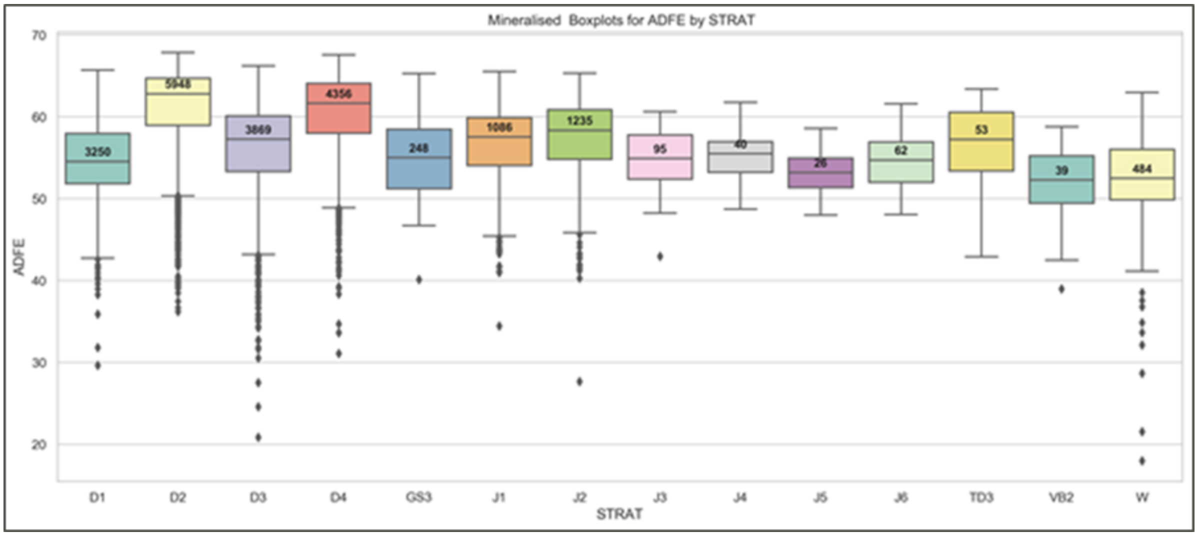


Figure 11-7: Illustration of a Box Plot of Fe in Mineralised Brockman and Detrital Units

Outliers - Extreme grade values, which may impact the creation of variograms and which also may require limits placed on their range of influence during estimation, are identified during the exploratory data analysis process. All domains are reviewed to determine if they contain representative grades for use in resource estimation or erroneous grades to be omitted.

An analysis of outlier samples for each domain and grade variable is conducted to test for:

- Erroneous samples
- Incorrect stratigraphic, weathering and/or mineralisation domaining
- Bimodal or isolated data trends away from the main data population

The process involves a number of steps as follows:

- Identify 'extreme' outliers by individual domain - these are deemed to be samples deviating from the mean by more than three times the interquartile range
- Generate scatter/histogram/ternary plots of the differing elements for the affected domains
- Check if outliers identified are part of the domain trend, or isolated from it
- Apply limits to search distances for relevant outlier grades

Figure 11-8 and Figure 11-9 show examples of how graphs are used to determine outliers.

Figure 11-8: Example of Probability Plots Identifying Silica Outliers

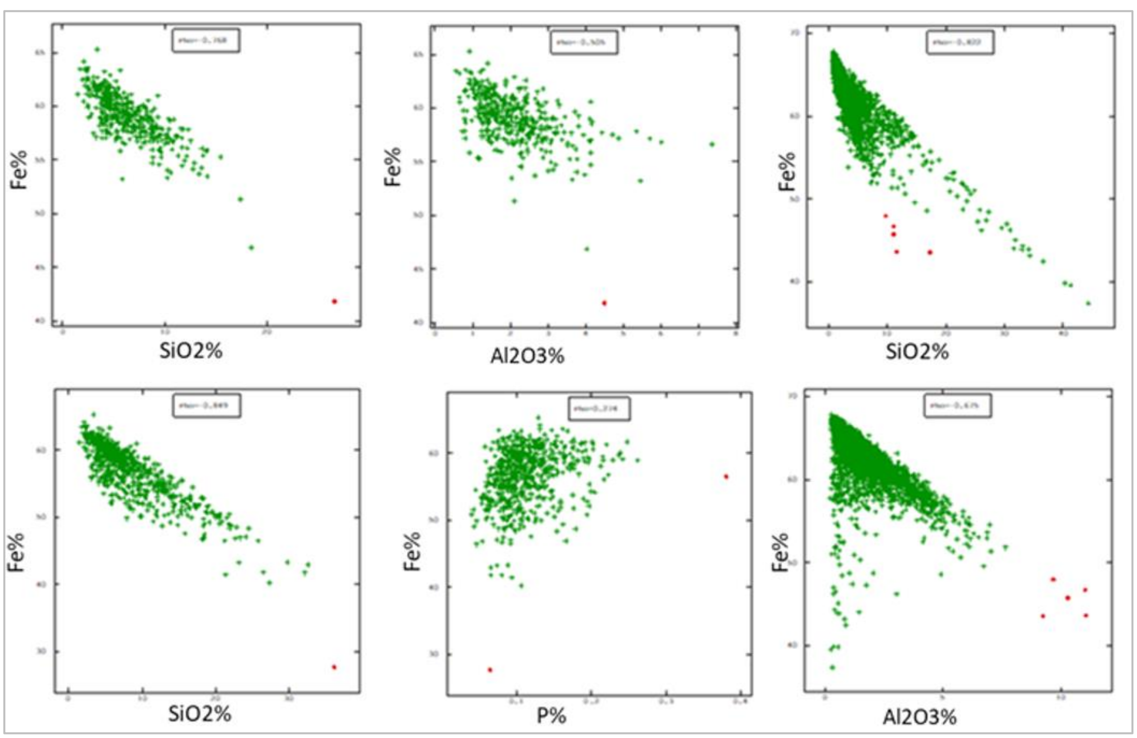


Figure 11-9: Example of Scatterplots Identifying Outliers (in red)

11.1.4 Grade Interpolation

The Mineral Resources estimates stated in this report are for the purpose of global resource reporting and medium to long-term mine planning studies.

Grade interpolation of Fe, P, SiO_2, Al_2O_3 and LOI into parent cells is typically achieved by Ordinary Kriging (OK) for mineralised domains and Inverse Distance Weighted (IDW) for minor elements and waste domains, where data is generally more limited. Some deposits which have wider drill spacing have been interpolated wholly using IDW. Ordinary kriging is used in preference to IDW where possible, as it takes the spatial correlation between samples into account during the estimation process. The IDW method is based on the inverse of the distance of the sample from the estimation location, with no allowance made for the spatial relationship between the samples. In domains where samples are limited, and a spatial relationship cannot thus be determined, IDW is used for estimation. It is the QP's opinion that the use of ordinary kriging where possible instils a higher confidence in the resource estimate, as it captures the inherent spatial grade variability present.

Block models use estimation parent cells with dimensions usually half the drill hole spacing in easting/northing direction and a 3m cell height, creating a possible range from 25mE x 25mN x 3mRL up to 600mE x 300mN x 12mRL.

For OK estimates, search neighbourhood optimisation is performed to minimise the risk of conditional bias and smoothing of the estimate. Most current models employ a single pass search, with search radii based on the variogram ranges. Un-estimated blocks are either given an assigned grade, based on composite averages, or a second, wider pass run is conducted to inform remaining blocks. Older models typically used a three-pass strategy with each pass having a consecutively wider search.

Spatial restraints are applied to outlier values on a case-by-case basis, depending on the spatial continuity or discontinuity of the underlying geological features, as discussed in the section on EDA.

Most deposits have some degree of folding/structural complexity as discussed in Section 6. Where appropriate, unfolding techniques are used, involving unfolding of mineralised blocks and data in 3D space, variography analysis and estimation of these domains, and then re-folding of the mineralised blocks back to 3D folded space. Locally varying anisotropy is also used where there is folding present but unfolding is not suitable. This method flags each individual block with the orientation of the stratigraphy (based on a reference surface) and rotates the variogram and search ellipse to this orientation during estimation. If none of these techniques are suitable, then domains are geometrically divided to allow search strategies that enable the use of the most appropriate samples.

11.1.5 Density

In-situ (wet) bulk density is typically estimated into the models based on geophysical wireline data (gamma-gamma single source and, more recently, dual source density tools as described in Section 7.2.3). Alternatively, when there is only limited or no wireline data available, in-situ (wet) bulk density is assigned using domain averages of filtered density data from geophysical wirelines (gamma-gamma single density tool) or from core measurements (volume and weight method). These assigned densities are derived either from the deposit being estimated or from a nearby proxy.

11.1.6 Geometallurgical Parameters

Geometallurgical variables are populated by applying a multi-variate algorithm to head-grade estimates on a block-by-block basis. These algorithms are based on metallurgical test work performed on diamond core to simulate lump and fines ore type generation through the supply chain, from primary crushing to the final shipped ore, as described in Section 10.1.

11.1.7 Validation Checks

Several methods of validating the resource estimate against the input data (drill holes and sample composites) are performed, as outlined below:

- visual validation of representative plans and sections with drill hole grades and estimated block grades (Figure 11-10);
- global statistical comparison of volume-weighted average cell grades to both raw and declustered length-weighted drill hole grades (Figure 11-11);
- Swath plots - statistical comparison of volume-weighted average cell grades (north, east and elevation panels) to length-weighted drill hole grades (Figure 11-12);
- comparison to Gaussian Change of Support techniques to evaluate smoothing (Figure 11-13);
- review of estimation performance data (e.g., cell grade totals, slope of regression);
- comparison to previous resource estimates; and
- comparison to mining reconciliation data.

An internal peer review process is also followed and documented throughout each resource estimation process. Validation results of WAIO deposits are generally within tolerance limits, and where models are outside tolerance, further investigations are carried out to find the causes, and remedied as appropriate. It is the QP's opinion that this methodology of validation and peer review represents a robust validation process and follows standard industry practice.

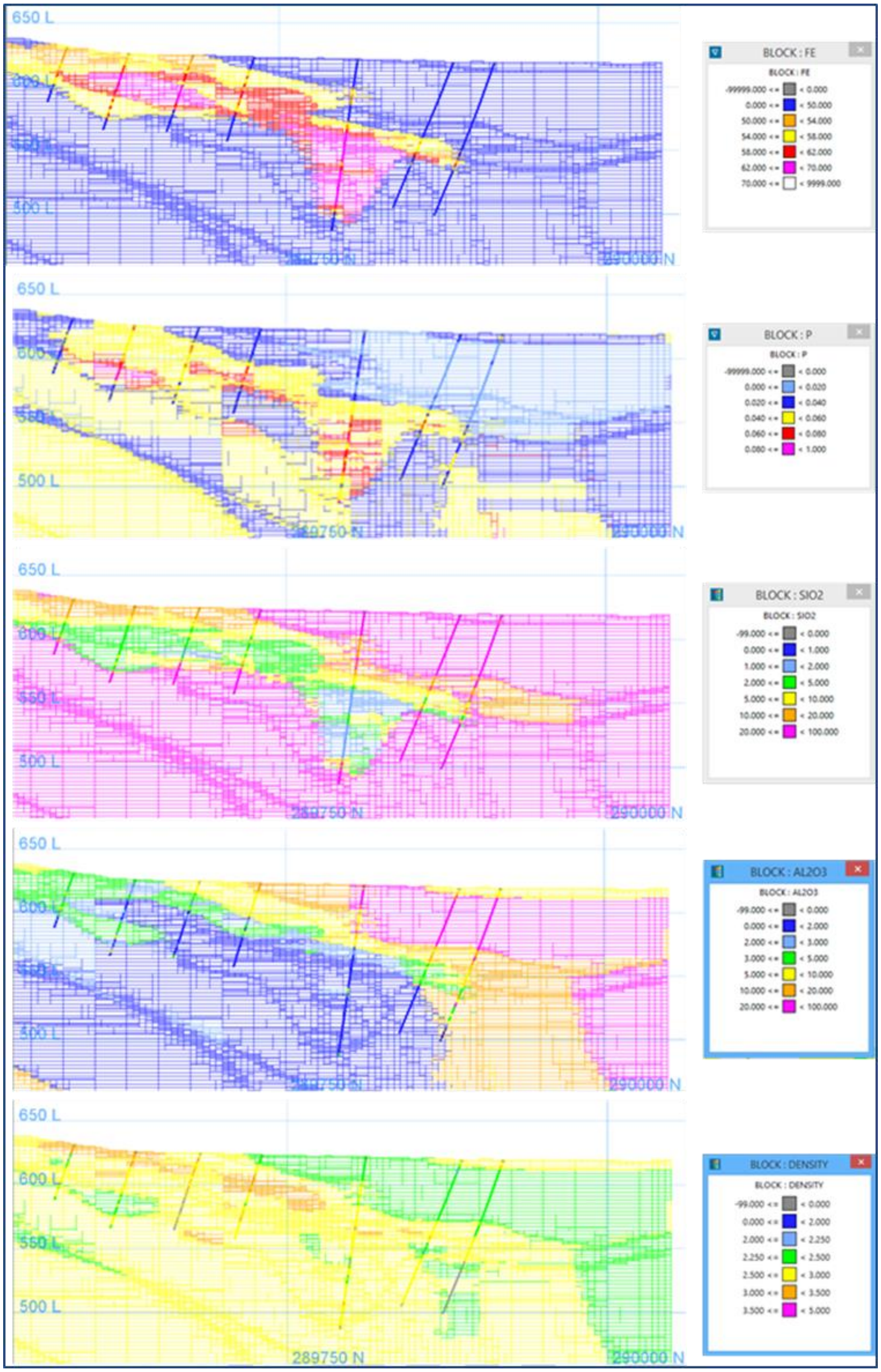
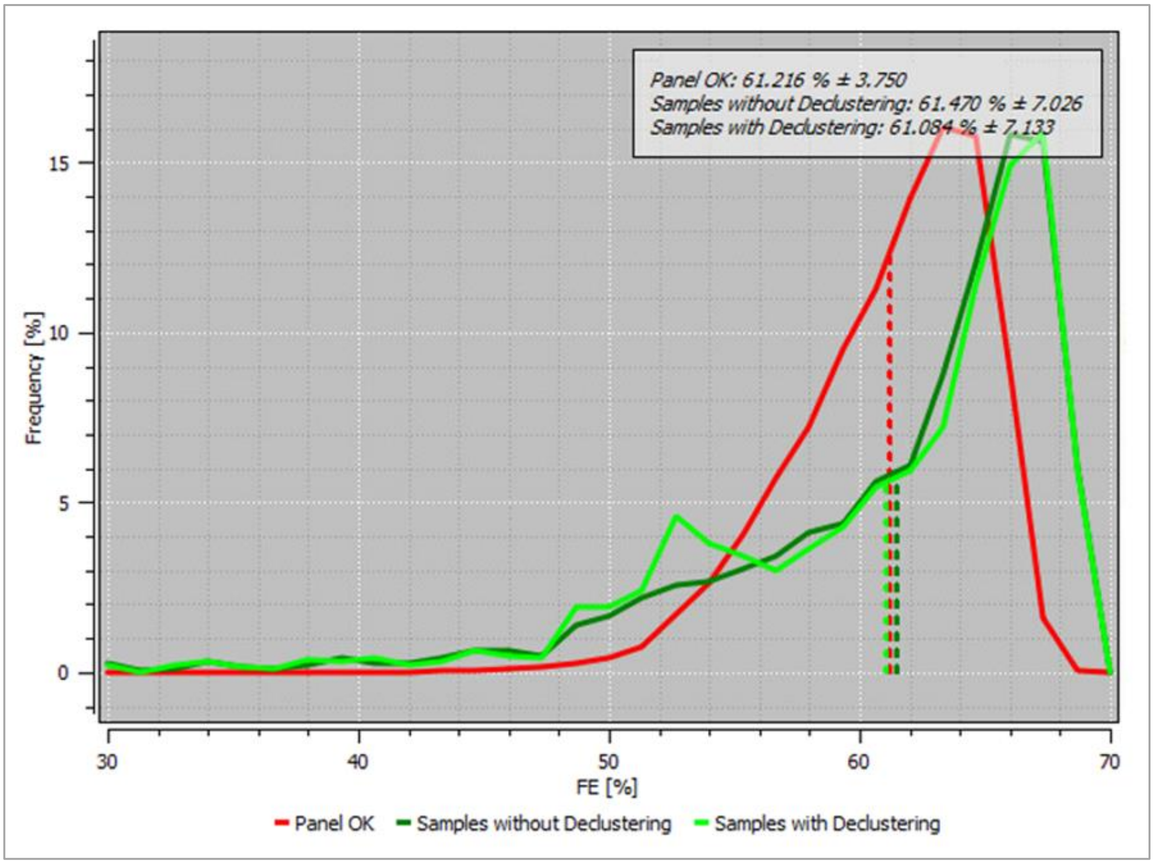
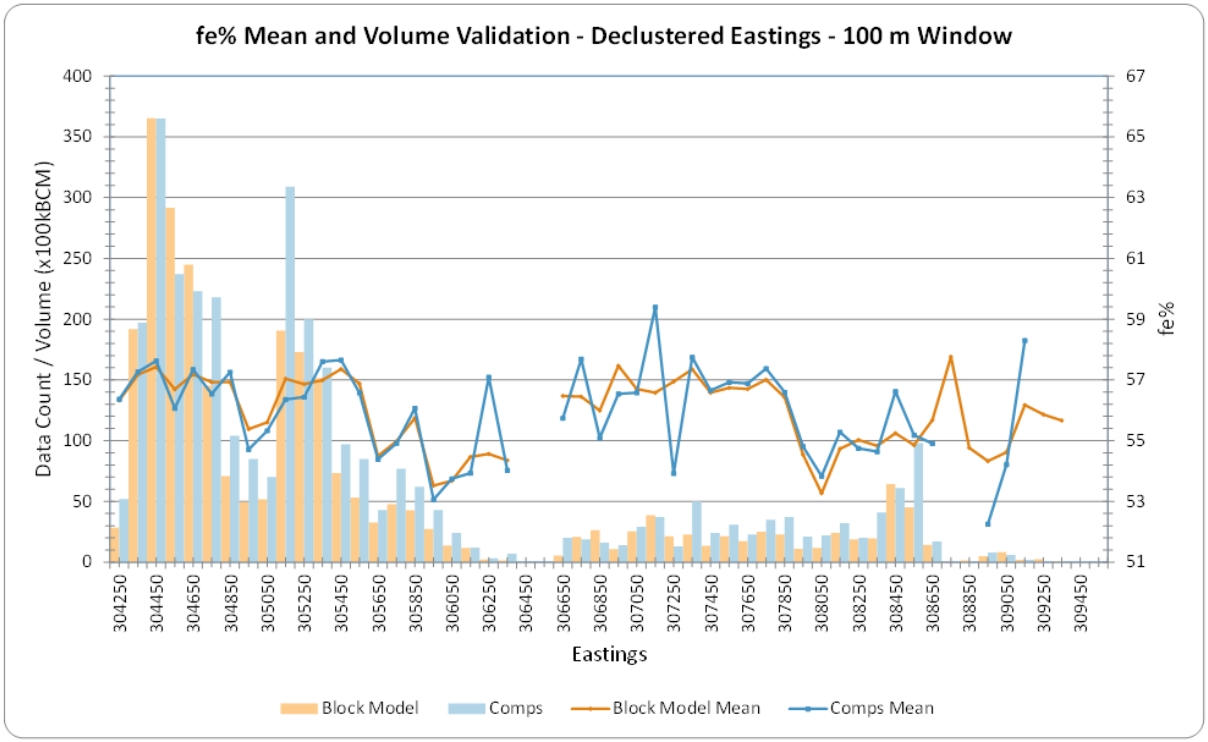


Figure 11-10: Illustration of Typical Visual Validation



Red lines represent Block grades (panel OK), dark green lines Samples and light green lines declustered Samples.

Figure 11-11: Typical Global Statistical Comparison – Block grades vs Samples



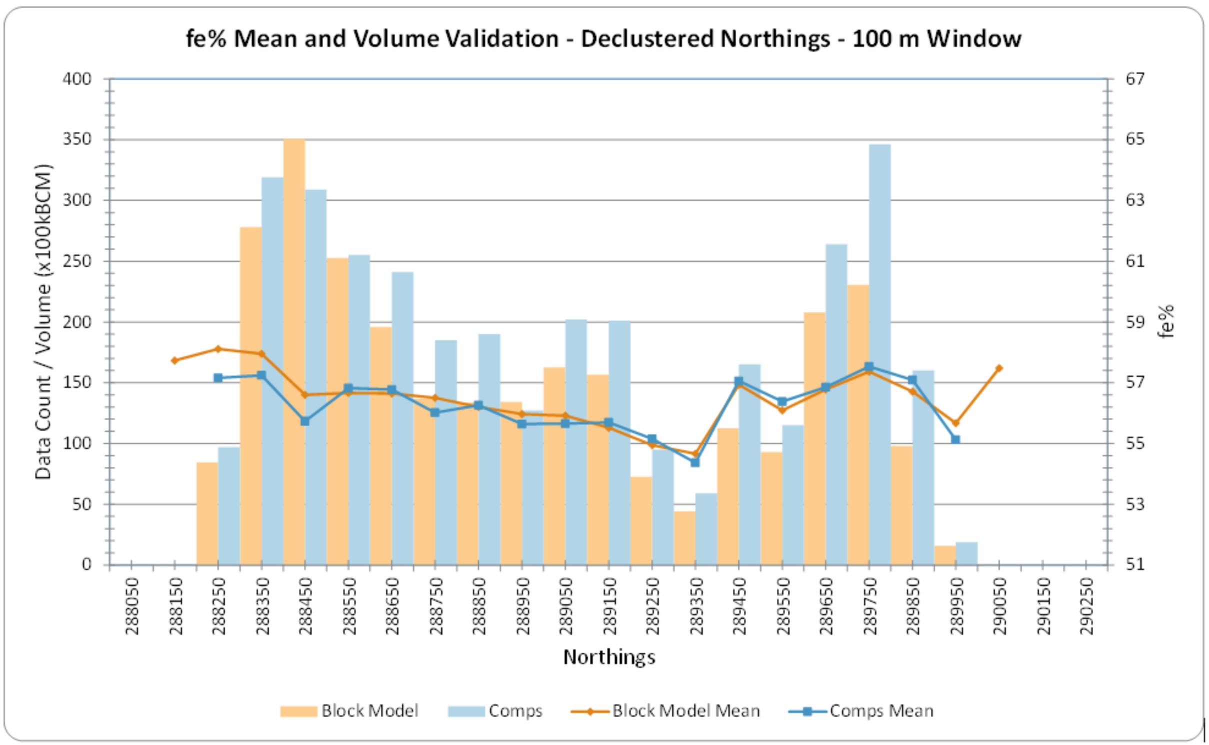
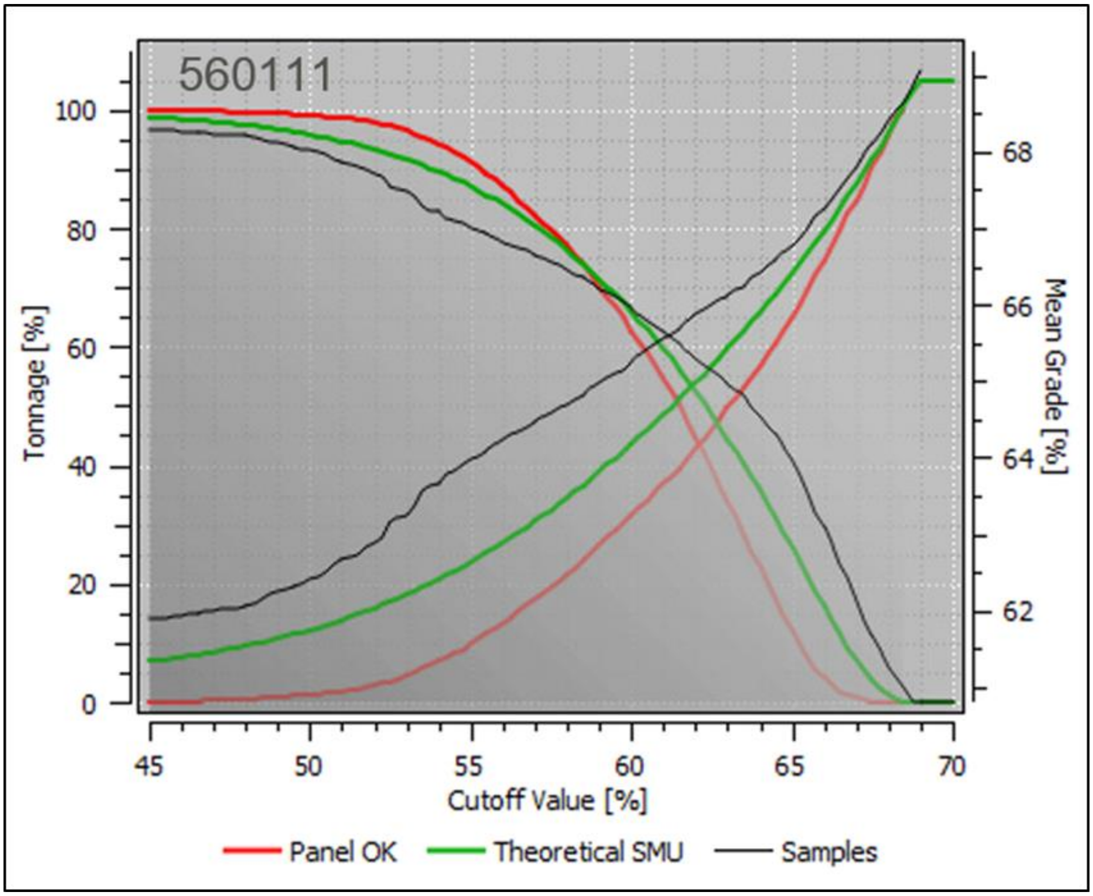


Figure 11-12: Illustration of Typical Swath Plots for Mineralised Transitional MacLeod



Black lines represent Samples, red lines Model (panel OK) and green lines Gaussian Change of Support (Theoretical SMU) techniques.

Figure 11-13: Example of Graphical Comparison of Samples and Estimates

11.1.8 Resource Classification Criteria and Uncertainty in the Estimates

The qualified person has classified Mineral Resources reported in this Technical Report Summary into Inferred, Indicated, and Measured Mineral Resources in accordance with Items 1303 and 1304 of Regulation S-K (§229.1303 and §229.1304).

Classification of WAIO Mineral Resources is deposit dependent and detailed within the individual resource modelling reports. Factors influencing resource classification include:

- data density/spacing in three dimensions,
- location, grade and geophysical data quality,
- geological continuity and/or complexity,
- grade variability,
- estimation quality,

- weathering zones and proximity to the water table,
- tenure boundaries
- the possibility of eventual economic extraction including:
  - size (horizontal extents and depth) and continuity of mineralisation,
  - location of the deposit in relation to existing WAIO infrastructure,
  - mineralisation "ore-type" (standard Brockman, Marra Mamba and CID ore-types or non-standard detrital, Yandicoogina and Weeli Wolli hosted mineralisation) and quality, and
  - review of heritage and environmental modifying factors.

WAIO utilises a two-phased approach to classification.

Phase 1 entails the application of "quantitative criteria" to each model block.

Quantitative criteria are measured or calculated values and comprise slope of regression, kriging variance, kriging efficiency, drill spacing, geology domain, estimation pass, weathering, average distance to samples, and number of samples used. Table 11-1 outlines a summary of typical quantitative Mineral Resource classification criteria for each of the Measured, Indicated and Inferred categories, respectively.

Table 11-1: Typical Quantitative criteria for Mineral Resource Classification

Quantitative Criteria	Measured Resource	Indicated Resource	Inferred Resource
Estimation Method	OK (Fe, Al_2O_3, SiO_2, P, LOI)	OK (Fe, Al_2O_3, SiO_2, P, LOI)	OK (Fe, Al_2O_3, SiO_2, P, LOI)
Nominal Drillhole Spacing	<= 50m x 50m	<= 150m x 50m	>150m x 50m but <=600m x 100m
Combined Slope of Regression (Fe, Al_2O_3, SiO_2)	>=0.8	>=0.5 – 0.6	
Fe Slope of Regression	>=0.8	>=0.5 – 0.6	
Average Distance to Samples (Fe Estimate)	<150m	<250 – 350m	
Estimation Pass	Pass = 1	Pass >= 1	Pass >= 1
Total Assay	>97 and <102%		
Estimation Pass (Density)	Pass >=1		
Sample Quality Indicator (where 1 = 100% good quality data)	>=0.5		
Weathering code	<2		

After applying Phase 1 criteria to the model, blocks are then re-classified on a local basis using a qualitative, more subjective approach (Phase 2) to address areas of uncertainty and inconsistency in classification. Areas of the model where higher uncertainty exists are targeted and downgraded in classification category. Some examples of Phase 2 re-classification are as follows:

- **Data density:** Closer drill spacing will increase the density of information available for geological interpretation and grade estimation, with a corresponding decrease in uncertainty, depending on local geological complexity and value drivers. Typically, a 50m x 50m drill spacing will enable a Measured classification, a 150m x 50m drill spacing will enable an Indicated classification; and greater drill spacings up to 600m will enable an Inferred classification to be applied to a resource estimate. Gaps in data density such as steep terrain, where drillhole access is not possible, are taken into account by downgrading the classification category.
- **Geological confidence**: A complex structure and/or ambiguity in the geological interpretation can lead to a lower confidence for parts of the model. This is taken into account during the classification process, with downgrading of classification categories applied to blocks in the vicinity of these structures / interpretations.
- **Material type**: Hardcap material has historically shown poor production reconciliation, with higher grade variability present. This uncertainty is reflected in the lower classification applied to hardcap with respect to underlying bedrock.
- **Artefacts** such as stripes or bullseyes are present in the distribution of classified model blocks; in this case the classification within the affected region should be made consistent.

Table 11-2 outlines a summary of typical qualitative Mineral Resource classification criteria for each of the Measured, Indicated and Inferred categories respectively. This table outlines the various sources of uncertainty present, and how these are addressed.

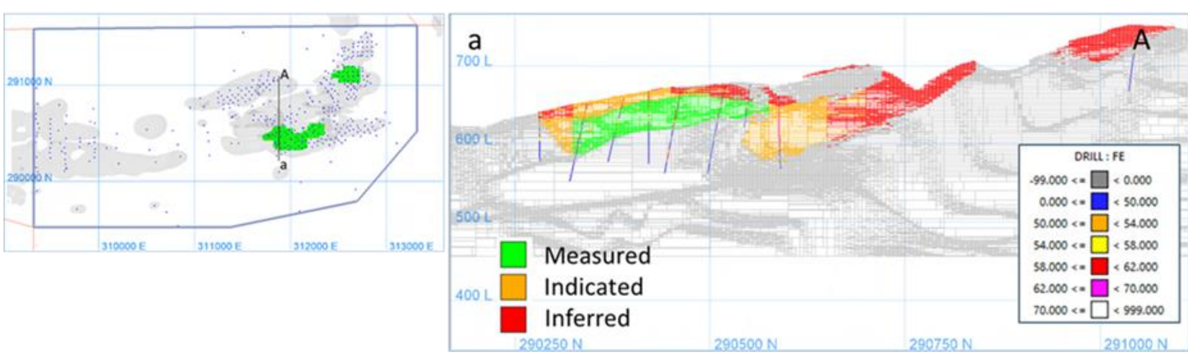
Table 11-2: Typical Qualitative criteria for Mineral Resource Classification

<table>
<tr><th>Qualitative Criteria</th><th>Measured Resource</th><th>Indicated Resource</th><th>Inferred Resource</th></tr>
<tr><td>Geological Confidence</td><td>High</td><td>Medium</td><td>Low</td></tr>
<tr><td>Grade Continuity</td><td>High</td><td>Medium</td><td rowspan="7"></td></tr>
<tr><td rowspan="3">Data Availability</td><td colspan="2">Downgrade due to the absence of important data types such as verification of density data</td></tr>
<tr><td colspan="2">Exclude blocks estimated by extrapolation or where there is limited local data available (e.g., down dip beyond the depth of drilling)</td></tr>
<tr><td colspan="2">Downgrade where the entire thickness of the mineralised unit is not adequately tested due to hole failure</td></tr>
<tr><td>Geology</td><td colspan="2">Downgrade where structural complexity and/or ambiguity in geological interpretation is present</td></tr>
<tr><td>Stratigraphy</td><td colspan="2">Exclude weakly mineralised sub members which can display poor grade continuity and have a low number of samples available</td></tr>
<tr><td>Data Quality</td><td colspan="2">Appropriate drilling and sample methods, QAQC data and outcomes</td></tr>
</table>

	Downgrade where drillholes are orientated sub parallel to stratigraphy causing sub optimal sampling and uncertain contact location		
	Downgrade where assay bias is demonstrated or suspected		
Economic extraction	**Exclude** where there is no realistic prospect of economic extraction due to various factors including hostile tenement boundaries, infrastructure, in-pit backfilling/waste dumps and areas surrounding important heritage sites or environmental sites		
Weathering – Hardcap/Detrital	**Downgrade** by one category compared to the underlying transitional domain due to the inherent variability and volume outcomes associated with Hardcap/detrital material		
Spatial Continuity and Local Data Availability	**Downgrade** small, isolated volumes defined by limited local sampling		

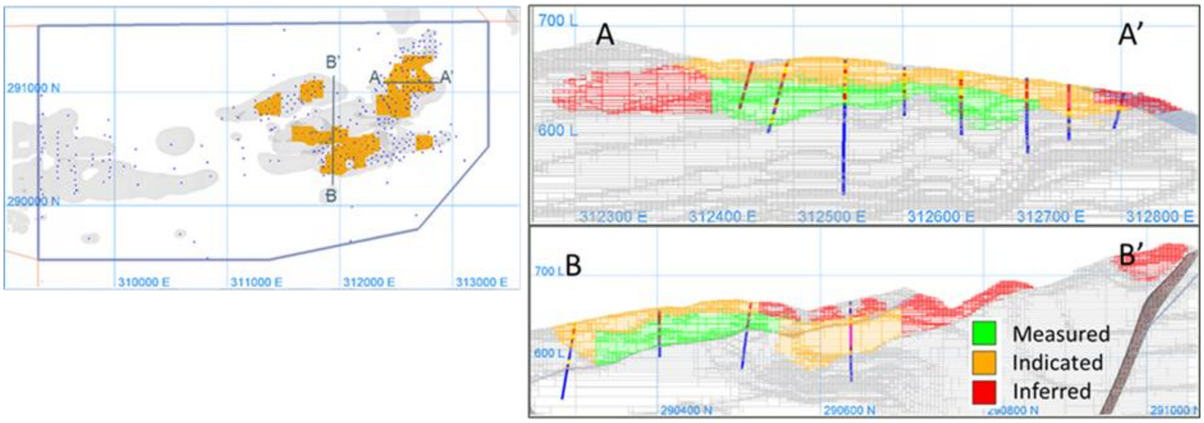
Uncertainty using the above process has been taken into account during the compilation and classification of WAIO's resource estimates, such that in the QP's opinion they are deemed appropriate for their intended purpose of global resource reporting and medium to long-term mine planning studies. It is the qualified person's opinion that this systematic two-phase workflow produces a representative and industry-standard application of classification across WAIO deposits, with deposit uncertainties addressed appropriately.

Figure 11-14, Figure 11-15 and Figure 11-16 provide examples of resource classification for WAIO deposits, where the influence of data density, grade continuity, weathering, and structural complexity upon classification can be seen.



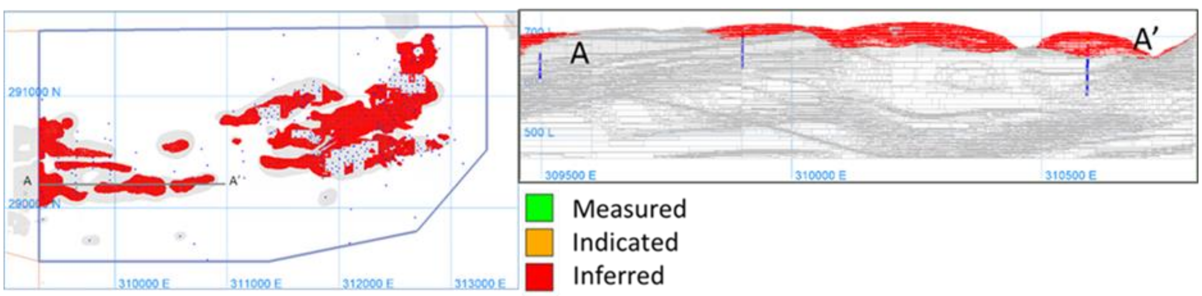
Note: Collar location, low-grade wireframe (in grey); Measured Mineral Resource (in green) through a typical iron deposit.

Figure 11-14: Measured Resource Classification – Plan view and cross-section



Note: Collar location, low-grade wireframe (in grey); Indicated Mineral Resource (in orange) through a typical iron deposit

Figure 11-15: Indicated Resource Classification – Plan view and cross-section



Note: Collar location, low-grade wireframe (in grey); Inferred Mineral Resource (in red) through a typical iron deposit

Figure 11-16: Inferred Resource Classification – Plan view and cross-section

Reconciliation carried out on an annual basis supports the confidence WAIO has in the resource estimates and related resource classifications. The F1 reconciliation compares the grade control model with the mining model, where the mining model is simply the regularised resource model (see Section 12.2.6 for a more detailed explanation). The levels of uncertainty deemed acceptable by WAIO for each resource class during reconciliation are quantified in Table 11-3. Any deposits with tolerances outside those listed below are investigated and remediation made as appropriate.

Table 11-4 provides the F1 reconciliation results for each Resource class across WAIO for the full 2021 calendar year and all values are well within the tolerances in Table 11-3.

Table 11-3: Acceptable uncertainty tolerances for Mineral Resource class

Resource Class	Annual Reconciliation Tolerance		
	Tonnes	Fe	P, SiO_2, Al_2O_3, LOI
Measured	+/- 10% Relative	+/- 0.5% Absolute	+/- 10% Relative
Indicated	+/- 15% Relative	+/- 1.0% Absolute	+/- 15% Relative
Inferred	+/- 20% Relative	+/- 1.5% Absolute	+/- 20% Relative

Table 11-4: CY2021 F1 Reconciliation Factor by Resource Classification

Resource Class	F1 Reconciliation Factors					
	Tonnes	Fe	P	SiO_2	Al_2O_3	LOI
Measured	1.02	0.996	1.00	1.03	1.08	1.01
Indicated	1.02	0.995	1.01	1.06	1.09	1.00
Inferred	1.06	0.997	1.05	1.05	1.07	0.97

Note – F1 reconciliation factors represent the dimensionless ratio of mining model / grade control model. The ratios for grade values are calculated on grade percentages not on contained metal units.

It is the qualified person's opinion that appropriate reconciliation processes are in place to monitor uncertainties and uphold data quality and classification standards.

11.2 Estimates of Mineral Resources

11.2.1 Estimate of Cut-Off Grades

WAIO's mining operations are surface / open-cut pits only and therefore all assumptions for the estimation of cut-off grade are based on this mining method.

To estimate cut-off grades, the assumed unit operating cost for the purpose of this report is US$17.4 per wmt (details in Section 0). This cost represents the average of WAIO's actual performance for the past three financial years (FY2019 to FY2021). The unit cost is the cost to put one wet metric tonne of ore on the ship (i.e free-on-board, FOB) including mining, processing, rail port costs and overheads. Assuming an average of 61% Fe in the shipped ore and 3.5% in-situ moisture, this unit operating cost equates to US$18.3 per dmt on a 62% Fe basis.

Since the majority of WAIO's iron ore has been sold against the industry standard Platts 62% Fe Fines Index on FOB basis, a Platts 62% Fe Fines Index FOB price of US$86 per dmt has been assumed to estimate the cut-off grades. The selected commodity price represents the median of the historical actual calendar monthly average prices over a timeframe of the preceding three financial years from July 2018 to June 2021. The reason for selecting this method is described in Section 12.1.2.

A mathematical estimate of cut-off grade based on assumed costs of operation and commodity prices is not considered suitable to establish the prospects of economic extraction for WAIO's Mineral Resources. This is because iron ore is a bulk commodity and WAIO is a producer of direct shipping ore which is sold without any beneficiation or concentration. To meet the requirements of its customers WAIO's shipped ore types must contain a certain minimum iron content, coupled with low variability in grade, and this dictates the choice of the cut-off grade.

WAIO aims to maintain a minimum grade of 61% Fe in the fines ore types for BKM and MM ore types and 57% Fe in the fines ore for CID ore type. Seeking to achieve these minimum iron contents in the shipped ore helps WAIO keep the major deleterious elements within a narrow range of the Platts 62% Fe Fines Index specifications (i.e., SiO_2 <4%, Al_2O_3 <2.25% and P <0.09%). WAIO aims to maintain these specifications irrespective of the prevailing commodity prices and costs of its operations, in order to meet customer expectations and avoid price penalties on its ore types.

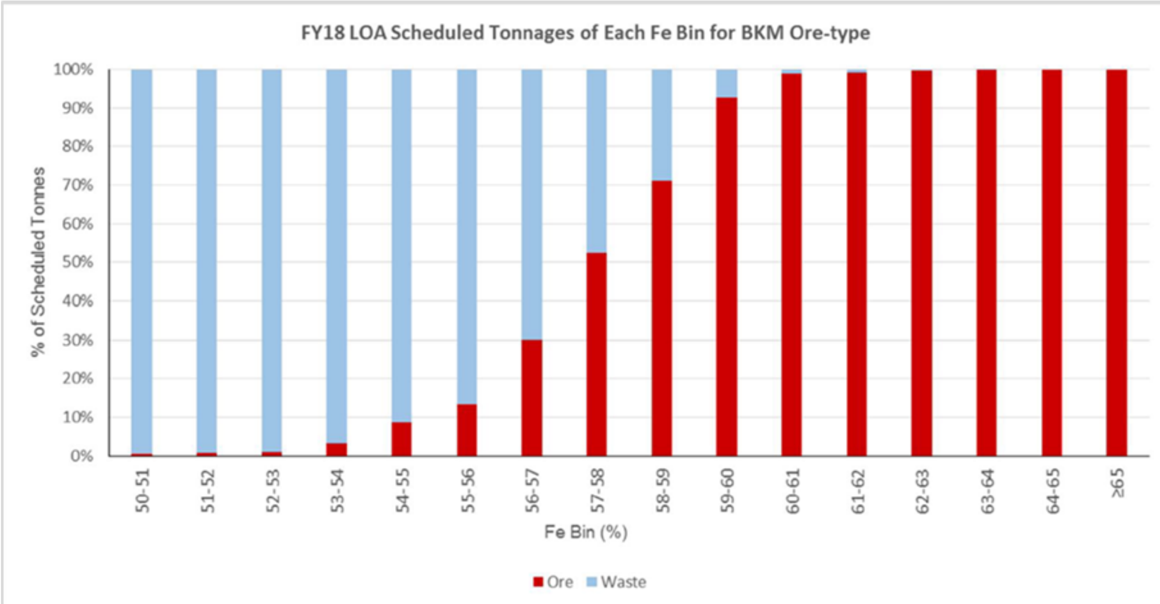
In view of the above considerations, a fixed cut-off grade for each of the BKM, MM and CID ore types (listed in Table 11-5) is applied for reporting WAIO's Mineral Resources. These cut-off grades do not change with changes in commodity price and costs of operation.

Table 11-5: Mineral Resource Reporting Cut-off Grade per Ore Type

Ore Type		Cut-off
Brockman Iron Formation (exclusive of Whaleback Brockman, which is very high-grade)	BKM	≥54% Fe
Whaleback Brockman	BKM	≥ 50% Fe
Marra Mamba Iron Formation	MM	≥54% Fe
Channel Iron Deposits	CID	≥52%
Detrital Iron Deposits	DID	≥ 58% Fe and <6% Al_2O_3

The selection of these cut-off grades has been tested as described below to confirm that these provide a reasonable basis for establishing the prospects of economic extraction for WAIO's Mineral Resources.

The destination of mined material (to process plant for ore or to waste dump for waste) has been analysed based on the actual scheduled tonnes for each Fe grade bin for each ore-type in the strategic life-of-asset (LoA) plan. Figure 11-17 is an illustration of this analysis for the BKM ore type but similar analyses have also been completed for other ore types.



Note: Mineral Resource cut-off grade for BKM material is 54% Fe vs mining cut-off grade of 58% Fe.

Figure 11-17: Ore vs Waste Contribution per Fe bin (normalised to 100%) for BKM ore type

These analyses show that it is reasonable to consider that material above the selected Mineral Resource cut-off grades would be eligible for sale via blending with higher grade ores, as indicated by WAIO strategic mine planning.

In addition to the above, the required breakeven Platts 62% Fe Fines Index price for the unit operating cost of US$18.3 per dmt works out to US$21/t for the 54% Fe cut-off grade. The following formula was used for this calculation.

$$\text{Breakeven Platts 62\% Fe Index Price} = \frac{\text{Unit operating cost (US\$/t, FOB)}}{\text{Selected cut-off grade (\% Fe)}} \times \text{Platts Index Fe grade (62\% Fe)}$$

This breakeven commodity price US$21/t for 54% Fe cut-off grade is below the selected long-term commodity price of US$86 per dmt FOB. Therefore the cut-off grades are considered to provide a reasonable basis for establishing the prospects of economic extraction for WAIO Mineral Resources.

It is worth clarifying that the Mineral Resource cut-off grades are lower than the typical nominal mining cut-off grades that define ore vs waste at the time of mining for each ore type at each operating hub (see Table 12-4). Optimised mine plans and mining cut-off grades are re-evaluated each year as part of the WAIO LoA planning process, which defines the optimal way to produce each blended ore type for the market whilst seeking to obtain the highest return possible. Each year the LoA optimisation process uses updated commodity prices, penalties for deleterious elements, operating costs and operating capabilities for each mining hub (details in Section 12). The Mineral Resources estimated based on resource cut-off grades are used for long-term strategic purposes, whereas mining cut-off grades drive short-term tactical decisions.

11.2.2 Metallurgical or Processing Recoveries

WAIO iron ore deposits are predominantly direct shipping ore (DSO) and the run-of-mine ore requires only crushing and screening to produce the final marketable ore types, namely lump and fines. In FY2022, less than 2% of the total annual production was beneficiated at a mass yield between 95%. The material intended for the beneficiation plant is sourced from only the Whaleback deposit and is defined at the time of estimating Mineral Reserve, not during Mineral Resource estimation. Based on the design of process plants and historical performance, a 100% metallurgical recovery has been considered as the basis for all Mineral Resource estimation.

11.2.3 Reference Point for Mineral Resource Estimates

Mineral Resources estimates are reported as at 30 June 2022 on an *in-situ* basis and exclusive of those parts already converted to Mineral Reserves.

11.2.4 Multiple Commodity Mineral Resource

This report is a single commodity Mineral Resource and the grade reported is the iron content (Fe). However, the most common contaminants like phosphorous (P), silica (SiO_2) and alumina (Al_2O_3), together with loss-on-ignition (LOI), are also important quality parameters of iron ore. Hence, P, SiO_2, Al_2O_3 and LOI of the iron ore are stated together to define the overall ore quality.

11.2.5 Summary of Mineral Resource Estimates

A summary of Iron Ore Mineral Resources for WAIO at the end of the fiscal year ended 30 June 2022 based on Platts 62% Fe Fines Index FOB Price of US$86/dmt is presented in Table 11-6. These Mineral Resources are exclusive of those Mineral Resources that have been converted to Mineral Reserves and on WAIO equity ownership basis.

In-situ Mineral Resources are reported within the design pit shell for developed deposits, and within the optimisation shell for undeveloped deposits. Mineral Resources beneath these shells are not considered for reporting pursuant to S-K 1300, as they do not meet the Reasonable Prospects for Economic Extraction criteria (RPEE).

Table 11-6: Summary of Mineral Resources at the end of the Fiscal Year 2022

Mineral Resources reported in this table are exclusive of Mineral Reserves and attributable to BHP's economic interest. See notes below for commodity price, cut-off grade, point of reference and metallurgical recovery.

Name of Joint Venture	Measured Mineral Resources						Indicated Mineral Resources						Measured + Indicated Mineral Resources						Inferred Mineral Resources					
	Mt	%Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI	Mt	%Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI	Mt	%Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI	Mt	%Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI
Mt Newman	250	61.0	0.11	3.5	2.3	6.2	770	59.7	0.13	4.8	2.8	6.3	1,020	60.0	0.12	4.5	2.7	6.3	2,240	59.7	0.12	4.8	2.6	6.4
Goldsworthy	100	56.7	0.13	7.9	3.6	6.8	490	58.8	0.08	6.0	3.0	6.0	590	58.4	0.09	6.4	3.1	6.2	3,900	59.9	0.10	5.2	2.3	6.2
Yandi	360	58.3	0.11	4.7	2.4	8.9	1,300	59.4	0.14	4.5	2.3	7.6	1,660	59.2	0.13	4.5	2.3	7.8	1,930	57.9	0.13	5.5	2.6	8.3
Jimblebar	210	60.1	0.10	5.1	2.9	5.2	560	59.5	0.14	5.3	3.1	5.7	760	59.7	0.13	5.2	3.0	5.6	280	58.6	0.10	5.7	3.4	6.2
BHP (Non-JV)	170	60.5	0.13	4.8	2.5	5.6	200	59.3	0.13	6.1	2.5	6.0	370	59.9	0.13	5.5	2.5	5.8	2,050	59.0	0.13	4.9	2.8	7.1
WAIO Total	**1,090**	**59.5**	**0.11**	**4.8**	**2.6**	**6.8**	**3,320**	**59.4**	**0.13**	**5.0**	**2.7**	**6.6**	**4,400**	**59.4**	**0.12**	**5.0**	**2.6**	**6.7**	**10,410**	**59.3**	**0.12**	**5.1**	**2.6**	**6.8**

(1) Qualified Person: Fleur Muller (MAusIMM). She is a full-time employee of BHP.
(2) For estimation of cut-off grades and Mineral Resources, a long-term iron ore price of US $86 per dmt for Platts 62% Fe Fines Index and unit operating cost of US $17.4 per wmt were used for the purpose of this report, both on FOB Port Hedland basis. The price used represents the median of the 3-year trailing calendar monthly averages over the timeframe from July 2018 to June 2021. The unit operating cost is the average of the actual yearly operating cost of WAIO for the last three years from FY2019 to FY2021.
(3) All Mineral Resources were reported on in-situ basis as the point of reference and were exclusive of those parts of Mineral Resources which had already been converted to Mineral Reserves. The current practice of open-cut mining method has been assumed for all the Mineral Resource estimates.
(4) The Mineral Resources have an effective date of 30 June 2022 and are reported on the basis of BHP's economic interest. BHP has a 85% economic interest in Newman, Jimblebar, Goldsworthy MAC and Yandi joint ventures and 100% in BHP (Non-JV). POSMAC joint venture, in which BHP has 65% interest, holds only 2 Mt Measured and Indicated Mineral Resources and 3 Mt Inferred Mineral Resources and is shown as part of Goldsworthy MAC in this table.
(5) Mineral Resources shown in the table comprise mostly Brockman (BKM) and Marra Mamba (MM) ore types with minor amounts of Detrital Iron Deposits (DID) for all joint ventures, except Yandi which additionally include some Channel Iron Deposits (CID). Cut-off grades used for estimating the Mineral Resources are: BKM – 54% Fe, MM – 54% Fe, CID – 52% Fe and DID – 58% Fe and <= 6% Al2O3.
(6) Mineral Resource classification is based on drill spacing, assessments of geostatistical parameters, geological confidence and data quality considerations as appropriate.
(7) The grades listed above (Fe – iron, P – phosphorous, SiO_2 – silica and Al_2O_3 – alumina) refer to in situ mass percentage on a dry weight basis. LOI (loss on ignition) refers to loss of mass (dry basis) during the assaying process. Tonnages are reported as wet tonnes for all ore types, including approximate moisture contents: BKM – 3%, CID – 8%, DID – 4% and MM – 4%.
(8) WAIO produces a single commodity (Fe). Additional deleterious elements are reported for quality purposes.
(9) WAIO is predominantly a producer of direct shipping ore and based on design of process plants and historical performance the metallurgical recovery has been assumed as 100% for the purpose of reporting all Mineral Resources.
(10) Tonnes are shown in million metric tonnes (Mt) and are rounded to nearest 10 million tonnes to reflect order of accuracy of the estimates. As a result, some figures may not add up to totals shown in the table.

The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

11.3 Opinion on Influences for Economic Extraction

Estimates of Inferred Mineral Resources have significant geological uncertainty and it should not be assumed that all or any part of an Inferred Mineral Resource will be converted to Measured or Indicated categories with further work. Mineral Resources that are not Mineral Reserves do not meet the threshold for reserve modifying factors, such as estimated economic viability, that would allow for conversion to Mineral Reserves.

The qualified person is of the opinion that, with the recommendations and opportunities outlined in Section 23.1, any issues relating to all applicable technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work, apart from those listed in Table 11-2.

12 Mineral Reserve Estimates

WAIO Mineral Reserve estimates are derived from the latest Life of Asset (LoA) mine plan. The process flow with key steps in the mine planning process to convert the Mineral Resource estimates to the Mineral Reserve estimates are presented in Figure 12-1.

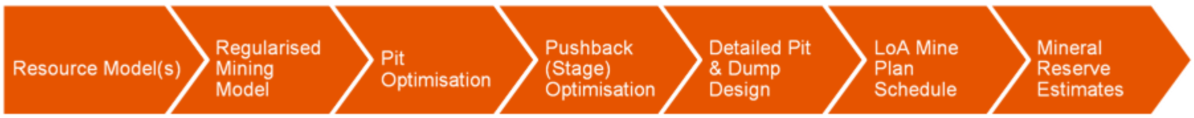


Figure 12-1: Process flow with Key Steps for Mineral Reserve Estimates

The WAIO mine plans are regularly (at least annually) optimised as part of the BHP Corporate Alignment Planning (CAP) cycle using the open-pit designs together with Mining Models, cost, revenue and production rate factors to generate LoA schedules.

The geotechnical parameters are provided by the WAIO Geotechnical Engineering team. These parameters are developed after comprehensive studies, at least of pre-feasibility level, for each deposit assessing the geological conditions and factors of safety. The pit slope angles are based on these studies outcomes and recommendations (detailed in Section 13.2.1).

Ore loss (mining recovery) and dilution are inherent in the process of regularising the Resource Models to the Selective Mining Unit (SMU) size to generate the Mining Models. The WAIO Iron Ore deposits are bulk deposits and while some ore loss and dilution may occur along the edges, this is accounted for in the model regularisation process. No additional ore loss factor and dilution have been applied. The net recovery after regularising the resource models is between 95% and 90%. Table 12-1 shows the ore recovery factor between unregularised resource model and regularised mining model for a deposit in the Packsaddle project area at MAC as an illustration.

In the QPs' opinion, this methodology is adequate for application of ore loss and dilution modifying factors in estimation of the Mineral Reserves.

Table 12-1: Ore Recovery Factor between Unregularised and Regularised Resource Model

High-Grade Ore (>58% Fe)	Un-regularised Resource Model		Regularised Resource Model		Recovery Tonnage %
	Tonnage(t)	Fe%	Tonnage(t)	Fe%	
All Resource Classes	517,453,014	61.0	483,449,311	60.9	93.4%
Measured and Indicated Resource only	458,478,690	61.1	435,474,460	61.0	95.0%

Furthermore, the long-term reconciliation factor between Mining Models and shipped ore demonstrates that the regularisation process reasonably accounts for ore loss and dilution (further details in Section 12.2.6).

Optimised pit limits and phase generation are determined as described in Section 12.1.4.

Optimised pit shells are then imported into industry standard mine design software to generate pushback and final pit design limits, with crest and toe strings, haul road access and incorporating minimum mining widths. Designs are reviewed using internal geotechnical expertise. The Mining Model, optimisation and design outputs are each peer reviewed and approved for use and audited as required by the internal governance department to ensure WAIO quality standards are met.

The material contained within the final pit designs is then used as input for the mine scheduling process. WAIO mine plans are run at annual increments with a target of maximising the Ore for Rail (OFR) production to the current capacity of approximately 250 Mtpa.

Mineral Reserves contain only that part of Mineral Resources which are scheduled as economic ore in the mine plan. Inferred Mineral Resources are allowed to contribute to the pit optimisation and the mine schedules but treated as waste for Mineral Reserve estimates (i.e. no positive revenue contribution is assigned to the Inferred Mineral Resources).

12.1 Key Assumptions, Parameters and Methods Used

12.1.1 Conversion of Resource Models to Mining Models

The latest and approved resource models and Mineral Resource estimates have been used for mine planning and conversion to Mineral Reserves by application of all relevant modifying factors.

The resource models are converted to Mining Models (WAIO equivalent of a “Reserve” model) by regularising the resource model blocks to SMU-sized blocks that have a single material type and set of grades (Fe, P, SiO_2, Al_2O_3 and LOI). The selected size of the SMUs reflects the mining method, the mining equipment and integrity of the supporting resource model. SMU sizes range from 10m x 10m x 4m (XYZ) for excavator operations to 10m x 10m x 12m (XYZ) for face shovel operations.

12.1.2 Long-term Price Estimate

Iron ore is a bulk commodity and the commodity price of iron ore types varies depending on the supply and demand situation at the time. Since the late 2000’s and with the introduction of spot pricing, the commodity price has seen greater variability over both short (week/month) and long (year) time horizons. During this period at least two cycles of price variation have been observed, with monthly average prices swinging between US$210/dmt and US$40/dmt.

WAIO produces four fines ore types and one lump ore type. All the fines iron ore types are sold in the market on the benchmark industry-standard Platts 62% Fe Fines Index (Platts IODEX). BHP's Market Analysis and Economics team keeps track of the nominal, calendar month average of the Platts 62% Fe Index price FOB Port Hedland.

Unlike the fines ore types, WAIO's single lump ore type is sold in the market independent of any benchmark price and therefore the Market Analysis and Economics team keeps track of the nominal, calendar month average realised price received by BHP FOB Port Hedland.

The long-term iron ore price for establishing economic viability of WAIO's Mineral Reserve was calculated from the historical actual calendar monthly average prices over a timeframe of the preceding three financial years from July 2018 to June 2021. Iron ore is an exchange traded commodity and three years is considered a long enough period to cover a range of price fluctuations.

The long-term iron ore price for establishing economic viability was calculated by taking the median of these 36 calendar monthly average prices. The median was considered more robust than the mean (average) as a few spikes in prices (very high or very low) in the data set would skew the 'mean' value more compared to the 'median' value.

The method of estimating the long-term iron ore price based on actual historical data is considered appropriate, as it is factual, objective, and transparent to the market.

In addition, the economic analysis presented in Section 19 demonstrates that WAIO's Mineral Reserve estimates have not been highly sensitive to variation in the prices as a result using the 3-year median price.

The estimated long-term prices (rounded to the nearest whole number) for both fines and lump ore types are presented in Table 12-2 and have been used for the determination of WAIO's Mineral Reserves as at 30 June 2022.

Table 12-2: Long-term Iron Ore Price used to Estimate Mineral Reserves

IRON ORE - FINES Platts 62% Fe Index Price (Port Hedland FOB)	**IRON ORE - LUMP** Lump 62.5% Fe (Port Hedland FOB)
US$86 per dmt	US$103 per dmt

The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

It may be noted that the average prices for FY2022 have remained higher than the above price assumptions.

12.1.3 Cost Estimates / Assumptions

At any point in time, production is drawn from multiple separate pits which are at different stages in their life – some developing, some in full production and some nearing end of life. The active mining benches are located at depths ranging from near surface to bottom of final pit. Additionally, the location of pits from material destinations (processing facilities and waste dumps) ranges between near the pit to a few kilometres. Therefore, in the opinion of QPs, the average haulage distance is not expected to increase significantly and hence the average actual operating costs for the total annual production meet pre-feasibility level accuracy (± 25%) for use in determination of Mineral Reserves. These operating costs have been applied at the time of pit optimisation and for the LoA scheduling.

Capital cost estimates are included in the LoA plan and are based on the estimates derived from the Pre-Feasibility level studies utilising experience from the construction of similar WAIO projects in the Pilbara region of WA.

Sustaining capital cost estimates are based on the major equipment rebuild, replacement schedule and other capital required to sustain the Optimised Base Plan (OBP) production level.

Significant changes to the cost assumptions are an area of uncertainty, however the Mineral Reserve estimates have not been highly sensitive to variation in the cost assumptions, as shown in Section 19.

Closure costs have been included for the pit optimisation and for the LoA schedules by conversion into a unit cost per tonne of material mined.

The estimation of costs for the determination of Mineral Reserves is presented Section 0.

12.1.4 Pit Optimisation Details

Most of the WAIO pits have been actively mined for a number of years. Pit Optimisation has been conducted for each of the pits to determine the optimal economic limit and shape for the open-pit, to guide the pit design process.

Pit Optimisation is undertaken in the BHP in-house software “BlasorFlow” that is based on the Lerch-Grossman (LG) algorithm. The LG algorithm is industry standard and the pit optimisation outputs from BlasorFlow are similar to other industry standard software(s). This method works on the block model of an orebody, along with the recommended overall pit slopes defined as structure arcs in the software. BlasorFlow calculates the value of the blocks to define a pit outline that has the highest possible economic value and generates progressive nested pit shells based on the revenue factors.

Most commonly, a number of nested pit shells are generated using a range of revenue factors from 0.2 to 1.5 at 0.02 increments. That means a series of pit optimisations for the iron ore prices ranging from 20% to 150% of the mid-case long-term price.

Mine Planning engineers use the results of the optimisation to select the most economic and most practical pit limit outline to guide the detailed pit design process. The following table and figures show the typical results of the optimisation and optimisation analysis to select the pit shell.

Other than the highest NPV, the pit shell selection also considers other important parameters such as *incremental margin between shells*, *incremental strip ratio* and *percentage of mineralised material compared to the Revenue Factor 1.0 (RF1.0) shell*.

Table 12-3: Pit Optimisation Selection

Shell	Revenue Factor (RF)	Total Rock (Mt)	Mineralised Material (Mt)	Waste (Mt)	Cashflow	NPV	Margin ($/t)	Incremental Margin ($/t)	Strip Ratio	Increment al SR
1	0.20	0.5	0.4	0.02	15.7	14.6	$ 35.47		0.05	
2	0.23	78.8	56.0	22.8	1,844.7	1,506.7	$ 32.94	$ 32.92	0.41	0.41
3	0.25	136.6	90.2	46.4	2,892.9	2,149.1	$ 32.08	$ 30.67	0.51	0.69
4	0.28	164.4	100.9	63.5	3,209.0	2,316.0	$ 31.81	$ 29.57	0.63	1.60
5	0.31	182.6	106.2	76.4	3,358.1	2,388.5	$ 31.63	$ 28.06	0.72	2.42
6	0.33	195.5	109.4	86.1	3,443.7	2,430.0	$ 31.48	$ 26.61	0.79	3.01
7	0.36	205.5	111.5	94.0	3,496.4	2,455.7	$ 31.37	$ 25.43	0.84	3.81
8	0.39	214.1	113.0	101.1	3,534.4	2,473.4	$ 31.27	$ 24.31	0.89	4.52
9	0.41	218.2	113.7	104.5	3,549.5	2,479.9	$ 31.22	$ 22.84	0.92	5.17
10	0.44	222.9	114.4	108.5	3,564.3	2,486.1	$ 31.16	$ 21.29	0.95	5.75
11	**0.47**	**225.6**	**114.8**	**110.8**	**3,571.9**	**2,489.2**	**$ 31.12**	**$ 20.03**	**0.97**	**6.16**
12	0.49	228.6	115.1	113.4	3,578.8	2,492.0	$ 31.08	$ 19.18	0.99	7.22
13	0.52	230.0	115.3	114.7	3,581.8	2,493.1	$ 31.07	$ 17.85	0.99	7.81
14	0.54	231.1	115.4	115.7	3,583.6	2,493.8	$ 31.05	$ 16.87	1.00	8.79
15	0.57	232.5	115.5	117.0	3,585.9	2,494.6	$ 31.03	$ 15.78	1.01	9.20
16	0.60	234.1	115.7	118.4	3,587.9	2,495.3	$ 31.01	$ 15.08	1.02	10.53
17	0.62	235.6	115.8	119.8	3,589.6	2,495.8	$ 31.00	$ 13.85	1.03	10.90
18	0.65	236.8	115.9	120.9	3,590.9	2,496.2	$ 30.98	$ 13.46	1.04	11.96
19	0.68	237.0	115.9	121.1	3,591.1	2,496.3	$ 30.98	$ 10.86	1.04	10.36
20	0.70	238.4	116.0	122.4	3,592.2	2,496.5	$ 30.96	$ 11.52	1.05	13.47
21	0.73	238.8	116.0	122.8	3,592.5	2,496.5	$ 30.96	$ 10.11	1.06	13.51
22	0.76	240.3	116.1	124.2	3,593.4	2,496.7	$ 30.94	$ 9.04	1.07	14.59
23	0.78	241.2	116.2	125.0	3,593.8	2,496.8	$ 30.93	$ 8.08	1.08	15.20
24	0.81	243.3	116.3	127.0	3,594.7	2,496.8	$ 30.90	$ 7.28	1.09	16.30
25	0.84	243.4	116.3	127.1	3,594.7	2,496.8	$ 30.90	$ 6.44	1.09	16.72
26	**0.86**	**245.1**	**116.4**	**128.7**	**3,595.2**	**2,496.8**	**$ 30.88**	**$ 4.87**	**1.11**	**15.58**
27	0.89	245.2	116.4	128.8	3,595.3	2,496.8	$ 30.88	$ 4.50	1.11	18.03
28	0.92	246.2	116.5	129.7	3,595.4	2,496.8	$ 30.87	$ 3.32	1.11	18.03
29	0.94	246.4	116.5	129.9	3,595.5	2,496.7	$ 30.86	$ 2.37	1.11	19.22
30	0.97	246.7	116.5	130.2	3,595.5	2,496.7	$ 30.86	$ 1.65	1.12	19.79
31	**1.00**	**247.5**	**116.5**	**130.9**	**3,595.5**	**2,496.5**	**$ 30.85**	**$ 0.66**	**1.12**	**21.46**
32	1.02	248.4	116.6	131.8	3,595.5	2,496.4	$ 30.84	$ (0.40)	1.13	21.57
33	1.05	248.6	116.6	132.0	3,595.5	2,496.3	$ 30.84	$ (1.21)	1.13	24.59
34	1.08	249.0	116.6	132.4	3,595.4	2,496.3	$ 30.83	$ (2.12)	1.14	24.33
35	1.10	249.4	116.6	132.7	3,595.4	2,496.2	$ 30.83	$ (2.82)	1.14	22.11
36	1.13	249.6	116.6	133.0	3,595.4	2,496.1	$ 30.83	$ (4.27)	1.14	26.73
37	1.16	249.9	116.6	133.3	3,595.3	2,496.0	$ 30.82	$ (4.66)	1.14	24.56
38	1.18	250.0	116.6	133.3	3,595.3	2,496.0	$ 30.82	$ (6.21)	1.14	26.83
39	1.21	250.1	116.7	133.4	3,595.3	2,496.0	$ 30.82	$ (6.64)	1.14	26.91
40	1.23	250.2	116.7	133.6	3,595.2	2,495.9	$ 30.82	$ (6.89)	1.14	25.72
41	1.26	250.4	116.7	133.7	3,595.2	2,495.8	$ 30.82	$ (7.89)	1.15	26.78
42	1.29	250.4	116.7	133.8	3,595.2	2,495.8	$ 30.82	$ (10.59)	1.15	30.55
43	1.31	250.7	116.7	134.0	3,595.1	2,495.7	$ 30.81	$ (9.26)	1.15	23.99
44	1.34	250.8	116.7	134.2	3,595.0	2,495.7	$ 30.81	$ (10.78)	1.15	28.29
45	1.37	251.0	116.7	134.3	3,594.9	2,495.6	$ 30.81	$ (13.19)	1.15	32.60
46	1.39	251.4	116.7	134.7	3,594.8	2,495.5	$ 30.80	$ (12.83)	1.15	29.52
47	1.42	251.5	116.7	134.8	3,594.7	2,495.5	$ 30.80	$ (14.45)	1.16	34.53
48	1.45	251.8	116.7	135.1	3,594.6	2,495.3	$ 30.80	$ (14.27)	1.16	33.06
49	1.47	252.8	116.7	136.1	3,594.6	2,495.3	$ 30.79	$ -	1.17	31.71
50	1.50	253.7	116.8	136.9	3,593.7	2,494.6	$ 30.78	$ (33.69)	1.17	31.43

**Highest NPV shell shown in Yellow (#26); RF=1.0 shell shown in Green (#31); Selected pit shown in Blue (#11)*

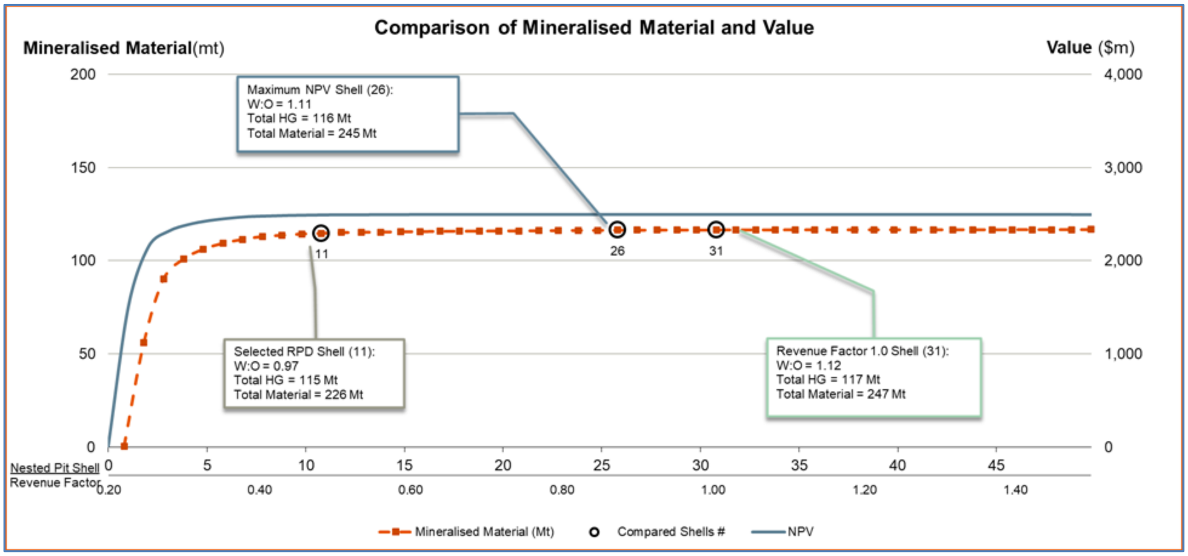


Figure 12-2: Comparison of Mineralised Material and Value

The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

Pit optimisations are periodically updated when there is a material change to the input resource models and price assumptions and if it is practicable to update the economic pit limits.

Most of the pits with Mineral Reserves are actively being mined and are in various stages of their life (pre-stripping, active production, close to end). Economic pit-shell selection is updated where it is physically practical to change the pit design layout. In the above case, shell #11 was selected as the preferred optimal shell, considering that the incremental strip ratio would increase significantly with little gain in the total ore and the NPV if the maximum NPV shell (#26) was selected (incremental strip ratio between shell #11 and shell #26 of 11.2) As described above the selection of optimised pit shells will be influenced by multiple factors and final pit shell selection is done by mine planning in engagement with other stakeholders (e.g., geotechnical engineer, superintendents from planning and operations teams).

12.1.5 Phase (Pushback) Optimisation

Once the optimised pit shell is selected, mining phase optimisation is conducted in the same software, BlasorFlow. The intention of phase optimisation is to divide the optimal pit into practically mineable stages to maximise the economic return. These incremental mining phases are optimised based on NPV and physical shape, honouring the slope parameters. These phases are used to guide the sequencing of the mine plan from the highest NPV phase to the lowest.

The following are the main criteria used for phase optimisation and selection:

- Maximising economic return by sequencing the mining of high-grade ore early and delaying low-grade or waste as much as practical (lower strip ratio phases early in the sequence).
- Phases can support consistent delivery of ore tonnes and quality.
- Guided by the optimal pit to ensure the overall NPV of optimal pit is not significantly compromised.
- The shape and size of mining phase(s) to allow for ease of mining and ramps or access roads construction.
- Sequencing of mining so that early phases can be completed and used for waste rock storage to minimise the waste haulage cost and rehabilitation expenditure.

Figure 12-3 shows an example of phase optimisation with the highest value phase in blue to lowest value phase in red.

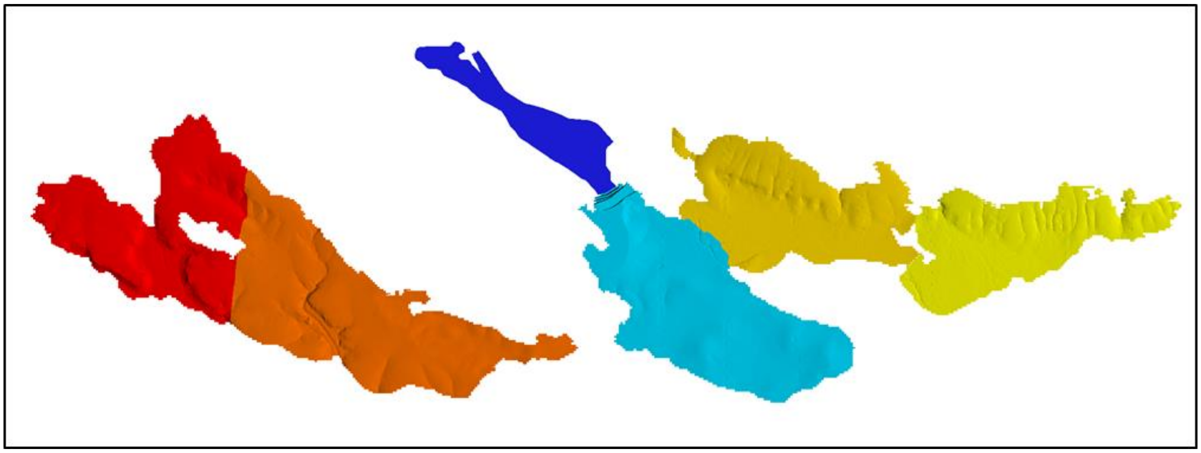


Figure 12-3: Plan showing Phase Optimisation

12.1.6 Reserve Classification and Criteria

WAIO has a standard approach to Mineral Reserve classification where Proven Mineral Reserves are derived from Measured Mineral Resources, and in nearly all cases Probable Mineral Reserves are derived from Indicated Mineral Resources.

This approach is based on the degree of confidence in our 'modifying factors' being applied to the Mineral Resources.

- **Proven Mineral Reserve:** *A Proven Mineral Reserve is the economically mineable part of a Measured Mineral Resource. A Proven Mineral Reserve implies a high degree of confidence in the Modifying Factors.*
- **Probable Mineral Reserve:** *A Probable Mineral Reserve is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Mineral Reserve is lower than that applying to a Proven Mineral Reserve.*

Only in exceptional situations are Measured Mineral Resources classified to Probable Mineral Reserves to account for low confidence (uncertainty) in the processing ability (e.g., below water table material). Other than these, no other uncertainties including social license to operate have been identified that would downgrade the reported confidence category of Mineral Reserves.

12.2 Estimates of Mineral Reserves

12.2.1 Estimate of Cut-Off Grades

Further to what has already been described in Section 11.2.1, the cut-off grade used for reporting of Mineral Reserves is determined by the deposit characteristics and what minimum grade material can deliver the market specification for the ore. A grade-tonnage curve is also used for determining the minimum grade above which the average grade aligns to the overall ore specification. An example of the grade-tonnage curve is shown in Figure 12-4.

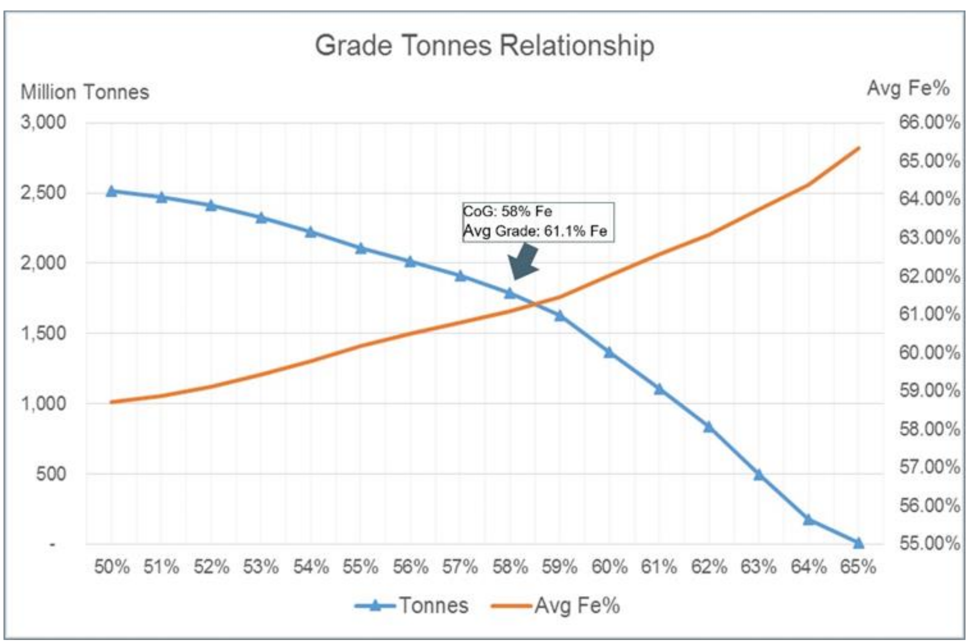


Figure 12-4: Grade Tonnage Relationship

The main characteristic of any material used to determine its classification into Ore or Waste is its conformance to the target ore specifications and whether or not it can be blended to achieve that specification. The ore/waste classification is determined through an optimisation process to match the ore specifications of the market and the characteristics of the ore body. Deleterious elements can influence the ore-waste classification, however the primary determination of ore-waste classification is based on the iron content.

There is a process of regular review of cut-off grades by the mine planning and marketing teams to ensure that the resultant ore quality targets continue to meet business needs.

The outcome of the LoA plan and mine scheduling process is used to determine the highest value fixed cut-off that is appropriate to use for pit optimisation, tactical and short term mine planning.

The cut-off grades currently applied to pit optimisation, tactical and short term mine planning are listed in Table 12-4.

Table 12-4: List of High-grade Fe Cut-Off Grades Currently in Use

Hub	Ore Type	Deposit(s)	High-grade Fe Cut-off
Mining Area C	MM	All	Fe ≥ 58%
	BKM	All	Fe ≥ 58%
South Flank	MM	All	Fe ≥ 58%
Newman Operations	BKM	Whaleback	Fe ≥ 62%
	BKM Bene	Whaleback	50 ≥ Fe ≤ 62%
	BKM	All excluding Whaleback	Fe ≥ 58%
	MM	All	Fe ≥ 57%
Jimblebar	BKM	All	Fe ≥ 58%
	MM	All	Fe ≥ 58%
Yandi	CID	All	Fe ≥ 53.5 to 54.5%

12.2.2 Metallurgical or Processing Recoveries

WAIO iron ore deposits produce predominantly higher-quality direct shipping ore (DSO), which requires only crushing and screening to segregate lump (diameter >6.3mm and <32mm) and fines (diameter ≤6.3mm) ore types. Based on the design of process plants and historical performance metallurgical recovery is therefore considered as 100% for the purpose of all Mineral Reserve estimation, with the exception of the Mount Whaleback deposit. A small portion of ore produced from the Mount Whaleback deposit, with Fe content ≥ 50% and <60%, is suitable for processing and is classified as Brockman Beneficiation (BKM Bene) ore type. Currently only about 30 Mt BKM Bene Mineral Reserve is remaining, and this will be processed at the Whaleback Bene Plant (with an average mass yield of 95%).

Geometallurgical algorithms have been developed after extensive test work and refined over the several years of historic production. Geometallurgical models are applied to the Resource

Models in order to model shipped ore tonnage, grades and lump/fines yields. This information is carried through to the Mining Models used for mine planning.

12.2.3 Reference Point for Mineral Reserve Estimates

Mineral Reserves are estimated on the basis of 'as delivered to the ore handling or process plant'. The estimates included in this report are as at 30 June 2022.

12.2.4 Multiple Commodity Mineral Reserve

This report is a single commodity Mineral Reserve, namely iron ore and the most important grade parameter is the iron content (Fe). However, the most common contaminants like phosphorous (P), silica (SiO_2) and alumina (Al_2O_3), together with loss-on-ignition (LOI), are also important quality parameters of iron ore. Therefore, percentages of Fe, P, SiO_2, Al_2O_3 and LOI of the iron ore are stated together to define its quality.

12.2.5 Summary of Mineral Reserve Estimates

A summary of Iron Ore Mineral Reserves for WAIO at the End of the Fiscal Year Ended 30 June 2022 is presented in Table 12-5.

Table 12-5: Summary of Mineral Reserves at the end of the Fiscal Year 2022

Mineral Reserves reported in this table are attributable to BHP's economic interest. See notes below for commodity price, cut-off grade, point of reference and metallurgical recovery.

Name of Joint Venture	Proven Mineral Reserves						Probable Mineral Reserves						Total Mineral Reserves					
	Mt	%Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI	Mt	%Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI	Mt	%Fe	%P	$\%SiO_2$	$\%Al_2O_3$	%LOI
Mt Newman	240	63.7	0.10	2.9	1.8	3.3	510	61.9	0.11	3.4	2.1	5.3	750	62.5	0.11	3.3	2.0	4.6
Goldsworthy	910	62.0	0.09	3.2	1.8	5.8	1,030	61.0	0.08	3.9	1.9	6.4	1,940	61.5	0.08	3.6	1.8	6.1
Jimblebar	480	61.8	0.12	3.4	2.5	5.1	410	61.4	0.11	4.1	2.7	4.7	900	61.6	0.12	3.7	2.6	4.9
WAIO Total	**1,630**	**62.2**	**0.10**	**3.2**	**2.0**	**5.2**	**1,960**	**61.3**	**0.09**	**3.8**	**2.1**	**5.7**	**3,590**	**61.7**	**0.10**	**3.6**	**2.1**	**5.5**

(1) Qualified Persons: Alex Greaves for Mt Newman, Anastasia Balueva for Goldsworthy and Chris Burke for Jimblebar. They are all full-time employees of BHP.

(2) For estimation of cut-off grades and Mineral Reserves, unit operating cost of US\$17.4 per wmt and long-term iron ore price of US \$86 per dmt for Platts 62% Fe Fines Index for fines and US \$103 per dmt for lump were used for the purpose of this report, all on FOB, Port Hedland basis. The price used represents the median of the 3-year trailing calendar monthly averages over the timeframe from July 2018 to June 2021. The unit operating cost is the average of the actual yearly operating cost of WAIO for the last three years from FY2019 to FY2021.

(3) The point of reference for Mineral Reserves is as delivered to the process or ore handling plant. The current practice of surface mining method was assumed for estimating all Mineral Reserves.

(4) The Mineral Reserves have an effective date of 30 June 2022 and are reported on the basis of BHP's economic interest. BHP has a 85% economic interest in Mt Newman, Goldsworthy and Jimblebar joint ventures. POSMAC joint venture, in which BHP has 65% interest, held only 11 Mt Proven and 4 Mt Probable Mineral Reserves which are included as part of Goldsworthy in this table.

(5) Mineral Reserves shown in the table comprise Brockman (BKM) and Marra Mamba (MM) ore types for all joint ventures. The cut-off grade used for estimating the Mineral Reserves for both ore types is typically Fe ≥ 58% with minor exceptions.

(6) The grades listed above (Fe – iron, P – phosphorous, SiO_2 – silica and Al_2O_3 – alumina) refer to in situ mass percentage on a dry weight basis. LOI (loss on ignition) refers to loss of mass (dry basis) during the assaying process. Tonnages are reported as wet tonnes for all ore types, including approximate moisture contents: BKM – 3% and MM – 4%.

(7) WAIO produces a single commodity (Fe). Additional deleterious elements are reported for quality purposes.

(8) WAIO is predominantly a producer of direct shipping ore and based on design of process plants and historical performance the metallurgical recovery has been assumed as 100% for Goldsworthy and Jimblebar JVs and 99% for Mt Newman JV for the purpose of reporting Mineral Reserves.

(9) Tonnes are shown in million metric tonnes (Mt) and rounded to nearest 10 million tonnes to reflect order of accuracy of the estimates. As a result, some figures may not add up to totals shown in the table.

The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report

Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

12.2.6 Reconciliation / Relative Confidence of Mineral Reserve Estimates

Reconciliation of tonnes and grades are carried out at WAIO on a monthly, quarterly and annual basis to determine the relative accuracy / confidence in the Mineral Reserve estimations and related classifications. This process also gives us quantitative feedback into the appropriateness of our Resource Classifications, which are key inputs to the Mineral Reserve estimations. The reconciliation process is described below, along with the results for the last three calendar years.

WAIO uses factors to reconcile ore tonnes and grades at some predefined measurement points (e.g., mine production, ore shipped) with those estimated in the Reserve Model (internally called the Mining Model). The three Reconciliation Factors (F1, F2 and F3) are depicted in Figure 12-5 and the purpose of each factor is stated below.

- **F1** tests the validity of the geological interpretation, grade estimation and modifying factors that inform the Mining Model.
- **F2** is primarily a test of the accuracy and efficiency of extraction activities.
- **F3** is a test of the WAIO's ability to deliver the tonnage and grade of saleable ore as predicted by the Mining Model.

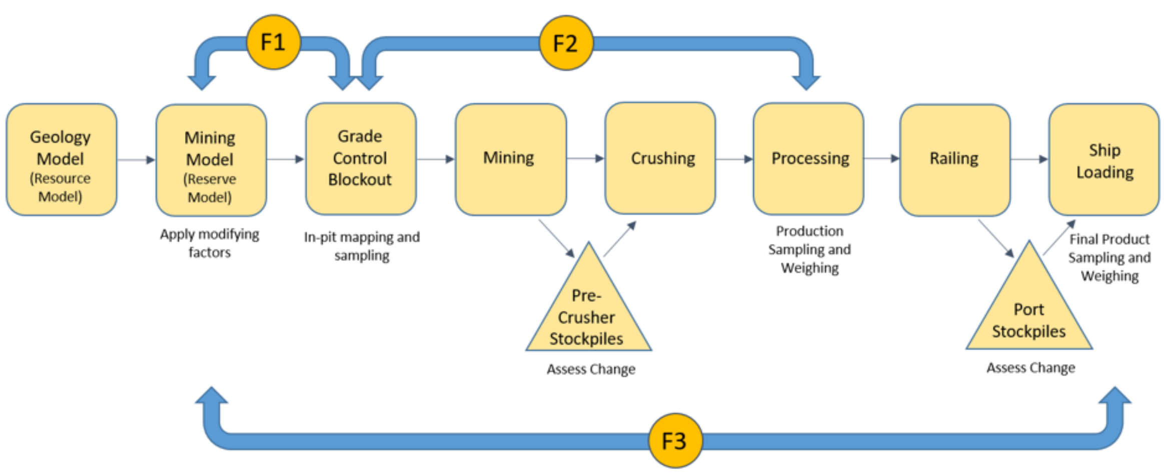


Figure 12-5: Conceptual Process Map of F1, F2 and F3 Reconciliations at WAIO

Each of these factors is expressed as a dimensionless ratio of 'measurement / estimate'. Thus, a factor above 1.00 indicates a higher than predicted measurement and any factor below 1.00 indicates a lower than predicted measurement. The Reconciliation Factors are calculated as follows:

F1 – Throughout the month, for each fired pattern, the Grade Control tonnes and grade of ore (material above cut-off grade) are compared with the tonnes and grade of ore in the Mining Model. At end of month an in-pit survey determines the volumetric, and hence tonnage, depletion of each pattern. The depletions of each of these models are compared to calculate the F1 factor as below.

F1 = Grade Control Depletion / Mining Model Depletion

F2 – At end of month, the Grade Control model depletion, adjusted for changes in pre-crusher stockpiles, is compared with the tonnes and grade measured at the processing plant to calculate the F2 factor as below.

F2 = Production / Grade Control Depletion

F3 – At end of month, the Mining Model's depletion, adjusted for changes in pre-crusher stockpiles, is compared with the tonnes and grade measured on ships to calculate the F3 factor as below.

F3 = Shipping / Mining Model Depletion

Reconciliations are reported monthly, quarterly and annually as per WAIO standard practice, and any divergences outside tolerance limits (factors below 0.90 or above 1.10) are investigated and corrective / preventative actions are triggered.

The annual reconciliation results for tonnes and Fe grade at WAIO level for the last three calendar years are shown in Table 12-6.

Table 12-6: Last 3 Calendar Year Reconciliation Results for Ore Tonnes and Fe grade

WAIO	Tonnes				Fe grade		
	2019	2020	2021		2019	2020	2021
F1 - Grade Control Model/Mining Model	1.01	0.99	1.03		1.005	1.000	0.995
F2 - Mine Production (Expit)/Grade Control Model	1.02	1.02	1.01		0.990	0.993	0.992
F3 - Ore Shipped/Mining Model Shipping Equivalent	1.03	1.02	1.07		1.001	0.997	0.996

As stated above F1 tests the validity of the geological interpretation, grade estimation and modifying factors that inform the Mining Model and is also calculated for each Resource Class. These classifications provide key inputs into our Reserve Statements. The last three annual F1 results for Measured and Indicated Mineral Resources at WAIO level for tonnes and iron grade are shown in Table 12-7.

Table 12-7: Last 3-Yr Reconciliation Results for Measured and Indicated Resource Classes

WAIO Mineral Resource Category	Tonnes				Fe grade		
	2019	2020	2021		2019	2020	2021
F1 - Measured - Grade Control Model / Mining Model	1.00	0.99	1.02		1.003	0.999	0.996
F1 - Indicated - Grade Control Model / Mining Model	1.01	0.99	1.02		1.006	1.001	0.995

Based on results presented in Table 12-6 and Table 12-7, the WAIO reconciliation results are well within the defined 10% threshold (i.e., each factor is between 0.90 and 1.10). These results demonstrate a good correlation between planning models and production system performance.

Therefore, in the opinion of the QPs, the relative accuracy and confidence of the reserve estimates is deemed appropriate for their intended purpose of global Mineral Reserves reporting and medium-term production planning. The application of modifying factors affecting the accuracy and confidence as stated in Section 12.1 are taken into consideration during classification of the model and are therefore addressed by the qualified person in the attributed Mineral Reserves classification.

12.3 Opinion on Risk Factors for Modifying Factors

Areas of uncertainties that may materially impact the Mineral Reserve estimates include:

- Changes in the long-term Iron Ore commodity prices.
- Exchange rate factor for US$/A$.
- Changes in the operating costs and sustaining capital cost assumptions.
- Variations in the geotechnical and hydrogeological assumptions
- WAIO's ability to maintain and obtain environmental and heritage approvals and to maintain the social license to operate.

The QPs are of the opinion that, with the recommendations and opportunities outlined in Section 23, any issues relating to all applicable modifying factors that may be likely to affect the Mineral Reserves estimate materially can be resolved with further work.

Mineral Reserve estimates are reviewed and updated at least on a yearly basis or when new information becomes available that may materially impact the modifying factors.

According to the knowledge of the QPs, there are no other legal, socio-economic, land-title, tax or permitting issues that could affect the Mineral Reserve estimates materially, which have not been discussed in this report.

13 Mining Methods

13.1 Mining Method and Reasons for its Selection

All mining areas within WAIO currently operate using conventional open-cut mining methods. Iron ore is a bulk commodity, and the orebodies are large and near surface, with a relatively thin overburden. The orebodies are generally shallow dipping, and most parts of the orebodies occur within depths of 200 to 300m from surface, thus leading to low strip ratios. These characteristics make the WAIO operations suitable for open-cut mining methods including drilling, blasting, loading and hauling.

WAIO open-cut mining uses face shovels, front-end loaders or backhoe excavators. The full bench is drilled and blasted for a 12 m height, sampled three times in 4 m increments and three 4 m flitches are then mined. Typical open-cut Iron Ore mining activities are represented as a high-level flowchart in Figure 13-1.

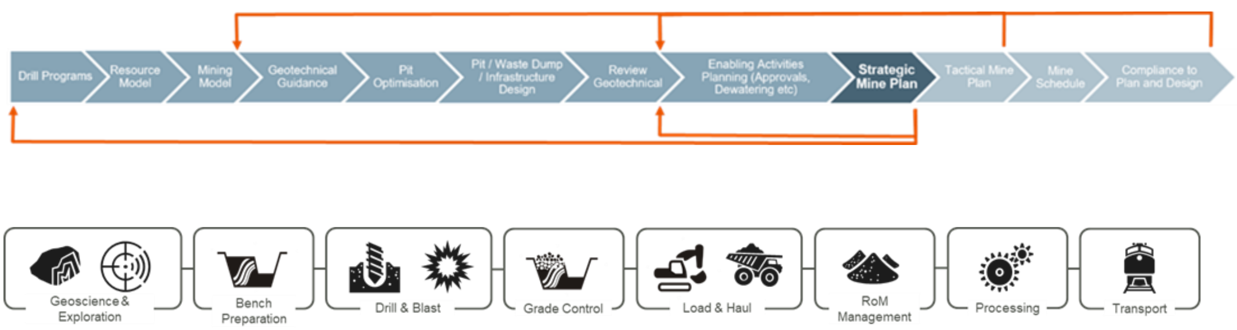


Figure 13-1: Typical Open-cut Mining Method Activity Flowchart

Drilling is separate for contour areas and production areas. Contour drilling is completed using smaller drills on contoured areas of the natural ground and production areas are relatively flat-lying large working areas drilled using larger production drills. Bulk explosive products, such as ammonium nitrate and fuel or emulsion, are mixed on the bench using Mobile Processing Units (MPUs) before being loaded into the drill holes.

Ore and Waste haulage is done with both manually operated and autonomous haul trucks. Waste is hauled directly to the adjacent waste storage areas either ex-pit (on surface) or in-pit. Waste material is also utilised as fill material for development works and rehabilitating the completed waste dumps.

Ore is hauled to the Run-of-Mine (ROM) pad where it is stockpiled and blended for ore quality before feeding to the crushers using loaders. Some of the ore suitable for blending is also hauled directly to the crushers.

Most mining areas within the Mineral Reserve estimate are existing operations and therefore the same mining method is used for developing the mine plan supporting the Mineral Reserve estimates for both existing and new mining areas. This is considered appropriate due to demonstrated historical performance over 30 years.

13.2 Parameters Relevant to Mine Designs and Plans

13.2.1 Geotechnical Models

Mine designs incorporate slope designs that are of at least a pre-feasibility level of study for the intended purpose and prevailing risk. This is achieved through the performance requirements listed below.

i. The design process is based on the following attributes:

- uses the appropriate quality, quantity and spatial distribution of data for the required level of design study;
- employs analysis methods that are recognised internationally as appropriate for the likely ground control failure mechanisms;
- uses design (acceptance) criteria that are compatible with the business safety and economic objectives and required level of design study;
- provides construction parameters that are appropriate to these design criteria;
- identifies any additional stability or risk mitigation measures that are necessary to achieve the required performance (e.g., water management and ground control plans);
- identifies key uncertainties and sensitivities within the design.

ii. Designs are approved prior to incorporation into mine plans.

13.2.2 Slope Design Process

Slope design recommendations are produced by Geotechnical engineers performing slope design at specific times. Slope recommendations comprise four essential inputs:

- Batter Face Angle (BFA) – constrained by mining and adjusted to meet Design Acceptance Criteria (DAC).
- Bench Height – adjusted to either single or double batter height, 12m and 24m respectively.
- Berm width – reported as Minimum berm and/or including compensation.
- Inter-ramp angle (IRA) – maximum angle from Limit Equilibrium but adjusted to meet BFA (if applicable).

The above parameters are delivered for mine design purposes in a table, along with specific 3D solids, for use in mine design software and to aid in optimisation of the design.

All design recommendations mature as the pits develop therefore, at each stage, the slope design recommendations are updated to ensure geotechnical designs meet the DAC.

13.2.3 Design Acceptance Criteria

The Geotechnical Design Principles clearly link the Geotechnical model confidence with the Design Acceptance Criteria. Table 13-1 articulates the matrix by which Consequence of Failure and model confidence is considered against allowable Factor of Safety for a pit slope under design.

Table 13-1: Design Acceptance Criteria

		Consequence of Failure			
		Low	**Moderate**	**High**	**Very High**
Model Confidence	**Low**	$FOS_{CC} \geq 1.3$ $FOS_{LC} \geq 1.0$ PoF ≤ 10%	$FOS_{CC} \geq 1.5$ $FOS_{LC} \geq 1.2$ PoF ≤ 5%	Not Acceptable	Not Acceptable
	Moderate	$FOS_{CC} \geq 1.2$ $FOS_{LC} \geq 1.0$ PoF ≤ 20%	$FOS_{CC} \geq 1.3$ $FOS_{LC} \geq 1.1$ PoF ≤ 5-10%	$FOS_{CC} \geq 1.5$ $FOS_{LC} \geq 1.2$ PoF ≤ 5%	Not Acceptable
	High	$FOS_{CC} \geq 1.1$ $FOS_{LC} = 1.0$ PoF ≤ 30%	$FOS_{CC} \geq 1.2$ $FOS_{LC} \geq 1.0$ PoF ≤ 20%	$FOS_{CC} \geq 1.3$ $FOS_{LC} \geq 1.1$ PoF ≤ 5-10%	FOSCC ≥ 1.5 FOSLC ≥ 1.2 PoF ≤ 5%

Notes: FOS_{CC} = Factor of safety for central estimates; FOS_{LC} = factor of safety for lower case scenario; PoF = Probability of Failure is an estimated number for FoS < 1, assuming that FOS is normally distributed, however when the PoF is not a hard boundary rather it is an indicator that the probability of failure exceed the mining industry guidelines, in such cases, the design engineer should advice on the design risk to operations.

The geotechnical models used for designs include the following considerations:

- Structural Geology – orientation of different rock units along with faults and folds extent and orientation.
- Rock Mass Quality – Rock Quality Description (RQD), spacing, orientation, in-situ rock strength.
- Other underlying conditions such as water table, porosity, impact on groundwater pressure.

Geotechnical data is collected using:

- Surface mapping
- Planned diamond core drilling
- Televiewer
- Structural Geological model
- Groundwater modelling

Verification of geotechnical parameters is completed throughout the life of each pit. Geotechnical monitoring and data collection is completed on an ongoing basis for reconciliation against design and enables continuous improvement.

WAIO operates a number of pits over a large geographical area with varying ground conditions and rock mass properties. The key geotechnical parameters influencing the mine design, therefore, can be different across different mining areas. For geotechnical designs, each area is interrogated by stepping through the various cross-sections and assessing those using the following attributes:

- Slope height and orientation
- Direction, position and strengths of principle geological units
- Bedding angles
- Location and orientation major structures (faults, folds, joints).

An example of the cross-sections analysed and assessed for potential failure mechanism is shown in Figure 13-2:

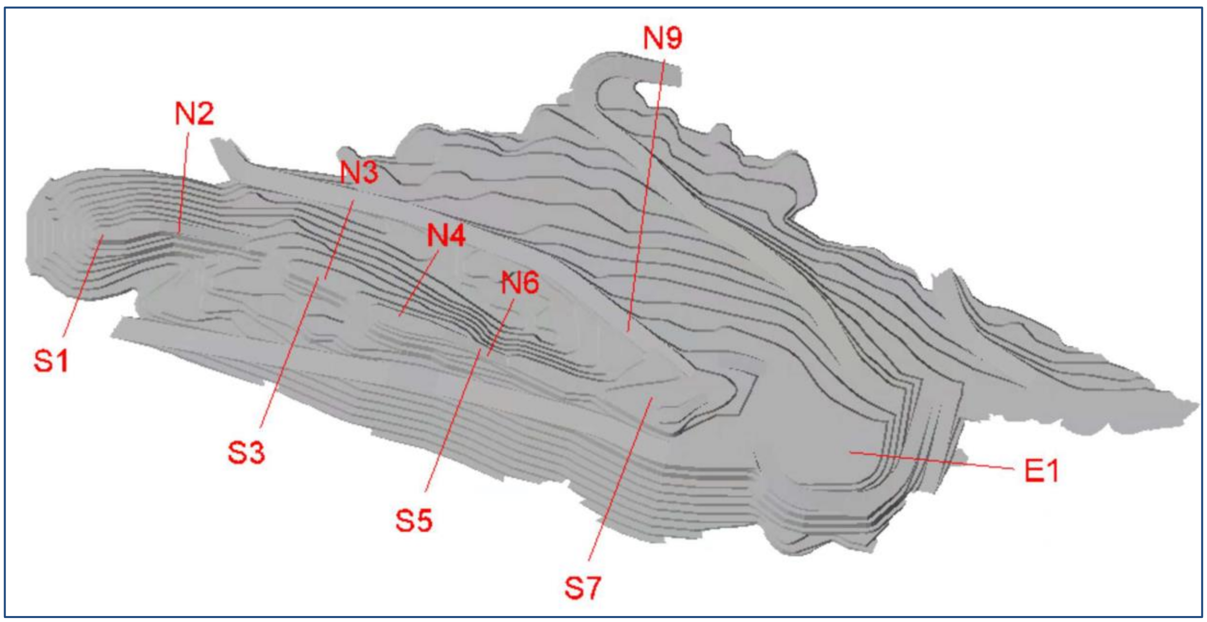


Figure 13-2: Sections for Inter-ramp Stability Analysis

Optimisation of the inter-ramp angle of each representative section has been undertaken to achieve design acceptance criteria, including sensitivity analyses for “likely” and “lower” case scenarios.

Sensitivity analysis was conducted by assessing one or more of the following cases, as applicable:

- Lower case critical rock mass strength parameters
- Lower case critical defect shear strength parameters
- Lower case waviness value

The stability analysis results, including optimised inter-ramp angles and factor of safety (FoS), are presented in Table 13-2 (designs assuming maximum slope design with ground controls).

Table 13-2: Optimised Inter-ramp Angles (IRA) and Factor of Safety (FoS)

Section	Recommended		Final slope		Final IR FoS		Final design domain
	Max. IRA (°)	Max. batter height	Confinement to design	Potential failure mechanism	Likely case	Lower case	
N2	42.6	24	Batter-berm	MN Bedding	1.5	1.4	1
N3	30.3	12	Inter-ramp	MN Bedding	1.2	1.0	2
N4	42.6	24	Batter-berm	MN Bedding	1.2	1.0	3
N6*	42.6	24	Batter-berm	MN Bedding	1.7	1.4	3
N9	34.9	12	Inter-ramp	WA1 Bedding	1.2	1.0	4
E1	31.5	12	Inter-ramp	WA1 Bedding	1.2	1.0	5
S1	42.6	24	Batter-berm	Fault/MN bedding	2.1	1.9	1
S3	42.6	24	Batter-berm	MN Bedding	1.2	1.0	1
S5	42.6	24	Batter-berm	MN/MM Bedding	2.0	1.2	1
S7	42.6	24	Batter-berm	MN Bedding	1.2	1.2	1

This design process is undertaken in accordance with WAIO's Ground Control Risk Management Standard and the Mines Ground Control System.

Design uncertainties may exist in areas with lower strength materials, such as detrital material, however the batter heights in these areas are kept lower and can be considered low risk. Some design uncertainties may exist if adequate drilling data is not available due to steep terrain. The risk in these areas is minimised by regular inspections and performance monitoring as mining progresses.

Regular slope monitoring is conducted to better understand the ground conditions on an ongoing basis, to increase safety of the designs. High risk active mining areas are monitored continuously using radars to identify slope movements; medium and low risk areas are monitored using prisms. Trigger action response plans are generated and kept up to date for each mining area.

With the factor of safety inherent in the design parameters and continuous monitoring and improvement, QPs are of the opinion that changes to the geotechnical factors are not likely to materially impact the Mineral Reserve estimates.

13.2.4 Hydrological Models

Hydrogeological investigations are completed in accordance with BHP procedures for new borefields, for greenfields operations, or for environmental purposes. The investigations are appropriate to the scale of the development and its potential implications, and as a minimum must meet the Department of Water's "Operational policy no. 5.12 – Hydrogeological reporting associated with a groundwater well licence" (DoW, 2009).

Surface water studies are done to support proposed greenfields or brownfields developments that interact with overland flows. The investigations are appropriate for the business or environmental risk they address.

The approach to operational water management is in accordance with WAIO's internal Water Management Standard and associated guidelines. These documents provide a framework to address the main categories of water risk:

- sustainable life of mine water supplies are delivered;
- dewatering commences well in advance of mining;
- surplus water management is flexible and in line with regulatory expectations;
- effective wet weather management exists;
- safe potable water supplies are delivered;
- environmental and community impacts are managed.

Reports on operating borefields are provided to the Department of Water in the form of Annual Aquifer Reviews and Triennial Aquifer Reviews, in accordance with licensing conditions. These reports provide extensive data records and interpretation of groundwater response in and around operational borefields.

All downhole and installation data, for the purpose of hydrogeological and surface water monitoring, is processed in the field through the standard WAIO drilling workflow to an integrated master database comprising two parts. One part of this database includes data on construction of installations and field tests at the time of construction. Temporal hydrogeological and surface water data is stored in the other part and validated via a purpose-built interface.

13.2.5 Mine Design

The ultimate pit designs are guided by the selected economic pit-shell, as described in Section 12.1.4. Overall pit and pushback designs are created using industry standard mine design software (Vulcan™ or Datamine™) with crest and toe lines, haul road accesses and incorporating minimum mining widths. The minimum mining width is determined by the equipment to be used for mining operation.

Pit and pushback designs are completed using the geotechnical slope angles recommended by the geotechnical team.

The key design parameters for pits are presented in Table 13-3.

Table 13-3: Key Design Parameters for Pits

Design Parameters	Dimensions
Minimum Mining Width	35m
Minimum Ramp Width with LV separation	49m – 53m
Maximum Ramp Gradient	10%
Minimum radius of turning circle	20m
Bench Height	12m
Batter Height	12m – 24m
Berm Width	Variable, according to inter-ramp angle batter height
Inter ramp angle	Variable by geotechnical domains
Batter Angle	45º – 65º

13.2.6 Haul Road Design

The haul roads, both in-pit and surface, are designed in accordance with WAIO Road Design standards. The roads are classified using the criteria of Life Expectancy and Usage Intensity of the roads.

The factors which determine the life expectancy of a road are listed in Table 13-4.

Table 13-4: Factors for Life Expectancy

Classification	Time duration	Example
Low	< 3 months	Drop cuts, on-dump roads, drill access
Moderate	3 – 12 months	On-bench roads, pushback roads
High	1 – 5 years	Main pushback ramps
Permanent	> 5 years	Life of mine roads / ramps

The factors which determine the usage intensity of a road are listed in Table 13-5.

Table 13-5: Factors for Usage Intensity

Classification	Tonnage (daily)	Tonnage (annual)	Truck Cycles (per day)	Example
Very Low	< 3 kt/day	< 1 Mtpa	<12	Road construction area
Low	3-14 kt/day	1 - 5 Mtpa	12 - 60	Park-ups and surrounding roads
Moderate	14-30 kt/day	5 - 10 Mtpa	60 - 120	Single pushback ramp
High	> 30 kt/day	> 10 Mtpa	> 120	> 120

Based on the above two factors, roads are classified as per the classification matrix shown in Table 13-6.

Table 13-6: Road Classification Matrix

		Life Expectancy			
		Low	Moderate	High	Permanent
Usage Intensity	Very Low	C	C	B	B
	Low	C	B	B	A
	Moderate	B	B	A	A
	High	B	A	A	A

Based on the design parameters and type of equipment to be used on the ramps, appropriate ramp designs are included in the final mine designs. The ramp designs vary depending on the trucks utilised and if light vehicle separation is incorporated.

Figure 13-3 and Figure 13-4 show examples of road designs with dual lane configuration for two different types of haul trucks and including light vehicle separation.

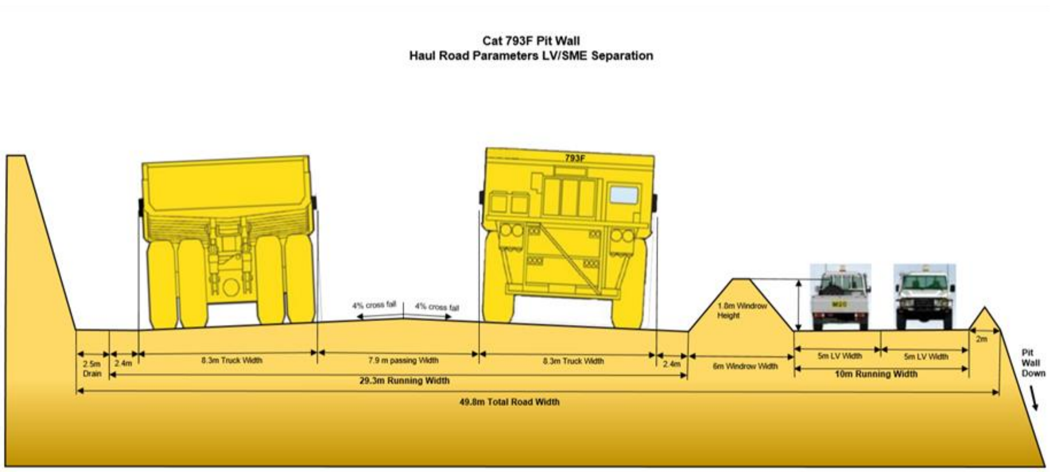


Figure 13-3: CAT 793F Pit Wall (Haul Road Parameters LV/SME Separation)

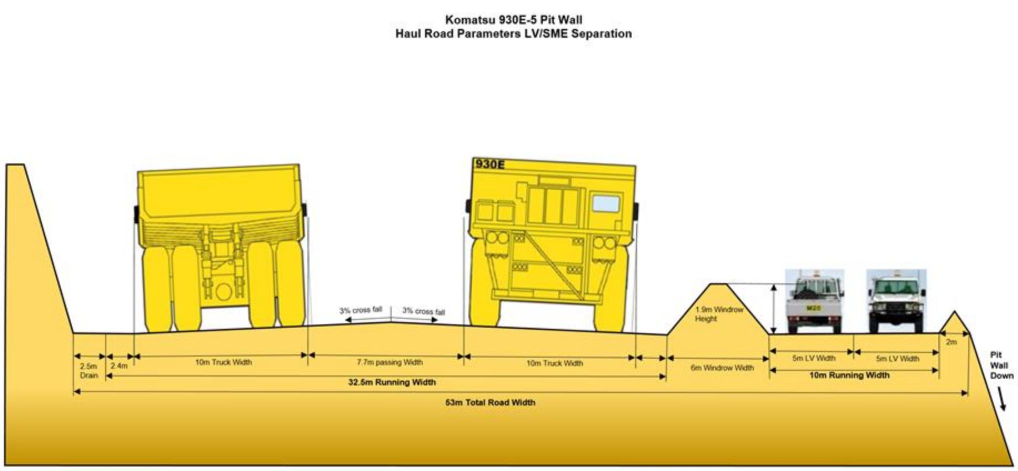


Figure 13-4: Komatsu 930E Pit Wall (Haul Road Parameters LV/SME Separation)

13.2.7 Overburden Storage Area Design

All WAIO mining areas have waste dumps or Overburden Storage Areas (OSAs) designed to provide sufficient capacity for waste rock for the life of mining activities.

WAIO utilises two types of OSAs:

- Ex-Pit OSAs – OSA outside of the pits.
- In-Pit OSAs – OSAs created by backfilling the pits or pushbacks that have concluded mining.

The backfilling of pit voids is achieved using existing pit accesses and mine roads and helps to minimise the surface land disturbance. In-pit waste storage also assists in sequential backfilling of completed pits to minimise rehabilitation work required after completion of mining.

The OSA designs during active operation (As-Dumped design) vary depending on the capacity required and type of the waste rock being stored. The general design criteria for As-Dumped ex-pit OSAs are shown in Table 13-7.

Table 13-7: General Design Criteria for As-Dumped Ex-Pit OSAs

Design Parameters	Dimensions
Bench Height	20m
Berm Width	65m
Batter Angle	37º
Overall Slope Angle	15º
Swell Factor	30%
Minimum Ramp Width	57m
Maximum Ramp Gradient	10%

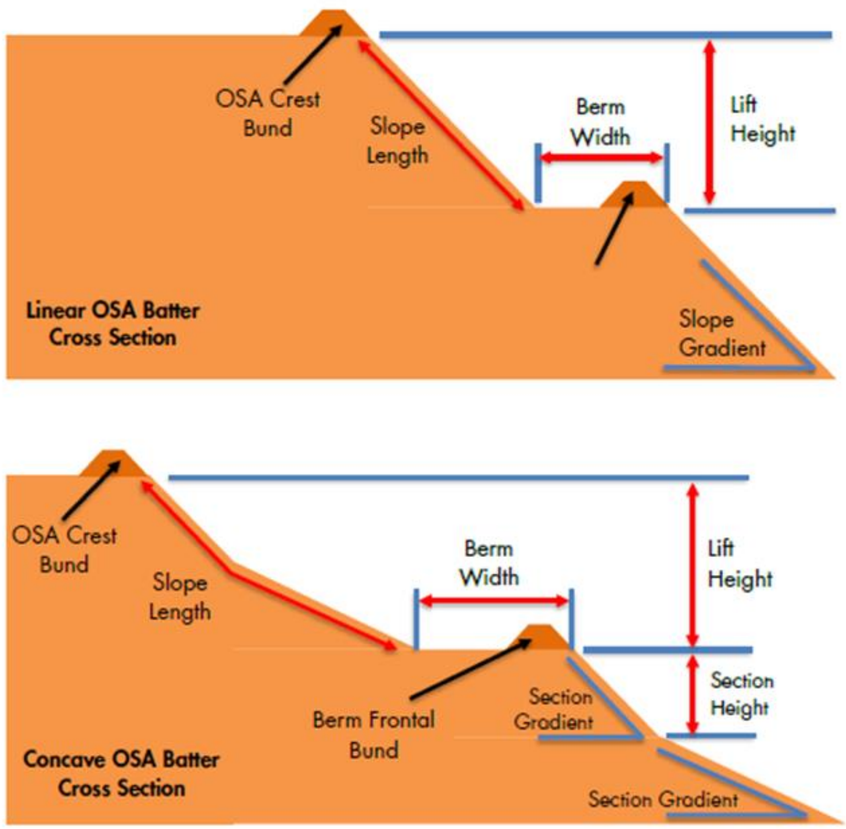
Completed ex-pit OSAs are re-profiled and rehabilitated to achieve a final landform that achieves the objective of the landform guiding principle to “physically interface final landform appropriately with adjacent features, considering natural hydrological linkages and ensuring surface landform stability.”

The final OSA landform surface must have design features that maintain a stable and non-polluting surface, taking into consideration the rainfall and waste rock characteristics across the three areas of the OSA:

1. Top – bunds of sufficient size to contain extreme rainfall events, so no water runoff occurs or is allowed to occur onto lower slopes;
2. Slopes – competent waste rock material to remain stable under extreme rainfall events;

3. Berms – contain low to moderate rainfall events, with sufficient capacity to also contain up-slope runoff and sediment deposition during extreme rainfall events.

The two available options of final OSA landform can be linear slope or concave slope as represented in the schematic figure shown in Figure 13-5.



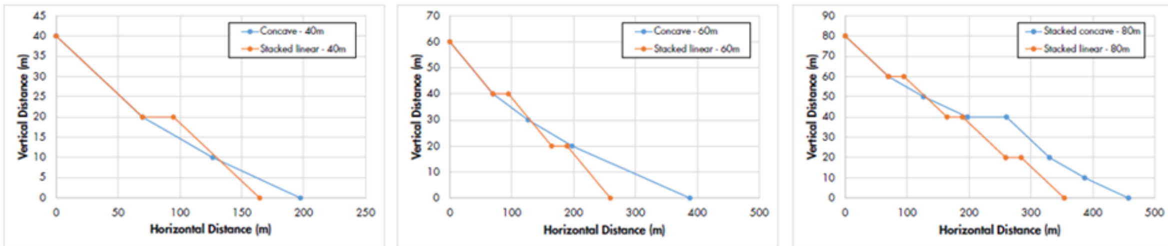
Top – Linear and Bottom - Concave

Figure 13-5: Schematic OSA Final Landform Slope Options

The WAIO Closure Planning team provides guidance and recommends the final landform slope configuration for OSAs. The decision on the OSA landform design considers the final landform design in conjunction with:

- Footprint impacts,
- Surface hydrology,
- Waste presentation in the schedule,
- Amount of competent waste versus incompetent waste.

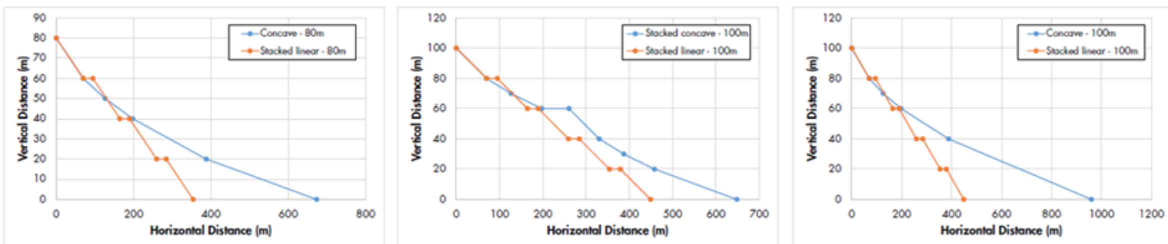
Depending on constraints, a combination of landform options may be required to achieve the optimal outcome. Some of the examples of final landform slope configuration are presented in Figure 13-6.



Comparison of 40m high stacked linear and concave option, with the crest line fixed

Comparison of 60m high stacked linear and concave option, with the crest line fixed

Comparison of 80m high stacked linear and stacked concave option, with the crest line fixed.



Comparison of 80m high stacked linear and concave option, with the crest line fixed

Comparison of 100m high stacked linear and stacked concave option, with the crest line fixed

Comparison of 100m high stacked linear and concave option, with the crest line fixed

Figure 13-6: OSA Final Landform – Concave versus Stacked Linear Slope Profiles

13.2.8 Reactive Waste Management

Acid and Metalliferous Drainage (AMD) includes acidic drainage, metalliferous drainage and saline drainage in low pH (acidic) or neutral pH (where acidity has been neutralised) drainage waters from mining processes and landforms. Sulphide-bearing minerals (predominantly pyrite) are Potentially Acid Forming (PAF) and can lead to the release of AMD upon exposure to air and water.

In addition to acidity and other forms of AMD, the series of chemical reactions involving the oxidation of sulphide-bearing carbonaceous rock types generates heat and gases. Consequently, the management of this reactive material during mine operation and closure aims to:

1. minimise oxidation by minimising lateral and vertical airflow exchange using finer textured material and engineered internal bunds and layers, and
2. minimise water percolation.

These measures slow the reactions that produce temperature increases and stored acidity and solutes, and the measures slow the release of acidity, metals and other solutes. This is achieved through design controls applied during “as dumped” OSA construction and execution of the final landform closure design.

The waste placement is done in accordance with the WAIO Acid and Metalliferous Drainage Management (AMD) Standard which includes the guidelines, listed in Table 13-8 applicable to areas for potentially acid forming (PAF) waste management.

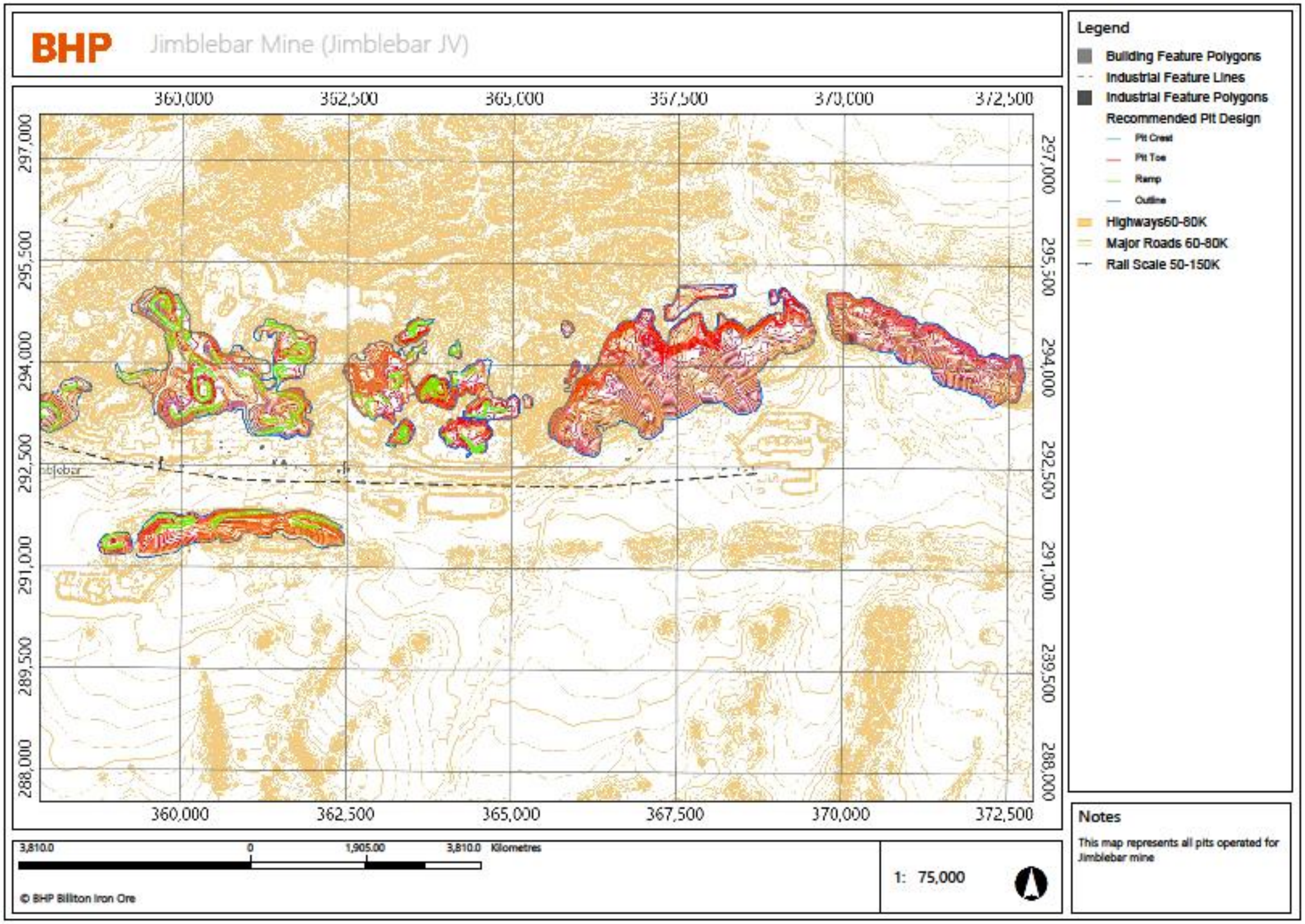
Table 13-8: Guidelines for Potentially Acid Forming (PAF) Waste Management

				Airflow and Percolation Controls			
Lift Construction	S grade weight average (mining block basis)	S grade cut off (mining block basis)	PAF:NAF lift ratio (# lifts)	PAF Horizontal Extent	Toe Bund	Lift Surface Permeability	PAF Coverage (slope + flat)
Paddock Dump (2m PAF x 2m NAF). Expit / Inpit (see constraint below)	NA	NA	NA	-	-	2m NAF paddock dump layer dozed flat	PAF exposed <1 month

	Controls
PAF and pit/natural surfaces	***IF no potential for water runoff from toe of inpit dump, THEN*** Minimum 2m NAF material placed against insitu pit wall and pit floor to limit oxygen ingress through fracture zone into backfill (only applies in locations above post mining groundwater recovery level) and minimum 10m thickness against natural surfaces. ***IF there is potential for water runoff from toe of inpit dump, THEN*** Minimum 10m NAF material placed against insitu pit wall and pit floor to limit oxygen ingress through fracture zone into backfill (only applies in locations above post mining groundwater recovery level) and minimum 10m thickness against natural surfaces.
Inpit PAF and groundwater recovery	Avoid PAF placement within inpit elevations between groundwater modelling range of uncertainty on expected steady state groundwater recovery level. Inpit PAF storage only where PAF saturation by post mining groundwater recovery occurs quickly (within 2 to 3 months of initial wetting) and remains below a water cover.
PAF and final rehabilitation surfaces	Minimum 10m NAF thickness from final rehabilitation surfaces and not horizontally extend within a lift beyond the "as dumped" toe string of lift above
PAF paddock dump location	PAF material management should focus on designing PAF material storage within the minimum number of locations and contained toward the centroid of waste dumps as the primary focus. No PAF cells can extend beyond the toe limits of the as-tipped lift above (Figure 12). This will ensure that sufficient clean inert waste is located above any PAF material until the slopes of the OSA have been regraded

13.2.9 Final Pit Maps

The final pit map for the Jimblebar mines is shown in Figure 13-7 as an example.


BHP
Jimblebar Mine (Jimblebar JV)
Legend
Building Feature Polygons
Industrial Feature Lines
Industrial Feature Polygons
Recommended Pit Design
Pit Crest
Pit Toe
Ramp
Outline
Highways60-80K
Major Roads 60-80K
Rail Scale 50-150K
360,000
362,500
365,000
367,500
370,000
372,500
297,000
295,500
294,000
292,500
291,000
289,500
288,000
3,810.0
0
1,905.00
3,810.0
Kilometres
© BHP Billiton Iron Ore
1: 75,000
Notes
This map represents all pits operated for Jimblebar mine

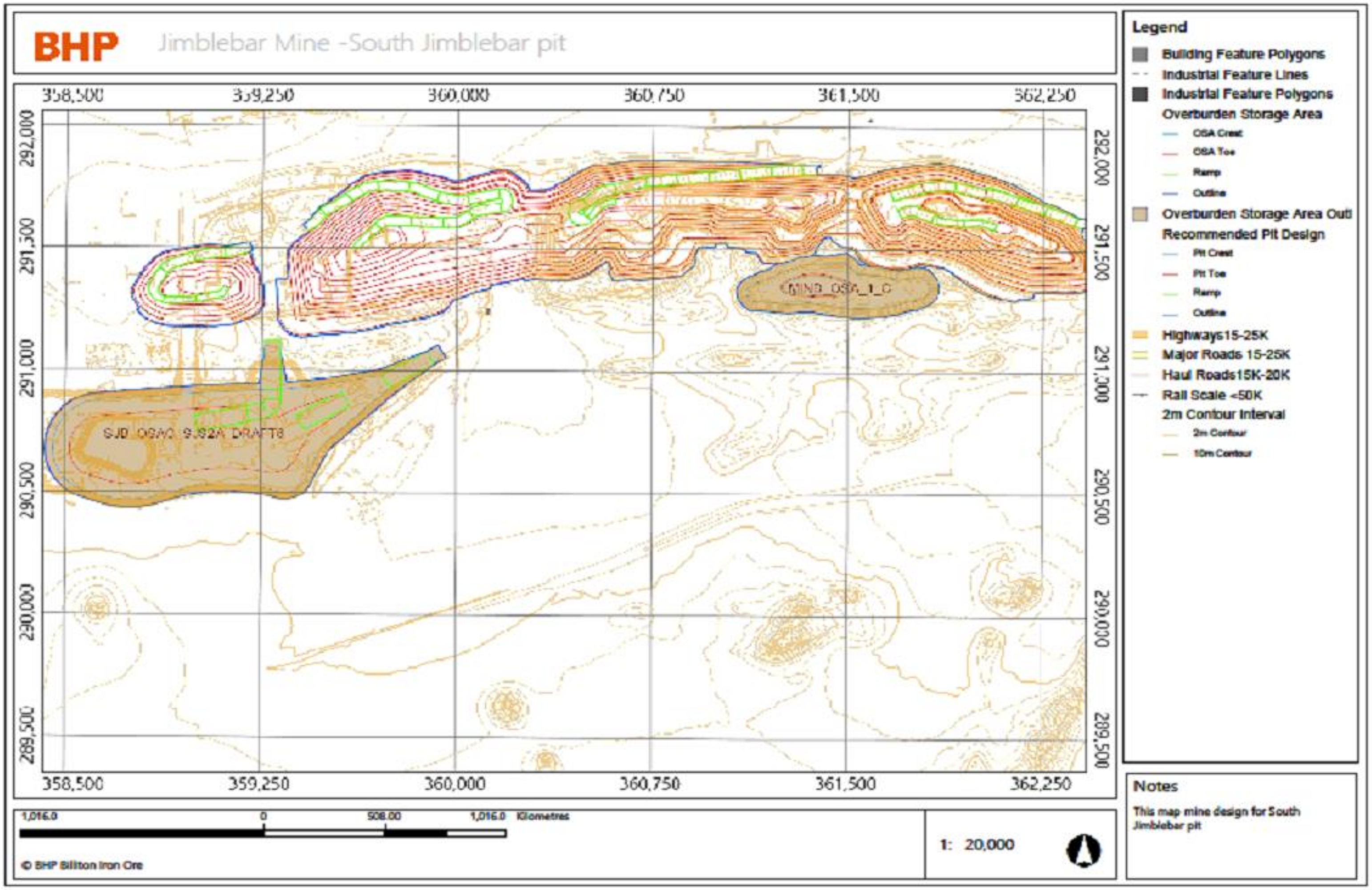


Figure 13-7: Final Pit Maps – Jimblebar example

13.3 Production Rates, Expected Mine Life

13.3.1 Production Rates and Expected Mine Life

WAIO operations are comprised of 5 mining areas that belong to 3 joint ventures as shown in Table 13-9:

Table 13-9: Mining Areas and their respective Joint Venture Ownership

Mining Area	Joint Venture
Mining Area C	Mt Goldsworthy JV
South Flank	
Jimblebar	Jimblebar JV
Newman Operations (Western Ridge)	
Newman Operations	Mt Newman JV

Complete life of mine schedules are generated for each mining area annually, as part of the Life of Asset (LoA) planning, and are combined to achieve the overall WAIO production schedule. These production schedules underpin the Mineral Reserves estimates for each JV (and WAIO overall). The mine planning team utilises the following key inputs to generate the LoM schedules:

- Processing plant capacities,
- Supply chain constraints (e.g., rail or port capacity),
- Approval dates for future pits, and
- Vertical bench progression to account for contour mining and dewatering.

13.3.2 Mining Unit Dimensions, Mining Dilution and Recovery Factors

The adequate selective mining unit (SMU) dimensions can vary between different deposits and the following factors are considered to determine the appropriate SMU size:

- Mining Equipment type and size,
- Orebody characteristics, and
- Integrity of the underlying resource model (e.g., data support, original block size)

The resource model is regularised from a sub-block model to a regular sized block model. The process of regularisation simulates the ore loss (mining recovery) and expected dilution due to the characteristics of the mining equipment. WAIO mining operations are bulk open-cut mining methods utilising large excavators (~350 t range) and therefore larger regularised block sizes are most appropriate.

The SMU sizes range from 10m x 10m x 4m (XYZ) for excavator operations to 10m x 10m x 12m for face shovel operations.

Overall mining recovery between the sub-block and regularised models usually varies between 90% and 95% for most deposits. Quarterly and annual reconciliation of Mineral Reserves (outlined in Section 12.2.6) are completed to assess how well the estimates are performing for the reporting periods. WAIO historic reconciliation demonstrates a robust performance and hence the adequacy of the selected SMUs.

13.3.3 Production Schedule

Figure 13-8 show the production schedule for WAIO that comprises the overall Mineral Reserves for WAIO and covers a period of 30 years. The average mining production rate over the first 10 years is approximately 240 Mtpa, which is reflective of process plant and supply chain capacity. WAIO has demonstrated achieving this production rate within the operations.

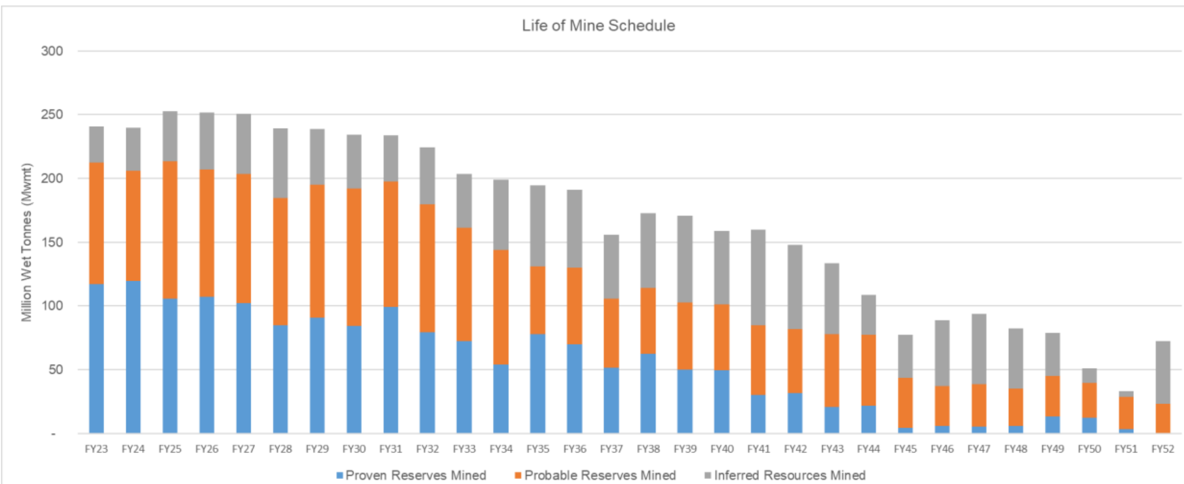


Figure 13-8: Production Schedule for WAIO

The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

Overall ore production includes some Inferred Mineral Resources which are mined concurrently from the pits with Mineral Reserves. However, to demonstrate the economic viability of the Mineral Reserves, only Mineral Reserves have been considered to generate the revenue. No revenue has been assigned to the production from Inferred Mineral Resources. This is further detailed in Section 19.

13.4 Requirements for Overburden Stripping

Development of new deposits requires pre-stripping of the overburden and is taken into account within the mine plan processes. The future deposits required to sustain production are added progressively and sufficient time is allowed for development activities (e.g., land clearing, construction of access roads and pre-stripping of waste) before ore production commences.

WAIO orebodies are near surface, relatively flat dipping and with low strip ratios therefore the lead time required for development of new deposits does not have a material impact on the Mineral Reserve estimates and economic viability of the mine plan.

13.5 Mining Equipment Fleet and Machinery

Table 13-10 provides the current production mining fleet used across all WAIO mining areas. The mining width, applied in pit and pushback designs, and the SMU size, for mining models, reflect the use of this equipment.

The rate of production in the current mine plan does not increase significantly in the future. The mining equipment fleet currently available for use is adequate to support the LoA schedule based in the demonstrated historical performance along with realised efficiencies achieved over a number of years.

Sustaining capital allocation for any equipment rebuild and replacement is considered in the economic analysis of the production plan.

Table 13-10: Production Mining Fleet used Across WAIO

WAIO Fleet	Fleet Type	Units FY2022
Primary Excavator	Liebherr 996/9600	21
Production Excavator	Liebherr 9400	23
Production Loader	Komatsu WA1200 - CAT 994K - CAT 994F	24
Primary Trucks	CAT 793 (model F, D, C)	207
Primary Trucks	Komatsu 930E	41
Trucks	CAT 789	11
Primary Drill	Atlas Copco Pit Viper 271	26
Contour Drill	Atlas Copco D65	12

14 Processing and Recovery Methods

WAIO's run-of-mine (ROM) ore is hematite type direct shipping ore (DSO) with average iron content not less than 60% for Brockman (BKM) and Marra Mamba (MM) ore types and not less than 56.5% for Channel Iron Deposit (CID) ore type. The ore is also higher-quality with deleterious contents within acceptable limits and is capable of being fed to the blast furnace for iron and steel making, without the need of any concentration or beneficiation. Therefore, the processing involved is simple crushing and screening of the ROM to produce the two industry-standard DSO marketable ore types, namely lump (with nominal particle size >6.3mm) and fines (with size <6.3mm).

A dry processing method is used for crushing and screening. This method is simple and well understood and widely used by most DSO producers in the Pilbara. The ROM ore is first crushed in a primary crusher set up near the mine. The crushed ore is then transported via an overland conveyor to an Ore Handling Plant (OHP), housing secondary and/or tertiary crushers and screens, for further crushing and screening. The OHPs are located close to a train load-out (TLO) station. For larger mines, two or more OHP's are centrally located around the TLO station(s) and form a processing hub. Currently there are four processing hubs in WAIO, namely, Newman Operations, Jimblebar, Mining Area C - South Flank and Yandi.

In WAIO, only one OHP, the Whaleback Beneficiation Plant located at Newman Operations, uses heavy-media separation to beneficiate a select part of the BKM ore from the Mount Whaleback deposit. The production from this plant was 4.7 Mt in FY2022, accounting for less than 2% of WAIO's annual production.

All dry OHP's typically recover 100% mass of the ROM feed in the form of either lump or fines, whereas the Whaleback Beneficiation Plant typically recovers approximately 95% wet mass of the plant feed.

Further details of these processing hubs, including flow sheet and throughput, are provided in the following sections.

14.1 Flow Sheet of Current Process Plants

WAIO currently has 13 OHPs across four processing hubs. Of these, 12 OHPs dry process ROM ore by only crushing and screening. Only one OHP, the Whaleback Beneficiation Plant in Newman processing hub, has additional facility to beneficiate ROM ore using heavy media separation. The process flow for these two types of plants are described below.

14.1.1 Flow Sheet for Plants involving Crushing and Screening only

The ROM ore is first crushed in a primary crusher close to the mine and then the crushed ore is delivered to the OHP for further crushing and screening of the ore into lump and fines fractions based on particle size. The lump and fines ore types are then sent to stockpiles for subsequent loading onto trains and transporting to the port. Therefore, OHPs at all processing hubs are suitably located near a TLO facility. These OHPs are dry process plants and recover 100% mass of plant feed.

All OHPs of this type follow the same process flow, only the physical plant layouts and the number of crushers and screens vary based on site conditions and requirements

The process flow for Mining Area C Ore Handling Plant 2 is shown in Figure 14-1 to provide an illustration of the generic process flow for all plants described above.

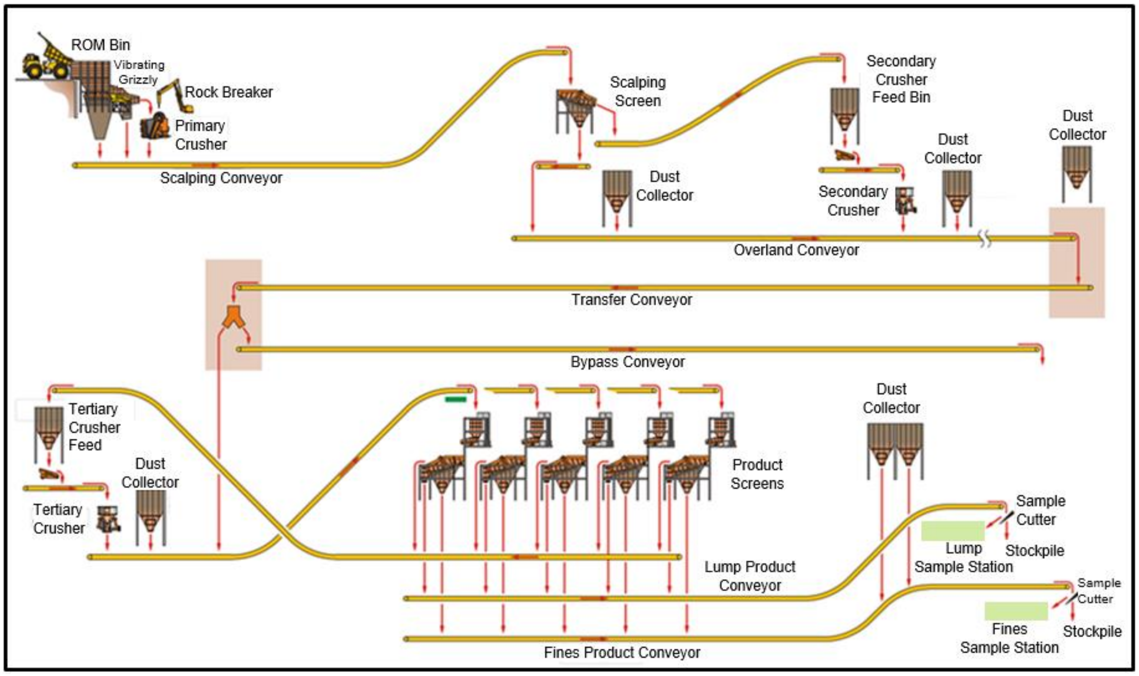


Figure 14-1: Mining Area C Ore Handling Plant 2 Process Flow

14.1.2 Flow Sheet for Whaleback Beneficiation Plant

The Whaleback Beneficiation Plant is specially designed to process a relatively lower-grade Brockman (BKM) ore with iron content averaging around 59% produced from the Mount Whaleback deposit. In addition to crushing and screening, additional process steps involved are dense media separation of coarse streams, wet size separation of finer streams and dewatering. The iron content in the processed ore from this plant is not less than 60%. The mass yield through this plant commonly is typically 95% of the feed on a wet tonnage basis. A schematic process overview of this plant is shown in Figure 14-2.

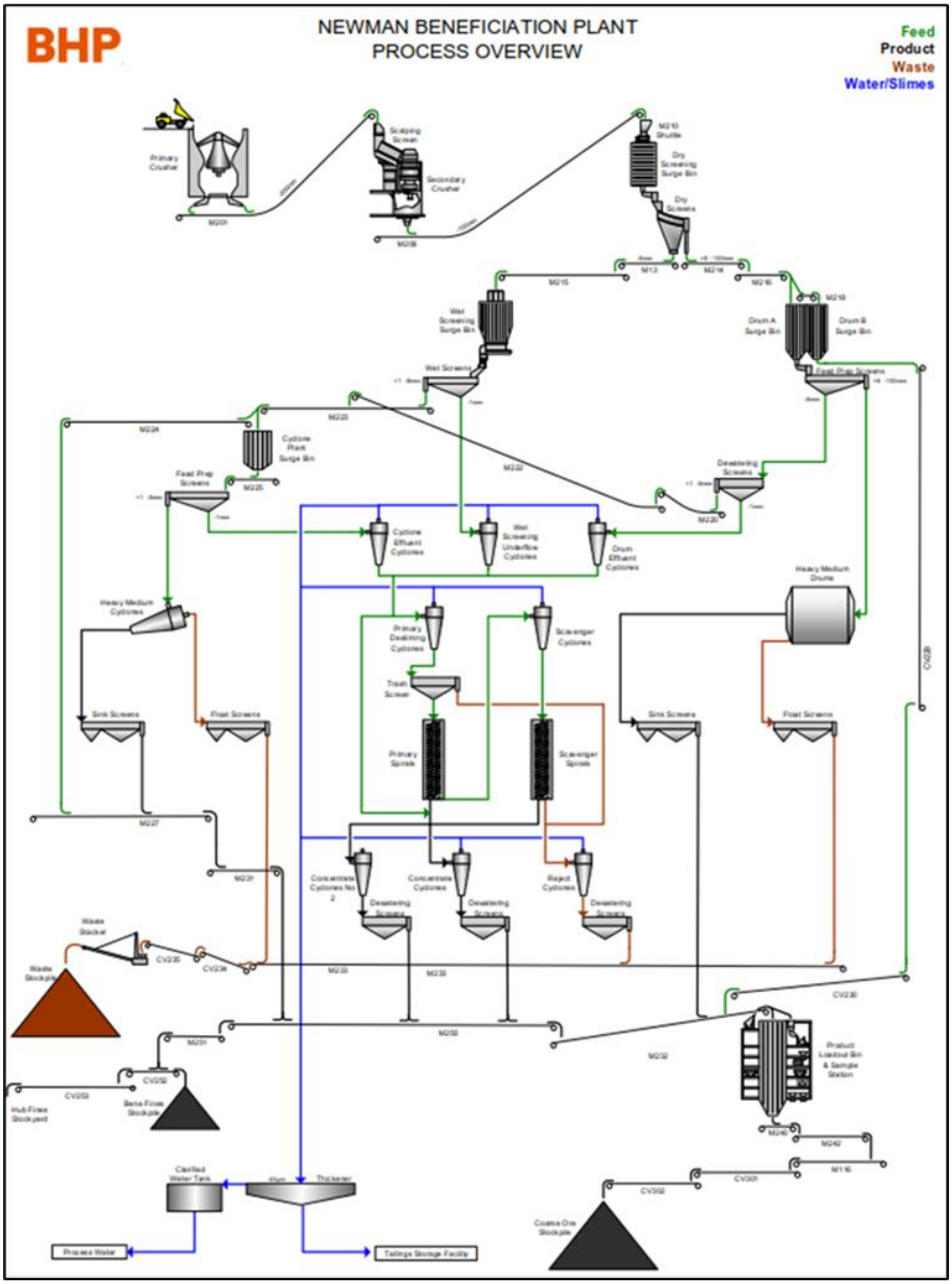


Figure 14-2: Schematic of the Whaleback Beneficiation Plant Process Overview

14.2 Processing Hubs – Throughput and Design

A summary of Newman, Yandi, Jimblebar and Mining Area C-South Flank processing hubs along with their nominal capacities are provided in Table 14-1.

Table 14-1: Summary and Nominal Capacity of the Process Plants

Plant location	Start Year	Type of Feed	Details of Process Plant	Nominal Capacity
Newman	1969	BKM and MM	OHP and Whaleback Beneficiation Plant (heavy media) Three primary crushers and OHPs, stockyard blending facility, single cell rotary car dumper, train load-out	75 Mtpa
Orebody 24	-	BKM	Primary crusher (crushed ore sent to Newman for final processing)	23.5 Mtpa
Orebody 25	1989	MM	Primary crusher and OHP	12 Mtpa
Yandi*	1992	CID	Three OHPs, stockyard blending facility and two train load-outs	80 Mtpa
Jimblebar	2013	BKM and MM	Three primary crushers, central OHP, stockyard blending facility, two train load-outs	71 Mtpa
Mining Area C	2003	BKM and MM	Two primary crushers, two OHPs, stockyard blending facility and train load-out	60 Mtpa
South Flank*	2021	MM	Primary crushers, OHP, stockyard blending facility and train load-out	80 Mtpa

** Throughputs for the process plants at Yandi and South Flank are below their nominal capacity. As previously mentioned, the end-of-life ramp-down for Yandi commenced in July 2021 and the South Flank is still ramping up to its full capacity.*

The details of equipment at each OHP are listed Table 14-2.

Table 14-2: Equipment Summary for the Process Plants

Plant Name	Primary Crusher	Secondary Crusher	Tertiary Crusher	Screens
Newman OHP 2	Jaw	Gyratory	-	Grizzly, double deck banana
Newman OHP 3*	Gyratory	Cone	-	Double deck banana
Newman OHP 4	-	-	Cone	Double deck banana
Newman OHP 5	Jaw	Cone	-	Double deck banana
OB25	Jaw	Cone	-	Grizzly, double deck banana
OB24	Gyratory	-	-	-
Jimblebar	Gyratory	Cone	-	Double deck banana
MAC OHP 1	Jaw	Cone	-	Grizzly, double deck banana
MAC OHP 2	Jaw	Cone	Cone	Grizzly, double and single deck banana
South Flank	Gyratory	Cone	-	Double deck banana
Yandi OHP 1	Jaw	Cone	Cone	Double deck banana
Yandi OHP 2	Jaw	Cone	Cone	Double deck banana
Yandi OHP 3	Sizer	Sizer	Cone	Double deck banana

** This is a beneficiation plant with hydrocyclones, heavy medium drums and spirals.*

The make and model of crushers and screens installed in various OHPs are listed in Table 14-3.

Table 14-3: Make and Model of Crushers and Screens

Type	Make/Supplier	Models
Jaw Crushers	Metso	C160, C200
	Terrex/Jacques	ST48, ST60
Gyratory Crushers	Metso	60-89, 50-65
Cone Crushers	Metso	HP800, MP800, MP1000
	Jacques	J50/150, J50/300, J65, RB4/150 and RB4/450
	Allis Chalmers	17x84 Hydrocone and 30/70 Superior
	Sandvick	H8000
Grizzly Screens	ThyssenKrupp	DU-STK24-2.6x4.0(5.6) ED
Vibrating Screens	Jacques/Jost	SGR 1420x5270, 1700 x3520xJR608, 2100x6500xJR808, 1700x5270x18200
	Schenck Process	3.7x7.6m, 3.66x9.14m, 3.6x7.3m, 3.0x6.1
	Metso	3.0x6.1m Double Deck Banana Screen
	Allis Chalmers	20x8 Double Deck Banana Screen
	Humbolt	2.4x4.5 RS Screen
	Forder Technik	WF 125 III – 5000 DU

The hydrocylcones (made by Linatex, Concord, CMI-Multotec and Warman), magnetic separators (Eriez 915x2400), heavy medium drums (Wemco 4270x3660) and spirals (Roche MT HG10A/7 and Multotec SC20LG) are used in the Whaleback Beneficiation Plant.

14.2.1 Newman Operations Processing Hub

The Newman Operations processing hub currently comprises three primary crushers and three OHPs including the Whaleback Beneficiation Plant. This hub started its first production in 1969 with the opening of the Mount Whaleback mine, but the rate of production has increased significantly since then. Production from Orebodies 29, 30 and 35 complements production from Mount Whaleback. The Whaleback Beneficiation Plant has been in operation since 1985. The nearby Eastern Ridge satellite mine (Orebodies 24 and 32) has its own primary crusher but feeds into the Newman Operations processing hub. Ore from the Shovelanna deposit (Orebody 31), located at a distance of about 40km to the east, is also processed at the Newman Operations Processing hub. The combined nominal capacity of this processing hub is 75 Mtpa. The ROM ore is sourced from both Brockman (BKM) and Marra Mamba (MM) ore types at proportions determined by the mine schedule.

This processing hub has a stockyard blending facility, a single cell rotary car dumper and a train load out.

The Eastern Ridge has also a separate primary crusher and OHP to process Marra Mamba ore from Orebody 25. The plant has been operating since 1989 and currently it has a 12 Mtpa nominal capacity.

These OHPs typically recover 100% mass of plant feed and produce both lump and fines ore types with a nominal split to lump stream of 30-40%.

The production from Whaleback Beneficiation Plant was 4.7 Mt in FY2022 and contributed less than 2% of the total annual WAIO production. The mass yield through this plant was 95% of the feed on a wet tonnage basis. This beneficiation plant also produces both lump and fines ore types, each with iron content no less than 60%. These lump and fines ore types are no different to those produced in other OHPs and are blended with corresponding ore types from the other Newman OHPs.

The beneficiation plant generated approximately 0.2 Mt of tailings in FY2022, which was sent to a Tailings Storage Facility (see Section 15.4 for details). Lump rejects from the Whaleback Beneficiation plant are stockpiled on site directly from the plant with no further treatment. Fines rejects are thickened through a conventional above ground thickener and then pumped to the tailings storage facility. Both lump rejects and fines tailings are inert substances and chemically are low risk. This form of tailings storage is common across the Pilbara region.

14.2.2 Yandi Processing Hub

Yandi processing hub started operations in 1992 to process ore exclusively from the Channel Iron Deposits (CID) and produce a fines only ore type. The production rate of this hub also has increased over time and currently it has four primary crushers and three OHPs with a combined nominal capacity of 80 Mtpa. It also recovers 100% mass of plant feed.

This processing hub has a stockyard blending facility and two train load outs.

This facility has already processed >1.3 billion tonnes through to 30 June 2021, but the mine is reaching the end of its life. Therefore, production ramp down, along with the closure and decommissioning of associated infrastructure, started in July 2021 and has continued into June 2022. Once Yandi mine is fully exhausted, parts of the Yandi processing facilities are likely to be used to process ROM feed from nearby BKM deposits.

14.2.3 Mining Area C – South Flank Processing Hub

The Mining Area C – South Flank processing hub has two facilities, one for the Mining Area C mine and the other for the South Flank mine.

The Mining Area C processing plant started in 2003 and currently has two primary crushers and two OHP’s. It processes ROM ore from both Brockman (BKM) and Marra Mamba (MM) deposits at proportions determined by the mine schedule. The nominal capacity of Mining Area C processing facility 60 Mtpa.

The South Flank processing plant is new and was commissioned only in May 2021. It has two primary crushers located at the mine site and one OHP located close to the Mining Area C OHPs. This plant has been built with a nominal capacity of 80 Mtpa, which will be reached in 2023-24. It recovers 100% mass of plant feed (all Marra Mamba type) and produces both lump and fines ore types with a nominal split to lump stream of 30-40%.

This processing hub has a stockyard blending facility and a train load out.

14.2.4 Jimblebar Processing Hub

Jimblebar processing hub started production in 2013 and currently has three primary crushers closer to mining sites and one central OHP with a nominal capacity of 71 Mtpa. In addition to the OHP, this processing hub has a stockyard blending facility and a train load out. This hub processes ROM ore sourced from both Brockman (BKM) and Marra Mamba (MM) deposits at proportions determined by the mine schedule.

The OHP recovers 100% mass of plant feed and produce both lump and fines ore types with a nominal split to lump stream of 30-40%.

14.3 Requirements of Energy, Water etc

WAIO has a long history of successful iron ore mining in the Pilbara starting in 1960’s. This has led to the gradual establishment of all infrastructure required to operate WAIO’s mining and processing hubs. The first mining and processing operations started at Newman Operations in 1969. This was followed by Yandi in 1992, Mining Area C in 2003 and Jimblebar in 2013. All these processing hubs have been operating continuously since their start, though their capacities have been increased by adding new crushing / and screening circuits. South Flank is the newest mine and mining there commenced in May 2021 as part of the Mining Area C processing hub.

14.3.1 Energy

All four processing hubs receive their energy requirements from the WAIO owned and operated 190 MW Yarnima Power Station, located at Newman (see Section 15.5 for details). The power is supplied to the hubs via 132 kv and 33 kv overhead power lines. The primary power demand at the processing hubs is from crushing and screening plants, stacking, reclaiming and train load-outs.

The 12-month average electrical load is 16 MW, 20 MW, 20 MW and 17 MW for Newman Operations, Jimblebar, Mining Area C and Yandi, respectively.

14.3.2 Water

WAIO’s process plants (except the Whaleback Beneficiation Plant) operate on a dry basis and water supply to the processing plants is primarily for the purpose of dust suppression, cleaning of equipment and fire suppression / safety systems. The combined usage of water for mining and processing by hub is shown in Table 15-1.

14.3.3 Process Materials

There are no process material requirements for the OHPs, as they operate on a dry basis, other than equipment replacement parts. The Whaleback Beneficiation Plant consumes only ferrosilicon as a process material, the consumption volume of which is dependent on the feed ore type and operation of the plant.

14.3.4 Personnel

The processing plants are fully staffed with 400, 240, 370 and 240 personnel currently working at Newman, Jimblebar, Mining Area C and Yandi respectively.

14.4 Novel Processing Methods

No novel processing methods are used or contemplated. Both the current metallurgical processes, simple crushing and screening as well as beneficiation, are well tested and proven processing methodologies and have been in use at WAIO for decades.

15 Infrastructure

WAIO's basic value chain providing a high-level overview of its infrastructure is shown in Figure 15-1. The value chain comprise three major sub-systems: Mine, Rail and Port, with 10 process steps listed below.

1. Mining, including drill and blast, and load and haul;
2. Mine processing and ore handling plant including crushing and screening;
3. Mine stacking (stockpiling) into the ore types of lumps and fines;
4. Train loading;
5. Train empty and loaded travel to and from the port facilities;
6. Port car dumping (train unloading);
7. Port direct ship loading (ore is taken directly to the vessel, skipping process steps eight to ten);
8. Port stacking (stockpiling) into the ore types;
9. Port reclaiming;
10. Port ship loading.

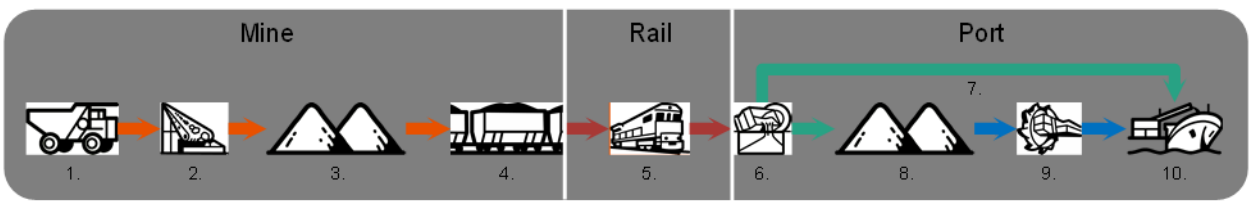


Figure 15-1: Basic Value Chain for WAIO

15.1 Roads, Rail and Port Facilities

WAIO is a fully integrated system of four processing and five mining hubs, connected by more than 1,000km of proprietary rail infrastructure to its two port facilities at Port Hedland.

The Great Northern Highway, Northwest Coastal Highway and other public roads provide road access to WAIO operations from Perth and other regional towns. Roads to WAIO operations from these public roads are owned and operated by WAIO.

A map with the location of mines, BHP-owned rail and ports, along with major public roads, is provided in Figure 15-2.

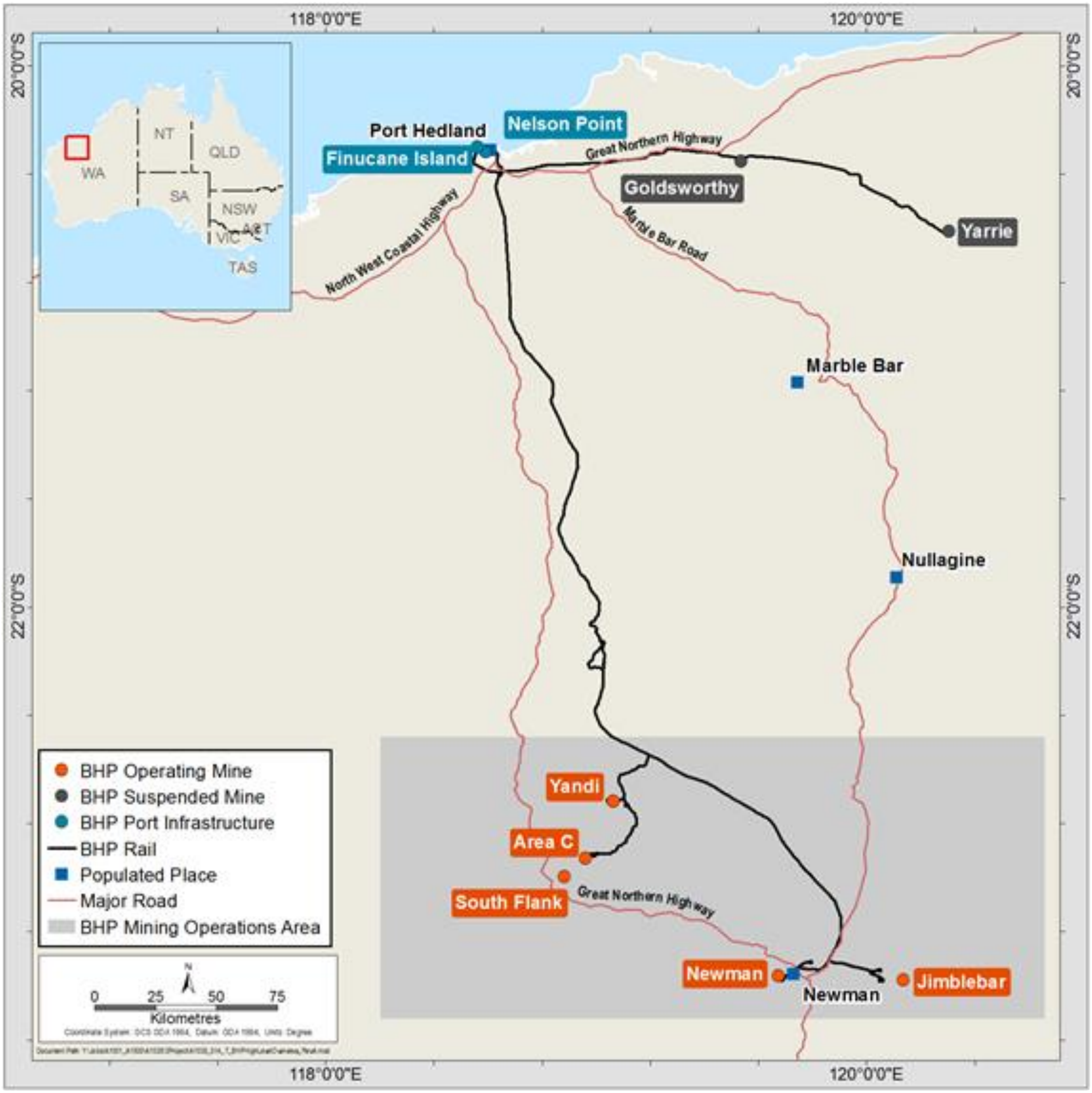


Figure 15-2: Simplified Map of WAIO Operations and Infrastructure

A map showing WAIO's port infrastructure at Port Hedland is provided in Figure 15-3.

Figure 15-3: Simplified Map of Port Hedland Port Infrastructure

15.2 Dams

Ophthalmia Dam, located 12km northeast of Newman town, is a WAIO-owned water reservoir and most parts of the dam structure and reservoir area fall within WAIO tenure. This dam is located in a drinking water catchment and the underlying aquifer, which it recharges, is used for the extraction of groundwater to support Newman town and WAIO's Newman Operations. The quality of dam's water is jointly managed by BHP, the Shire of East Pilbara and the Western Australia Department of Health.

15.3 Dumps and Leach Pads

The storage and management of waste rock generated from the mines have already been described in Sections 13.2.7 and 13.2.8.

Small volumes of run-of-mine ore (mainly blend-grade material) are stored in pre-crusher stockpiles for feeding into future production. At the same time, based on requirements, certain volumes of previously stockpiled ore (above the dead stock) are also drawn and fed to crushers annually.

No leach pads are used in WAIO operations.

15.4 Tailings Disposal

Since 1985, WAIO has operated one beneficiation plant, at the Newman Operations, which generates tailings. In FY2022, this plant generated approximately 0.2 Mt of tailings.

Tailings from this plant are managed through wet deposition into a purpose-built active upstream Tailings Storage Facility (TSF) located at a distance of about 2km from the plant.

The TSF currently holds about 25 Mt of tailings and is forecast to reach capacity in the next few years. Studies have commenced for wall lifts of the existing TSF as well as the option for using a nearby mined out pit as an in-pit tailings facility. An alternative facility is planned to be in place prior to reaching the existing TSF's capacity.

15.5 Power, Water, and Pipelines

Power – BHP owns and operates a power station at Yarnima in Newman, which supplies electrical power via its own transmission and distribution network of overhead 132 kv and 33 kv power lines to all WAIO iron ore mining hubs and the township of Newman. With 190 MW of installed generator capacity, Yarnima Power Station is a high-efficiency, gas-fired, combined-cycle power station with backup diesel firing capability (in case of gas supply disruption).

There is a ~10 MW diesel-based power station at Area C mine and a 24 MW hired diesel-based temporary power station adjacent to Yarnima that augments power generation in case of power disruption / emergency.

The WAIO mines and Newman township, which are fed from Yarnima Power Station, typically consume about 80 – 100 MW of power on average, with peak demand reaching 130 to 140 MW. The primary power demand at the mines is from crushing and screening plants, stacking, reclaiming and train load-outs. There is minimal power demand from mining and ancillary infrastructure.

Power consumed for WAIO's port operations at Port Hedland is purchased via a power purchase agreement with Alinta Energy, a large energy supplier in Australia, which has 5 open-cycle gas turbines located south of Port Hedland spread across two sites. BHP's current agreement with Alinta Energy is due to expire in 2024, but negotiations for a new agreement from 2025 onwards are underway. WAIO's port operations typically consume about 37 MW on average, peaking at 70 MW. The power demand is spread between ore dumping, stacking, re-screening, reclaiming and ship loading operations.

Water and Pipelines – As described earlier in Section 4.4, groundwater is the primary freshwater source for WAIO and is extracted from production and dewatering bores with abstraction volumes as per licence requirements for use in all mining and processing operations. The water is supplied to various sites through a network of over and underground water pipelines along with associated tanks and control infrastructure. Water consumption is linked to mining rates, and water supply and infrastructure capacity is included in development plans accordingly.

Recent water use across WAIO mines and Port for FY21 is shown in Table 15-1. Water use is primarily for dust suppression during mining and processing and shows seasonal variation, consumption increasing in the hotter weather.

Table 15-1: Water usage at various WAIO sites in FY2021

Site	Newman	Jimblebar	Mining Area C	Yandi	Port	Total
Consumption (in Gigalitres)	12.0	5.8	3.8	3.9	3.8	29.3

Once operational demand has been met, surplus water may remain that needs to be disposed of in line with environmental approvals and licenses. WAIO has an ongoing program to return water to ground via injection bores and infiltration structures. This program aims to treat water resources in the Pilbara region in a responsible way and, where practicable, maintain water levels in local aquifers to mitigate impacts and preserve water for future use.

15.6 Infrastructure Layout Maps for Mines

Local infrastructure layout maps for each of the operational mining areas, namely Newman, Jimblebar, Mining Area C - South Flank and Yandi are shown in Figure 15-4, Figure 15-5, Figure 15-6 and Figure 15-7 respectively.

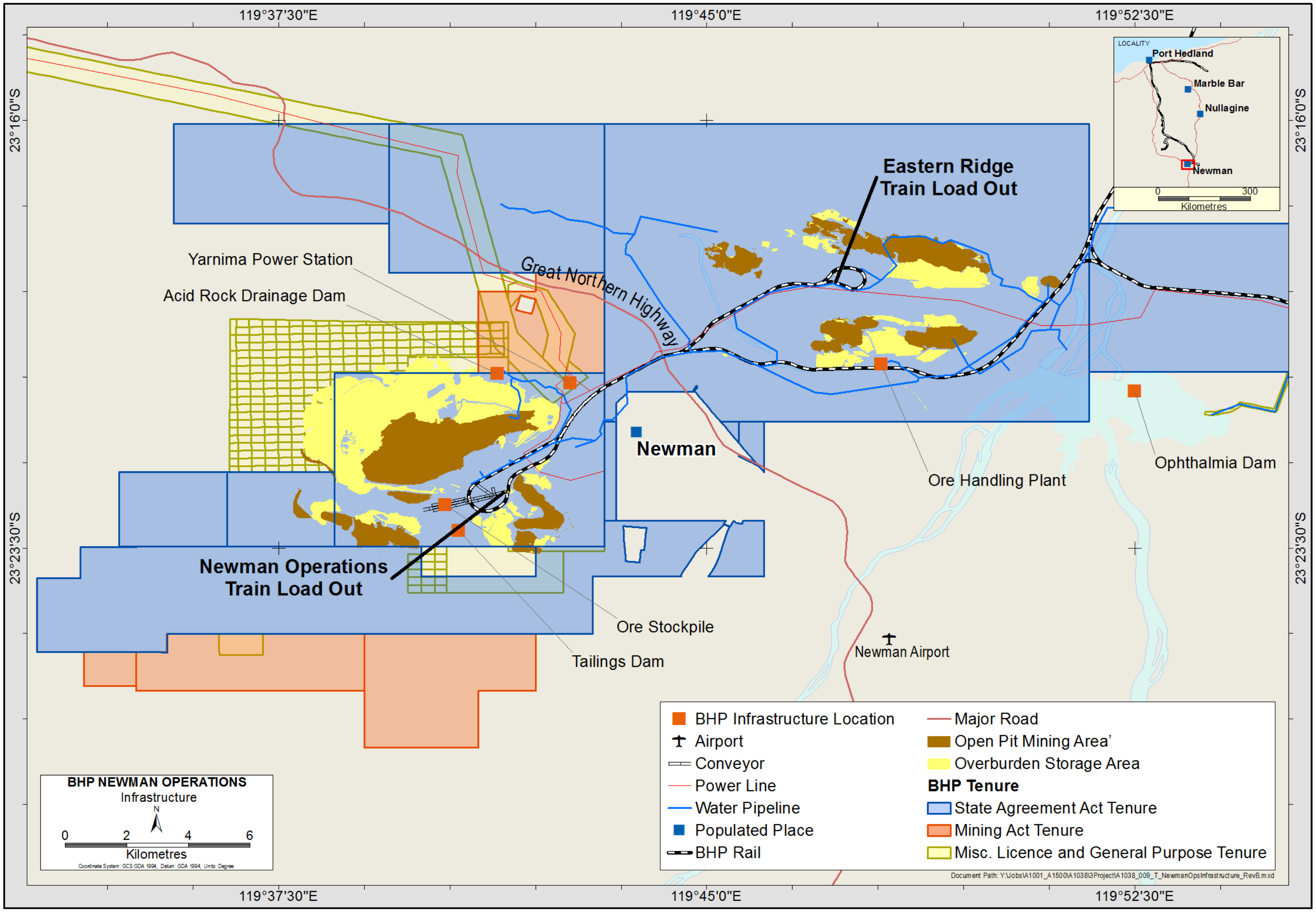


Figure 15-4: Infrastructure Layout Map – Newman Area

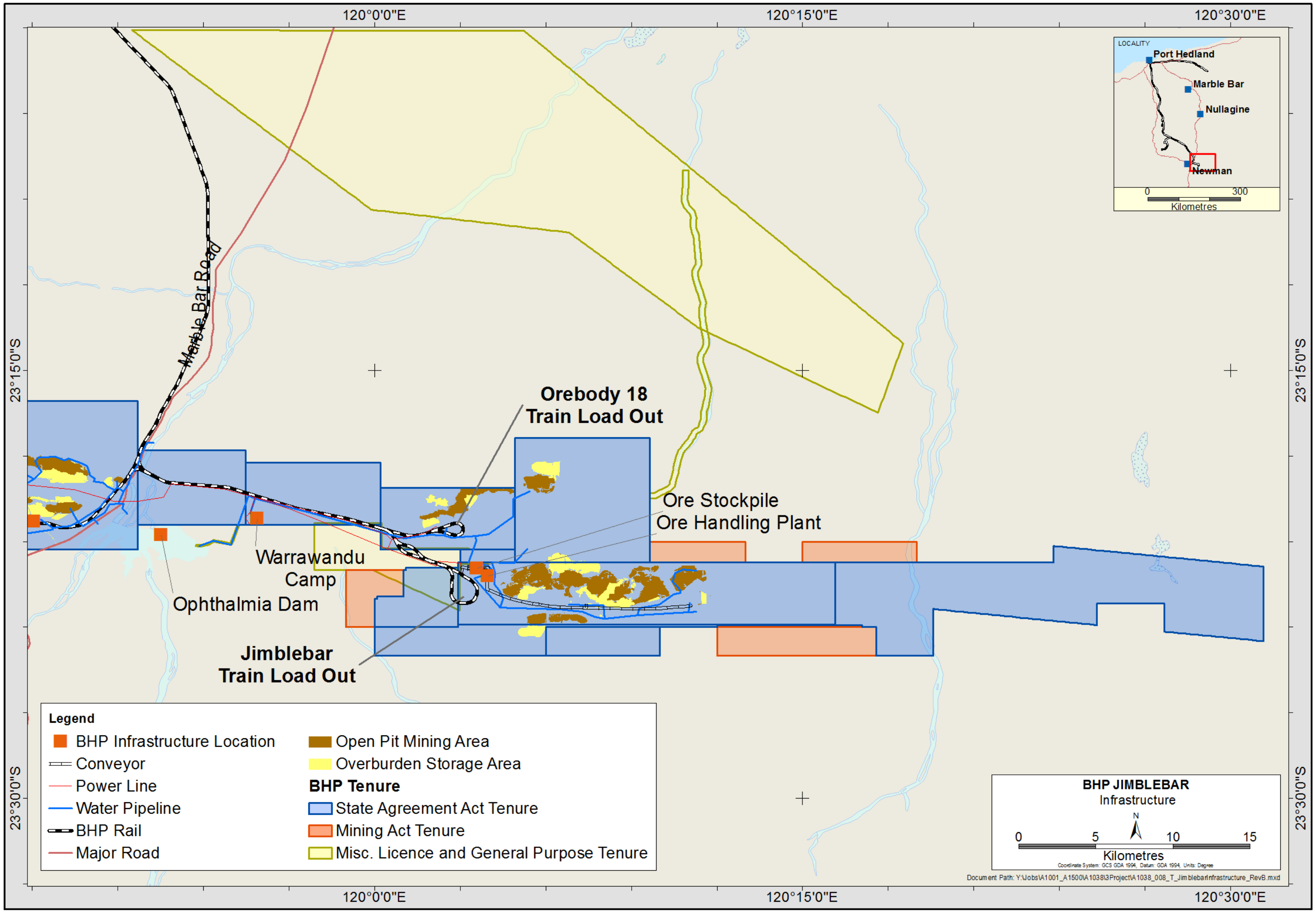


Figure 15-5: Infrastructure Layout Map – Jimblebar Area

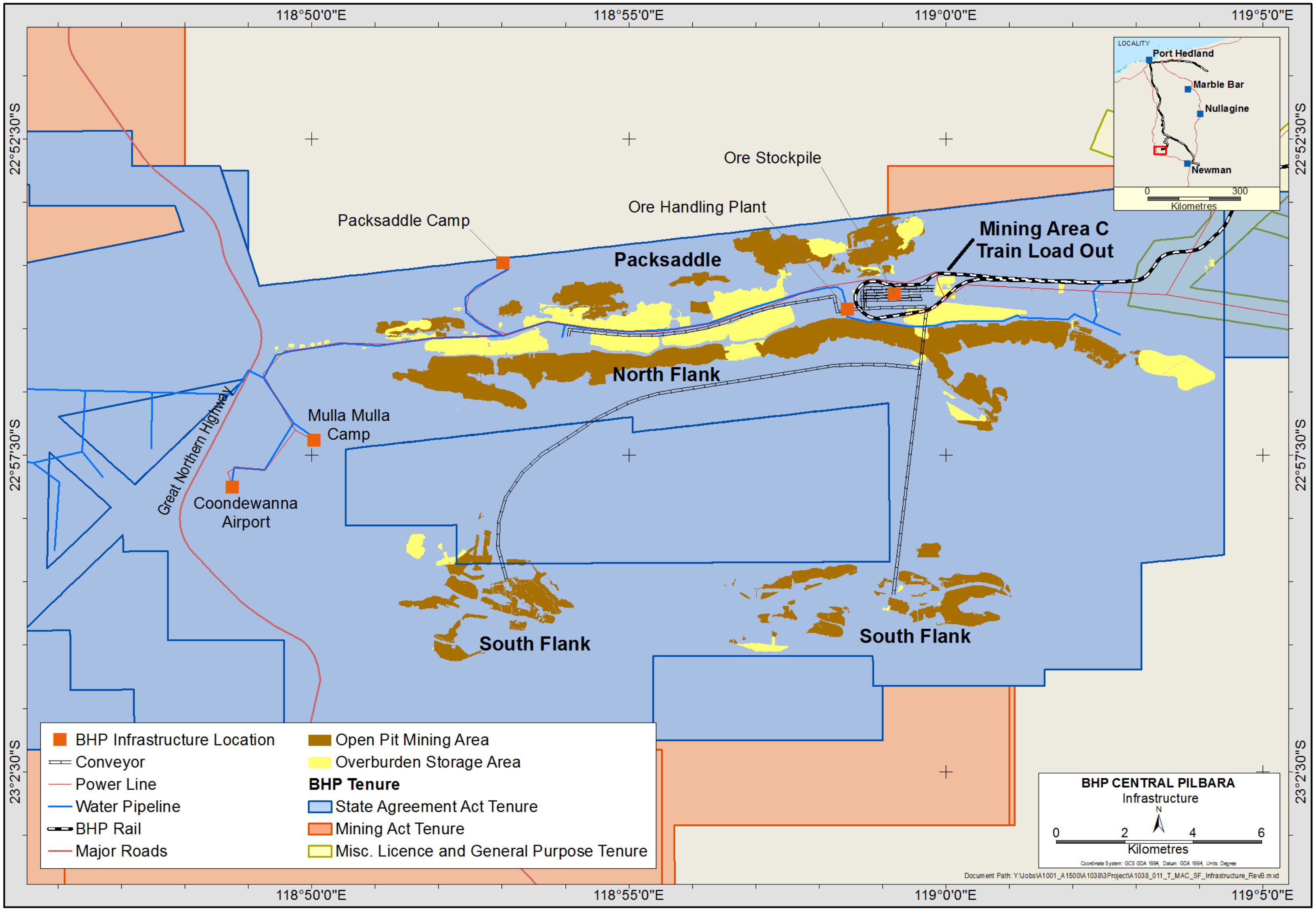


Figure 15-6: Infrastructure Layout Map – Mining Area C and South Flank Areas

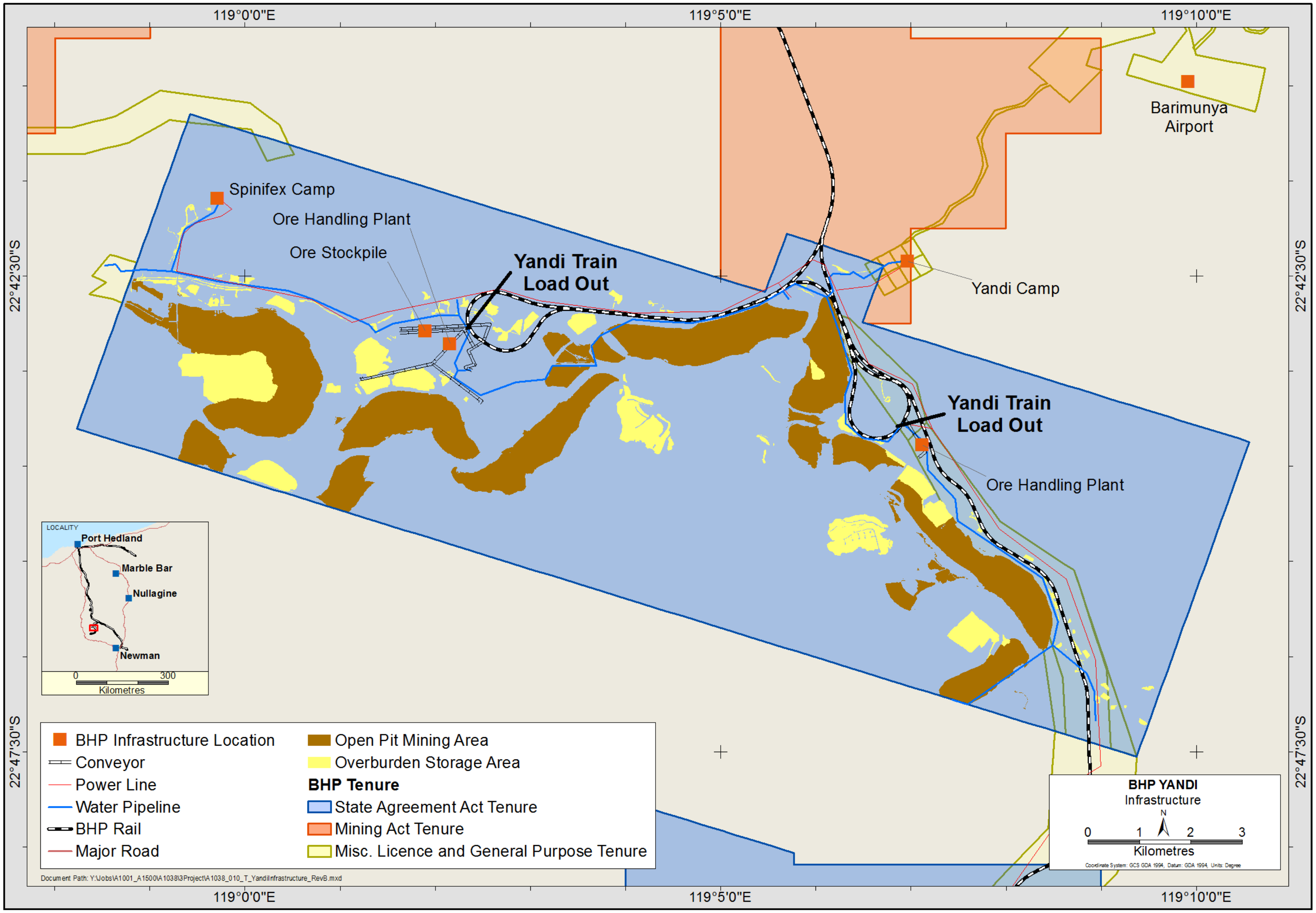


Figure 15-7: Infrastructure Layout Map – Yandi Areas

16 Market Studies

WAIO produces direct shipping iron ore, which is sold in the form of lump (nominal grain size >6.3mm) and fines (nominal grain size <6.3mm). Currently there is one lump brand (Newman Blended Lump) and four fines brands (Newman High-grade Fines, MAC Fines, Jimblebar Fines and Yandi Fines).

Information concerning markets for iron ore is described below. Market information for this section is sourced from the industry analysis prepared by BHP's Market Analysis and Economics team in January 2022, based on BHP internal information as well as information sourced from industry consultants.

The Mineral Reserve QPs have reviewed the market information and analyses in this section and are of the opinion that the results support the commodity price assumptions in this Technical Report Summary.

16.1 Markets for the Property's Production

Iron ore is the primary raw material for iron and steel-making: steel is an important building block for construction, transportation, energy infrastructure and household appliances, etc. Therefore the demand for iron ore is expected to continue over the length of cash flow for WAIO, which is currently projected to 2052.

Global crude steel production has more than doubled over the past two decades, from 0.85 billion tonnes in 2000 to 1.95 billion tonnes in 2021 (source: World Steel Association), to fuel global economic growth, urbanisation and industrialisation. During the same period, China's production has increased from 131 Mt in 2000 to 1033 Mt in 2021 (source: World Steel Association), contributing the bulk of the global increase.

Out of the 2.3 billion tonnes total iron ore consumed in 2021 globally, 1.5 billion tonnes are traded on the seaborne market. Asia is the largest customer location, sharing ~90% of the seaborne iron ore demand, with most of the seaborne iron ore going to China, Japan and South Korea. China is the single largest customer location, accounting for over 70% of the seaborne iron ore demand (source: Iron ore market service – Q3 2021 outlook to 2035).

On the supply side, Australia, Brazil and South Africa are the major seaborne iron ore supply countries supplying over 80% of the market in 2021. Australia is the single largest iron ore producing country, supplying close to 60% in CY2021 of the seaborne trade (source: Iron ore market service – Q3 2021 outlook to 2035).

16.1.1 Historical Pricing

The iron ore fines (62% Fe) index is the most widely quoted index in the market as a result of the sizable share of this material traded on the seaborne supply. Given that China is the single largest customer location for the seaborne iron ore trade, the iron ore indexes are mostly quoted on the cost and freight (CFR) China term, with the free-on-board (FOB)

Australia prices calculated from the CFR prices by deducting freight cost. The iron ore fines 62% Fe (also referred to as sinter fines 62% Fe), FOB Australia prices from Wood Mackenzie (a reputable industry research institute and consultancy covering metals, minerals and energy sectors) are shown for reference in Table 16-1.

Table 16-1: Sinter Fines 62% Fe FOB Dampier Nominal Prices (source Wood Mackenzie)

Year	2017	2018	2019	2020	2021
Price (US$)	64.9	61.8	85.7	101.6	148.1

The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

As per '*BHP's economic and commodity outlook Financial Year 2021*' (available on the BHP website): "Iron ore prices have been elevated since the Brumadinho tailings dam tragedy in Brazil first disrupted the market in early 2019. The combined impact of very strong Chinese pig iron production and Brazilian exports being unable to lift materially from depressed calendar 2019 levels far out-weighted record shipments from Australia."

In addition, new bullish demand factors for price have emerged, with the rest of the world (ROW) pig iron rebounding strongly from the COVID-19 trough and ex-China steel prices and margins ascending to spectacular levels.

16.1.2 Demand Profile

Iron ore demand is expected to plateau in the medium term before trending downwards driven by the eased demand from China. The plateau of steel demand and the rising share of steel scrap in China will translate into a lower iron ore demand in the long run. Despite the projected demand from the developing countries (from a low starting point), this will not be sufficient to offset the demand decline in China.

Wood Mackenzie forecasts global seaborne imports to plateau during CY20-25, with the ease of Chinese imports from the peak being offset by the broad-based growth and recovery ex-China. During the decade after 2025, the seaborne demand will be on a mild declining trend with the compound annual growth rate (CAGR) of -0.8%, with Chinese demand continue to ease at the pace of -1.7% CAGR, while ex-China demand grows by +1.0% CAGR during the same period. In the long run (2035-2050), the seaborne demand is expected to ease further in a pace around -0.3% per year, with China's demand to fall by -1.2% CAGR while the ex-China grow by +1.1% CAGR.

As per Wood Mackenzie '*Iron ore market service – Q3 2021 outlook to 2035*': "…the second half of 2021 marks a turning point for iron ore. Chinese demand is reaching a plateau owing to government policy restricting steel production. Wood Mackenzie's view is Chinese steel production is now entering a long-term structural downward trend. The outlook for hot metal production is more negative as rising scrap consumption and increased electric arc furnace (EAF) steel production further displaces iron ore demand. Elsewhere in the world there is growth in iron ore demand, especially in South East Asia, South America and the Middle East, but it is not sufficient to offset the declines in China to 2035."

16.1.3 Supply Profile

In contrast to the demand profile, Wood Mackenzie forecasts (Table 16-2) that seaborne iron ore supply is on the rise during CY2020-2025, driven by the restart of suspended operations in Brazil and the incremental capacity growth in Australia and Canada, among others. The restart of Brazilian production from Vale and Samarco, alone, would bring ~100Mt additional supply in CY2025 compared to CY2020, against a backdrop of a broadly unchanged seaborne demand during the same period. The increase in low-cost supply, overlaying with the long-term declining demand profile from CY2025, will result in a structurally oversupplied seaborne iron ore market and will weigh down iron ore prices. The potential development of Western African iron ore deposits would exert more downward pressure on the market.

Shipments may see a marginal decline afterwards as Australian juniors, together with other high-cost producers, will see a declined production in a low-price environment. Resource depletion could be another driver.

Table 16-2: Iron Ore Exports by Key Company (source Wood Mackenzie)

Mt	2020	2021	2022	2023	2024	2025	2035	*Change in mt*	
								2020-25	*2025-35*
Australia									
Rio Tinto	331	331	333	342	350	355	355	*24*	*0*
BHP Billiton	283	281	280	280	280	282	281	*-1*	*-1*
FMG	180	180	175	180	185	190	190	*10*	*0*
Other Australian mines	121	125	136	138	127	118	93	*-4*	*-24*
Brazil									
Vale	271	283	311	344	356	365	365	*94*	*0*
CSN	27	30	34	39	43	47	51	*20*	*4*
Samarco	0	6	7	7	7	7	22	*7*	*15*
Anglo American	24	24	25	25	25	25	25	*1*	*0*
Other Brazilian mines	20	10	11	14	15	16	13	*-4*	*-3*
South Africa									
Anglo American	39	40	38	39	40	39	34	*-0*	*-5*
Assmang Iron Ore	15	16	15	15	15	15	12	*1*	*-4*
Canada									
ArcelorMittal	19	19	21	21	21	21	21	*2*	*0*
Rio Tinto (IOC)	19	19	21	22	22	22	22	*3*	*0*

Source: Wood Mackenzie

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16.1.4 Iron Ore Cost Curve

The iron ore cost curve on the CFR China basis in CY2021 from Wood Mackenzie is shown in Figure 16-1. Australia and Brazil are not only the predominant iron ore supplying countries, but they dominate the low end of the cost curves. The cost curve is relatively flat up until the ~90% percentile of the cost curve, with a steep rise at the tail (~10%), which explains the spike in iron ore prices when the market became tight from 2019.

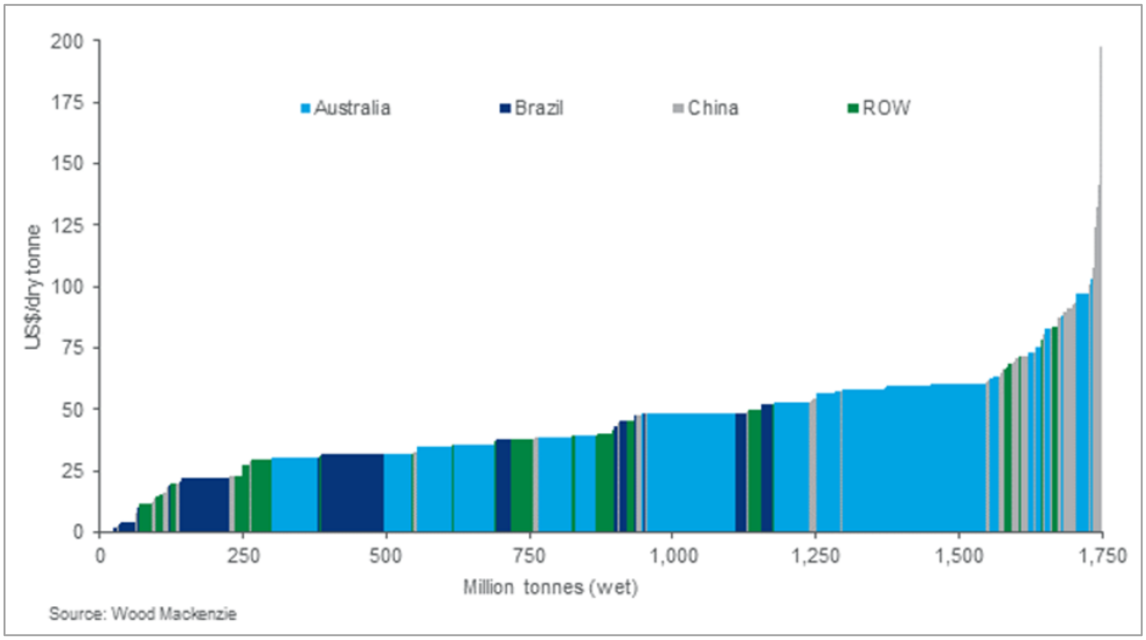

Figure 16-1: CY2021 VIU Adjusted[1] Iron Ore Cost Curve (CFR China, 62% Fe equivalent)

[1] VIU or Value-in-use Adjusted means iron ore production costs have been adjusted by taking into account the gangue components (silica, alumina, phosphorous and loss-on-ignition) in addition to the iron grade differential of the producers.

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16.1.5 Commodity Price Projections

Looking forward, the restart of operations in Brazil and the incremental growth in Australia and other low-cost production regions would bring a flatter cost curve in the long term. Combined with a declining outlook for demand, which would result in reduced iron ore cost support, Wood Mackenzie forecast a decline in iron ore prices (Figure 16-2).

As per Wood Mackenzie 'Iron ore market service – Q3 2021 outlook to 2035': "Wood Mackenzie expects prices need to fall to $70/t CFR (real terms) by 2024/25, based on their analysis of marginal costs, with reference to the volume of high cost "swing" supply that needs to withdraw from 2022 onwards to balance the market. Under a weak demand scenario, it is unlikely that prices will fall below $60/t CFR for a protracted period due to solid cost support around the 90th percentile of the cost curve for contestable supply."

For lump, Wood Mackenzie believes that 2021 marked the peak of the current lump mini cycle with an annual average premium of over $20/t. Their revised five-year forecast from 2021-2025 is $17/t (Figure 16-3). Wood Mackenzie's long-term forecast is for lump to trade at a premium of $15/t (real 2021 terms).

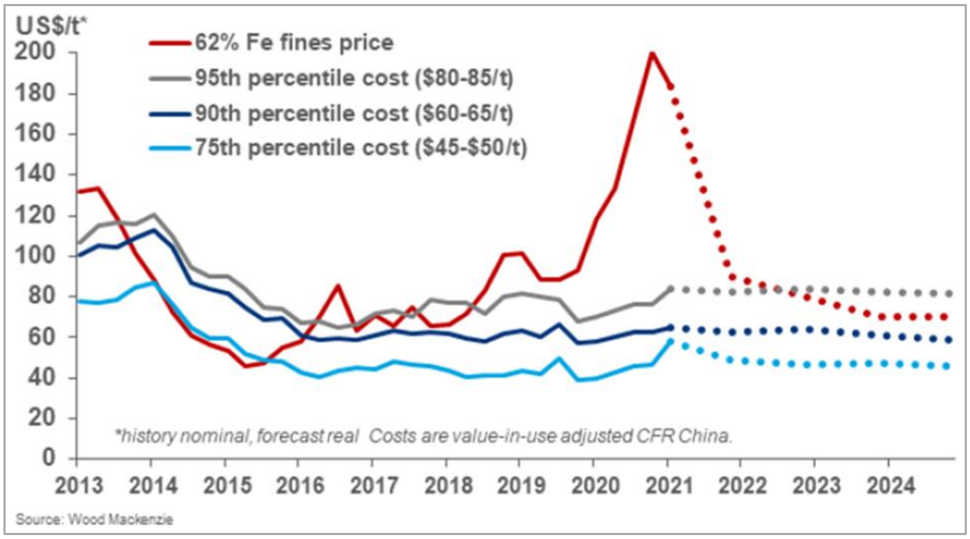

Figure 16-2: Price and Cash Cost, by Percentile Contestable Market (CFR China)

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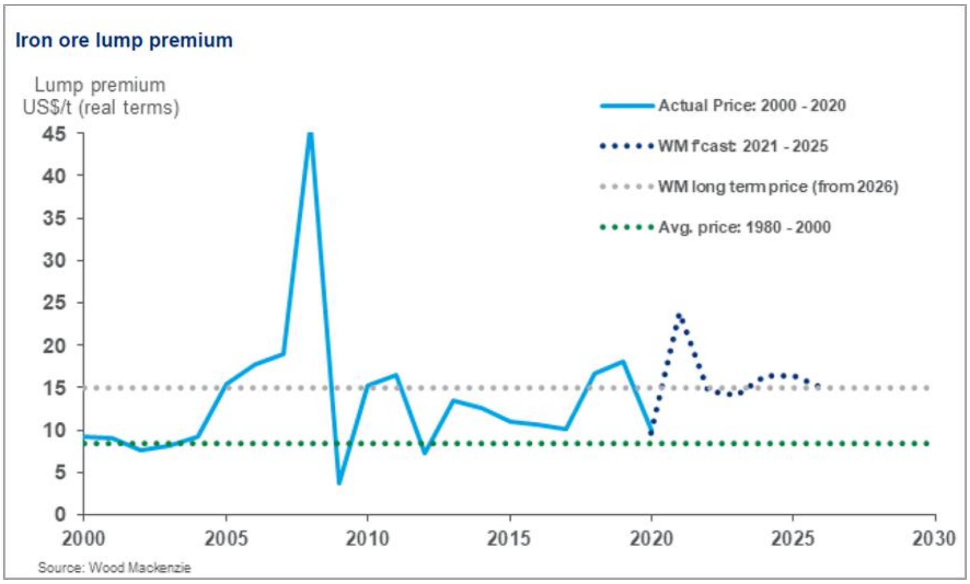

Figure 16-3: Lump premium

The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

16.1.6 Long-term Prices for Establishing the Economic Viability

As already described in Section 12.1.2, iron ore is a bulk commodity and the commodity price of iron ore types varies depending on the supply and demand situation at the time. Since the late 2000's and with the introduction of spot pricing, the commodity price has seen greater variability over both short (week/month) and long (year) time horizons. During this period at least two cycles of price variation have been observed, with monthly average prices swinging between US$210 per dmt and US$40 per dmt.

Therefore, the long-term iron ore prices for the purpose of this report to establish the economic viability of the WAIO's Mineral Reserves have been estimated from the historical actual monthly average prices over a timeframe of the preceding three financial years from July 2018 to June 2021. Iron ore is an exchange traded commodity and a period of three years is considered a long enough period to cover a range of price fluctuations. This method of estimating long-term iron ore price based on actual historical data is also factual, objective, and transparent to the market.

Using the historical data, the long-term prices for the purpose of this report to establish the economic viability of the WAIO's Mineral Reserves at end of FY2022 were estimated at US$86 per dmt (FOB Port Hedland) for Platts 62% Fe Fines Index for fines and US$103 per dmt (FOB Port Hedland) for Lump 62.5% Fe for lump.

16.2 Contracts and Status

WAIO is a producing property and produces direct shipping ore with no concentrating, smelting or refining involved. Mining, processing, rail transportation, port and other required infrastructure have been developed in stages over past decades and are already in place. South Flank is the newest mine in WAIO, the development works for which started in 2018 with first production in May 2021. Currently it is in the ramp-up stage to reach its full capacity of 80 Mtpa over the next 2 to 3 years.

WAIO has a number of contracts for its existing operations. These contracts relate to supply of goods and services such as replacement plants and equipment, automation projects, consumables, towage services, track maintenance, mobile crane services, road transport and logistics, general maintenance services, bulk earthworks and concreting and mobile crushing services. In addition, there are a number of contracts for goods and services which are currently in the planning stage. However, none of these contracts are considered material to WAIO based on their value, scale and duration.

WAIO does not have any contracts with affiliated parties and all contracts are created through direct purchase engagements with third-party suppliers.

WAIO sells its share of production through a distribution agreement with BHP Marketing AG (BMAG). These transactions between BHP and BMAG are executed at floating prices based on widely available market-based indices at the time of the supply. BMAG sells to customers largely on floating price term contracts based on widely available market indices at the time of supply. Certain term contracts may reference prices not in the current pricing period. BMAG may also sell a small percentage of its volume on a spot basis to aid price discovery in the physical markets.

17 Environmental Studies, Permitting and Plans

WAIO adheres to BHP's environmental and sustainability programs, including the company's Australia / New Zealand International Organisation for Standardisation (AS/NZS ISO) 14001:2004 certified Environmental Management System (EMS). The EMS describes the organisational structure, responsibilities, practices, processes and resources for implementing and maintaining environmental objectives at all WAIO sites. The EMS also outlines a commitment to setting objectives and targets to achieve sustainable outcomes and to continually improve performance and addresses environmental compliance and permitting requirements.

WAIO also has an internal Project Environmental and Aboriginal Heritage Review (PEAHR) Procedure. The purpose of the procedure is to manage the implementation of environmental, Aboriginal heritage, land tenure and legal commitments prior to and during land disturbance

17.1 Environmental Studies and Impact Assessments

Annually WAIO conducts many baseline biodiversity surveys and monitoring events to support environmental impact assessments, inform environmental permit applications, and provide information for ecological management and decision making.

In financial year 2022, BHP WAIO conducted over eighty such surveys. The survey scopes consisted of flora and vegetation (including riparian vegetation monitoring), vertebrate fauna, aquatic fauna, Short Range Endemic (SRE) invertebrate fauna and subterranean fauna (including both stygofauna and troglofauna) baseline and targeted surveys across BHP's Pilbara area of influence. BHP WAIO is involved in several industry wide research projects that aim to improve the understanding of subterranean ecosystems, delineate taxonomic groups and develop new techniques for monitoring subterranean fauna communities. Research is also underway to develop remote sensing techniques for riparian vegetation monitoring and to test novel methods of tracking Ghost Bat and Pilbara Olive Python individuals.

Outcomes of these surveys include:

- Records of Ghost Bat (Macroderma gigas) and Pilbara Olive Python (Liasis olivaceus barroni) populations that will be the subject of ongoing monitoring;
- Identification of dozens of new invertebrate species; and
- Identification and management of new riparian priority ecological communities.

Over the last ten years, BHP has developed a set of procedures and databases to capture and retrieve biodiversity data for surveys. These procedures include survey techniques and reporting requirements that meet the current Environmental Protection Authority (EPA) Technical and Factor Guidelines. Records of species are documented in BHP's Geographic Information System (GIS) database.

17.1.1 Environmental Impact Assessments (EIA)

An Environmental Impact Assessment (EIA) in Western Australia is a process governed by the EPA under the Environmental Protection Act 1986 (EP Act). EIAs are used to assess the effect a proposed project may have on the environment by gathering information about the receiving environment and assessing the consequences of planned actions. All significant new development proposals are referred to the EPA, who then decides whether the proposal requires a formal EIA. EIAs are required to consider, within the area of influence, current and reasonably foreseeable activities associated with life of asset and closure plans, including consideration of climate projections. Where considerable residual impacts to environmental values remain, environmental offsets are required. The EIA process includes substantial public consultation and may include necessary secondary approvals under relevant State and Commonwealth legislation.

Baseline investigations and EIA have been significant to the following WAIO approval submissions for WA State requirements (assessment under Part IV EP Act 1986);

- Mining Area C – Southern Flank (MS1072 approved February 2018);
- Pilbara Strategic Expansion Project (MS1105 approved July 2019); and
- Jimblebar Optimisation Project (MS1126 approved March 2020).

A summary of key environmental factors noted in the above assessments includes the following;

- Flora and Vegetation: loss of flora and vegetation from clearing and potential loss of Priority Ecological Communities.
- Hydrological Processes and Inland Waters: potential impacts on local groundwater-dependent vegetation, surface water features, and changes to hydrological regimes.
- Terrestrial and Subterranean Fauna: loss of habitat including habitat for conservation significant species (including the Ghost Bat) and possible indirect impacts to fauna.
- Air Quality: potential impacts from increased emissions of greenhouse gases and particulates associated with dust.

17.2 Waste and Tailings Disposal, Site Monitoring and Water Management

17.2.1 Waste and Tailings Disposal

Geochemical characterisation of mine materials, including waste materials such as overburden and tailings, is undertaken to ensure appropriate planning, material placement and management during design and operations.

17.2.2 Acid and Metalliferous Drainage

BHP has developed a global Acid and Metalliferous Drainage (AMD) management framework to be adopted across all BHP assets, including WAIO. The global AMD management framework is consistent with the AMD Management Standard that has been applied across all iron ore operations, to support a proactive and planned approach to characterising, assessing and managing AMD-related challenges and opportunities (BHP, 2020). The AMD Management Framework and Mined Materials Management Standard (2021) outline minimum requirements for consistent AMD management across all functions and operations.

17.2.3 Tailings Management

As already described in Section 15.4, WAIO operates one beneficiation plant at Newman Operations to process a small amount of ore with a lower iron concentration and remove some of the non-ferrous material. Processed ore from the plant is conveyed to ore stockpiles while two forms of waste are produced: solid reject material (greater than 45µm) and tailings material (less than 45µm). The tailings materials are thickened and pumped to a Tailings Storage Facility (TSF). The overflow, or clarified water, is recycled in the beneficiation plant. The tailings material is inert and contains only minor concentrations of flocculants posing a negligible risk to the receiving environment.

BHP adheres to safe tailings management, in alignment with the Global Industry Standard on Tailings Management (GISTM).

17.2.4 Site Monitoring

Site environmental monitoring is carried out as described in the monitoring programs that form part of the EMS, approvals framework, and internal BHP standards which include monitoring for:

- Airborne Emissions
- Energy Use and Green House Gas Emissions
- Contaminated Sites
- Fauna and Flora
- Groundwater, Surface Water and Wastewater
- Land disturbance and Rehabilitation
- Waste and Tailings

Monitoring results are reported annually in external documents such as the WAIO Annual Environmental Report (AER), Annual Aquifer Report (AAR), National Greenhouse and Energy Report (NGER), and the BHP Sustainability Report.

17.2.5 Water Management

At an operational level, activities are reviewed during the PEAHR process to ensure no riparian vegetation within or adjacent to watercourses is cleared unless it is undertaken in accordance with the permit conditions. Where practicable, clearing riparian vegetation is avoided and where a watercourse is to be impacted by clearing, the existing surface flow is maintained. Where required, Beds and Banks Permits are obtained through Department of Water and Environmental Regulation (DWER). BHP maintains a spatial database which includes the topographic information for water courses in the Pilbara. BHP implements surface water management and erosion control measures, where required, to minimise potential erosion and sedimentation within the areas approved to clear and adjacent areas. Managing surplus water from dewatering continues to be a focus for WAIO operations. Post closure waste, tailings and water management is subject to mandatory minimum performance standards for closure, which take into consideration social and environmental values, obligations, safety, costs, risks (both threats and opportunities) and the expectations of external stakeholders to inform optimised closure outcomes.

As part of the closure management process, WAIO aims to meet the following closure objectives:

- comply with all obligations, legal requirements and BHP's mandatory minimum performance requirements for closure;
- achieve safe and stable outcomes;
- manage risks (both threats and opportunities) effectively;
- meet approved target environmental outcomes by following the internal BHP standards for Environment and Climate Change;
- progressively reduce obligations, including progressive closure of the area disturbed by BHP's operational footprint; and
- manage and optimise closure costs.

BHP regularly reviews its process to progressively close areas that are no longer required for operational purposes and updates closure management plans and practices as required with knowledge obtained from on-site experience across BHP and leading practice from the global industry.

Closure Management Plans (CMP) (internal) and Mine Closure Plans (MCP) (regulatory) are developed to meet the requirements of Western Australian Government (2020) and include detail on tailings management. MCPs are developed for each mining operation in compliance with tenure and Ministerial Statement requirements.

17.2.6 Land Management

Prior to any land disturbance activities occurring, all proposed clearing activities are assessed against the conditions set out in the relevant permit to ensure the proposed activities adhere to the permit conditions. This includes ensuring that clearing for proposed activities occurs within the timeframes as set out in the permit conditions and ensuring that the clearing occurs only for those purposes as approved within the permit areas. BHP have a long-established and refined process that is used internally to manage planned land disturbance activities to ensure that all environmental, heritage and tenure issues are identified and addressed, called the Project Environmental Aboriginal Heritage Review (PEAHR). Unauthorised land disturbance poses a real risk to cultural, environmental and heritage assets, WAIO's Licence to Operate and BHP's reputation. The Health Safety Environment (HSE) Function, working with the Heritage and Land Tenure teams, uses an electronic workflow process linked to the geographical information system to assess and approve all new land clearing on site. All BHP activities are modified to ensure that clearing activities do not occur in any area excised from the approved area and that restrictions on clearing are complied with. The PEAHR system is backed by strong governance and dedicated online training requirements specific to the different roles within the PEAHR process (BHP, 2020).

17.3 Project Permitting Requirements

WAIO operations are regulated through a combination of Part IV Ministerial Statements and Part V Prescribed Premises Licences under the Environmental Protection Act 1986 and their associated requirements. Other environmental legislation under which BHP operates includes but is not limited to the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), the Biodiversity Conservation Act 2016 (BC Act), the Mining Act 1978 and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.

17.3.1 Environmental Operating Licences

The Department of Water and Environmental Regulation (DWER) regulates industrial emissions and discharges to the environment through a works approval and licensing process, under Part V of the EP Act. Industrial premises with potential to cause emissions and discharges to air, land or water are known as 'prescribed premises' and trigger regulation under the EP Act.

BHP holds fourteen active Environmental Operating Licences to meet its current operational requirements.

17.3.2 Strategic Environmental Assessments

Strategic Environmental Assessments (SEA) are large scale assessments under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). These are unlike project-by-project assessments, which look at individual actions (such as construction and operation of a pipeline or wind farm), and they can consider a much broader set of actions (DAWE, 2021). Entering into a strategic assessment offers the potential to deal with cumulative impacts on Matters of National Environmental Significance (MNES) and to look for both conservation and planning outcomes on a much larger scale than can be achieved through project-by-project assessments. The process is designed to be flexible and provide the opportunity to reach a negotiated outcome for the benefit of both parties.

BHP holds one SEA approval, with six associated approvals falling under the SEA, including one approval decision, one assurance plan, one offsets plan, one program and two validation notices to meet its operational requirements.

17.3.3 Environmental Management Plans

The environmental performance of ongoing operations at WAIO are governed by comprehensive Environmental Management Plans specific to each site and/or aspect (such as ghost bats, water management, etc).

DWER reviews and approves various environmental management plans, as required under approved Ministerial Statements under Part IV of the EP Act. Environmental management plans describe how an action might impact on the natural environment in which it occurs and set out clear commitments from the company taking the action on how those impacts will be avoided, minimised and managed so that they are environmentally acceptable (DAWE, 2021). BHP holds forty active Environmental Management Plans to meet its current operational requirements.

17.3.4 Mining Proposals

A mining proposal is required to be submitted to the Department of Mines, Industry Regulation and Safety (DMIRS) before commencing any mining operations. Mining Proposals must provide detailed information on the identification, evaluation and management of environmental impacts of the proposal, and must contain a mine closure plan. BHP holds 31 active Mining Proposals to meet its current operational requirements.

17.3.5 Ministerial Statements

The Environmental Protection Authority (EPA) provides Government with advice on the environmental acceptability of development proposals. The EPA undertakes a formal Environmental Impact Assessment (EIA) and determines whether conditions should be placed on a project to ensure appropriate environmental management. These conditions are enforced in a Ministerial Statement issued from the Minister for Environment under Part IV of the EP Act. Ministerial Statements may have a requirement to implement an Environmental Management Plan. BHP holds eighteen active Ministerial Statements to meet its current operational requirements.

17.3.6 Water Licences

In Western Australia, the Rights in Water and Irrigation Act 1914 (RiWI) regulates access to surface and ground water. WAIO holds multiple groundwater licenses across its tenure that provide allocation for water supply across mines, rail and exploration as well as several large licence allocations to support dewatering at mines. Licenses for dewatering are typically granted following Part IV approvals and issue of Ministerial Statements, with groundwater impact assessments and management plans required as part of the Part IV assessment. Where required, Part IV Ministerial Statements can set caps or limits on dewatering volumes and consequently any change to licence allocation or management requirements would also require an amendment to the Part IV approval.

Smaller supply licenses typically do not require Part IV assessment and are issued via processes under RiWi.

Concerning securing licences and permitting processes, for operational dewatering and supply licenses, alignment to the EP Act Part IV process ensures that applications are made with sufficient time to support mining activities.

WAIO currently maintains approximately sixty groundwater licenses to meet its operational requirements. The total number varies over time as some licenses may be short term, in support of activities such as aquifer test pumping campaigns and dewatering for construction purposes.

17.3.7 Native Vegetation Clearing Permits and Programme of Works

Clearing of native vegetation in Western Australia is an offence unless it is done under a clearing permit, or the clearing is for an exempt purpose. Native Vegetation Clearing Permits (NVCP) are administered under DWER or DMIRS if the clearing is for the purpose of mineral and petroleum activities or located on land under SA Acts. NVCPs allow BHP to clear native vegetation for the purpose(s) stated in the permit. BHP holds seventy-two active NVCPs to meet its operational requirements.

The Mining Act 1978 requires that a Programme of Work (PoW) is lodged and approved before conducting any ground disturbing activities with mechanised equipment on Mining Leases and Exploration Licences held under this Act. Currently BHP holds thirty-six active PoWs to meet its operational requirements.

17.3.8 Referrals under EPBC Act

Any actions that have or are likely to have a significant impact on the heritage values of a World or National Heritage place are referred to the Australian Government Minister for the Environment under the EPBC Act. WAIO holds two referrals under the EPBC Act (neither of which are actively being used) to meet its operational requirements.

17.3.9 Works Approvals

DWER regulates industrial emissions and discharges to the environment through a works approval and licensing process, under Part V of the EP Act. The EP Act requires a works approval to be obtained before constructing a prescribed industrial premises and makes it an offence to cause an emission or discharge unless a licence or registration is held for the premises. BHP holds six works approvals to meet its operational requirements.

17.3.10 Status of Current Applications

In addition to the approved environmental permits, BHP currently (as of 1 May 2022) has six applications for environmental permits currently under assessment with government. These include two NVCP amendments to allow for changes in the NVCP conditions; one Mining Proposal to lift the wall of the Mount Whaleback tailings storage facility; and three licence amendments to allow for changes in licence conditions. These are considered highly likely to be successfully obtained.

17.3.11 Performance or Reclamation Bonds

As part of the initial Mining Act 1978 compliance upon lodgment of a new mining tenement application, a Form 32 Security (to the amount of A$5,000 (US$3,550)) is required to be lodged with DMIRS. A Security does not require any funds to be provided it is merely a preliminary guarantee that the basic environmental conditions will be complied with for the tenement. Western Australia does not have a requirement for companies to post performance or reclamation bonds, however all tenement holders in WA are required to report land disturbance annually under the Mining Rehabilitation Fund Act 2012 (MRF Act) and contribute to a pooled mine rehabilitation fund (MRF) based on the type and extent of land disturbance. The MRF pooled fund can then be used by DMIRS to rehabilitate mines in which the tenement holder fails to meet their rehabilitation obligations and finances cannot be recovered. Within WAIO there is limited land tenure that has exposure to MRF reporting as all operational areas such as mines, rail and port operate within tenure covered by SA Acts that provides an exemption from MRF reporting.

If requested by DMIRS under the 'Mine Closure Plan Guidance – How to prepare in accordance with Part 1 of the Statutory Guidelines for Mine Closure Plans', tenement holders may be required to provide detailed closure cost reporting for review and independent audit to ensure adequate financial provisioning to fund mine closure. DMIRS has not to date requested BHP to provide further closure cost details for any operations in WA. BHP submits annual payments to the MRF in accordance with the MRF act.

17.4 Social Plans and Agreements with Local Groups

WAIO has developed social investment plans designed to meet community socio-economic needs and priorities, in line with BHP's Company Social Investment Strategy. These plans can result in direct investment with successful organisations for projects up to 5 years in duration.

Where particular groups or individuals may be impacted negatively by WAIO operations, research and stakeholder engagement/consultation is undertaken to ensure transparency of information and understanding of business activities as well as to understand the concerns and opportunities identified by stakeholders.

Community perception surveys, social base surveys, social impact and opportunity assessments and human rights impact assessments are completed by WAIO routinely.

17.4.1 Native Title Processes

WAIO operations are located on land on which the relevant Aboriginal people (traditional owners), as native title holders, have certain entitlements under the Australian Government Native Title Act 1993 (NTA) and as such, BHP must follow the due process of law for accessing their land.

The common law of Australia recognises and protects a form of native title that reflects the entitlements of Indigenous peoples to their traditional lands and waters. In response to the recognition of this common law right, the Federal Government enacted the Native Title Act 1993 (NTA). Under the NTA, a system was established for the claiming and recognition of the rights of relevant Aboriginal people (traditional owners) as native title holders over certain areas of land and sea.

Perhaps of most relevance to BHP's Australian operations are the 'future act' provisions of the NTA. Future acts are proposed acts on land or waters that affect native title (e.g., acts which extinguish, or which are otherwise inconsistent with, the continued existence, enjoyment or exercise of native title). They may include the grant or renewal of licences and permits (such as mining and exploration licences or permits). A 'future act' will be invalid to the extent it affects native title, unless it complies with the procedures set out in the NTA.

The 'future act' framework provides various processes that may be applied to validate a 'future act'. Different procedures will apply to different types of land use (e.g., primary production, public housing and public infrastructure water management). With respect to rights in relation to mining, the NTA provides two procedures to validate 'future acts':

- engaging in the right to negotiate process (**RTN**); or
- entry into an Indigenous Land Use Agreement (**ILUA**).

When BHP seeks the grant of mining tenure, the relevant State authority must be satisfied that BHP has complied with either process.

Under the RTN, BHP must negotiate in good faith to get the consent of the 'native title party' to the 'future act' being done (with or without conditions). The National Native Title Tribunal provides oversight of this process.

ILUAs are voluntary contracts entered into by native title groups and third parties (e.g., mining companies and governments) with respect to an area of land or water where native title has been determined or where it is claimed to exist. Entry into an ILUA involves consent by the parties to 'future acts', and, at the time such 'future acts' occur, details of the ILUA being registered by the Native Title Registrar.

BHP generally prefers to use an ILUA over a RTN agreement for a complex project with multiple future act requirements over a number of years. An ILUA can cover future mining activities, and/or multiple projects in the one agreement. Only proposed advertised grants of mining tenure can be the subject of a RTN agreement.

17.4.2 Indigenous Land Use Agreements

All of WAIO's current extractive activity is covered by the Registered ILUAs listed in Table 17-1.

Table 17-1: List of Indigenous Land Use Agreements

Project / Operation	Native Title Group	Agreement	ILUA Number
Mining operations at: Yandi, Mining Area C, South Flank	Banjima	Initial Indigenous Land Use Agreement - Banjima and BHP Billiton Comprehensive Agreement	WI2015/021
Mining operations at: Whaleback, Eastern Ridge, Jimblebar	Nyiyaparli	Nyiyaparli and BHP Billiton Comprehensive Agreement ILUA	WI2019/003
Exploration and specified development projects including: Mudlark Well Gurinbiddy, Rocklea	Yinhawangka	Yinhawangka and BHP Billiton Project Agreement ILUA	WI2018/010

The agreements include cultural, social and economic outcomes in the form of financial and non-financial benefits from BHP to the Nyiyaparli People, Banjima People and Yinhawangka People in exchange for their consent for WAIO's operations on their country.

Public records of these ILUAs can be found online at the Australian Government's National Native Title Tribunal website.

17.4.3 Cultural Heritage Management

WAIO operations extend across a number of different Native Title groups in the Pilbara region. Within and near WAIO operations there are significant cultural heritage values, sites and artefacts that showcase 60,000 years of the diverse cultural occupation of Australia.

These include both tangible archaeological sites and intangible sites like dreaming places, song lines and cultural landscapes. Across WAIO Pilbara operations approximately 6,500 heritage sites have been recorded which include a wide spectrum of significance, age and rarity of cultural sites and archaeological items.

Given the prevalence of cultural heritage in the Pilbara, there is an inherent tension between development and protection of cultural heritage. The number and dispersion of these sites in the Pilbara is such that it is difficult to operate in these areas without having some form of impact on heritage values. BHP seeks to address this through its heritage management framework, which has three broad components.

1) **Policies and procedures:** Indigenous Peoples Policy Statement, Indigenous Peoples Strategy and Reconciliation Action Plan. These policies and procedures contain specific commitments in relation to cultural heritage including (1) meaningful participation of Indigenous peoples in decision making; (2) early engagement and consultation in the project planning process; and (3) implementation of a framework for identifying, documenting and managing cultural heritage that seeks to minimise impacts on heritage sites.

   The heritage processes are underpinned by information management systems that map the location of cultural heritage sites and store related information (e.g., the significance of the site).

2) **Agreements with Traditional Owners:** Fundamental to BHP's approach is entering into an Indigenous Land Use Agreement (ILUA) with Traditional Owners. These agreements are underpinned by Traditional Owners consenting to BHP carrying out its business on Traditional Owner lands and agreeing a pathway for BHP to seek relevant government approvals. At WAIO these agreements typically identify heritage areas of high cultural and environmental significance which BHP cannot disturb, or where greater protections apply (referred to as 'Exclusion Zones'). All identified Exclusion Zones are duly considered in the mine plan and impacted Mineral Reserves and Mineral Resources are excluded from reporting.

3) **Compliance with statutory obligations:** There are varying legislative regimes across Australia. In Western Australia, agreements with Traditional Owners are not recognised within the current Aboriginal Heritage Act 1972 (AHA). It requires instead that Government approval be obtained to disturb heritage sites (referred to as a 'section 18 consent'). Note that legislative reform is currently being undertaken by the Government of Western Australia and BHP has supported this publicly. The Aboriginal Cultural Heritage Bill 2021 passed State Parliament and received Royal Assent on 22 December 2021, giving Western Australia new Aboriginal heritage legislation, the Aboriginal Cultural Heritage Act 2021 (ACH Act). The ACH Act is scheduled to come into operation following a transitional period of at least 12 months. During this period the Government of Western

Australia is undertaking a co-design process with Aboriginal people and other stakeholders to develop key regulations and statutory guidelines required for the administration of the ACH Act. BHP is expected to have the opportunity to participate in this process. The new legislation requires greater consultation with Traditional Owners and contemplates agreement-making via cultural heritage management plans (CHMP). In these respects, the legislation is aligned with the approach supported by BHP. BHP also treat the current legislative regime as simply the starting point for BHP's approach to Heritage Management, not the benchmark.

Heritage places and objects may be protected under either or both State and Federal legislation. BHP is required to conform to regulatory requirements relating to Aboriginal cultural heritage, specifically:

- *Aboriginal Heritage Act 1972 (WA) and Aboriginal Heritage Regulations 1974 (WA);*
- *Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth);*
- *Native Title Act 1993 (Cth);*
- *Environmental Protection Act 1986 (WA); and*
- *Environmental Protection and Biodiversity Conservation Act 1999 (Cth).*

17.4.4 Cultural Heritage Management Plans for Exclusion Zones

Cultural Heritage Management Plans (CHMP) are prepared in consultation with the relevant Native Title group to outline strategies for the preservation and management of all known Aboriginal cultural heritage values within each project area. This includes Exclusion Zones identified with the agreements and all other heritage places identified during ethnographic or archaeological assessments. Each CHMP will outline the legislative framework, statutory obligations and guiding principles that apply to Aboriginal cultural heritage within the project area. The CHMP will be used in conjunction with any existing protocols and / or agreements developed through consultation with the Native Title group and their representative body.

The CHMP recognises that Aboriginal people have rights and responsibilities to care for their own heritage, exercise responsibility for country and transmit cultural practices to new generations. As such, in addition to involvement in Aboriginal cultural heritage surveys, the relevant Native Title group should have ongoing access to, and input into the management of, cultural heritage places, sites and objects.

These CHMP's will not override the provisions of the Aboriginal Heritage Act 1972 (WA) (the Act), any Comprehensive Agreement with the relevant Native Title group or other relevant legislation.

The underlying principle of the CHMP is a commitment to manage Aboriginal cultural heritage in a manner that is both consistent with the various relevant legislations and Aboriginal conceptions of cultural heritage.

Currently both the Western Ridge and Minsters North CHMP's are in a draft format while WAIO completes all necessary consultations and studies. These consultations and studies included a broader definition of Aboriginal cultural heritage and aim to adopt the idea of 'place', which can potentially include both tangible and intangible aspects within each Project.

Any final investment decision on either of these Projects will consider an agreed CHMP between the Native Title holders and WAIO as an integral component to support the Project. While the CHMP is a transition from existing legislation, it is aligned to BHP's approach to include greater consultation and active involvement with Traditional Owners via an agreed cultural heritage management plan (CHMP).

17.4.5 Compulsory Training of Personnel Employed

Personnel employed within all WAIO Operations undergo a compulsory induction, which includes

- Advice of their obligations under the AHA not to disturb, alter or damage any Aboriginal heritage site.
- Management and protection measures required for each of the Aboriginal sites located within and adjacent to BHP tenure.
- BHP's internal land disturbance approvals process.
- Process to report any previously unrecorded Aboriginal heritage site, if one is discovered or if damage to an Aboriginal heritage site, is identified.

17.5 Mine Closure Plans and Associated Costs

17.5.1 Mine Closure Plans

WAIO mining operations have a regulatory Mine Closure Plan (MCP) as per the requirement under each Ministerial Statement (Section 17.3.5). Ministerial Statements typically specify the development and approval of a MCP as part of the environmental management for the proposal. Mining operations also have an internal BHP closure management plan that state the site's closure requirements and closure strategy.

Closure plans include both conceptual closure measures as well as measures that are more specific to address potential areas of concern or areas where mining operations have ceased or will soon finish and become available for progressive rehabilitation. The following subsections describe key elements of the plan.

Closure domains and features - Most operational sites are split into physically distinct domains and features, to facilitate closure planning, comprising:

- Overburden Storage Areas (OSA)
- Mine Voids
- Infrastructure
- Roads and Rail
- Tailings Storage Facility (TSF) and Dams (where applicable)

Progressive rehabilitation, which is rehabilitation undertaken during mining operations, is planned and commonly executed as areas become available.

Closure objectives – The current over-arching objective is to return disturbed areas to a safe, stable, non-polluting and sustainable condition, consistent with agreed post-mining land use(s).

Post-mining land use - Current closure strategies identify post mining land use similar to what existed prior to mining. For most sites the provisional use envisaged being natural environment for managed resource protection to low intensity grazing. As knowledge evolves, and stakeholder engagement progresses, alternative post-mining land uses are possible.

Closure Planning – The key measures proposed for the primary areas, and associated assumptions, are as follows:

- **Mine Voids**: Mine pit voids can have a number of closure outcomes, depending on the nearby eco-hydrological receptor and stakeholder-agreed final land use, these options could include being left as open-pit voids or backfilling (fully or partially). Backfilling generally relates to mine voids where mining extended below the pre-mining groundwater table and required dewatering activities prior to and during mining. In these areas backfill may be a mandatory requirement by regulators or a stakeholder-agreed activity to mitigate groundwater impacts from the mine dewatering. In these instances, backfill will typically be to at least five metres above the pre-mining water table.

  Achieving backfill can be by waste rock rehandle from OSAs or through in-pit dumping during mining operations. In addition to backfill considerations, safety measures, such as mine void abandonment bunds and fences, will need to be established.

- **OSAs**: Ex-pit OSA landforms comprise overburden and waste rock material mined during operations. The rehabilitation basis of design for these landforms will be to re-profile and establish native vegetation to minimise erosion. Waste rock dumped in some OSAs may be either fully or partially used for mine void backfill operations negating the need for rehabilitation of the dumped material.

Geochemically adverse mined waste, such as potential acid forming (PAF) material will be specially managed during operations, generally through encapsulation internally within OSAs during operations. After mine closure a further cover system may be required on these landforms.

- **Infrastructure**: Stakeholders will be consulted regarding their interest in the infrastructure as part of post-mining land use consultation. In the event stakeholders or other interests do not take up infrastructure ownership, decommissioning, demolition and removal of all fixed site assets will be undertaken.
- **Land disturbance areas (other)**: All areas other than mine voids and OSAs where the original ground area has been disturbed, including infrastructure footprints (once the infrastructure has been decommissioned and demolished), will be rehabilitated. Rehabilitation may include scarification and always involves applying topsoil and seed to the affected areas
- **TSF and Dams**: Within the WAIO mines portfolio only Mt Whaleback mine has a TSF and acid rock drainage (ARD) dam. The Whaleback TSF is expected to be re-profiled with a store and release cover system constructed to encapsulate the stored tailings. Conceptual closure of the ARD Dam and evaporation ponds includes removing the embankments, re-profiling the area to be free draining, and then re-establishing native vegetation.

Progressive rehabilitation schedule – Progressive rehabilitation and closure activities are identified as part of the five-year plan and Life of Asset Planning cycles. The current closure plan details a 5-year plan (2022 to 2026) to re-profile, repair and or rehabilitate select OSAs.

WAIO sites, generally, have a long operational mine life and progressive rehabilitation will be ongoing throughout mine life, but will be limited to available areas. To date no rehabilitated areas have been certified or relinquished.

Closure schedule – Most other major activities (e.g., closure of road and rail, infrastructure decommissioning) are currently scheduled to commence rehabilitation when areas become available at the end of the life of asset.

Post-closure monitoring – Post closure monitoring currently accounts for a period of 20 years (from commencement of closure). Plans include monitoring of completion criteria, fauna, weeds and feral animals, surface and groundwater, regulated structures and final voids. The duration of post closure monitoring will be dependent on meeting the closure objectives of safe, stable, non-polluting and sustainable.

Unplanned closure – In the event of early or unplanned closure BHP would be required to decommission and rehabilitate each site in line with objectives outlined in the MCP. Each landform or structure at the site would be assessed on a case-by-case basis to develop a final design or plan.

In addition to this, a closure provision has been calculated based on current disturbance. In such an event, the priority would be to maintain environmental compliance and ensure the site is safe, stable and non-polluting.

Uncertainties or omissions – Closure strategies are based on the current understanding of the site, associated closure risks and legal requirements, and it is acknowledged that modifications are likely to occur as data and knowledge gaps are addressed. Information gathered on a regular basis during operations is used to test the validity of closure assumptions and assist in refining the selected options and defining completion criteria.

The following key uncertainties and gaps exist in the current knowledge base:

- Ability for post mining land uses to withstand effects from climate change.
- Material characterisation and landform designs – in particular, aspects such as the potential for saline/acid drainage from waste rock areas.
- Post-mine land use suitability.
- Final void management, including future water quality and connectivity with downstream receptors.

Ongoing studies and forward works to address the above knowledge gaps are summarised in Section 17.5.4.

17.5.2 Stakeholders

As part of the broad consultation program BHP consults with identified stakeholders on closure related issues during each project phase (pre-approval, operations, rehabilitation and post closure) to ensure that legal requirements, risks and internal and external stakeholder expectations for closure are taken into account at an appropriate time and as far as practicable.

17.5.3 Closure Cost Estimation

Closure of sites and associated infrastructure is required at end of mine life, or in some cases, during operations, to a condition agreed with relevant authorities, as specified in the licence requirements.

The key components of rehabilitation and closure include:

- the removal of all unwanted infrastructure associated with an operation; and

- the return of disturbed areas to a safe, stable, productive and self-sustaining condition, consistent with the agreed post-mining land use.

Closure cost estimates presented here comprise costs based on the WAIO Closure Provision and future closure costs.

Provisions for closure and rehabilitation are recognised when:

- there is a present legal or constructive obligation as a result of past events;
- it is more likely than not that an outflow of resources will be required to settle the obligation; and
- the amount can be reliably estimated.

The initial closure provisions are calculated when environmental disturbance first occurs. The costs are the best estimate of expected costs required to close the site with current known standards and techniques and take into account an assessment of risk and uncertainties. Additional uncertainty may be addressed in the estimate by adopting a range of values for key cost drivers.

Future closure costs are estimated based on current site conditions, context and site knowledge with respect to the mining of future reserves. Future cost estimates are typically less accurate than Closure Provision cost estimates due to a lower level of detail contained in mine plans, particularly, beyond the five-year planning horizon.

For the closure cost estimate site conditions and obligations at closure may be different than currently expected or known, additionally many sites are either fully or partially at a conceptual closure design stage due to the long-life of mining operations. These factors may therefore drive change to closure costs, including cost escalations. Closure cost estimates have an annual review and update cycle and may also be updated based on material changes at site, the knowledge base or obligations. As sites approach mine closure, more detailed plans and cost estimates with increasing accuracy will be developed.

The estimated closure costs for each hub within WAIO on 100% equity ownership basis is shown in Table 17-2. These costs were estimated in A$ and converted to US$ for this report using the US$/A$ exchange rate of 0.71 (see Section 19.1.3).

Table 17-2: Estimated Total Closure Costs (on 100% basis) for each Hub

Mining Hub	Site (Mine Closure)[1]	Mineral Deposits	Undiscounted Closure Cost (US$ million)
Newman	Mt Whaleback	Whaleback	519
	Eastern Ridge	Eastern Ridge	273
	OB17/18/31	Shovelanna	173
	N/A[2]	Western Ridge	56

Jimblebar	Jimblebar	South Jimblebar, Wheelarra, Hashimoto	383
Mining Area C	Mining Area C	North Flank, Packsaddle	554
		South Flank	417
Yandi	Yandi	Yandi	1,001
Port and Rail[3]	N/A[2]	N/A	933
WAIO Total			**4,308**

[1] Site (Mine Closure) name aligns to the mine site nomenclature used in the respective regulatory Mine Closure Plan. [2] No Mine Closure Plan submitted or approved. [3] WAIO has statutory obligations to decommission the WAIO mine to rail network and related port facilities.

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17.5.4 Ongoing studies and forward works

Most WAIO mines have a long mine life and site knowledge bases are incomplete. BHP has identified the below actions required to address uncertainties and gaps, including a range of modelling studies and field trials with the objective of achieving the following, among other things:

- Establish detailed landform designs and determine the geotechnical and geochemical stability of the post-closure landforms in the long term.
- Determine the topsoil and subsoil characteristics and depth requirements, and the capability of rehabilitated areas to effectively revegetate to meet completion criteria.
- Understand water management requirements, in terms of managing groundwater levels from mine dewatering activities and mitigating the risk of long-term water quality impact.

Many of the planned activities to close the gaps and uncertainties are ongoing through life of asset.

17.5.5 Summary and Conclusions

Each WAIO site has at a minimum an internal site-specific closure plan. These mines have a combination of the proposed closure measures at a conceptual level, where mine life is more than 10 years, and detailed closure strategies where the sites are closer to mine closure. BHP has identified the actions required to address uncertainties and gaps over the life of asset, including a range of modelling studies and field trials.

In most closure plans, mine voids will be backfilled where mandatory and/or where practicable, rehabilitation of OSAs and disturbed areas will occur progressively throughout mine life and also once mining has ceased. Other major closure activities addressing residual domains (e.g., infrastructure decommissioning) are scheduled to commence when areas become available at the end of life of asset. Post closure monitoring currently accounts for a period of 20 years (from commencement of closure).

Estimated total closure cost for WAIO is US$4.3 billion (undiscounted) on 100% ownership basis as per details already provided in Table 17-2.

17.6 QP Opinion on the Adequacy of the Current Plans

In the opinion of the QPs the processes laid down in WAIO's Environmental Management Plan and briefly described above are adequate in addressing any issues related to environmental compliance, permitting and local or individual groups.

17.7 Local procurement and hiring

17.7.1 Local and Indigenous Procurement

BHP has been operating a Local Buying Program, which is delivered in a strategic partnership between BHP and C-Res – a cost neutral organisation. The program has been operating successfully across BHP's operations in Western Australia since 2017.

BHP's ongoing local procurement processes and initiatives focus on two subset groups:

- Local suppliers with spend over US$2 million per annum (90% of current local spend)
- Local suppliers (small businesses) engaged via the Local Buying Program (10% of local spend, however makes up the majority of BHP's local suppliers).

Similarly, BHP's Indigenous suppliers are split into two subset groups:

- Indigenous Business: Suppliers are 50% or more owned by person(s) identifying as Australian Aboriginal or Torres Strait Islander.
- BHP Considered Traditional Owner Business: Suppliers which have any ownership by a Traditional Owner(s) from one of the language groups on who's land BHP operates or as defined in an Indigenous Land Use Agreement or other formal agreement, providing a minimum overall Indigenous ownership of 50% exists.

17.7.2 Local and Indigenous Hiring

BHP has set targets to increase Aboriginal and Torres Strait Islander employment in its total managed workforce, including direct, contracting and labour hire employees. Through targeted Indigenous recruitment campaigns, Indigenous representation across WAIO operations has reached 10.5% in 2022.

18 Capital and Operating Costs

18.1 Capital Costs

All the deposits that have Mineral Reserves are part of the currently on-going mining areas (production hubs) and have access to all the processing, transport and non-process infrastructure. No new mining production hub is required for the estimated Mineral Reserves and as such the only capital required is the Sustaining Capital.

The costs required to sustain the current production rates include the replacement or rebuild of mining equipment, pit infrastructure, replacement of plant instrumentation and maintaining the current rail and port infrastructure.

Mining equipment replacement schedule is based on the general life of the equipment calculated by the equipment engine hours. Pit infrastructure capital is related to any costs associated with advancement of pushbacks and enabling activities such as replacement of pumps, bores. Plant instrumentation capital costs are estimated using historical experience of working life of these components. Capital costs related to the rail and port infrastructure include capital associated with maintenance to sustain their existing capacities.

This sustaining capital estimate for the purpose of this report is based on the average of the actual expenditure over the preceding three financial years (FY2019 to FY2021). The sustaining capital expenditure is converted to the unit cost using the actual production for the same period.

Sustaining capital expenses can be classified in two broad sets of items:

- Non-Discretionary – These expenses relate to sustaining the existing operations and assets and include items such as maintain external compliance, risk reduction projects, maintain asset integrity and equipment and plant instrumentation replacement (or refurbishment).
- Improvement – These expenses relate to the projects that enable improved productivity, quality, facilities and organisational culture. Examples of such items include minor upgrades to equipment and plant to increase productivity; improving camp and site facilities; projects to improve infrastructure and assets.

The costs are estimated by WAIO in Australian dollars (A$) and have been converted to US dollars (US$) for this report using the foreign exchange rate described in Section 19.1.3.

The total capital costs are presented in Table 18-1.

Table 18-1 Capital Cost Estimate

Capital Cost Type	Unit	Cost
New Mine Capital	US$	-
New Processing Capital	US$	-

New Transport and Other Capital	US$	-
Sustaining Capital	Per wmt of Mineral Reserves	3.81

The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

18.2 Operating Costs

For the purpose of this reporting, the operating costs for WAIO are split into following main categories.

- Mining
- Processing
- Logistics (ore transport using Rail and Port handling / ship loading)
- Other Costs (including Marketing, Exploration, Demurrage)
- Overheads (General and Administrative costs)

The operating cost estimate for the purpose of this report is based on the actual performance of WAIO over the preceding three financial years (FY2019 to FY2021) and calculated as average of the yearly actual costs for the same three years. These costs are as FOB Port Hedland and estimated by WAIO in A$, which have been converted to US$ for this report using the foreign exchange rate described in Section 19.1.3.

Operating costs are presented in Table 18-2.

Table 18-2 Operating Cost Estimate

Operating Cost Item	Basis	Unit Cost (US$)
Mining	Per wmt of Material Mined	2.09
Processing	Per wmt of Mineral Reserves	3.09
Logistics (Rail transport and Port handling)	Per wmt of Mineral Reserves	4.37
Other (Marketing, Exploration, Demurrage)	Per wmt of Mineral Reserves	0.85
Overheads	Per wmt of Mineral Reserves	2.56

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The total operating costs on 85% BHP share basis for the life of asset are represented in Table 18-3.

Table 18-3 Total Operating Costs (85% BHP economic share)

Operating Cost Item	Total Cost over Life (US$ billion)
Mining	23.4
Processing	11.1
Logistics (Rail and Port)	15.7
Other (Marketing, Exploration, Demurrage)	3.1
Overheads	9.2
Total Operating Cost for the Life	**62.5**

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Based on the total operating cost for the life of asset and the Mineral Reserve estimate of 3,590 Mt (Table 12-5); the unit cost for Mineral Reserve is estimated at US$17.4 per wmt of Mineral Reserves.

18.2.1 Mining Costs

Mining costs relate to the cost of extracting material from the pit and delivering it to the final material destination (ROM, Stockpile, Crusher or Waste Dump). The major components of mining costs are drilling, blasting, loading, hauling and ancillary. The historical 3-year average costs for these components were used as the basis for cost estimates. The hauling unit costs are inclusive of hourly truck operating costs to account for haul distance and cycle time.

18.2.2 Processing Costs

Processing costs include costs for primary and secondary crushing and screening of the ore, costs for Ore Handling Plants (OHPs), Overland Conveyor and car dumping or shuttle train where applicable. Beneficiation costs are applied to the ore processed at Whaleback

Beneficiation Plant (see Section 14). The historical 3-year average costs for these components were used as the basis for cost estimates.

18.2.3 Logistics

Logistics cost include the cost of transporting the Lump and Fines ore from mine to the port at Port Hedland. These include the costs of railing from mine to the port; screen and blending at the port and ship loading. The historical 3-year average costs for these components were used as the basis for cost estimates.

18.2.4 Overheads

Overhead costs include the General and Administration (G&A) costs that relate to the general running of business at WAIO and include items such as utilities, rent and salaries as well as others. The historical 3-year average costs for these components were used as the basis for cost estimates.

18.3 Basis and Accuracy Level of Cost Estimates

WAIO is an operating asset with active production for a number of decades and the cost estimates are based on recent operating performance. The average over the previous three financial years (July 2018 – June 2021) of actual costs has been used to estimate Mineral Reserves. WAIO is an operating stage property and has been actively producing for a number of decades.

The estimated Mineral Reserves are part of the current on-going mining areas and do not include construction of new mining production hubs, new processing infrastructure, new transport and supporting infrastructure. The only capital cost for the life of the asset is the Sustaining Capital which includes major equipment rebuild, replacement schedule and other expenditure required to sustain the current production level.

At any point in time, production is drawn from multiple separate pits which are at different stages in their life – some developing, some in full production and some nearing end of life. The active mining benches are located at depths ranging from near surface to bottom of final pit. Additionally, the location of pits from material destinations (processing facilities and waste dumps) ranges between near the pit to a few kilometres. Therefore, the average haulage distance is not expected to increase significantly for the life of asset.

There are no proposed changes to the existing mining, processing and transport methods, and therefore, in the QPs' opinion, the average actual operating and capital costs over the previous three financial years (July 2018 – June 2021) is fair and reasonable estimate of costs within the accuracy level of ±25% and these cost estimates have been used to determine Mineral Reserves.

Factors outside BHP's control such as inflation and price of fuel, gas and power may have an impact on the cost estimate however any variation to these input costs is expected to fall well within the accuracy level of ±25% and is not material to the Mineral Reserves estimates.

19 Economic Analysis

19.1 Key Assumptions, Parameters and Methods Used

The economic analysis presented in this section is based on annual cash flows including sales revenue (sales point Port Hedland FOB), operating and closure costs, capital expenditure, royalties and income tax for the full Mineral Reserve production schedule, reflecting the integrated WAIO production system and supply chain to mine, process and transport iron ore to the sales point.

All results are presented in 85% BHP economic interest terms.

19.1.1 Mine Physicals

Total material movement and Mineral Reserve tonnages included in the economic analysis are shown in Table 19-1.

Table 19-1: Mineral Reserve Physicals

Material Movement (Mineral Reserves, Inferred Mineral Resource and waste)	11,206 Mt
Mineral Reserves	3,590 Mt

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As presented in Section 13.3.3 and repeated here in Figure 19-1, the overall Mineral Reserves production schedule for WAIO (registrant share) covers a period of 30 years. Total Mineral Reserves (WAIO Total Proven and Probable) is 3,590 Mt (details in Table 12-5).

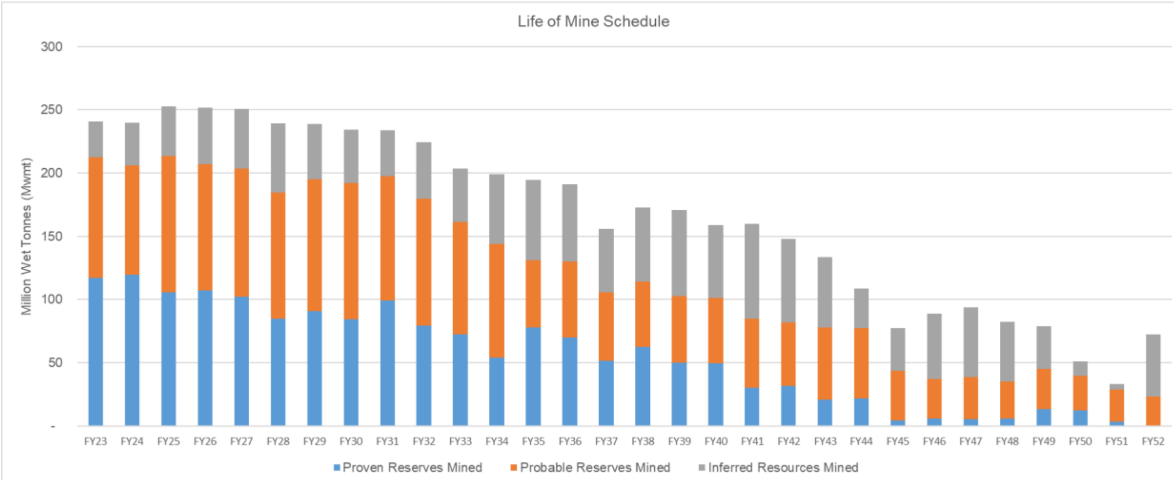

Figure 19-1: Production Schedule for WAIO

The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

Overall ore production includes Inferred Mineral Resources which are mined concurrently from the pits with Mineral Reserves. Only Mineral Reserves have been considered in calculating sales revenue. Inferred Mineral Resources have been considered as waste and no revenue has been assigned to the production from Inferred Mineral Resources.

The Mineral Reserves production schedule includes fines and lump ore types blend grades to calculate annual product revenue.

19.1.2 Iron Ore Price

As already described in Section 12.1.2, long-term price of US$86 per dmt (FOB Port Hedland) for Platts 62% Fe Fines Index and US$103 per dmt (FOB Port Hedland) for Lump 62.5% Fe were for the purpose of this report estimated from historical actual monthly averages for the preceding three financial years from July 2018 to June 2021 and used for the determination of Mineral Reserves. The same commodity prices have been used for this economic analysis.

19.1.3 Foreign Exchange Rate

Input operating and capital costs for WAIO were estimated in Australian dollars (A$). A foreign exchange rate of 0.71 US$/A$ has been used to convert and present cash flows in US$ stated in this report. This exchange rate represents the average of the actual monthly foreign exchange rates for the preceding three financial years (July 2018 to June 2021), which were provided by the registrant.

19.1.4 Capital and Operating Costs

Capital costs (refer Section 18.1) are included in the cash flow to sustain the rail and port production capacity required for the Mineral Reserve production schedule along with typical mine replacement or rebuild of mining equipment, pit pushbacks, development clearing and replacement of plant instrumentation. There are no material individual development expenditures (e.g., new mining hubs) expected to be required above the sustaining capital amounts to produce the Mineral Reserve.

Operating costs (refer Section 0) included in the cash flow are representative of operating conditions at WAIO over the previous three financial years (July 2018 to June 2021) and are applied to the full Mineral Reserve physical activity schedule from mines to sales point.

19.1.5 Closure Costs

Closure and rehabilitation costs throughout the production period and after end of Mineral Reserves mine life in the year 2052 have been included in the economic analysis (refer Section 17.5.3).

19.1.6 Royalties and Taxes

The following royalties, fees and income tax are assumed to be paid in the financial year incurred in the annual cash flow analysis:

- Western Australia State mining royalties of 7.5% FOB sales revenue are payable on all direct shipping iron ore sold.
- Private royalties, additional lease rentals and native title payments which comprise approximately 1.7% of FOB revenue, in aggregate.
- Company tax of 30% is payable on taxable revenues less deductions each year. All revenues are assumed to be taxable. Eligible deductions for company tax include all royalties, native title payments, operating expenses, capital asset depreciation and closure costs. Depreciation is estimated using the diminishing value method, by dividing 200% by an asset's useful life in years.

19.1.7 Valuation Assumptions

Discounted annual cash flows are calculated using a 6.5% real, post-tax discount rate at a valuation date of 1 July 2022. The discount rate has been provided by the registrant for utilisation in the economic analysis and is based on the average of weighted average cost of capital disclosures by brokers, adjusted where required for inflation of 2.0% per annum.

19.2 Results of Economic Analysis

Results of the economic analysis based on the annual production schedule of WAIO Mineral Reserves is summarised at Table 19-2. Total after tax cash flow of US$148.9 billion, discounted to 1 July 2022 using a discount rate of 6.5% results in a net present value (NPV) of US$88.3 billion.

Table 19-2: WAIO Cash Flow Summary

Item	**US$ billion**
Revenue	314.1
Operating costs	(62.5)
Capital expenditures	(14.3)
Closure and rehabilitation (remaining after final year of production)	(3.7)
Royalties and taxes	(84.8)
After-tax cash flow	148.9
Discounted cash flow (6.5%, Jul-22)	88.3

The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

The annual cash flow presented in Figure 19-2 includes all remaining closure and rehabilitation related annual cash flows summed after the final year of Mineral Reserve production, for clarity of presentation.

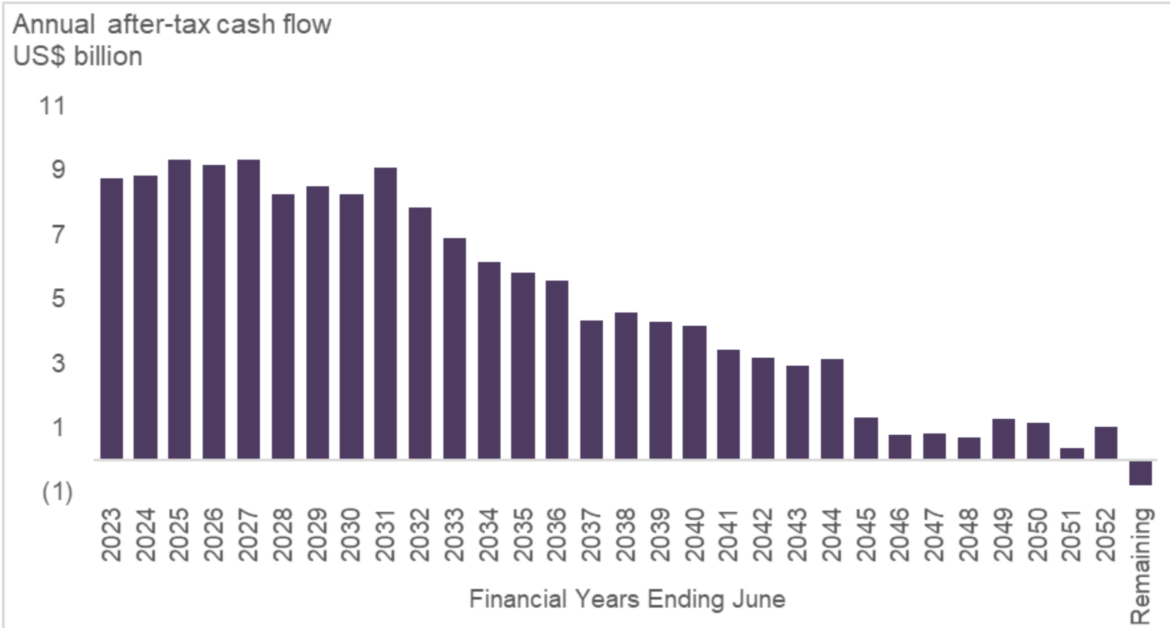

Figure 19-2: Annual Cash Flow

The sole purpose of the annual cash flow data presented above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

As there is no initial investment to be recovered, the internal rate of return (IRR) and payback period are not applicable for this cash flow analysis or economic viability.

Based on the above results, it is the Qualified Person's opinion that extraction of the Mineral Reserve is economically viable.

19.3 Sensitivity Analysis

Economic sensitivity analysis results are presented at Table 19-3 based on variations in significant input parameters and assumptions.

Iron ore grade is not included as a significant uncertainty in this analysis as blending through production scheduling is integral to operations to ensure shipped ore grades meet customer requirements.

Table 19-3: Results of Sensitivity Analysis

Input parameter	NPV US$ billion		
	-25%	Reference	+25%
Iron ore prices	59.8	88.3	116.7
US$/A$ foreign exchange rate	95.5	88.3	81.0
Operating costs	93.8	88.3	82.7
Capital expenditure	89.9	88.3	86.6

The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and three year historical prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

The NPV of WAIO Mineral Reserves is robust to variations in significant input parameters.

20 Adjacent Properties

The QPs note that there are a number of adjacent iron ore properties in the strike extension of WAIO deposits, which are known from geological evidence and information publicly disclosed by owners / operators of the adjacent properties. Some of these adjacent properties are currently under production.

However, the QPs confirm that no information concerning any adjacent property has been used in any way that is the subject of this Technical Report Summary. WAIO has undertaken adequate exploration and drilling to delineate deposits and estimate Mineral Resources on its own tenure.

21 Other Relevant Data and Information

Annual Risk Reviews are conducted jointly by Assets and the BHP Resource Centre of Excellence to ensure significant and material risks to Tenure, Mineral Resources and Mineral Reserves are adequately managed. The Risk Review process identifies key reporting changes regarding the annual declaration of Mineral Resources and Mineral Reserves and agreed actions requiring completion prior to BHP's annual reporting. Issues and opportunities identified during the Risk Reviews inform BHP's annual assurance plan.

It is the QP's opinion that all internal controls have been covered in prior sections of the TRS.

For the fiscal year ended 30 June 2022, WAIO had 10.4 billion tonnes Inferred Mineral Resources compared to 8.0 billion tonnes of Measured and Indicated Mineral Resources (including parts converted to Mineral Reserves). Therefore, mine life beyond what is currently scheduled based on Measured and Indicated Mineral Resources will depend on the extent of Inferred Mineral Resources converting to Measured and Indicated Resources from future exploration programs.

Any part of the Inferred Mineral Resources converted to the Measured or Indicated category will be subject to the application of technical modifying factors before conversion to Mineral Reserves. Before conversion to Mineral Reserves, the QPs must be satisfied that all modifying factors are considered and adequately applied and that no significant uncertainties remain that could impact the Mineral Reserve estimates materially.

22 Interpretation and Conclusions

WAIO has a substantial Mineral Resources and Mineral Reserves base supported by extensive sampling through exploration drilling and other geological information. The majority of the deposits are located within an area 250km long and 100km wide, close to existing infrastructure. This concentration of deposits provides the flexibility to add growth tonnes to existing hub infrastructure and link greenfields developments to existing mainline rail and port facilities. The large resource base is capable of supporting the current rate of production for several decades.

There has been over 50 years of production history on the property and this has been used to validate and calibrate the resource and reserve estimates. The high proportion of Indicated / Measured and the reconciliation history give high confidence in the estimation and reporting of the Mineral Resource and Mineral Reserves. In the QPs' opinion the estimates of WAIO Mineral Resources and Mineral Reserves are duly supported by adequate technical data and reasonable assumptions as stated in this report.

Future exploration work, including drilling, continues to improve the local estimate within all resource categories.

Mineral Resources confidence is reflected in the applied resource classifications, in accordance with the SEC S-K 1300, with factors influencing resource classification including but not limited to data density, data quality, geological continuity and/or complexity, estimation quality and weathering zones. Reconciliation data from operating mines supports the confidence of resource estimates.

22.1 Mineral Resources

The generation and classification of Mineral Resource estimates, and their associated risks have been described in detail in preceding sections of the TRS. Conclusions drawn from these are as follows:

- Exploration drilling, sampling and QAQC of sample data follow standard industry practice, with extensive data validations at each step of the data collection process. BHP have well-established databases with inbuilt functions that prevent the introduction of any inadvertent data errors.
- Geological models are generated and peer reviewed extensively, with models verified by senior field and modelling geologists. An extensive checklist is followed, with each step verified by a peer reviewer prior to the commencement of the next stage.
- Resource estimates follow a rigorous process, with an ultimate extensive review by the QP. Classification documentation is provided to describe all factors contributing to the confidence in a resource estimate and the level of uncertainty present. Each resource estimate is endorsed by a QP prior to handover to Mine Planning.

It is the QP's opinion that any significant risks and uncertainties are addressed appropriately in the identification and compilation of Mineral Resources within BHP's property portfolio. These risks and uncertainties have been minimised through the robust framework covering the estimation process and extensive checks established at each step of the process.

22.2 Mineral Reserves

The estimation methodology and classification of Mineral Reserve estimates, and their associated risks and uncertainties, have been described in detail in the preceding section of this report. Conclusions drawn from these are as follows:

- Historical demonstrated performance and robust reconciliation underpin the high confidence technical modifying factors for Mineral Reserves.
- The mining method, assumptions and application of modifying factors are aligned to the industry standard and appropriate for estimation and classification of Mineral Reserves.
- Any significant risks or uncertainties are addressed appropriately in estimation of the Mineral Reserves.
- The Mineral Reserves are estimated using open-cut mining-method assumptions and were classified in accordance with definitions set-out in Regulation S-K 1300. The Mineral Reserves were converted from Measured and Indicated Mineral Resources after application of modifying factors. No Mineral Reserves are derived from the Inferred Mineral Resources.
- The Mineral Reserve estimate is not materially sensitive to variations in the input assumptions. Economic value is most sensitive to the commodity price however the property still remains positively economic for the life of Mineral Reserves.

23 Recommendations

WAIO regularly conducts independent audits of its Mineral Resources and Reserves, with consistent outcomes that its procedures and processes follow that of standard industry practice, and with no material issues identified. Several minor recommendations from these audits were made, and these are noted as follows:

- Refinement of domain practices to fit geology, geometallurgy and grade continuity purposes
- Consideration of conditional simulation to identify areas of uncertainty and support resource classification

For continuous improvement in Mineral Reserve estimation, the following recommendations should be applied to future work:

- Continue to review and update the Mineral Reserve estimate at least on a yearly basis or when new information becomes available that may materially impact the modifying factors.
- Continuous review of the technical modifying factors considering emerging technology, carbon emission control and technical studies outcomes.
- Periodical independent review of Mineral Reserves estimation methodology and implementation of any identified recommendations from the review outcomes.

23.1 Recommended Work Programs

Mineral Resources and Mineral Reserves estimates - WAIO currently has a large amount of Inferred Mineral Resources which have low geological confidence and hence require more drilling prior to assessing their economic viability. It is clear from the data presented in Table 7-1 that WAIO has been undertaking drilling programmes in the range of 450km to 500km per year since 2008. The QPs recommend that WAIO continue with similar annual levels of drilling to increase geological confidence in the Inferred Mineral Resources.

Environmental Permitting – As noted in Section 3.6 not all permits and approvals required to extract the entire Mineral Reserves and Mineral Resources on the BHP leases are in place. Although there is an expectation, based on past experience, that the permits will be received in a timely matter, the QPs recommend WAIO continue planning and securing the permits as per the internal life of mine plan.

Land Access - As also noted in Section 3.6 pursuant to the new Aboriginal Cultural Heritage Act 2021 (WA) on-going consultations between BHP and the traditional owners are required as new information on heritage becomes available through ethnological and archaeological surveys and cultural heritage management plans are agreed. Therefore the QPs recommend

BHP continue ongoing consultations with the traditional owners to ensure consent is received in advance, prior to deciding areas available for mining and developing mine plans.

Conversion to Mineral Reserves - Any part of the Inferred Mineral Resources converted to the Measured or Indicated category will be subject to the application of technical modifying factors before conversion to Mineral Reserves. Before conversion to Mineral Reserves, the QPs must be satisfied that all modifying factors are considered and adequately applied and that no significant uncertainties remain that could impact the Mineral Reserve estimates materially.

24 References

The list of the references cited in this report is given below.

BHP Billiton Iron Ore Annual Environmental Report July 2019 – June 2020 (BHP, 2020)

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Trendall, A.F., and Blockley J.G., 1970. The Iron Formations of the Precambrian Hamersley Group, Western Australia. With special reference to the associated crocidolite: *Geological Survey of Western Australia, Bulletin 119, pp. 366.*

25 Reliance on Information Provided by the Registrant

The QPs have relied on information provided by BHP in preparing their findings and conclusions regarding certain aspects of the modifying factors, and the sources of this information are listed in Table 25-1.

Table 25-1: Reliance on Information Provided by the Registrant

Category	Report Item/ Portion	Portion of Technical Report Summary	Disclose Why the Qualified Person Considers it Reasonable to Rely upon the Registrant
Legal matters	Section 3.5 Section 3.6	Significant encumbrances and other key factors / risks to the property	These matters are handled by professional legal experts within BHP
Environmental matters	Section 17.1 Section 17.3	Environmental Studies and Impact Assessments Project Permitting Requirements	Matters related to environmental studies and permitting are undertaken by professional teams within BHP.
Plans for local groups	Section 17.4 Section 17.7	Social Plans and Agreements with Local groups Local procurement and Hiring	Matters related to social plans, agreements with local groups, local procurement and hiring are managed by dedicated professional teams within BHP.
Macro-economic Assumptions	Section 19.1	Standard discount rate and foreign exchange rate (US$/A$)	Matters related to discount rates and interest rates are maintained by financial professionals within BHP and the accounting practices are audited annually by external auditors.
Governmental factors	Section 19.1	Royalty and taxation	These are external factors that BHP must comply with and data is maintained by financial professionals within BHP

Exhibit 96.3

Title: Technical Report Summary - Jansen SEC S-K 229.1300 Technical Report Summary Prefeasibility Study Jansen Potash Project Saskatchewan, Canada

For the fiscal year ended: 30 June 2022

Report Prepared for

BHP Group Limited
(ABN 49 004 028 077)

171 Collins Street
Melbourne
Victoria
Australia

Note Regarding Forward Looking Statements

This Technical Report Summary (TRS) contains forward-looking statements, including: statements regarding trends in commodity prices and currency exchange rates; demand for commodities; resources, reserves and production forecasts; plans, strategies and objectives of management; operations or facilities (including associated costs); anticipated production or construction commencement dates; capital costs and scheduling; operating costs and supply of materials and skilled employees; anticipated productive lives of projects, mines and facilities; provisions and contingent liabilities; and tax and regulatory developments.

Forward-looking statements may be identified by the use of terminology including, but not limited to, ‘intend’, ‘aim’, ‘project’, ‘see’, ‘anticipate’, ‘estimate’, ‘plan’, ‘objective’, ‘believe’, ‘expect’, ‘commit’, ‘may’, ‘should’, ‘need’, ‘must’, ‘will’, ‘would’, ‘continue’, ‘forecast’, ‘guidance’, ‘trend’ or similar words. These statements discuss future expectations concerning the results of assets or financial conditions, or provide other forward-looking information.

Forward-looking statements are based on current expectations and reflect judgments, assumptions, estimates and other information available as at the date of this TRS. These statements do not represent guarantees or predictions of future financial or operational performance and involve known and unknown risks, uncertainties and other factors, many of which are beyond the control of BHP and which may cause actual results to differ materially from those expressed in the statements contained in this TRS. Readers are cautioned against reliance on any forward-looking statements or guidance, including in light of the current economic climate and the significant volatility, uncertainty and disruption arising in connection with COVID-19. Other factors that may affect actual results are set out in BHP’s reports that are filed with, and furnished to, the U.S. Securities and Exchange Commission, including BHP’s Annual Report on Form 20-F for the period ended June 30, 2022.

Except as required by applicable regulations or by law, BHP does not undertake to publicly update or review any forward-looking statements, whether as a result of new information or future events.

The production schedule data included in Sections 13 and 19 of this TRS has been prepared to demonstrate the economic viability of the mineral reserves of Jansen only and may differ from production guidance published by BHP from time to time in accordance with the relevant ASX Listing Rules. See Sections 11, 12, 16, 17, 18 and 19 for more information on the pricing and cost assumptions utilised to produce Jansen’s production schedule data in this TRS.

Specifically, the production schedule data for the entire life of mineral reserves included in Sections 13 and 19 of this TRS has been prepared utilising the average of Nutrien’s quarterly published offshore and onshore realised prices from Q1 2008 through Q4 2020 and annual costs sourced from bottom-up estimates, operational experience and benchmarking, budget quotes from potential vendors, design specifications, and currently contracted rates where applicable, whereas BHP’s forward production and cost guidance published in accordance with the ASX Listing Rules are prepared utilising BHP’s internally generated projected long-term commodity prices and cost assumptions. Therefore, the production schedule data included in this TRS may differ from BHP’s production guidance published in accordance with the ASX Listing Rules.

Report Prepared by:

Qualified Person	Specific Type of Activity and Area of Accountability	Signature	Date
Balazs Nemeth	Mineral Tenure & Mineral Resources – Section 1, 2, 3, 7 (excluding 7.3, 7.4), 11, 20, 22.1, 24	/s/Balazs Nemeth	30 June 2022
Ozen Turkekul	Mineral Resources – Section 1, 2, 4, 5, 6, 8, 9, 21, 22.1, 24	/s/Ozen Turkekul	30 June 2022
Johannes Sondergaard	Mineral Reserves – Section 1, 2, 12, 13, 15 (excluding 15.6, 15.9), 16, 17.4-17.7, 19, 22.2, 23, 24, 25	/s/Johannes Sondergaard	30 June 2022
Cameron McKinnon	Metallurgy, Processing - Section 1, 2, 10, 14	/s/Cameron McKinnon	30 June 2022
Darren Madsen	Mineral Reserves, Geotechnical – Section 1, 2, 7.4, 13.2.1	/s/Darren Madsen	30 June 2022
Bibek Shrestha	Hydrogeology - Section 1, 2, 7.3, 13.2.2	/s/Bibek Shrestha	30 June 2022
Greg Gauld	Operating Costs - Section 1, 2, 18.1	/s/Greg Gauld	30 June 2022
Manjula Dissanayake	Capital Costs - Section 1, 2, 18.2	/s/Manjula Dissanayake	30 June 2022
Melanie Failler	Environmental studies, Permitting - Section 1, 2, 17 Introduction, 17.1, 17.2 (excluding 17.2.1, 17.2.2.), 17.3	/s/Melanie Failler	30 June 2022
Jacques Ouellet	Shafts & Hoisting - Section 15.9	/s/Jacques Ouellet	30 June 2022
SNC Lavalin	Tailings disposal - Section 15.6, 17.2.1, 17.2.2	/s/SNC-Lavalin	30 June 2022

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List of Abbreviations

The metric system has been used throughout this report. Tonnes are metric of 1,000 kg, or 2,204.6 lb. All currency is in U.S. dollars (US$) unless otherwise stated.

Abbreviation	***Unit or Term***
A	ampere
AAS	atomic absorption spectroscopy
AES	atomic emission spectroscopy
AVDI	Annual visual dyke inspection
A/m^2	amperes per square metre
BMH	Bulk material handling
BP	Belle Plaine
BRZ	Brazilian Indirect Tensile Strength
°C	degrees Centigrade
CFR	Cost and Freight
Cm	centimetre
cm^2	square centimetre
cm^3	cubic centimetre
CMC	constant mean stress
CMR	Combined Magnetic Resonance
CSR	constant strain rate
CY	calendar year
°	degree (degrees)
DPM	Diesel Particulate Matter
DVS	Production Shaft
EBS	Extendable Belt System
EDF	Environmental Design Flood
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
FMT	Formation Multi-tester
FOB	Free on Board
FOS	Factor of Safety
FTE	full-time equivalent
Ft	foot (feet)
FY	financial year
G	gram
Gal	gallon
GISTM	Global Industry Standard on Tailings Management
g/L	gram per litre
Gpm	gallons per minute
GPR	ground penetrating radar
GJ/year	gigajoules per year
Gpa	gigapascals
Ha	hectares
HDPE	High Density Polyethylene
Hp	horsepower
HRIA	Heritage Resource Impact Assessment
Hrs	hours
IA	Indigenous Agreement
ICP	inductively coupled plasma
IDF	Inflow Design Flood
IOC	Integrated Operations Centre
JEMP	Jansen Environment Management Plan
KCl	Potassium Chloride
Kg	kilograms
Km	kilometre
km^2	square kilometre
kPa	kilopascal
kV	kilovolt
kWh	kilowatt-hour
kWh/t	kilowatt-hour per metric tonne

Abbreviation	***Unit or Term***
L	litre
L/sec	litres per second
L/sec/m	litres per second per meter
L/y	litres per year
Lb	pound
LFA	Live Fluid Analyser
LHD	Long-Haul Dump truck
LLDDP	Linear Low Density Polyethylene Plastic
LoM	Life-of-Mine
LPL	Lower Patience Lake
LRMC	long run marginal cost
M	metre
m/s	metres per second
m^2	square metre
m^3	cubic metre
m^3/y	cubic metres per year
m^3/t	cubic metres per tonne
masl	metres above sea level
mD	milliDarcy
Ms	millisecond
MCM	Thousands of Circular Mills (thickness)
MDT	Modular Formation Dynamic Tester
mg/L	milligrams/litre
Mm	millimetre
MOE	Saskatchewan Ministry of Environment
MOP	Muriate of Potash
MPa	megapascals
Mt	million tonnes
Mtpa	million tonnes per year
MW	million watts
MWh/year	million watt hours per year
m.y.	million years
m/s	metres per second
NI 43-101	Canadian National Instrument 43-101
NMR	Nuclear Magnetic Resonance
NPI	Non – Process Infrastructure
OWL	Outer Welded Liner
%	per cent
PCS	Process Control System
PE	Prairie Evaporite
Psi	pounds per square inch
PVE	production volume estimate
QA/QC	Quality Assurance/Quality Control
RC	rotary circulation drilling
RoM	Run-of-Mine
RWW	Raw Water Well
SB	Shadow band
SS	Service Shaft
Sec	second
SER	Saskatchewan Ministry of Energy and Resources
SG	specific gravity
SME	subject matter expert
SRC	Saskatchewan Research Council
SRMC	short run marginal cost
SSEWS	Saskatoon Southeast Water Supply
STP	sewage treatment plant
T	tonne (metric ton) (2,204.6 pounds)
TCC	Tri-axial compression creep
TMA	tailing management area
Tph	tonnes per hour
TSF	Tailings Storage Facilities
UPL	Upper Patience Lake
US SEC	US Securities and Exchange Commission

Abbreviation	***Unit or Term***
UTM	Universal Transverse Mercator
V	volts
VIT	Vertical Interface Test
VFD	variable frequency drive
W	watt
WCSB	Western Canadian Sedimentary Basin
WRA	whole rock analysis
Y	year

1 Executive Summary

This report was prepared as a Prefeasibility Study-level Technical Report Summary in accordance with the US Securities and Exchange Commission (SEC) Regulation S-K (Title 17, Part 229, Items 601(b)(96) and S-K 1300) for BHP Group Limited on the Jansen Potash Project (Jansen) development stage property. BHP Group Limited has a 100 per cent ownership of Jansen.

On the 17 August 2021, BHP Group Limited approved US$5.7 billion (CA$7.5 billion) in capital expenditure for the Jansen potash project. This document describes the first phase of operations at Jansen, known as Jansen Stage 1, noting all future staged production expansion as beyond the scope of the document.

The scope of Jansen Stage 1 is currently comprised of:

- fully lined service shaft with permanent hoists capable of 1,750 tph, equipped with steel guides and loading/unloading to accommodate two 50-tonne skips and a 90-person service cage;
- A fully lined production shaft, known as Dalla Valle (DV) shaft. The existing sinking arrangement will undergo a hoist and headframe changeover to accommodate the interim hoisting requirements for the lateral connection of the two shafts and subsequent shaft pillar development. The DV shaft will also serve as secondary personnel and materials movement as well as second egress and return air ventilation circuit. This shaft will be fully equipped in subsequent stages;
- A shaft pillar area with skip loading facilities, conveyor networks, raw ore storage bin, remote ore storage area, refuge stations, workshops, materials management areas, offices, principal refuge chambers, mobile equipment battery charging stations, and parking areas;
- Establishment of two mining districts that each contain two production panels and supporting development units, and are connected to the shaft infrastructure through conveyor networks;
- Production and development mining equipment, including MF460 borers, extendable belt systems, continuous miners, batch haulage equipment, and supporting fleet of underground personnel and service vehicles;
- A 1,483 tph ore processing plant including:
    - Raw ore handling, storage, and crushing;
    - Process mill building wet area comprising attrition scrubbing, desliming, flotation, and debrining;
    - Process mill building dry area comprising drying, screening, compaction, and glazing;
    - Tailings processing, crystallizer, and reagents;
    - Product handling, storage, screening, and loadout;

- Non-process infrastructure, including a tailings management area, administration building, warehousing, workshops, utilities, on-site rail, and financial support for port facility conversion to ship product to overseas markets.

1.1 Property Description and Ownership

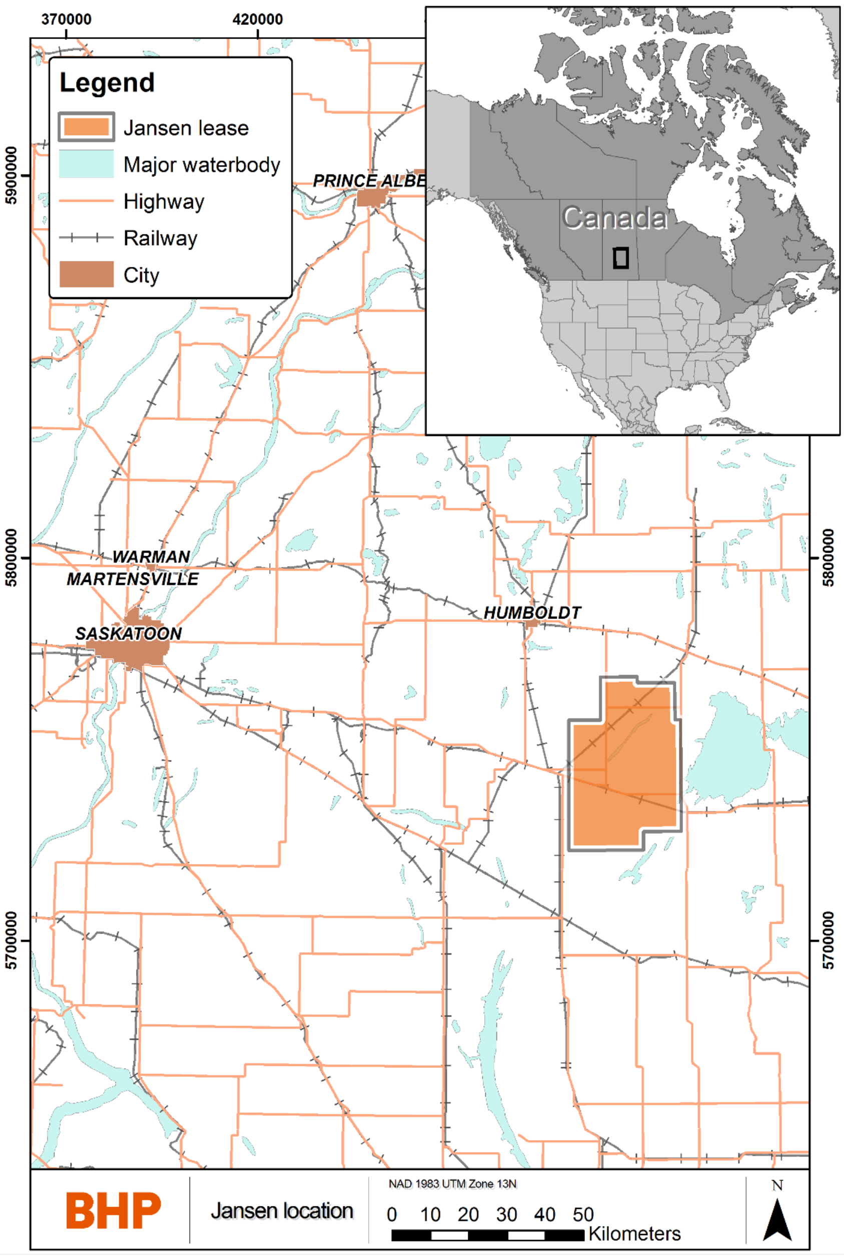


Figure 1-1: Location of the Jansen Potash Project

The Jansen Potash Project is located in the Province of Saskatchewan, Canada, approximately 150 kilometres east of the city of Saskatoon (Figure 1-1). The site is accessed by road from provincial Highway 16, approximately 12 kilometres to the south, and Highway 5, approximately 32 kilometres to the north. There is a commercial international airport located in Saskatoon.

The Jansen site is in a rural setting in Saskatchewan, Canada, with small farming communities located nearby. The closest city is Humboldt with a population of about 6,000, and is located approximately 60 kilometres away. The Jansen site is currently under active construction.

The Jansen project is located exclusively within the Subsurface Mineral Lease KLSA 011 ('KLSA 011'), which is wholly owned and operated by BHP Canada Inc. (BHP Canada). The KLSA 011 agreement gives BHP Canada the exclusive right to search for, dig, work, mine, extract, recover, process and carry away subsurface minerals under or within all of the Saskatchewan Crown mineral parcels. The term of the lease is twenty-one years, commencing on 23 November 2012, and is renewable at the option of BHP Canada for successive terms of twenty-one years each.

Most mineral parcels inside the boundaries of KLSA 011 are owned by the Saskatchewan Crown (~1,033 square kilometres). The remaining mineral parcels (~123 square kilometres) are owned by individuals and/or corporations.

1.2 Geology and Mineralisation

Potash is the common name given to a group of minerals and chemicals that contain potassium (K) which is a basic nutrient for plants and an important ingredient in fertilizer. Potash is produced as potassium chloride (KCl) in Saskatchewan from sylvinite rock that is a mixture of Sylvite (KCl) and Halite (NaCl) minerals. The KCl content is measured and refer to it in terms of potassium oxide (%K2O) equivalence. %K2O grade is equivalent to KCl content using the mineralogical conversion factor of 1.583. Jansen potash deposit is composed of combinations of halite (NaCl), sylvite (KCl) with variable mounts of disseminated insolubles and clay seams.

The Jansen potash deposit is located within the Williston Basin, a large, intracratonic, horizontally bedded sedimentary basin. The geology of the basin and its geological formations are well known from extensive exploratory drilling for hydrocarbons and minerals and from geophysical data collected since 1952. This basin wide geological information is publicly available from the Saskatchewan Geological Survey in the form of maps, cross-sections, drill hole-based formation contact identification, core from historical drill holes, and other publications. Potash exploration drill hole information in Saskatchewan becomes publicly available five years after drilling under current Saskatchewan regulations.

The potash beds are hosted within the Prairie Evaporite (PE) formation, in regionally extensive, horizontal layers during the repeated, cyclical evaporation of a shallow, inland sea during the Devonian period.

In Jansen, the potash is at a depth of approximately 800 metres to approximately 1,050 metres. Two Potash members are present in Jansen those being the Patience Lake and Belle Plaine members. The Patience Lake member is further subdivided into Upper Patience Lake (UPL) and Lower Patience Lake (LPL) sub-members. The LPL sub-member is the potash horizon targeted for Jansen. The LPL sub-member is composed of sylvite (KCl), halite (NaCl) with variable amounts of disseminated insolubles and clay seams. Carnallite (KCl.MgCl2.6H2O), a mineral which can impact processing and ground stability, occasionally occurs in place of sylvite within the potash layer. Carnallite can typically be mapped using 3D seismic survey information.

The potash deposit extends from east to west in the province and, based on information available to date, shows relative uniformity, except where there are anomalies due to local dissolutions of the potash beds or clay seams. The main types of anomalies are called washout, leach and collapse anomalies.

1.3 Status of Exploration, Development and Operations

The Jansen Project is a Greenfield underground potash mine currently in construction.

Drilling and seismic surveys (2D and 3D) are the primary methods for potash exploration. The area was explored by various companies starting in the 1950s. Modern exploration started in 2006 and was completed in 2012, with a drilling program and acquisition of 3D seismic surveys over 70 per cent of the Jansen lease completed.

The US$4.5 billion (pre-tax) of capital invested in the Jansen Project by BHP to date includes funds allocated for construction of the shafts and associated infrastructure, as well as engineering and procurement activities, and preparation works related to underground infrastructure. The construction of two shafts and associated shaft infrastructure at the site is expected to be completed in the 2022 calendar year. Approximately 50 per cent of all engineering expected to be required to commence production has been completed.

A substantial portion of the site grading, drainage and road network that is expected to be required to commence mining/production is in place.

The site is connected to off-site infrastructure, including natural gas, temporary electrical power, communication fiber and non-potable water.

Additionally, there have been several facilities for both permanent operations and temporary construction purposes that have been installed to date as part of Jansen Stage 1 including:

- The Discovery Lodge camp (2,600 beds) for housing the construction work force
- A modern water treatment plant and raw water well for provision of potable water
- A sanitary sewage treatment plant
- Service and Production headframes
- Permanent cold storage warehouse & laydown areas for material storage/staging
- Guard houses and site fencing
- Storm water ponds and effluent storage facilities
- Environmental monitoring equipment for ground water, air quality, noise and vibration levels

Additional operational work is expected to be necessary beyond 2022 in line with the current six year construction schedule of Jansen Stage 1 that began in 2021 after its approval by the BHP Board of Directors (Board). Further stages of development of Jansen (beyond Jansen Stage 1) have not yet been approved by the Board.

1.4 Mineral Resources and Mineral Reserves Estimates

1.4.1 Mineral Resources

The Jansen Project is located in the Saskatchewan Potash Basin, one of the world's top three producing potash basins, with seven producing conventional mines and three producing solution mines. Based on the information available to date, the resource characteristics of Jansen are comparable to the other potash mines in the area: the resources include an extensive area of shallowly dipping, consistent, large tonnage, high grade, potash at a depth between approximately 800 metres and approximately 1,050 metres.

The Lower Patience Lake potash sub-member from the top of the 406 clay seam to 3.96 metres below the top of the 406 clay seam is defined as the resource. The resource model generated from the drilling data and spatially dense 3D seismic data provides detailed information on the geological domains and on the qualities of the resource. Only Measured Resources have been converted to Probable Reserves.

Due to the extensive data coverage of over 70 per cent of the Jansen lease, no further exploration from surface is planned to validate the reported Mineral Resources and Mineral Reserves.

The Mineral Resources are reported exclusive of the Mineral Reserves. Summary Mineral Resources estimates for Jansen at the end of the Fiscal Year Ended 30 June 2022 are provided in Table 1-1.

Table 1-1: Jansen - Summary of Potash (Exclusive) Mineral Resources (as at 30th June 2022)

		Measured Resources				Indicated Resources				Measured + Indicated Resources				Inferred Resources				
		Tonnage	Qualities			Tonnage	Qualities			Tonnage	Qualities			Tonnage	Qualities			
Potash (1)(2)	Mining Method	Mt	%K_2O	%Insol.	%MgO	Mt	%K_2O	%Insol.	%MgO	Mt	%K_2O	%Insol.	%MgO	Mt	%K_2O	%Insol.	%MgO	BHP Interest %
Canada Jansen (3)(4)(5)(6)(7) (8)(9)(10)(11)																		
LPL	UG	–	–	–	–	–	–	–	–	–	–	–	–	1,280	25.6	7.7	0.08	100
Total potash		–	–	–	–	–	–	–	–	–	–	–	–	1,280	25.6	7.7	0.08	

(1) Mineral resources are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals.
(2) Mineral resources are presented exclusive of mineral reserves.
(3) Jansen, in which BHP has a 100% interest, is considered a material property for the purposes of item 1304 of S-K 1300.
(4) The point of reference for the mineral resources was in situ.
(5) Mineral resources estimate was based on a potash price of US$338/t.
(6) Mineral resources are stated for the Lower Patient Lake (LPL) potash unit and using a seam thickness of 3.96 m from the top of 406 clay seam.
(7) Mineral resources are based on the expected metallurgical recovery of 92%.
(8) Potash or sylvite (KCl) content of the deposit is reported in potassium oxide form (K_2O). The conversion from KCl to K_2O uses a mineralogical conversion factor of 1.583, for example, 25.6% K_2O grade is equivalent to 40.5% KCl.
(9) % MgO is used as a measure of carnallite ($KCl.MgCl_2.6H_2O$) content where per cent carnallite equivalent = % MgO x 6.8918
(10) Mineral resources tonnages are reported on an in-situ moisture content basis and was estimated to be 0.3%.
(11) The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and the historic average prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

1.4.2 Mineral Reserves

Table 1-2: Jansen - Summary of Potash Mineral Reserves (as at 30th June 2022)

		Proven Reserves				Probable Reserves				Total Reserves				
		Tonnage	Qualities			Tonnage	Qualities			Tonnage	Qualities			
Potash (1)(2)	Mining Method	Mt	$\%K_2O$	%Insol	%MgO	Mt	$\%K_2O$	%Insol	%MgO	Mt	$\%K_2O$	%Insol	%MgO	BHP Interest %
Canada Jansen (3)(4)(5)(6)(7)(8)(9)(10)														
LPL	UG	–	–	–	–	1,070	24.9	7.5	0.10	1,070	24.9	7.5	0.10	100
Total potash		–	–	–	–	1,070	24.9	7.5	0.10	1,070	24.9	7.5	0.10	

(1) Mineral reserves are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals
(2) Jansen, in which BHP has a 100% interest, is considered a material property for the purposes of item 1304 of S-K 1300.
(3) The point of reference for the mineral reserves was ore as delivered to the mill for processing.
(4) Mineral reserves estimates were based on a potash price of US$338/t.
(5) Mineral reserves estimates cut-off is a function of mining parameters and seam thickness. The calculated cut-off grade from economic modelling where the mine plan would be break-even is 11.6% K_2O.
(6) Mineral reserves are based on the expected metallurgical recovery of 92%.
(7) Potash or sylvite (KCl) content of the deposit is reported in potassium oxide form (K_2O). The conversion from KCl to K_2O uses a mineralogical conversion factor of 1.583, for example, 25.6% K_2O grade is equivalent to 40.5% KCl.
(8) % MgO is used as a measure of carnallite ($KCl.MgCl_2.6H_2O$) content where per cent carnallite equivalent = % MgO x 6.8918.
(9) Mineral reserves tonnages are reported on an in-situ moisture content basis and was estimated to be 0.3%.
(10) The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and the historic average prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

1.5 Mining Method

The Jansen Mine is expected to be an underground potash mine extracting the Lower Patience Lake sub-member within the Prairie Evaporite formation. The orebody gently undulates over large distances, has well defined boundary conditions, and has a reasonably consistent ore grade. Mining will take place on a single level in two separate districts.

The planned mining method is long room and pillar. Production mining rooms are expected to be excavated in two passes to a final width of 12 metres using track-mounted borer miners and extendable conveying systems. Mined ore is expected to be transported to the shaft area for hoisting using a roof or floor mounted conveyor network.

Pillars contribute to the mining room stability for safe working conditions and are derived from empirical and numerical models using expected geological conditions, depth, extraction ratio, extraction rates, and expected useful life of the entries. The mine has been designed with consideration of the expected geotechnical and hydrogeological conditions to manage the mining induced subsidence. Maintaining the integrity of the overlying shale, limestone and halite units act as a protective barrier from risk of brine inflow to the mine. The high density 3D seismic survey identifies the geological conditions that present an increased risk for fluid movement.

1.6 Processing and Recovery Methods

Unit operations that are expected to make up the Jansen processing facilities are common to conventional potash mines in Saskatchewan, and will include:

- Raw ore handling, storage, and crushing
- Process mill building wet area comprising attrition scrubbing, desliming, flotation, and debrining
- Process mill building dry area comprising drying, screening, compaction, and glazing
- Tailings processing, crystallizer, and reagents
- Product handling, storage, screening, and loadout

The Jansen Stage 1 process plant is designed to be a fit-for-purpose high-recovery facility, capable of processing 1,483 tonnes per hour wet basis (or 1,479 tph dry basis) of raw ore to produce red fertilizer grade potash (muriate of potash) sized for both standard and granular product types.

1.7 Infrastructure

Discovery Lodge, the Jansen construction camp, has been constructed, is currently in use and has a capacity of 2,600 people. Communications, power, water, and natural gas are provided by provincial crown corporations. The pipeline connection to the Saskatoon South East Water Supply system for Jansen's primary water use is complete. The natural gas supply pipeline has been installed and is in use at the on-site accommodation, sewage treatment plant, and concrete batch plant. Currently temporary construction power is provided by SaskPower with a 138 kV overhead line, with the permanent 230kV supply to be completed with mine construction.

Upgrades to the secondary roads to the Jansen mine site from the paved provincial highway network have been completed.

The Jansen project has two mine shafts, the service shaft (SS) and the production shaft (DVS). Both shafts have an internal diameter of 7.3 metres and are excavated to a depth of approximately 1,000 metres. Both shafts are lined with an integral hydrostatic concrete/steel composite design with waterproofing is provided by an integral outer welded liner from a depth of 835 metres.

The service shaft hoist system will use ground mounted Koepe hoists (friction hoists). The service shaft headframe is a typical A-Frame steel construction. The Service shaft permanent headframe, hoist houses, and collar house are constructed. The production shaft sinking headframe and ground mounted drum winders are installed and in use.

A third party rail provider will transport the potash produced from the Jansen site to the port terminal, located in Delta, British Columbia, Canada, which is owned and operated by a third party provider. The port facility will unload the railcars, store the product, and load shipping vessels.

1.8 Market Studies

Potassium content is commonly measured in units of potassium oxide (K_2O), (a notional substance), rather than units of K. MOP used in agricultural application is typically ~95 % KCl, which is equivalent to ~60 % K_2O; this is in general the threshold required to qualify product in most major agricultural markets. Jansen plans to sell two agricultural potash grades, red standard (~60 % K_2O equivalent, ~0.5 to 1 millimetres in size) and red granular (~60 % K_2O equivalent, ~3-4 millimetres in size) potash, to retain simplicity while seeking sufficient market access.

Global demand for potash fertilizers is driven by the need for higher crop production to feed a growing and more affluent, global population. It is also driven by the need to reduce reliance on native soil potassium, which in many places may be unable to support the necessary increase in crop yields. Historically, the relationship between population growth, crop production and potash demand has been reliable and therefore considered to provide a reasonable basis for projecting future fertiliser needs.

According to independent market analyst CRU, it estimates that about three-quarters of MOP production comes from underground ores – mainly located in Canada, Russia and Belarus. It is simple and established technology, low-cost and energy efficient. Much of the remainder is extracted from natural brines in China and the Dead Sea. Ore is most commonly processed through flotation that yields a product that is pink or red and usually about 95 per cent pure. Jansen is designed to employ conventional underground mining and flotation.

Most potash operations produce between 1 and 4 Mtpa. Most of the potash mines in Canada date back to a period of rapid development in the 1960s and 1970s, while much of the capacity in Russia and Belarus was built in the Soviet era. The potash industry structure is presently characterized by a small number of large suppliers. In terms of supply concentration, four producers (Nutrien, Mosaic, Uralkali and Belaruskali) are estimated to have accounted for ~65 per cent of global production in 2020.

It is expected that BHP will market directly to customers via a network of regional offices, leveraging BHP's existing global footprint and capabilities.

BHP is expected to focus on upstream Cost and Freight (CFR) sales and may benefit from being able to direct-rail to North American customers. Jansen is expected to have logistics optionality and flexible granular processing capacity that may enable a shift of sales between export regions and North America, depending on the market.

1.9 Capital and Operating Cost Estimates

The Capital Cost Estimate (Capex) and Operating Cost Estimate (OPEX) were developed by BHP Canada, its consultants and engineering service providers using processes to quantify, cost, and price the resource estimates that is included within the Jansen Stage 1 scope.

The Jansen Stage 1 scope includes a lined service and production shaft with the service shaft capable of hoisting 1,750 tph, mining equipment, underground development, and infrastructure necessary to support operations. A 1,483 tph processing plant and non-processing infrastructure, including a tailings management area. The total installed costs for Jansen Stage 1 is estimated to be Real CA$5,513M inclusive of up to but not exceeding 15 per cent contingency, and an accuracy range of +/-25 per cent.

The OPEX for the Jansen project Stage 1 was developed to capture costs defined as Mine gate. This includes all costs spanning from the mining face underground to the loading of product to rail at site.

The Operating Cost Estimate includes all personnel and activities within the battery limits of the scope, and includes operational and statutory management, administration, and support personnel associated with the operation.

The average operating cost over the life of Jansen Stage 1 is estimated to be US$61/tonne KCl. Cash operating cost includes a mixture of fixed and variable costs and are aligned with an assumed Mine gate sales point therefore exclude Port and off-site Rail cost.

1.10 Economic Analysis

The analysis that supports the Jansen Mineral Resource economic viability testing is an excel model based on annual cash flow projections. Annual cash flows projections include sales revenue (sales point FOB Mine), operating and closure costs, capital expenditures, royalties, income and production taxes.

The Jansen annual cash flow projections, utilizing the assumptions detailed within this report, result in a discounted after-tax cash flow of US$5.5B, utilizing a 6.5 percent discount rate, and a IRR of 15.2 per cent. The Jansen project remains economically viable under a range of scenarios including deviations in price, production, foreign exchange rates, capital expenditures and operating costs.

1.11 Permitting Requirements

The Jansen Project Environmental Impact Statement (EIS), which BHP Canada submitted to the Saskatchewan Ministry of Environment in 2010, received Ministerial Approval on 29 June 2011.

Since the EIS approval, further engineering and project optimization was completed that resulted in changes to the mine plan, site layout, and schedule. To maintain Ministerial Approval, two submissions were made in November 2017 to the MOE Environment Assessment and Stewardship Branch under Section 16 of The Environmental Assessment Act. Approval was received for both submissions on 19 April 2018.

Following the Approval of the EIS, Jansen required federal, provincial and municipal permits and approval for construction and operation. Jansen maintains an electronic permit register that lists all permits for the Project. BHP Canada has received all permits that have been applied for to-date and expects to be able to obtain the required construction and operation permits for Jansen.

BHP Canada currently has a terminal services and development agreement in place with Westshore for this development and shipping services. All required permits for the facility development have not been issued.

1.12 Qualified person's conclusions and recommendations

It is the opinion of the Qualified Person, based on the available data, the known limitations of the data, interpretations, and methodologies, the Jansen Mineral Resource estimate is considered fit for purpose in supporting and forming the basis of the Mineral Reserves estimate.

No recommendations for further exploration have been identified during project execution and later in operations, geological mapping, interpretation and sampling programs implemented as part of the reconciliation process are expected to be sufficient to address the identified Mineral Resource uncertainties.

Uncertainties that affect the reliability or confidence in the Mineral Resource and Mineral Reserve estimate include but are not limited to:

- Future macro-economic environment, including product prices and foreign exchange rate
- Changes to operating cost assumptions, including labour costs
- Ability to continue sourcing water from the Saskatoon South East Water Supply
- Changes to mining, hydrogeological, geotechnical parameters and assumptions reflected in mining recovery
- Ability to maintain environmental and social license to operate
- Integrity of the shaft liner beyond the design life of 70 to 80 years.

Confidence in the Mineral Reserve is reflected in the applied reserve classifications in accordance with the US SEC S-K 1300 with factors influencing classification including but not limited to mining methods, processing methods, economic assessment and other life of asset and closure assessments.

In the opinion of the Qualified Person the confidence in the modifying factors is reasonably translated to the Probable Mineral Reserves characterisation and their derivation from Measured Resource estimates.

2 Introduction

2.1 Registrant for Whom the Technical Report Summary was Prepared

This Technical Report Summary was prepared in accordance with the new US Securities and Exchange Commission (US SEC) S-K regulations (Title 17, Part 229, Items 601 and 1300 through 1305) for BHP Group Limited (BHP) to support its declaration of Potash Mineral Resources and Mineral Reserves on its Jansen Potash Project (Jansen) for the fiscal year ended on 30 June 2022.

2.2 Terms of Reference and Purpose of the Report

This report covers Mineral Resources and Mineral Reserves and is issued in support of the BHP Canada Jansen Potash Project declaration. This document describes the first phase of operations at Jansen, known as Jansen Stage 1, noting all future staged production expansion as beyond the scope of the document.

This Technical Report Summary was prepared to support the disclosure of Mineral Resources and Mineral Reserves for the fiscal year ended on 30 June 2022 in compliance with the new US SEC S-K regulations (which came into effect on 1 January 2021). This report does not include any exploration results that are not part of Jansen's Mineral Resources or Mineral Reserves.

2.3 Sources of Information

This report is based on internal technical reports, studies, and field programs, published government reports, published government and historical data, and public information as cited throughout this report and listed in the Section 24., available at the time of writing this TRS.

Unless otherwise stated, all figures and images were prepared by BHP Canada. Units of measurement referenced in this report are based on local convention in use at the property and currency is expressed in US dollars.

Reliance upon information provided by the registrant is listed in Section 25 when applicable.

2.4 Details of Inspection

BHP has relied on the Qualified Persons listed in Table 2-1 to prepare the information and this report supporting its disclosure of Mineral Resources and Mineral Reserves at a Preliminary Feasibility Study-level. All Qualified Persons, except one, are full time employees of BHP, with the chapters and sections noted for which each Qualified Person is responsible for.

Table 2-1: List of Qualified Persons

QP Name	Relation to Registrant and their Role	Qualification	Professional Organization and Membership level	Years of Relevant Experience	Responsible for disclosure of
Balazs Nemeth	Full-time Employee / Principal Geophysicist	PhD Geophysics	MAUSIMM	20	Mineral Tenure & Mineral Resources – Section 1, 2, 3, 7 (excluding 7.3), 11, 20, 22.1, 24
Ozen Turkekul	Full-time Employee / Principal Geologist	B.Eng. Geological Engineering M.A.Sc. Economic Geology	APEGS	21	Mineral Resources – Section 1, 2, 4, 5, 6, 8, 9, 21, 22.1, 24
Johannes Sondergaard	Full-time Employee / Manager Resource Engineering	Bachelor of Science in Mining Engineering	MAUSIMM	18	Mineral Reserves – Section 1, 2, 12, 13, 15 (excluding 15.6, 15.9), 16, 17.4-17.7, 19, 22.2, 23, 24, 25
Cameron McKinnon	Full-time Employee / Manager Process Engineering	BEng Metallurgical Engineering	APEGS	26	Metallurgy, Processing - Section 1, 2, 10, 14
Darren Madsen	Full-time Employee / Principal Mining Engineer	B.Sc. Geological Engineering	APEGS	14	Mineral Reserves, Geotechnical – Section 1, 2, 7.4, 13.2.1
Bibek Shrestha	Full-time Employee / Specialist Hydrogeology	M.Sc. Hydrogeology	MAUSIMM	20	Hydrogeology - Section 1, 2, 7.3, 13.2.2
Greg Gauld	Full-time Employee / Head of Production	Bachelor of Applied Science	APEGS	19	Operating Costs - Section 1, 2, 18.1
Manjula Dissanayake	Full–time Employee /	BSc (honors) Quantity Surveying Masters Finance and Economics PhD Construction Engineering & Management	MRICS	18	Capital Costs - Section 1, 2, 18.2
Melanie Failler	Full-time Employee / Superintendent Environment	Bachelor of Science	ASPB	21	Environmental studies, Permitting - Section 1, 2, 17 introduction , 17.1, 17.2 (excluding 17.2.1, 17.2.2.), 17.3
Jacques Ouellet	Full-time Employee / Principal Shaft & Hoisting	B.Sc. A. Engineering, M.Sc. A. Ph.D.	APEGS	32	Shafts & Hoisting - Section 15.9
SNC Lavalin					Tailings disposal - Section 15.6, 17.2.1 17.2.2

Table 2-2 summarizes the details of the personal inspections on the property by each qualified person or, if applicable, the reason why a personal inspection has not been completed.

Table 2-2: Qualified Persons Site Visits

QP Name	Details of Inspection
J. Sondergaard	Focus on the early construction associated with the shafts and headframes, camp construction, water supply and treatment facilities, temporary and permanent utilities and offsite road infrastructure. (2018)
Cameron McKinnon	Many visits over 7 years for site familiarization and collaboration with site execution teams. I have also been involved with water treatment, freeze plant, and sewage treatment plant operations.
Jacques Ouellet	Completed several visits of site to inspect headframe and conduct shaft inspections during the period of 2015 to 2020. Due to COVID 19 restrictions, have not conducted physical on-site visits over the 2021 to 2022 period.
Greg Gauld	Site visit to review the installation of the Mining System in Germany was completed in the fall of 2019. No other physical site inspections were completed as the operations costs are based on the as designed and planned operations that are not present at this time. Any inspection of the current site would not reflect the future operations drivers.
Ozen Turkekul	Multiple underground visits especially around the potash zone during shaft sinking and station cutting for geological characterization and sampling in 2018.
M. Failler	Frequent site visits since January 2019, including environmental field programs and supporting external inspections and audits
D. Madsen	Underground visit and inspection of clay seams at shaft station level during sinking.
B. Nemeth	Exploration drilling and seismic 2008-2010
B. Shrestha	Annual site visits since 2015 to inspect monitoring wells and download data.

2.5 Report Version Update

This Technical Report Summary is not an update of a previously filed Technical Report Summary.

3 Property Description

3.1 Property Location

The Jansen Potash Project is located in the Rural Municipalities of Leroy and Prairie Rose in Central Saskatchewan, Canada, approximately 150 kilometres east of the city of Saskatoon. The Legal Land Description of the Shafts and future surface plant is Section 12 Township 34 Range 20 West of 2nd Meridian. The project is easily accessible by public highways. The general location is shown on the map in Figure 3-1.

The Jansen Mine Service Shaft location details are found in Table 3-1.

Table 3-1: Jansen Service Shaft Coordinates

Longitude -	104°42'53.44"W
Latitude -	51°53'56.62"N
Elevation –	544 meters metres above sea level
Northing -	5749850
Easting -	519620
Projection –	UTM
Datum –	NAD83
Zone -	

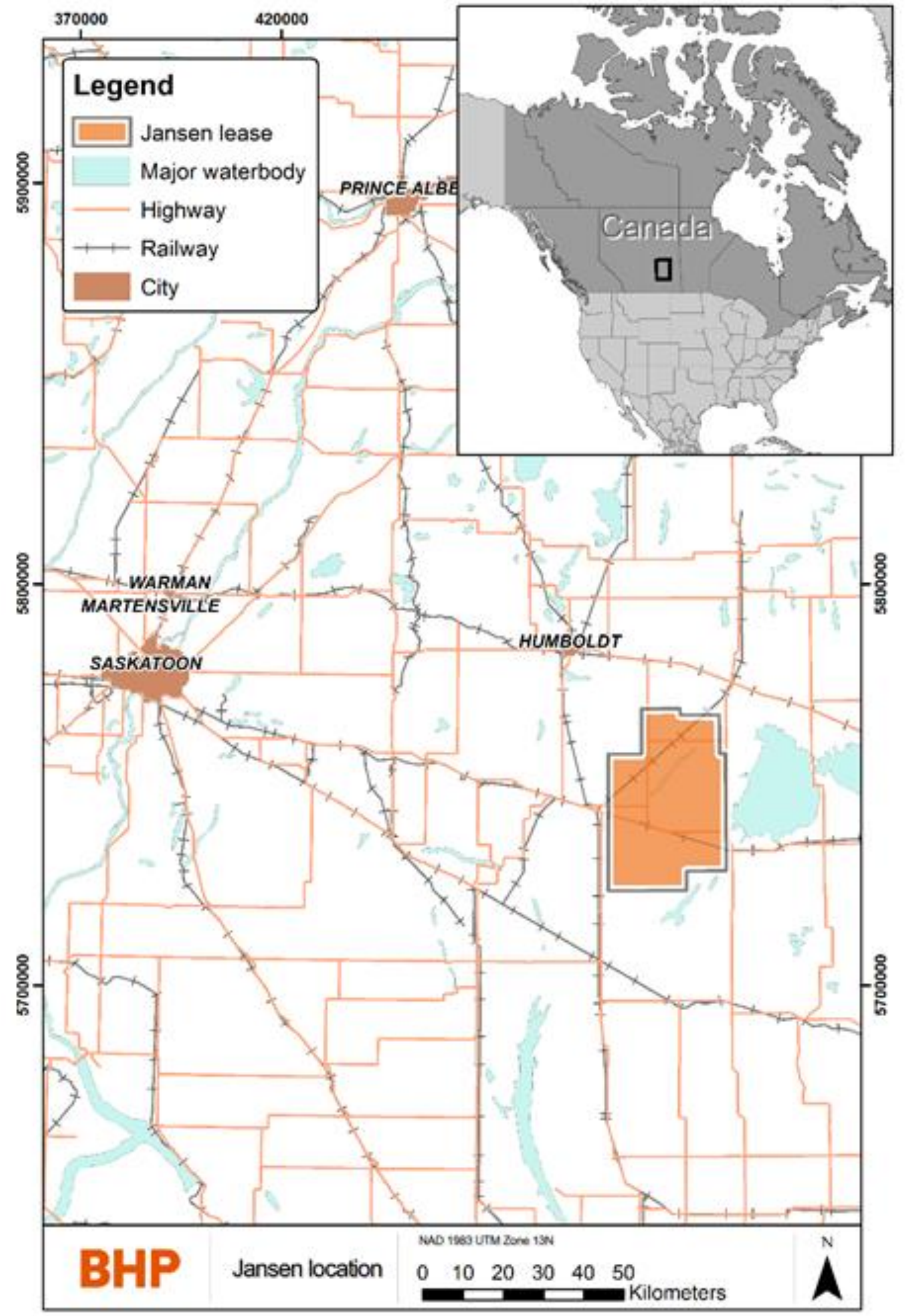


Figure 3-1: Location Map of Jansen

3.2 Mineral Tenure

The total area of the Jansen Project lease is approximately 1,156 square kilometres. Most mineral rights parcels are owned by the Saskatchewan Crown, the remaining mineral parcels are owned by individuals and/or corporations (Figure 3-2). The annual mineral lease rental payments payable to the Government of Saskatchewan and private individuals or corporations are listed in Table 3-2.

Table 3-2: Jansen Main Lease Areas and associated payments

Lease Number	Lease Holder	Expiration Date	Area (Ha)	Annual Rental Payment CA$
KLSA 011	BHP Canada Inc.	22/11/2033	105,662.36	1,056,623.66
DSP-MRA-JANSEN-ML-000649	BHP Canada Inc.	15/08/2033	129.69	640.94
DSP-MRA-JANSEN-ML-000366	BHP Canada Inc.	07/11/2033	63.94	316
DSP-MRA-JANSEN-ML-000512	BHP Canada Inc.	13/06/2033	97.88	483.7
DSP-MRA-JANSEN-ML-000556	BHP Canada Inc.	23/07/2033	129.36	639.3
DSP-MRA-JANSEN-ML-000703	BHP Canada Inc.	05/11/2033	128.89	636.96
DSP-MRA-JANSEN-ML-000557	BHP Canada Inc.	23/07/2033	129.74	641.16
DSP-MRA-JANSEN-ML-000686	BHP Canada Inc.	07/05/2033	64.67	319.58
DSP-MRA-JANSEN-ML-000603	BHP Canada Inc.	24/09/2030	56.66	280
DSP-MRA-JANSEN-ML-000606	BHP Canada Inc.	24/09/2030	56.66	280
DSP-MRA-JANSEN-ML-000516	BHP Canada Inc.	03/06/2033	16.09	79.52
DSP-MRA-JANSEN-ML-000665	BHP Canada Inc.	27/02/2034	0.40	2
DSP-MRA-JANSEN-ML-000518	BHP Canada Inc.	30/04/2033	16.18	79.96
DSP-MRA-JANSEN-ML-000491	BHP Canada Inc.	30/04/2033	16.18	79.96
DSP-MRA-JANSEN-ML-000502	BHP Canada Inc.	27/05/2033	64.67	319.58
DSP-MRA-JANSEN-ML-000662	BHP Canada Inc.	13/02/2034	60.76	300.3
DSP-MRA-JANSEN-ML-000673	BHP Canada Inc.	04/04/2033	2714.80	13416.56
DSP-MRA-JANSEN-ML-000195	BHP Canada Inc.	10/05/2032	32.17	159
DSP-MRA-JANSEN-ML-000196	BHP Canada Inc.	10/05/2032	32.17	159
DSP-MRA-JANSEN-ML-000191	BHP Canada Inc.	10/05/2032	32.17	159
DSP-MRA-JANSEN-ML-000192	BHP Canada Inc.	10/05/2032	32.17	159
DSP-MRA-JANSEN-ML-000193	BHP Canada Inc.	10/05/2032	32.17	159
DSP-MRA-JANSEN-ML-000194	BHP Canada Inc.	10/05/2032	32.17	159
DSP-MRA-JANSEN-ML-000525	BHP Canada Inc.	25/07/2033	64.81	320.3
DSP-MRA-JANSEN-ML-000504	BHP Canada Inc.	14/06/2033	64.94	320.92
DSP-MRA-JANSEN-ML-000680	BHP Canada Inc.	13/03/2035	258.18	1275.94
DSP-MRA-JANSEN-ML-000593	BHP Canada Inc.	20/11/2033	12.72	62.88
DSP-MRA-JANSEN-ML-000363	BHP Canada Inc.	23/04/2033	10.84	53.58
DSP-MRA-JANSEN-ML-000604	BHP Canada Inc.	30/05/2031	64.75	320
DSP-MRA-JANSEN-ML-000561	BHP Canada Inc.	24/09/2033	63.81	315.34
DSP-MRA-JANSEN-ML-000501	BHP Canada Inc.	15/06/2033	193.61	956.84
DSP-MRA-JANSEN-ML-000608	BHP Canada Inc.	14/10/2033	64.84	320.44
DSP-MRA-JANSEN-ML-000492	BHP Canada Inc.	19/04/2033	10.84	53.58
DSP-MRA-JANSEN-ML-000514	BHP Canada Inc.	05/04/2033	64.41	318.32
DSP-MRA-JANSEN-ML-000655	BHP Canada Inc.	16/04/2033	31.95	157.88
DSP-MRA-JANSEN-ML-000520	BHP Canada Inc.	15/06/2033	130.00	642.44
DSP-MRA-JANSEN-ML-000759	BHP Canada Inc.	16/01/2034	32.44	160.32
DSP-MRA-JANSEN-ML-000650	BHP Canada Inc.	05/01/2034	0.40	2
DSP-MRA-JANSEN-ML-000656	BHP Canada Inc.	03/01/2034	0.40	2
DSP-MRA-JANSEN-ML-000653	BHP Canada Inc.	05/01/2034	0.40	2
DSP-MRA-JANSEN-ML-000847	BHP Canada Inc.	20/06/2034	63.19	312.28
DSP-MRA-JANSEN-ML-000651	BHP Canada Inc.	12/12/2033	16.09	79.52
DSP-MRA-JANSEN-ML-000503	BHP Canada Inc.	03/06/2033	16.09	79.52
DSP-MRA-JANSEN-ML-000370	BHP Canada Inc.	23/05/2033	64.72	319.86
DSP-MRA-JANSEN-ML-000559	BHP Canada Inc.	23/04/2033	129.75	641.24
DSP-MRA-JANSEN-ML-000449	BHP Canada Inc.	05/03/2033	129.74	641.16
DSP-MRA-JANSEN-ML-000685	BHP Canada Inc.	09/04/2035	60.59	299.44
DSP-MRA-JANSEN-ML-000447	BHP Canada Inc.	03/05/2033	126.96	627.46
DSP-MRA-JANSEN-ML-000657	BHP Canada Inc.	28/03/2033	65.11	321.76
DSP-MRA-JANSEN-ML-000508	BHP Canada Inc.	23/07/2033	64.88	320.64
DSP-MRA-JANSEN-ML-000658	BHP Canada Inc.	12/12/2033	12.72	62.88
DSP-MRA-JANSEN-ML-000506	BHP Canada Inc.	01/05/2033	65.03	321.36

DSP-MRA-JANSEN-ML-000497	BHP Canada Inc.	30/04/2033	32.48	160.5
DSP-MRA-JANSEN-ML-000496	BHP Canada Inc.	17/02/2033	63.86	315.6
DSP-MRA-JANSEN-ML-000740	BHP Canada Inc.	19/03/2033	159.86	790.04
DSP-MRA-JANSEN-ML-000605	BHP Canada Inc.	16/09/2031	11.53	57
DSP-MRA-JANSEN-ML-000777	BHP Canada Inc.	06/08/2033	16.22	80.14
DSP-MRA-JANSEN-ML-000535	BHP Canada Inc.	19/07/2033	48.67	240.52
DSP-MRA-JANSEN-ML-000616	BHP Canada Inc.	19/08/2033	16.22	80.14
DSP-MRA-JANSEN-ML-000494	BHP Canada Inc.	18/03/2033	63.82	315.42
DSP-MRA-JANSEN-ML-000513	BHP Canada Inc.	19/03/2033	0.84	4.14
DSP-MRA-JANSEN-ML-000737	BHP Canada Inc.	06/11/2035	0.57	2.8
DSP-MRA-JANSEN-ML-000711	BHP Canada Inc.	03/04/2034	128.78	636.44
DSP-MRA-JANSEN-ML-000510	BHP Canada Inc.	26/03/2033	32.46	160.44
DSP-MRA-JANSEN-ML-000742	BHP Canada Inc.	19/04/2033	32.46	160.4
DSP-MRA-JANSEN-ML-000536	BHP Canada Inc.	22/07/2033	16.09	79.52
DSP-MRA-JANSEN-ML-000601	BHP Canada Inc.	13/05/2031	32.38	160
DSP-MRA-JANSEN-ML-000602	BHP Canada Inc.	13/05/2031	32.38	160
DSP-MRA-JANSEN-ML-000652	BHP Canada Inc.	17/12/2033	12.72	62.88
DSP-MRA-JANSEN-ML-000668	BHP Canada Inc.	24/03/2034	32.46	160.4
DSP-MRA-JANSEN-ML-000738	BHP Canada Inc.	21/02/2034	12.72	62.88
DSP-MRA-JANSEN-ML-000715	BHP Canada Inc.	12/12/2033	12.72	62.88
DSP-MRA-JANSEN-ML-000564	BHP Canada Inc.	15/04/2033	64.58	319.16
DSP-MRA-JANSEN-ML-000365	BHP Canada Inc.	15/04/2033	32.28	159.54
DSP-MRA-JANSEN-ML-000666	BHP Canada Inc.	27/02/2034	0.40	2
POT-Jansen-ML-000848	BHP Canada Inc.	17/05/2033	65.05	321.46

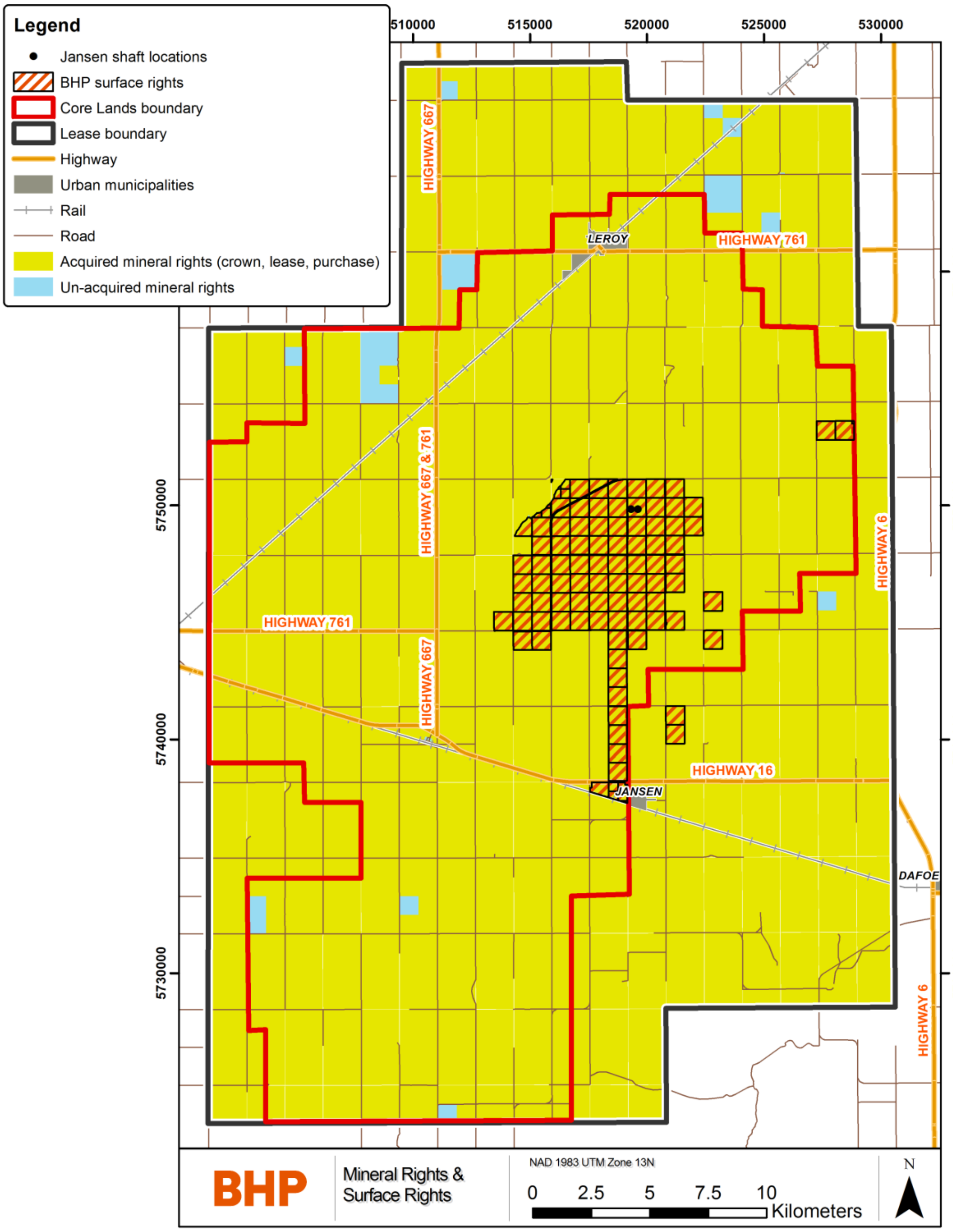


Figure 3-2: Lease Areas of Jansen

3.3 Mineral Rights Description and How They Were Obtained

On 23 November 2012, the Government of Saskatchewan and BHP Canada entered into Potash Lease Special Agreement KLSA 011. This agreement gives BHP Canada the exclusive right to search for, dig, work, mine, extract, recover, process, and carry away subsurface minerals under or within all of the Saskatchewan Crown mineral parcels of KLSA 011. The lease pertains to two categories of lands, shown in Figure 3-2 and consisting of:

1. 'KLSA 011 Core Lands' comprising primarily the Mineral Reserves
2. 'KLSA 011 Expansion Lands', and additional area outside Mineral Reserves that includes the primarily Inferred Resource.

To gain access to the potash within mineral parcels owned by individuals and/or corporations ('freehold mineral lease'), BHP must either purchase the mineral parcels or negotiate mineral lease agreement(s) with the registered owner(s) of the mineral parcel(s). The freehold mineral leases secured by BHP Canada have a term of twenty-one years and are renewable at the option of BHP for successive terms of twenty-one years each. An annual rental payment of CA$4.94/hectare (CA$2/acre) is also paid to keep these leases in good standing.

During the first three years of the KLSA 011 lease, BHP Canada was required to complete CA$12M of work on the lease area. This work commitment has been met using excess exploration work credits completed on the exploration permits prior to the Jansen exploration permits conversion to KLSA 011.

All surface lands that form part of the Jansen mine operations footprint have been acquired by BHP Canada The total surface area acquired by BHP Canada is shown in Figure 3-2.

Table 3-3: Summary of Jansen land position

Jansen Mineral Rights details				
	Area Hectares	**Area Acres**	**Area km^2**	**%**
Jansen project total lease area	115638	285747	1156.38	100
KLSA 011 Core lands	63939.43	157997.78	639.39	55
KLSA 011 Expansion lands	41724.73	103104.06	417.25	36
BHP Canada acquired freehold mineral rights	8997.56	22233.45	89.98	8
Total of Core, Expansion, and acquired freehold mineral rights	**114661.72**	**283335.29**	**1146.62**	**99**

3.4 Encumbrances

There have been no significant encumbrances to the property identified as of the date of this report. Federal, provincial and municipal permits and approval for construction and operation have been received. All material permits that have been applied for to-date have been received. Based on the LoA Plan additional permits and approvals will become necessary. The Qualified Person believe that Jansen will reasonably be able to obtain the required construction and operation permits for the Project based on the LoA Plan.

3.5 Other Significant Factors and Risks

It is the opinion of the Qualified Person that based on the available information and current regulations there are no significant risks to the mineral tenure that would affect access or mineral title and the ability of BHP to work on the property.

3.6 Royalties or Similar Interest

A Provincial Potash Crown Royalty is payable under *The Subsurface Mineral Royalty Regulations, 2017*. Royalties are based on the value of potash produced from Crown mineral lands. The royalty rate is 3 per cent, and the value is determined as the average price realized by the producer in the year, as governed by revenues and sales under *The Saskatchewan Potash Production Tax Regulations*.

4 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

4.1 Topography, Elevation, and Vegetation

The topography of the Jansen site is generally flat with elevations that range between 540 metres and 545 metres. The site slopes 0.3 per cent from northwest to southeast. The site is composed of agricultural fields, with patches of trees and small wetlands. Non-contact runoff water collects in a wetland area to the east of the site, then drains to Hatke Lake approximately 10 kilometres northeast of the site. Jansen Lake and Lanigan Creek are located northwest of the Hatke Lake drainage basin.

4.2 Means of Access

The site is accessed by road from provincial Highway 16 approximately 12 kilometres to the south and Highway 5 approximately 32 kilometres to the north. Access to the site from these highways will use upgraded secondary and/or primary roads from the Village of Jansen to the south and the Town of LeRoy to the north. Railway access is expected to be available from both national rail networks will be from a spur line from the south (Figure 3-2) and are subject to future applications and agreements.

4.3 Climate and Length of Operating Season

The Jansen area experiences a climate which is typical of the Canadian prairies: a humid continental climate (Köppen climate classification - Dfb) featuring long, cold winters and brief, warm summers. High temperatures range from 15°C in May to the mid-30s°C in July and August with moderate precipitation. Winter normally begins in November and temperatures generally remain below the freezing point. In cold snaps temperatures may drop as low as -40s°C. Mild spring weather usually begins by April. Annual precipitation averages 30 to 45 centimetres. Operations can continue throughout the year.

4.4 Infrastructure and Availability

On-site infrastructure is expected to include power distribution, raw water storage and distribution, potable water treatment, fire water distribution, diesel fuel storage and distribution, natural gas distribution, ancillary buildings and facilities, Tailings Management Area (TMA), sewage system, waste collection, site drainage, on-site roads, on-site rail, communications and technology infrastructure, the process control system, and the temporary construction facilities. On-site utilities are expected to be distributed in a combination of pre-cast trenches, direct buried cables, and buried pipes for water, sanitary effluent, and natural gas. Diesel fuel is expected to be delivered to site and stored in a contained area. Fuel for the mining equipment is expected to be delivered underground by totes using the Service shaft.

Operations facilities are expected to consist of the administration building (containing the mill and mine dry, offices, training, and security), warehousing, maintenance workshop, vehicle maintenance facility, emergency response facility, mill support facility, laboratory, compressor building, rail support facility and main water pump house.

Off-site infrastructure for the Jansen Project is executed through contractual agreements with third parties using defined battery limits on the project site. Off-site utilities are provided by the Crown corporations of the Province of Saskatchewan (i.e., SaskPower, TransGas and SaskEnergy, SaskWater, and SaskTel). All public roads in Saskatchewan are owned by the Crown in right of Saskatchewan. Rural municipalities have authority to direct, control, and manage the roads within their municipality.

4.5 Water

The raw water system consists of the incoming water supply line from SaskWater and groundwater sourced from the existing Raw Water Well 1 (RWW 1). Primary water supply will be surface water from the Saskatoon South East Water Supply (SSEWS) system delivered by pipeline from the Zelma Reservoir to the site by SaskWater. Based on available information, the capacity of the water supply pipeline is expected to be 7M m^3/y for the Jansen project. The SaskWater line has a capacity of 9.2M m^3/y and supplies other consumers besides the Jansen Project. Back-up water supply will be sourced from the Empress Group Aquifer through the constructed on-site RWW 1.

4.6 Electricity

Permanent power is contracted to be supplied by SaskPower using 230 kV overhead lines terminating at the 230 kV main plant substation dead-end structure (the point of common coupling). Currently temporary power is provided by SaskPower with a 138 kV overhead line.

4.7 Personnel

Employees of Jansen mine are anticipated to reside in several existing communities located in the area. The potash mining industry has a long history of providing employment in the province and communities within driving distance of the site are in the process of preparing for the growth brought on by investment decisions to further develop Jansen.

4.8 Supplies

The Jansen project is connected to a primary weight, asphalt surface network of highways and has year-round access for trucking of materials to/from the site. On-site warehousing will be provided to manage inventory requirements of the operating mine. In addition to road access there will be connections to both of the major rail providers in Canada.

5 History

5.1 Previous Operations

The Saskatchewan potash basin has a long history of exploration and mining operations since the 1950s. BHP will be the first mining operation owner at the Jansen location.

5.2 Exploration and Development by Previous Owners or Operators

The Potash Company of America initiated potash exploration work in the Jansen area in 1952. Alwinsal Potash of Canada followed this with further work in 1959. Kerr-McGee Oil Industries Inc. carried out the main historical exploration phase between September 1962 and October 1965. The period 1965 to 2005 saw no further significant exploration activities for potash in the Jansen area. In 2005, Anglo Minerals Ltd., a small junior company registered an extensive land package of potash exploration permits surrounding the producing Potash mines in the Saskatoon area, which included the Jansen project area.

In September 2005, Anglo Minerals Ltd. published a Canadian National Instrument (NI 43-101) report based on historical drilling, which included a resource estimate for exploration permit KP286 only, (Halabura et al. 2005). A small 3D seismic survey was completed from October 2005 to March 2006 for the part of Jansen area. An additional NI 43-101 report, which included the results of the 3D seismic and covered KP285, KP286, and KP290, was issued in November 2006 (Halabura and Gebhardt, 2006).

Kerr-McGee Oil Industries Inc. drilled all the historical holes on the Jansen Project, except for two (07-01 and 07-06), during the period from September 1962 to October 1965. The earliest two holes were drilled by the Potash Company of America Limited in December 1952 (07-01) and Alwinsal Potash of Canada Limited in June 1959 (07-06). Table 5-1 shows the full list of historical holes.

Table 5-1: Summary of exploration drilling by previous owners

BHP ID	CWI	DRILL HOLE TYPE	Owner	Easting (m)	Northing (m)	KB elevation (m)	TOTAL DEPTH (m)	HOLE DIP
07-01	SK0001200	Historic exploration	Potash Company of America Ltd.	504598.4	5739717.0	539	996.7	Vertical
07-02	SK0011162	Historic exploration	Kerr-McGee Oil Industries Inc.	506560.6	5744544.0	538	993.6	Vertical
07-03	SK0011129	Historic exploration	Kerr-McGee Oil Industries Inc.	502979.1	5746198.5	542	1002.8	Vertical
07-04	SK0009464	Historic exploration	Kerr-McGee Oil Industries Inc.	506262.8	5747138.5	537	973.8	Vertical
07-05	SK0011265	Historic exploration	Kerr-McGee Oil Industries Inc.	506225.2	5749925.5	544	982.7	Vertical
07-06	SK0007349	Historic exploration	Alwinsal Potash of Canada Ltd.	502991.2	5756045.5	551	1033.6	Vertical
08-01	SK0011401	Historic exploration	Kerr-McGee Oil Industries Inc.	520908.5	5749484.5	544	964.7	Vertical
08-03	SK0012931	Historic exploration	Kerr-McGee Oil Industries Inc.	523917.4	5754314.5	541	938.5	Vertical
08-04	SK0011508	Historic exploration	Kerr-McGee Oil Industries Inc.	520847.4	5754837.0	540	935.7	Vertical
08-05	SK0004216	Historic exploration	Kerr-McGee Oil Industries Inc.	520626.1	5732004.0	529	1025	Vertical

BHP ID	CWI	DRILL HOLE TYPE	Owner	Easting (m)	Northing (m)	KB elevation (m)	TOTAL DEPTH (m)	HOLE DIP
08-08	SK0009433	Historic exploration	Kerr-McGee Oil Industries Inc.	514190.5	5743747.5	550	990	Vertical
08-09	SK0011403	Historic exploration	Kerr-McGee Oil Industries Inc.	517441.4	5743801.0	544	990.6	Vertical
08-10	SK0011482	Historic exploration	Kerr-McGee Oil Industries Inc.	519061.4	5745531.0	544	977.8	Vertical
08-11	SK0011267	Historic exploration	Kerr-McGee Oil Industries Inc.	519060.1	5747989.5	546	978.1	Vertical
08-12	SK0011383	Historic exploration	Kerr-McGee Oil Industries Inc.	515813.7	5747978.0	547	978.4	Vertical
08-13	SK0011128	Historic exploration	Kerr-McGee Oil Industries Inc.	520687.2	5751039.0	541	957.4	Vertical
08-14	SK0011358	Historic exploration	Kerr-McGee Oil Industries Inc.	517609.3	5751220.0	547	960.7	Vertical
08-15	SK0011376	Historic exploration	Kerr-McGee Oil Industries Inc.	514644.0	5751209.5	544	981.5	Vertical
08-16	SK0011483	Historic exploration	Kerr-McGee Oil Industries Inc.	515795.3	5754604.0	546	947.9	Vertical
08-17	SK0011268	Historic exploration	Kerr-McGee Oil Industries Inc.	519360.3	5759215.0	544	935.7	Vertical
08-18	SK0010280	Historic exploration	Kerr-McGee Oil Industries Inc.	510902.5	5751009.0	542	957.4	Vertical
08-19	SK0011164	Historic exploration	Kerr-McGee Oil Industries Inc.	510928.9	5747022.0	549	991.2	Vertical
09-08	SK0005768	Historic exploration	Kerr-McGee Oil Industries Inc.	516047.1	5724592.0	533	1158.2	Vertical
09-14	SK0016476	Historic exploration	Kerr-McGee Oil Industries Inc.	504306.9	5727442.5	544	1217.7	Vertical
11-03	SK0011269	Historic exploration	Kerr-McGee Oil Industries Inc.	525569.7	5744790.0	536	951.9	Vertical
11-04	SK0016602	Historic exploration	Kerr-McGee Oil Industries Inc.	523465.3	5763933.0	543	1068.3	Vertical

Details of Kerr-McGee's drilling program are limited to available drilling reports filed with the Saskatchewan Ministry of Energy and Resources (SER). The holes were completed with either a T-22, Ideco 25 or Stratmaster 90 drilling rig.

A descriptive lithologic log of the cuttings and core is still available to view for these drill holes. Analytical samples were cut from the core of the Upper Patience Lake (UPL), Lower Patience Lake (LPL) and Belle Plaine (BP) members. The split core samples were wrapped in double acetate bags and shipped to the Kerr-McGee research laboratory for analysis. In keeping with Saskatchewan government regulations, the cuttings, core and the other half of sample splits were delivered to the Subsurface Laboratory in Regina.

Drilling reports, which are available at the Saskatchewan government website, indicate that the quality and consistency of the work is very good and the core recovery is indicated to be 100 per cent in the mineralized zone.

All geochemical analysis from all the Kerr-McGee drill holes, except the first three holes drilled prior to 1964, appears to have been completed at the same research laboratory, using the same analysis suite for every hole. For the initial three Kerr-McGee holes (i.e., 08-08, 07-04, 08-18), the analysis is restricted to K_2O% and insolubles%.

It is the Qualified Person’s opinion that the historical drilling, coring, assaying quality requirements for the mineral resource K_2O grade estimation for Jansen are met.

6 Geological Setting, Mineralization, and Deposit

6.1 Regional Geology

The Phanerozoic sedimentary wedge covers much of western Canada (Figure 6-1). It thickens southwest from the exposed Canadian Shield to a preserved thickness of over 6 kilometres to the west and over 3 kilometres to the south. This sediment cover is divided into several intracratonic basins, including the Liard Basin, Alberta Basin, and Williston basin. The Canadian segment of this sediment cover is also known as the Western Canadian Sedimentary Basin (WCSB).

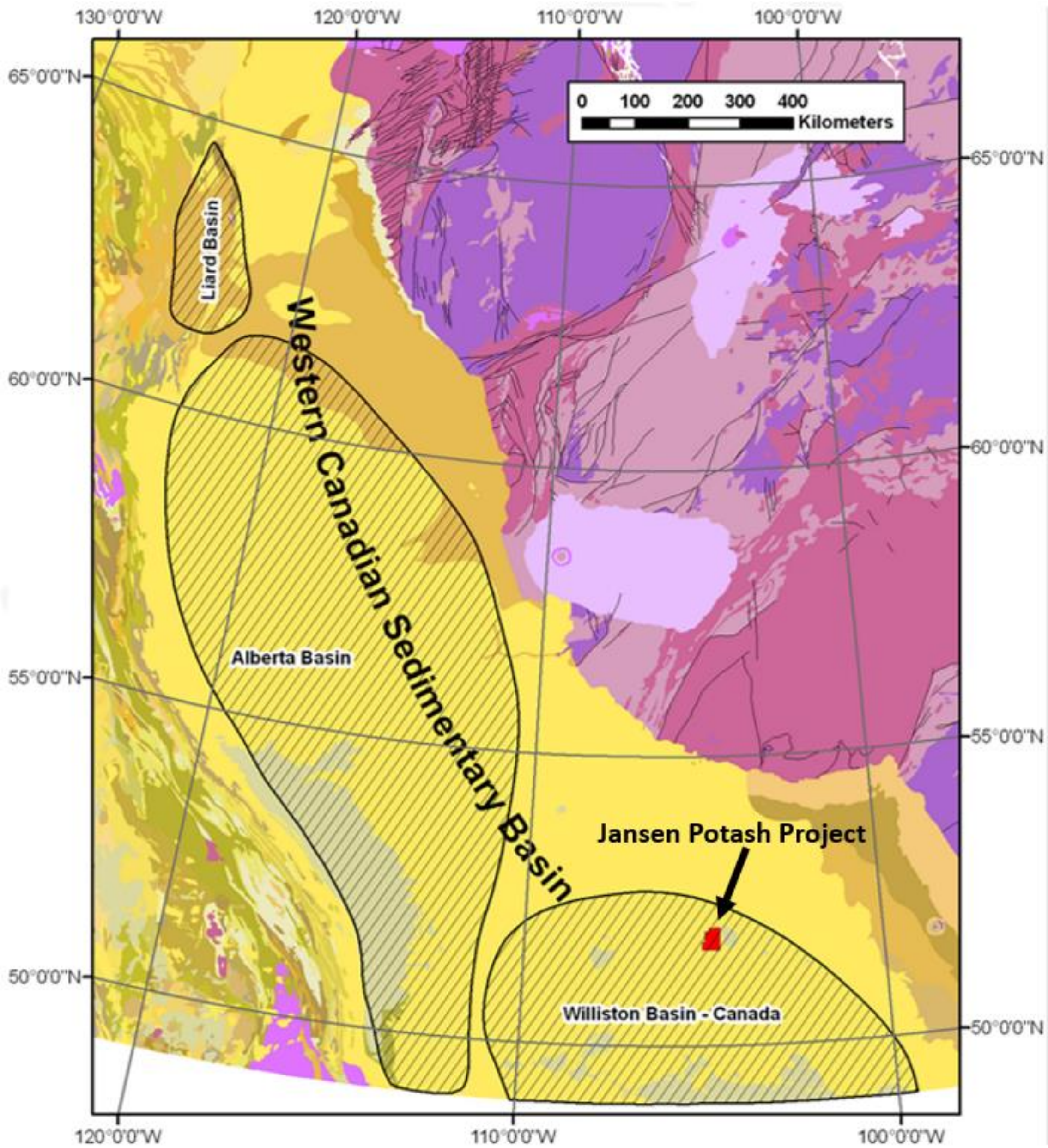


Figure 6-1: Regional Geology Map – Western Canadian Sedimentary Basin (Geological Map of Canada – Geological Survey of Canada.

6.2 Local Geology

During the Middle Devonian period, the Alberta Basin and the Williston Basin formed one larger unit, the Elk Point Basin, which was connected to the ocean in the northwest (Figure 6-1). Later, basin restrictions began to increase its salinity and induced the deposition of the Prairie Evaporite (PE) which hosts the potash bearing members. Middle Devonian cyclic deposition continued with Manitoba Group and Saskatchewan Group after the Elk Point Group sediments.

The Jansen potash deposit is located within the Williston Basin, a large, intracratonic, structurally simple, and horizontally bedded sedimentary basin. The Williston Basin extends from southern Saskatchewan, Canada into the northern states of the United States of America. Figure 6-2 shows the extents of potash distribution with the Williston Basin.

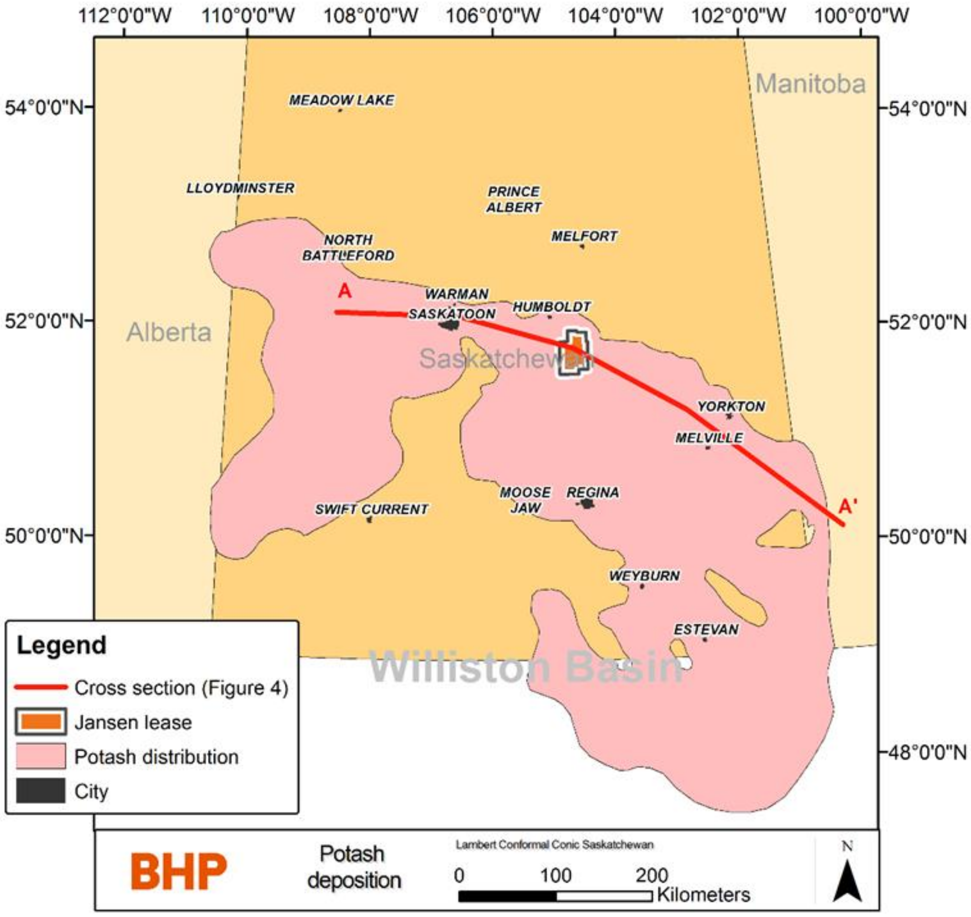


Figure 6-2: Map of potash distribution within the Williston Basin (modified from Fuzesy (1982))

Deposition of sediments in the basin began during the Cambrian geological time period, followed by an intense period of limestone, dolomite, evaporite, sandstone, and shale deposition during the geological time periods Ordovician, Silurian, and Devonian ending with Cretaceous sediments. Figure 6-3 shows a schematic cross section focussed on members of interest in the Jansen area, location of the cross-section A-A' shown in Figure 6-2.

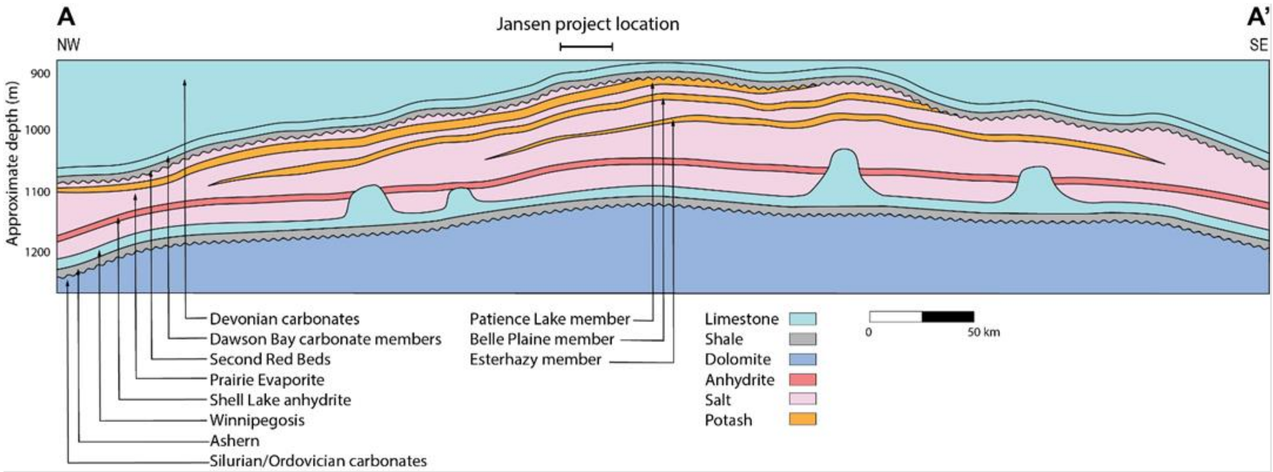


Figure 6-3: Schematic geological section showing the potash members of the PE Formation. The location of the section is shown on Figure 6-2:

Figure 6-4 shows the full stratigraphic column from surface, including the key members for the Jansen potash project area.

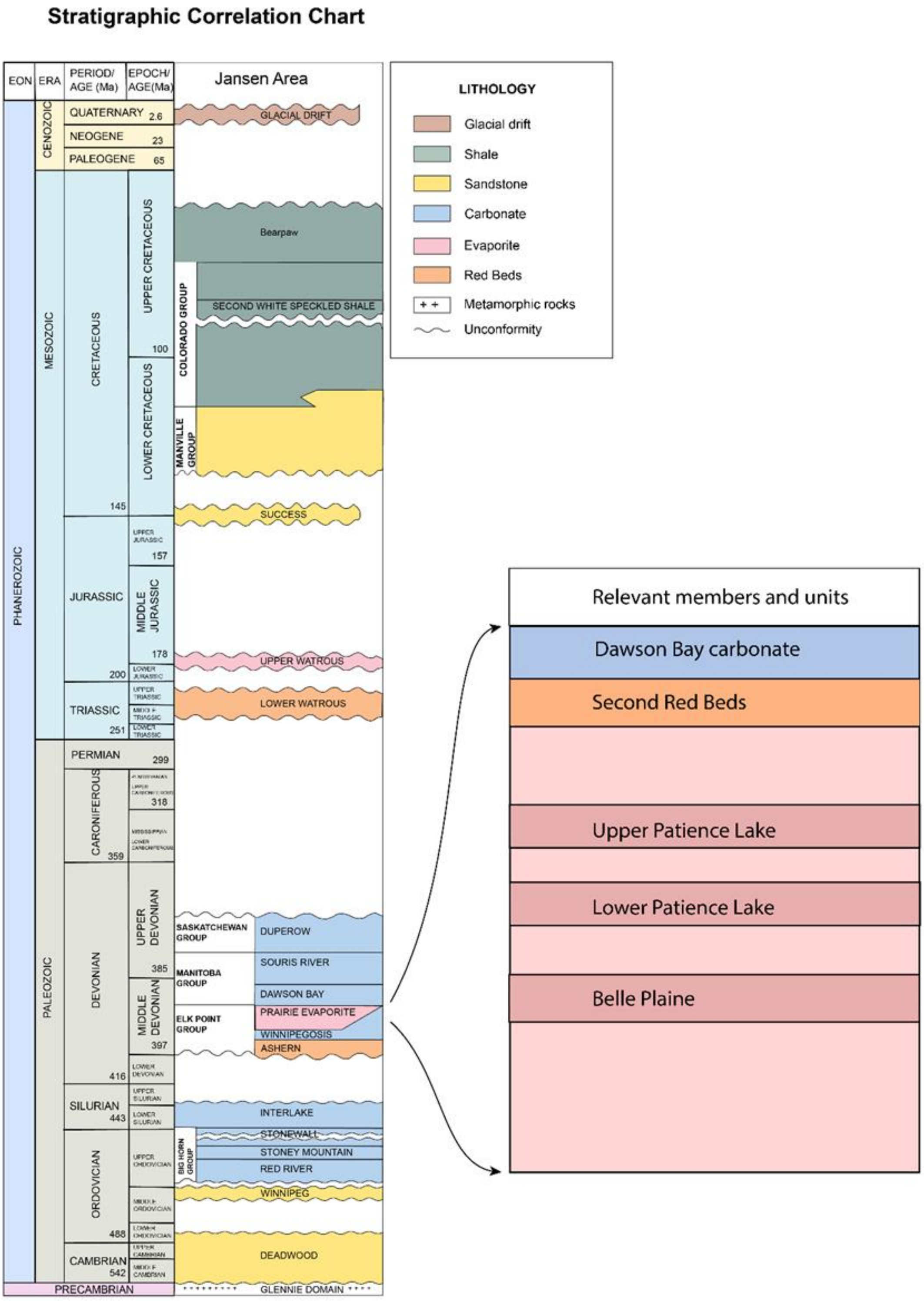


Figure 6-4: Stratigraphic column for the Jansen area (after Stratigraphic Correlation Chart economy.gov.sk.ca, 2016).

6.3 Property Geology

There is no visible rock outcrop at Jansen, the property is relatively flat open Prairie type farm land and a thick layer (100+ metres) of glacial drift deposits over lie the Cretaceous age, Bearpaw shale formation (Figure 6-4). The potash beds are approximately 900 metres below surface, at the top of the PE Formation which conformably overlies the predominantly carbonate layers of

Winnipegosis Formation. There are three main potash bearing members present in the PE Formation. Two are present in the Jansen area, those being the Patience Lake and Belle Plaine members. The Patience Lake member is further subdivided into Upper Patience Lake (UPL) and Lower Patience Lake (LPL) sub-members (Figure 6-4 and

Figure 6-5). The LPL sub-member is the potash horizon targeted for Jansen. These potash members were deposited in regionally extensive (hundreds of kilometres), horizontal layers during the repeated, cyclical periods of evaporation of a shallow, inland sea during the Devonian Period. Mineralization within the potash layers consists of a layered, repetitive sequence of sylvite (KCl) with halite (NaCl) and thin layers of insoluble dolomitic clay material (clay seams). Carnallite (KCl.MgCl2.6H2O), a mineral which can impact processing and ground stability, occasionally occurs in place of sylvite within the potash layer.

The Dawson Bay formation, includes the Second Red Beds member and the Dawson Bay carbonate members on top and overlays the PE Formation (Figure 6-4).

Approximately 400 metres below the PE Formation are the Cambrian-Ordovician Winnipeg and Deadwood formations. Sediments of these formations were deposited in near shore, shallow water marine environments on top of the Precambrian rocks. The coarse to fine sands of the formations, host a vast deep saline aquifer that is used for brine disposal.

6.4 Mineral Deposit

The Jansen LPL sub-member is hosted within the PE Formation, and was deposited in regionally extensive, horizontal layers during the repeated, cyclical evaporation of a shallow, saltpan environment during the Devonian period. LPL potash is composed of combinations of halite (NaCl), sylvite (KCl) with variable amounts of disseminated insolubles and clay seams (

Figure 6-5).

The LPL is subdivided into four mineralization cycles for detailed geological characterization of the potential mining horizon. The LPL sub-member is an approximately five metres thick potash unit interspersed with thin clay seams. The LPL top is marked by a clay seam (named the 406) that is overlain by an approximately 2.5 metres thick halite unit. The bottom of the LPL unit is marked by a clay seam (named the 401). The mineralization of the LPL is restricted to the 406 to 401 interval. The clay seams are consistent throughout the potash basin and the Jansen area and can be easily correlated between the drill holes.

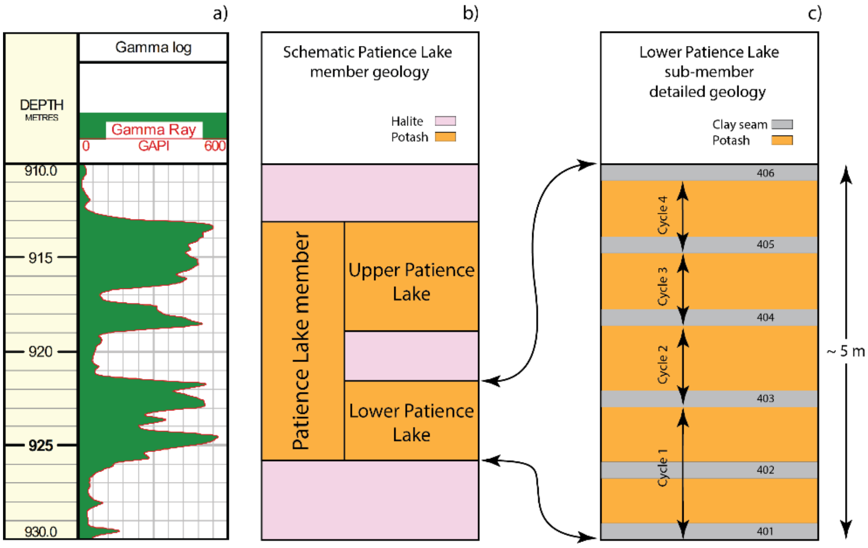


Figure 6-5: Detailed stratigraphy of the Patience Lake Member.

Safe mining practice in the Prairie Evaporate Formation requires a competent rock immediately above the top of the LPL sub-unit. The interval between the 406 and 407 clay seams, mainly consists of halite with some minor insoluble bands, traditionally known as the Shadow band (SB) and Henry Marker (HM). These are considered potential geotechnical hazards as they, in some areas, weaken the mining roof and may require extra ground support or additional cutting and increase the dilution. Their effect was taken into account in reserve calculations.

The Saskatchewan potash deposit is an example of a Potash hosting Evaporite sequence. This large and flat deposit extends from east to west in the province and shows relative uniformity, except where there are anomalies due to local dissolutions of the potash beds or clay seams. There is also no faulting at the level of the potash beds.

The main types of anomalies defined by Mackintosh and McVittie (1983) are called washout, leach and collapse anomalies. The generic classification is still valid, although the anomalies can be seen with different combinations (Figure 6-6). Washout and leach anomalies are also called no-potash anomalies. Collapse anomalies are characterized by a loss of recognizable potash strata through salt dissolution, replaced by brecciated, re-cemented, and recrystallized material, with breccia blocks typically derived from the overlying strata. Diameters may range from several tens of metres up to hundreds of metres. These cylindrical structures are characterized by the complete or near complete destruction of the original geological layering, as observed on seismic data by the total or almost total loss of reflection.

Collapse anomalies have been classified based on the level of connectivity to water sources and size to help standardize the terminology. Class 1 is the highest risk class as the Prairie Evaporate Formation and overlaying carbonate units are altered and disturbed on the seismic data. Class 2 shows disturbed Devonian Carbonates and Class 3 type collapse anomalies are typically restricted to the Dawson Bay and Second Red Beds formations. During the exploration program these features are mapped using 3D seismic surveys, (see Section 7.1.4 for details).

Carnallite occurrences are also considered as anomalies. Carnallite is undesirable in the mining and processing environment. Its physical properties effect ground conditions negatively and relatively low potassium and high magnesium content can interfere with ore processing. High carnallite content areas are mapped with 3D seismic surveys and avoided in the mine plan.

The geology of the basin and its geological formations are well known from extensive exploratory drilling for hydrocarbons and minerals and from geophysical data collected since 1952. This basin wide geological information is publicly available from the Saskatchewan Geological Survey in the form of maps, cross-sections, drill hole-based formation contact identification, core from historical drill holes, and other publications. Potash exploration drill hole information is confidential for the first five years after drilling, afterwards it becomes publicly available.

It is the Qualified Person's opinion that Saskatchewan's potash deposition geology is well understood based on mining in the region for 60 years and available information. The data collected for the Jansen potash project and interpretation based on the data collected is consistent with this current understanding.

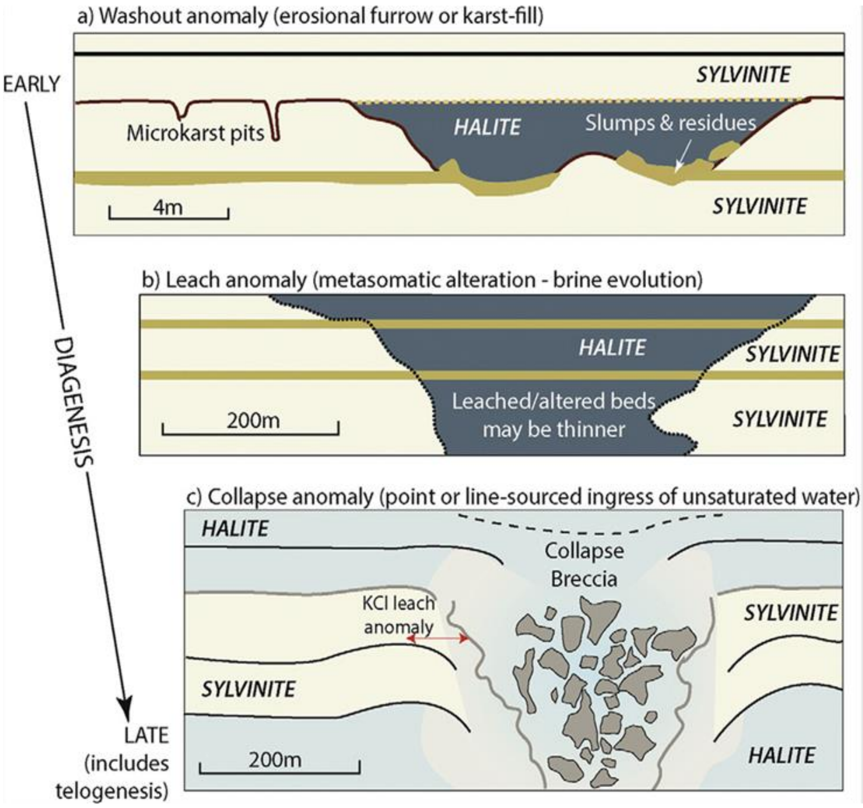


Figure 6-6: Three main types of anomalies (Mackintosh and Mc Vittie (1983)).

7 Exploration

The main exploration methods for potash in Saskatchewan are drilling and reflection seismic surveys. Drilling is typically conducted using petroleum industry rotary rigs to obtain core samples and to acquire rock property measurements with geophysical well logging tools lowered into the drill hole. Reflection seismic surveys are acquired along lines (2D) or over an area (3D) to obtain images of subsurface geology. The seismic data are used for mapping geological structures and to obtain subsurface rock physical property information. Figure 7-1 shows the potash exploration coverage, including seismic surveys and drilling.

7.1 Exploration Work (Other Than Drilling)

BHP Canada reflection seismic surveys include the following:

- Reconnaissance 2D seismic surveys between June 2007 and August 2007.
- Two 3D seismic surveys were completed from October 2007 to March 2008 and from October 2008 to March 2009.

7.1.1 Procedures and Parameters Relating to the Surveys and Investigations

BHP Canada geophysicists and their representatives were involved in the design, planning, field acquisition, and processing of all the surveys.

Both the 2D and 3D seismic surveys are designed to provide the optimal image of the subsurface geology from the base of the Cretaceous age sediments (~ 400 metres depth) to the top of the Precambrian (~ 1,500 metres depth).

The east-west 2D survey lines are spaced 3.2 kilometres (2 miles) apart, with occasional north-south lines connecting them at approximately 20 kilometres apart. Placement of the 2D seismic survey lines utilized the grid roads established by the Dominion Land Survey system.

The 3D seismic surveys are positioned over areas that appeared to be the most prospective based on the interpretation of the 2D data. Large 3D seismic surveys are acquired in 400 to 600 square kilometre pieces over several data collection seasons. The 3D seismic survey field operations are carried out in winter, between October and March, to minimize the impact on farming and environment.

Seismic data processing history:

- The 2D survey data were first commercially processed in 2007, immediately after acquisition. In 2009, the 2D line data were re-processed with the supervision of BHP Canada geophysicists.
- The 3D seismic surveys data were processed as individual surveys, immediately after acquisition. The BHP Canada 3D seismic surveys were merged with the 2006 Anglo Minerals 3D seismic survey during processing, and the volumes were merged.
- In 2011, the three 3D seismic volumes were combined at the field data level and were reprocessed to provide one single, jointly processed time volume.

- Development in seismic processing algorithms warranted another joint re-processing in 2016. The work on this version incorporated all the learnings gained by the BHP Canada geophysicist interpreting the 2011 version.
- In 2018/2019 new processing work (Pre-Stack Depth Migration) was carried out on the joint 2016 data that provided an enhanced subsurface image volume in depth.

7.1.2 Sampling Methods and Sample Quality

Table 7-1: Seismic survey sampling

Survey	Horizontal trace spacing	Subsurface fold at Prairie Evaporite	Vertical sampling
2D	10 m along the line	~ 75	1 ms
3D	30 m both in X and Y direction	~ 15	1 ms (time volumes) 2 m (depth volumes)

The quality of the collected seismic data is continuously monitored during acquisition. This includes monitoring field equipment performance, environmental noise, and collected geographical survey information. If any parameters exceeded the defined threshold, the acquisition is stopped until the problem is fixed, or in the case of weather-related delays until conditions improve. Geographic survey information is checked and verified independently by a third-party surveying company.

The seismic data processing workflow includes further strict QA/QC steps that seek to ensure the highest possible quality results, which included among other things:

- checking source and receiver locations
- removing noisy recordings
- testing parameters for each processing step and comparing data before and after subsequent steps

Processed seismic lines/volumes at different stages of the workflow were delivered to BHP Canada's site geophysicist for evaluation and quality checking and feedback was provided to the processors.

7.1.3 Information about the Area Covered

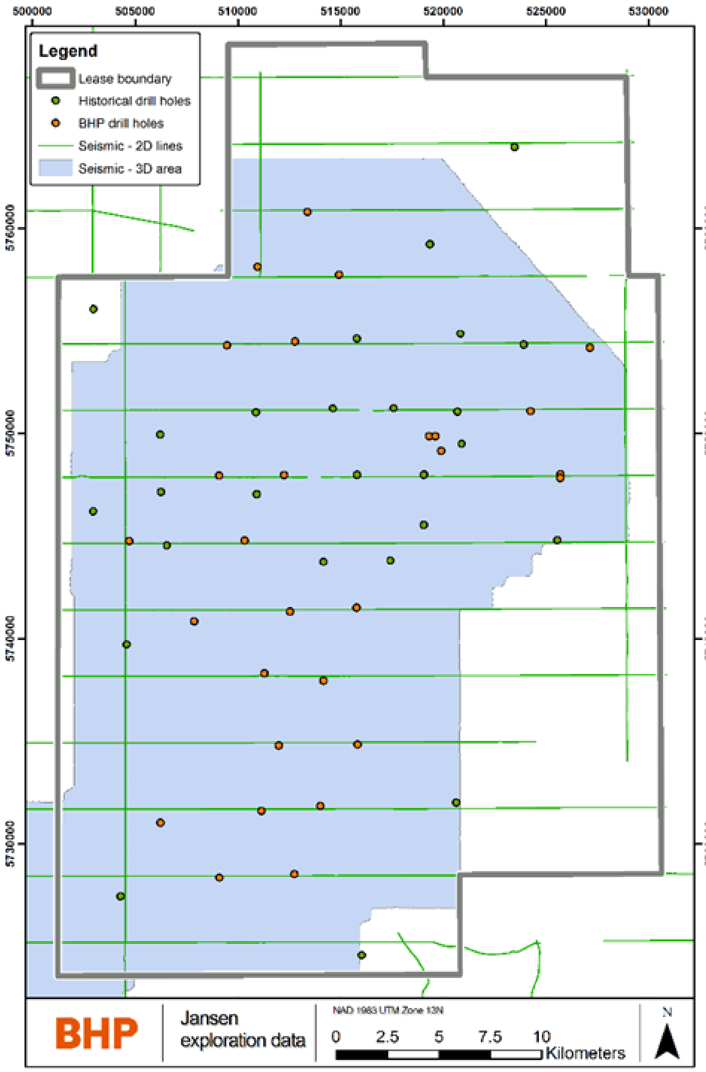


Figure 7-1: Exploration coverage

The 2D seismic surveys cover the entire Jansen lease. The 3D seismic surveys cover approximately 75 per cent of the lease.

7.1.4 Significant Results and Interpretation

Subsurface images of the 2D seismic survey on a regional scale successfully identified areas where the detailed exploration efforts needed to be focused, away from large scale anomalous geological features and disturbed geology. The BHP Canada exploration drill holes were positioned where 2D seismic information was available to reduce the risk of drilling into disturbed geology. The 3D seismic survey was also positioned based on this information to image the most prospective areas.

The 3D seismic survey successfully imaged structural features (collapse anomalies) that pose hazards to the mining operation and were classified based on the severity of disruption that occurs in the stratigraphy (Section 6.4). Topography of major geological interfaces, for example the top of the Prairie Evaporite formation, are also mapped (Figure 7-2).

Quantitative interpretation of the seismic response from the LPL zone allowed identification of anomalous geological areas located within the LPL member, i.e. carnallite and no-potash anomalies. In the Qualified Person's opinion, the level of detail in the surveys is sufficient to enable the development of the geological model to form the basis of Mineral Resources Estimate (as detailed in Section 10.6 of this report). The confidence in the granularity of the surveys is sufficient to assign higher levels of classification (Measured and Indicated) between the sampling points.

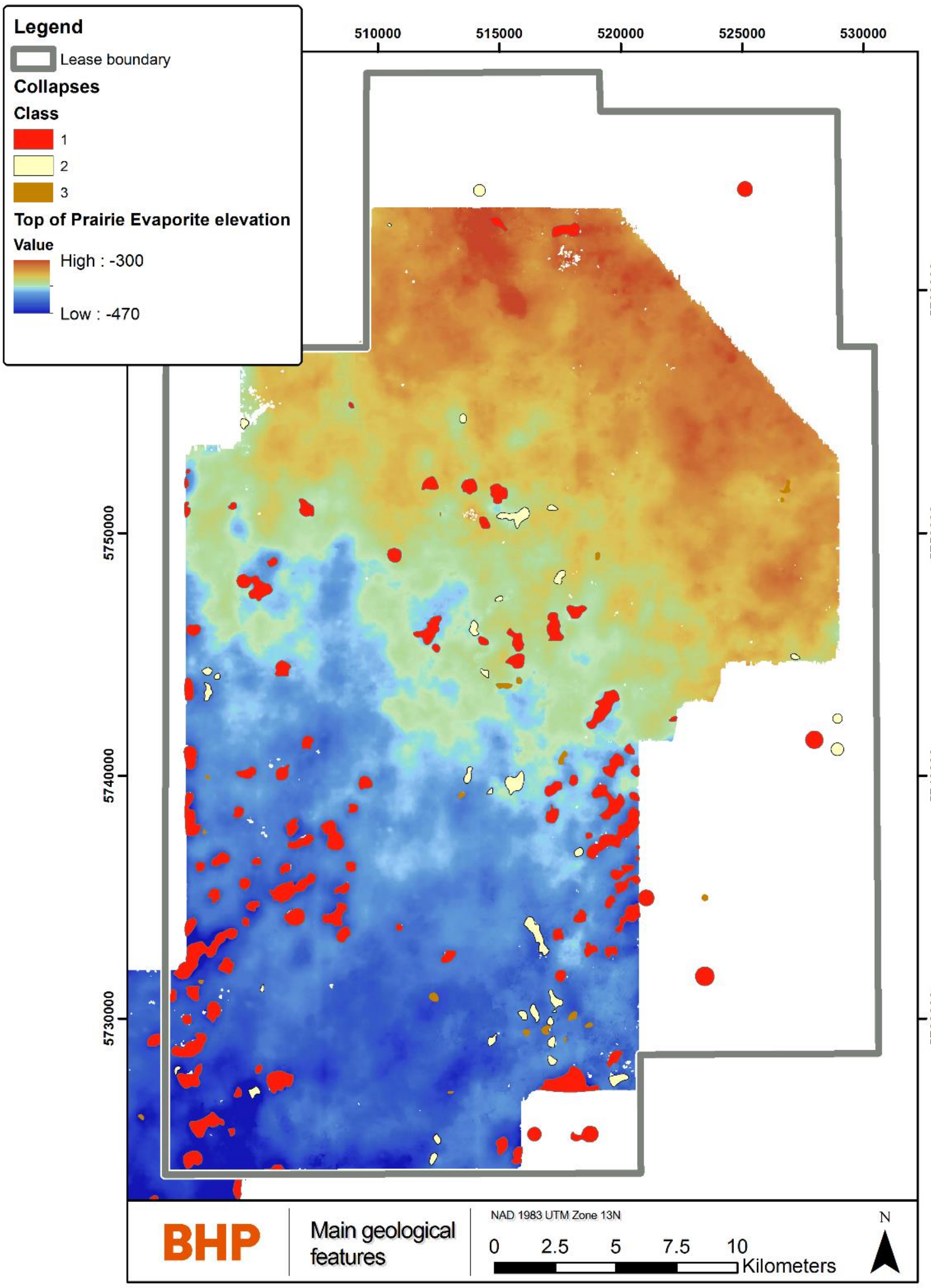


Figure 7-2: Structural features and top of Prairie Evaporite elevation imaged by 3D seismic

The seismic imaging is a mature technology originating in the oil and gas industry and has been successfully adopted by the potash mining industry. It is the opinion of the Qualified Person that the quality of the seismic surveys collected on the Jansen lease are excellent and the structural and the quantitative interpretation work carried out at Jansen by BHP Canada geophysicists are at an industry standard practice level.

7.2 Exploration Drilling

Exploration drilling was carried out by BHP Canada:

- to obtain physical samples for geological mapping, geochemical analysis, rock mechanics and metallurgical testing,
- to acquire rock physical and hydrogeological property measurements using geophysical well logging,
- to acquire hydrogeological testing data from the brine disposal zone.

Drill hole locations were selected based on information obtained from the 2D and 3D seismic program to avoid structural features and regional potash anomalies. The distribution and spacing of the drill holes were chosen to complement the historical drilling locations to provide a uniform drill hole coverage across the central part of the lease area.

7.2.1 Drilling Type and Extent

All drill holes were drilled using petroleum industry oil rigs (Figure 7-3) with the rotary drilling method. The equipment requires an approximately 150 metres x 150 metres size drilling pad for the rig, equipment, and offices. The drilling operation was running 24/7 with contracted site geologists and BHP representatives overseeing the drilling and data collection operations. After completion of the drilling the drill site was reclaimed to its original state.

Figure 7-3: Oil rig used in BHP Canada potash exploration drilling

A summary of the drilling information is shown in Table 7-2:. Geophysical well logging was conducted in all holes from top to bottom.

Table 7-2: Summary of BHP Canada drilling information

Type of Drilling	Number of Drill Holes	Metres Drilled	Metres Analysed Using Geochemistry	Year
Potash exploration	24	24,500	596	2008-2009
Disposal zone testing and monitoring	2	3,100	-	2014
Shaft Pilot hole	2	2,076	89	2009
Shaft geotechnical	1	590	-	2014
Brine Injection well	1	1,500	-	2016
Total	**31**	**28,976**	**685**	-

7.2.2 Drilling, Sampling and Recovery Factors

Potash exploration drill holes

The stratigraphy of the region is well established based on the exploration completed to date. Most of the holes were drilled into the Prairie Evaporite formation and were terminated once all the potash beds were intersected, below the Belle Plaine member. A limited number of holes were drilled through the Prairie Evaporite into the Interlake formation to provide calibration information for seismic analysis. One exploration hole was drilled to the Precambrian basement to obtain information about the entire sedimentary column including the target formation for brine disposal.

The drilling plan for each drill hole is divided into four sections:

- Section 1 – Conductor and surface section, installation of the conductor and drilling to set a required surface casing point (244.5 millimetres), as pre-scribed by the Saskatchewan Oil & Gas Conservation Regulations 1985.
- Section 2 – Intermediate section, drilling to the core point and setting a 177.8 millimetre intermediate casing string.
- Section 3 – Core section, drilling and coring using mineral oil-based mud utilizing 156 millimetre core equipment.
- Section 4 – Deep section, drilling either to the Interlake Formation or the Precambrian basement with 156 millimetre bit.

After drilling, the holes are plugged by cement and abandoned following the Saskatchewan Oil and Gas Conservation regulation procedures.

Details are shown in Figure 7-4, including abandonment procedures.

Exploration core recovery is 99.95 per cent which is considered excellent by the Qualified Person. Core depths are corrected to the geophysical logs depth to obtain a common depth reference for all data. The high core recovery enabled BHP Canada to take representative samples for the basis of the Mineral Resources estimate.

Drill hole locations are surveyed at planning and after spudding by a professional surveyor. During drilling the maximum deviation from the vertical was set to 3 degrees and was monitored continuously with downhole instruments. The drill holes' trajectory is surveyed after completion using the orientation logging tool that is deployed as part of the geophysical well logging program.

All holes are close to vertical with offset less than 10 metres between the surface coordinate and bottom hole coordinate. The shaft pilot holes were drilled with very small deviation tolerances.

All sampling, including geophysical logging, is conducted with QA/QC procedures in place with targets set and monitored, see Section 8 for details regarding these QA/QC procedures.

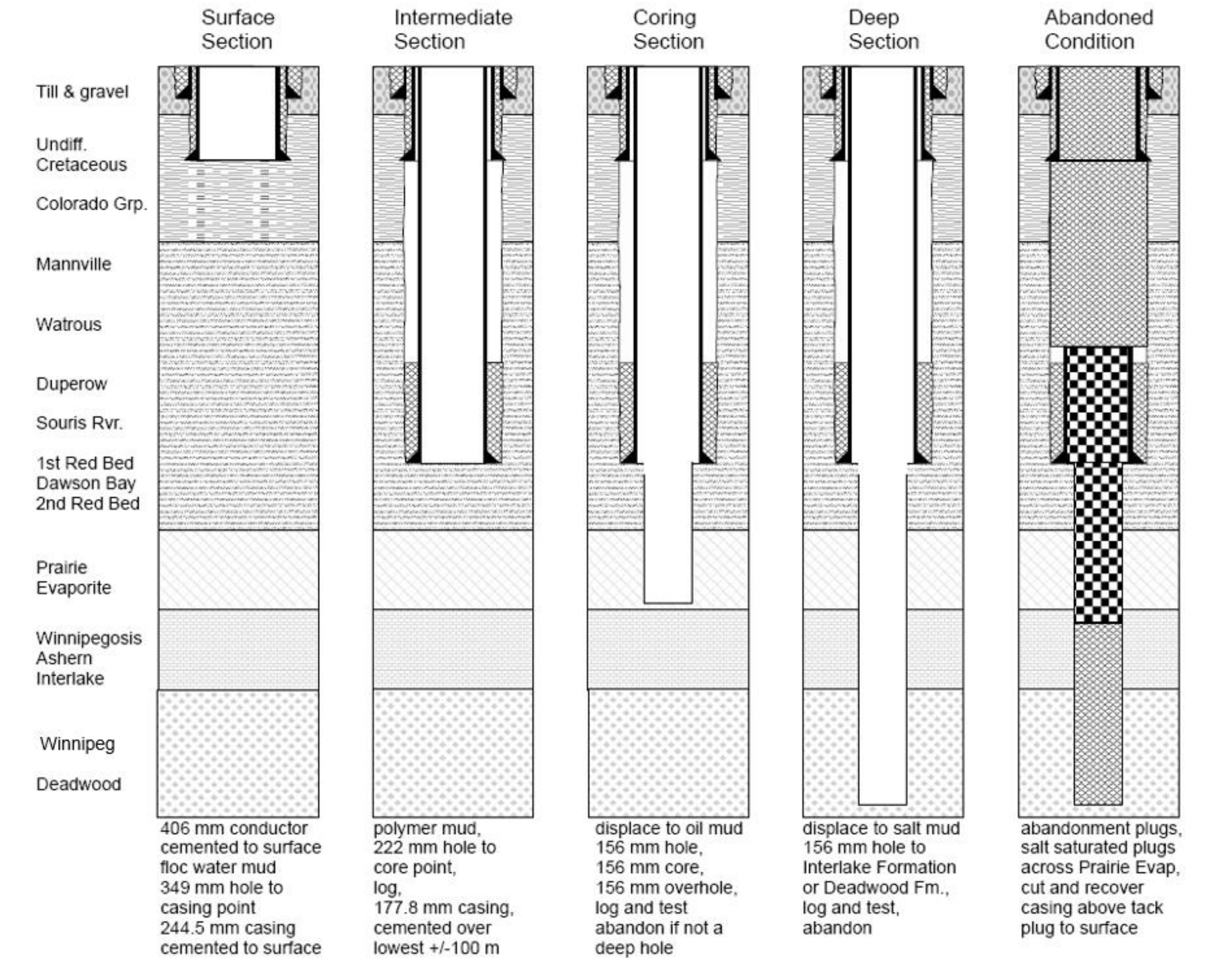


Figure 7-4: The four sections of the exploration drilling program and abandonment procedures.

Brine disposal zone monitoring and testing holes and disposal hole

Two holes were drilled to obtain hydrogeological and rock mechanics information from the brine disposal reservoir zone. The preparation and execution were identical to the exploration holes except after setting surface casing the holes were drilled to the top of the Winnipeg formation, then logged and cased. The lower section was drilled through the Winnipeg Sand and Deadwood formations into the Precambrian. Geophysical logging, hydrogeological formation testing and rock mechanics testing programs were carried out in this section (details in Section 7.3). Once the testing was completed the hole was cased and pressure and temperature monitoring equipment was installed at the Deadwood formation (details in Section 7.3).

The brine disposal drill hole was drilled with similar set up, methodology, and data collection program to the monitoring holes, except the reservoir section was developed for the injection operation.

Shaft pilot holes and geotechnical hole

Two pilot holes and a geotechnical hole were drilled to support the shaft sinking. The pilot holes, after the placement of the conductor and surface casing section, were continuously cored to the base of the Prairie Evaporite formation. Geophysical well logging and hydrogeological testing were conducted before the pilot holes were plugged. The shaft geotechnical hole was drilled in a similar way to provide additional information for shaft sinking operations.

It is the opinion of the Qualified Person that the data (core, geophysical logs, hydrogeological testing data, etc.) obtained by drilling have a good quality and are reliable. They are suitable to be used for geological, hydrogeological, and other model development and related studies.

7.2.3 Drilling Results and Interpretation

In agreement with the well-recognized regional geological and structural architecture of the Williston Basin, the drilling results show that the geological layers dip approximately 0.1 degrees to the southwest. The use of vertical holes is therefore deemed by the Qualified Person to be appropriate and ensures representative thicknesses are achieved across each stratigraphic unit. All anticipated stratigraphic units were present in the drill holes with normal thicknesses and lithologies, no unexpected geological conditions were encountered.

The exploration drilling further confirmed the presence of the Prairie Evaporite formation and the UPL, LPL and Belle Plaine members in the entire Jansen lease. The depth of the LPL was found to be between approximately 850 metres in the north and approximately 1,050 metres in the south (Figure 7-5).

Holes drilled deep into the disposal reservoir confirmed the presence of the Winnipeg Sand and Deadwood formations with expected thickness, lithology, and hydrogeological properties.

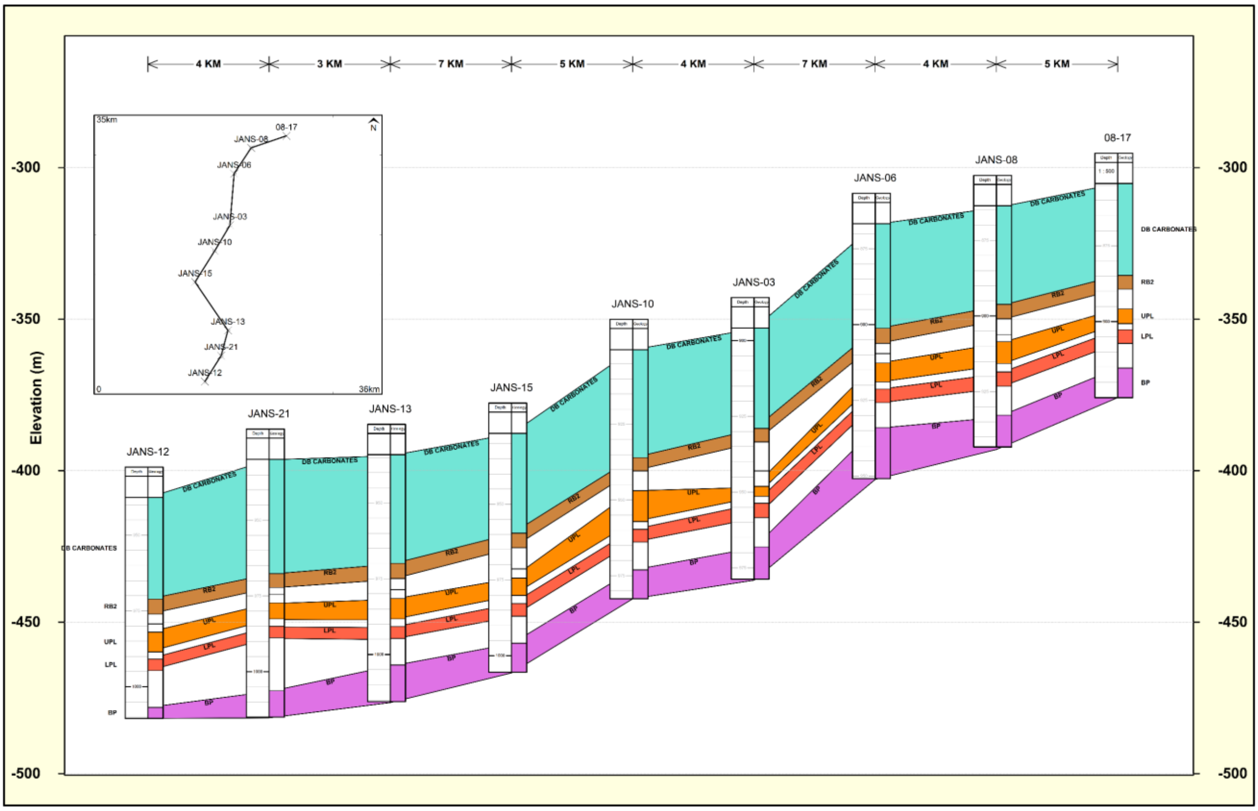


Figure 7-5: North-South cross section showing main potash units and geological units immediately above, (DB Carbonates - Dawson Bay Carbonates, RB2 - Second Red Beds, UPL - Upper Patience Lake sub-member, LPL - Lower Patience Lake sub-member, BP - Belle Plaine member). The vertical axis is in elevation (m). Both historical and BHP Canada drill holes are included.

7.3 Hydrogeology

The hydrogeology of the Jansen Project area consists of two groundwater systems:

- Near surface groundwater system that encompasses glacial till, silt, clay, sand and gravel
- Deep groundwater system that is characterized by underlying carbonates and sandstones units

The groundwater systems are separated by a low permeability shale formation.

7.3.1 Near Surface Hydrogeology

Introduction

The near surface hydrostratigraphy is generally comprised of a complex sequence of sediments which include inter-bedded water bearing formations (i.e. aquifers for groundwater source) and low permeability sediments (i.e., aquitards as natural barriers to brine migration from the surface tailings facility). These stratified sediments, above the bedrock (Bearpaw Shale), are collectively known as glacial drift, and form a multi-stacked aquifer system across the Jansen Project area. The near surface hydrostratigraphy of the project area is summarized in Figure 7-6.

Stratigraphy			Lithology		Hydrogeology
Group	Formation	Unit or Member			
Saskatoon	Surficial Stratified Deposits	Alluvium	Silt, Sand, Gravel	Clay, Silt, Sand	Surficial Aquifer/Aquitard
			Silt, Sand, Gravel	Clay, Silt, Sand	
		Haultain	Silt, Sand, Gravel	Clay, Silt, Sand	
			Silt, Sand, Gravel	Clay, Silt, Sand	
	Battleford		Till		Aquitard
			Gravel, Sand, Silt, Clay		Battleford Aquifer
	Floral	Upper	Till		Aquitard
		Riddell (Middle)	Gravel, Sand		Upper Floral Aquifer
		Lower	Till		Aquitard
			Gravel, Sand, Silt, Clay		Lower Floral Aquifer
			Till		Aquitard
Sutherland	Warman		Till		Aquitard
			Gravel, Sand, Silt, Clay		Warman Aquifer
	Dundurn	Upper	Till		Aquitard
			Gravel, Sand, Silt, Clay		Upper Dundurn Aquifer
		Lower	Till		Aquitard
			Gravel, Sand, Silt, Clay		Lower Dundurn Aquifer
			Till		Aquitard
	Mennon	Upper	Till		Aquitard
			Gravel, Sand, Silt, Clay		Mennon Aquifer
			Till		Aquitard
Empress		Upper	Gravel, Sand, Silt, Clay (Proglacial)		Aquifer
		Lower	Chert and Quartzite Sand on Gravel (Preglacial)		

Figure 7-6: Schematic Near Surface Hydrostratigraphy in the Jansen Project Area

Data collection and QAQC

The near surface hydrogeology of the project area was evaluated by SNC Lavalin Inc. (previously MDH Engineered Solution Corp.) from 2008 to 2011. The near surface groundwater system was studied for the selection of suitable surface facilities (e.g., tailings management area and other infrastructure) to reduce the risk of shallow, aquifer contamination due to the long-term brine migration beneath the salt tailings facility, and for potential sourcing of water.

More than 200 boreholes were drilled for the hydrostratigraphic investigation, testing, and instrumentation (Figure 7-7). Over 100 monitoring wells (124 standpipe piezometers and 20 vibrating wire piezometers) were installed around the surface tailings management area perimeters as well as other strategic places to conduct borehole geophysical logging, hydraulic testing (slug test and pumping test), and collect groundwater samples for the acquisition of hydrogeological data and baseline groundwater chemistry. Numerous slug tests and one long duration (14 days) step drawdown pumping test were conducted. The data were analysed to estimate the hydraulic parameters of the aquifers and aquitards (Table 7-3). Tri-axial permeability tests were conducted to estimate the vertical hydraulic conductivity of the formations. A groundwater monitoring network system was established within almost all near surface aquifers to better understand the groundwater flow system and potential hydraulic connection between aquifers.

Table 7-3: Summary of Hydraulic Conductivity Values for the Near Surface Hydrostratigraphic Units

Formation	Hydraulic Conductivity (m/s)		
	Minimum	Median	Maximum
Oxidized Saskatoon Group Sediments	2.2E-09	3.5E-08	2.1E-06
Upper Floral Till*	3.0E-11	7.5E-11	2.0E-10
Upper Floral Aquifer	2.6E-08	8.3E-05	2.0E-03
Lower Floral Till	5.0E-11	1.0E-10	1.6E-08
Lower Floral Aquifer	1.0E-07	8.1E-05	1.6E-03
Warman Till*	9.0E-11	9.5E-11	1.0E-10
Warman Aquifer	1.4E-05	1.5E-05	1.6E-05
Upper Dundurn Till*	3.0E-11	1.2E-10	2.0E-10
Upper Dundurn Aquifer	1.3E-06	8.8E-06	1.7E-05
Mennon Aquifer	4.3E-05	4.3E-04	5.7E-04
Empress Group Aquifer	8.4E-06	9.3E-05	2.4E-03

* Includes only the tri-axial permeability test results

Quality Assurance and Quality Control (QA/QC) were utilized for all field work, analysis, and reporting. All work was completed using MDH trained engineers and professional hydrogeologists with provincial practicing licenses (Professional Engineer/ Professional Geoscientist). All drilling and installations were completed under the continuous supervision of trained engineers and geoscientists.

All groundwater samples were collected and analysed in accordance with the groundwater sampling standards and procedures and the ISO/IEC 17025:2005 accredited Laboratory Quality Management System (ALS Laboratory and Maxxam). Standard Chain of Custody protocols were followed during handling and transportation of all samples. Laboratory QA testing was completed by submitting blind and duplicate samples for comparative testing.

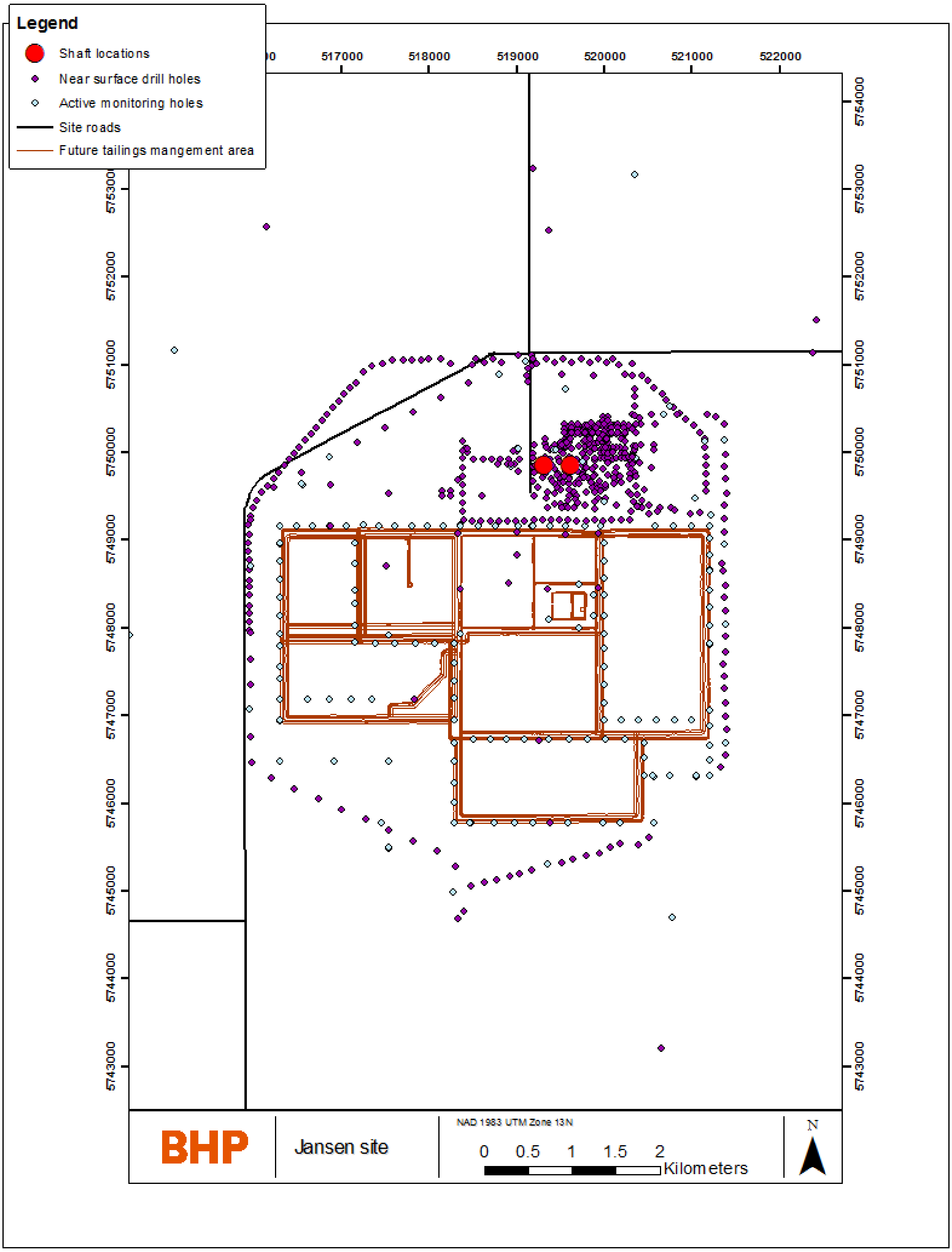


Figure 7-7: Location Map of Boreholes and Monitoring Wells

All data compiled within all reports (tables, spreadsheets, figures, borehole logs, cross-sections. etc.) was reviewed to reduce the potential for error. To assure the quality of the final reports, all draft reports were reviewed by a senior MDH engineer.

Results and Interpretation

The near surface drilling, sampling and testing successfully delineated multiple aquifers and aquitards (Figure 7-8) beneath the Tailings Management Area (TMA) and determined their hydraulic properties (Table 7-4). In the Qualified Person's opinion, the level of detail in the hydrogeological investigations was sufficient to enable the development of a groundwater flow and contaminant transport model and formed the basis of groundwater protection from the brine migration. In the opinion of the Qualified Person, the silt and clay rich till of the Sutherland Group and the Saskatoon Group should act as the primary natural barriers to groundwater contamination at the tailings site based on the technical information available at the time of preparation of this report.

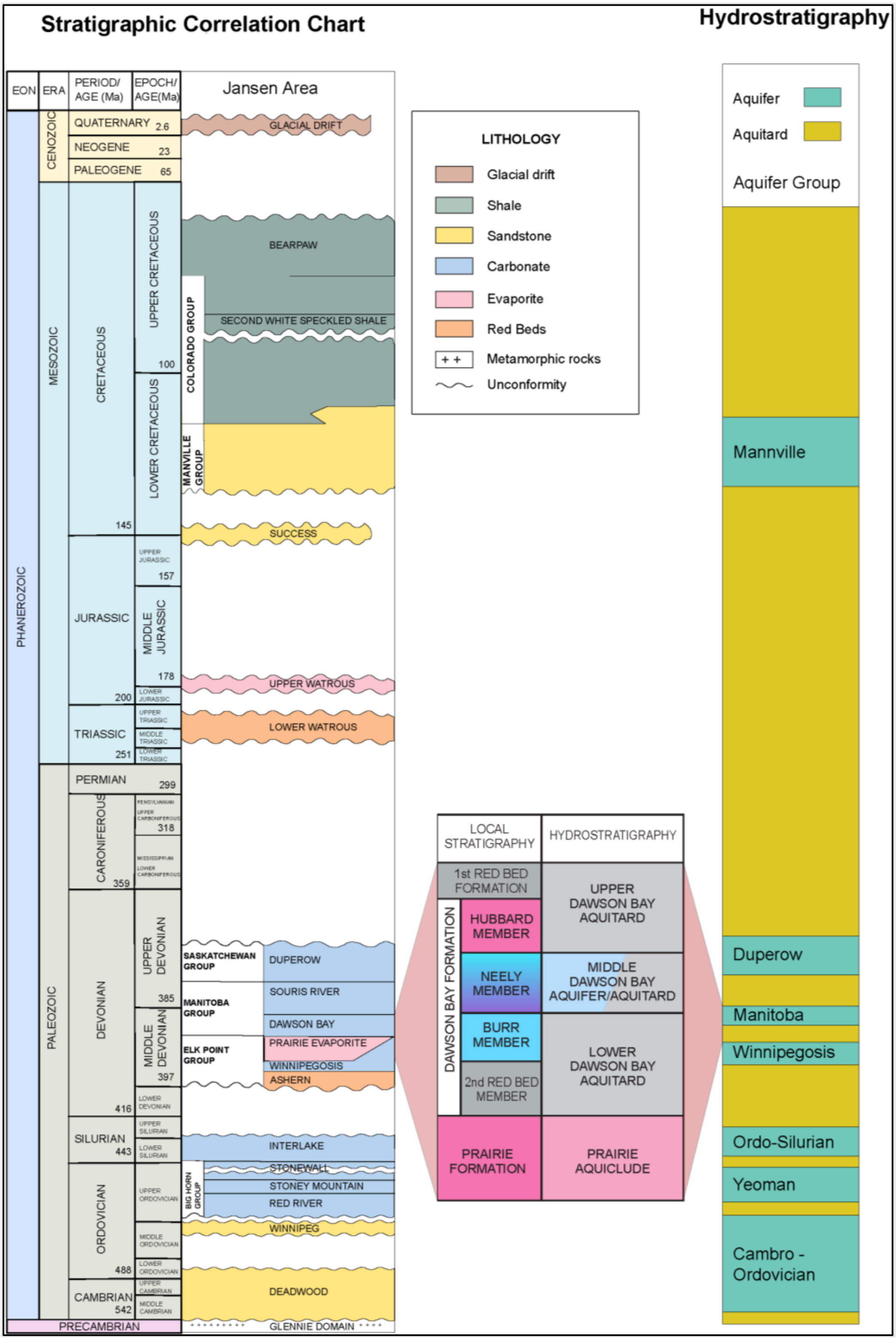
7.3.2 Deep Hydrogeology

Introduction

In descending order, the deep groundwater system consists of seven major water bearing formations. These formations are described below with their implications.

- Mannville Aquifer: Presents significant risk to shaft construction; however, it is a potential groundwater resource for mining and operation;
- Duperow Aquifer: May pose risk of water inflow into a shaft or a mine (if it is hydraulically connected to the underlying water bearing formations);
- Souris River Aquifer: May pose potential risk of minor water inflow into a shaft or a mine (if it is hydraulically connected to the underlying water bearing formations);
- Dawson Bay Aquifer: In close proximity to the mining horizon and generally interpreted as dry (low permeability formation) in nature. May pose potential risk of water inflow into a mine if hydraulically connected to adjacent aquifers;
- Winnipegosis Aquifer: May pose risk of water inflow into a mine from below when inadequate cap rock for the brine disposal horizon occurs or its integrity is impacted from the disposal operation.
- Winnipeg Sand Aquifer: Subsidiary brine water bearing formation for underground brine disposal in the project area.
- Deadwood Aquifer: Principal brine water bearing formations for underground brine disposal in the project area.

The last two aquifers are usually named together as the brine disposal horizon. The deep hydrostratigraphy of the project area is summarized in Figure 7-8.



Note: The Interlake Formation within the Jansen Project area is found to be a low permeability formation and not considered an aquifer unit.

Figure 7-8: Schematic Deep Hydrostratigraphy in the Jansen Project Area (modified based on Figure 6-4)

Data collection

The deep hydrogeology of the project area was evaluated using oil field techniques by consultants (Schlumberger, Baker Hughes, Norwest, RESPEC, etc.). The deep groundwater system was investigated to assess potential risk of water inflow into a mine and to design a wellfield for the underground disposal of potash waste brine. Eleven drill holes were tested to acquire hydraulic properties of the major aquifers of interest such as the Dawson Bay formation, Winnipeg Sand formation and Deadwood formation. Four out of eleven deep drill holes focused on the deep hydrostratigraphic investigation, testing, and instrumentation within the brine disposal horizon. Two deep monitoring wells are continuously collecting the formation pore pressure and temperature data of the brine disposal horizon to assess potential impact from the ongoing disposal operations in other mine sites in Saskatchewan.

Drill stem tests were performed in five exploration drill holes and two shaft pilot holes to assess the water deliverability potential of the Dawson Bay formation. The tests indicated the low permeability nature of this formation. Following the drill stem tests, Formation multi-tester (FMT) wireline tests were performed to measure the formation pore pressure and estimate the permeability values at several test points in 19 drill holes. Magnetic Resonance Logging was also conducted using Nuclear Magnetic Resonance (NMR) or Combinable Magnetic Resonance (CMR) tools to assess the water content in the formations in 25 drill holes. Five core plug samples from two exploration drill holes were additionally tested and analyzed in the independent laboratory “Core Laboratories, Inc.” in Houston to estimate the porosity and permeability of the Dawson Bay formation. The laboratory results from four samples indicated the low permeability nature of the formation except for one sample that showed a relatively high permeability value (338 mD). The Dawson Bay formation is considered one of the key hydrostratigraphic units for mine excavation, which overlies the Jansen mine level.

Modular Formation Dynamics Tester (MDT), Vertical Interference Test (VIT), and Formation Multi-tester (FMT) tools were used in one deep drill hole to obtain hydraulic properties of the deep water bearing formations, with a special focus on the brine disposal horizon and caprock formations. Groundwater samples were also collected for baseline chemistry and isotope analysis. The MDT Live Fluid Analyzer (LFA) optical technique was utilized to ensure the sample quality by monitoring the fluid as it flows, its resistivity, and optical density. Mini-Frac and pressure falloff tests were performed to understand the formation pore pressure regime of the disposal horizon. A step rate injection test was conducted at the first potash waste disposal well to estimate the regulated wellhead injection pressure in accordance with the disposal and injection well regulatory requirements.

The data from all tests were analysed to characterize the major water bearing formations and compiled for the use of analytical and numerical brine disposal wellfield modelling. Table 7-4 provides a summary of the hydraulic parameters and values for the brine disposal horizon.

Hydrogeological Modelling

To assess the risk associated with the brine disposal horizon and its sustainability, analytical models were developed by consultants (SNC Lavalin) from 2010 to 2019. In 2019, BHP Canada also developed a three-dimensional numerical brine disposal model using the industry standard groundwater modelling software FEFLOW to assess the formation pore pressure build-up and distribution during the disposal operation. The model was reviewed by an independent third party and updated based on the review comments and recommendations. An uncertainty analysis of the updated model was performed using a new probabilistic approach to quantify model uncertainties in 2022. BHP Canada additionally developed a three-dimensional reservoir geomechanical model to assess the risk and uncertainties associated with the brine disposal horizon and the overlying caprock. In the Qualified Person's opinion, the Deadwood Aquifer and the Winnipeg Sand Aquifer are available for the disposal of waste brine and no material adverse impact in the brine disposal operation is expected for the Jansen Stage 1 at the time of preparation of this report. The risk and uncertainty associated with the long term sustainable capacity of the brine disposal horizon will be assessed as waste disposal operation begins and advances.

Table 7-4: Summary of Hydraulic Parameters and Values Measured in Field for the Brine Disposal Horizon

Formation Name	Permeability (mD)		Porosity (%)	Comments
	Horizontal	Vertical		
Winnipeg Sand	0.1 - 3000	Not Available	6 - 28	Permeability values based on borehole logs. A large scale test (such as injection test) was not conducted to determine the horizontal and vertical permeability values due to the small thickness (~ 18 m) and minimum usable disposal reservoir interval (~ 8-9 m) of this formation.
Deadwood	288 - 403	29 - 43	3 - 28	Permeability values based on MDT/MDT-VIT/Injection Test

Results and Interpretation

The characterization of the major deep water bearing formations in the Jansen Project area is in agreement with the regional hydrogeological understanding of the Western Canada Sedimentary Basin and the Williston Basin.

Based on the hydrogeological and geophysical information available at the time of preparation of this report, the Dawson Bay formation is characterized as a low permeability unit in the Jansen area and has relatively low water inflow deliverability potential. In the Qualified Person's opinion, the Dawson Bay formation is well understood.

The characterization of the brine disposal horizon is also in agreement with the local and regional scale hydrogeological understanding. In the opinion of the Qualified Person, the horizon is available for the disposal of potash waste brine and no potential adverse impact on its disposal capacity is expected.

7.4 Geotechnical Data, Testing, and Analysis

Geotechnical data was acquired through two testing programs. The first testing program was completed by independent consultant "RESPEC", through samples acquired from three exploration drill holes. Testing consisted of Brazilian indirect tensile strength (BRZ), constant strain rate (CSR), constant mean stress (CMC) and tri-axial compression creep (TCC). The results of these tests were used as input values for modelling.

The second testing program was completed at the University of Saskatchewan "Rock Mechanics Lab", with samples acquired from six exploration drill holes. Tests conducted included, Unconfined Compressive Strength (UCS) and acoustic velocity, with all tests occurring in salt. Due to the age and unknown handling of the core, these tests were not included in the modelling work.

Tests for the Dawson Bay Formation and Second Red Beds were acquired from two exploration holes. Five CSR tests were completed for the Dawson Bay formation and four were completed for the Second Red Beds. The intent of the CSR test is to determine the elastic properties of the sample. Also completed for the Second Red Beds were seven BRZ tests. The tensile strength tests provide inputs into evaluating the tensile strength of the roof and floor of an excavation.

Mechanical testing in the Prairie Evaporite consisted of BRZ, CSR, CMC and TCC. Samples were acquired from all three exploration drill holes. Tests completed, included, thirty-six BRZ tests, twenty-one CSR tests, forty-one CMC tests and twenty five TCC tests.

CMC tests were run at a temperature setting of 20°C. The intent of running the CMC tests was to determine the location-specific dilation characteristics and to use that location dilation data to estimate the parameter values in a dilation equation. The CMC test data showed a fairly consistent trend for all tests where the level of stress difference required to initiate dilation usually increased with the increase in mean stress. The CMC data was used to compare against the linear tri-axial compression equation. The result were non-linear values that plotted above the linear criterion at a low mean stress and below the linear criterion at high mean stress.

For the TCC tests, setup parameters included, temperature set to 27°C, confining pressure at 20 MPa with applied stress differences of 6.9, 10, 15 and 20 MPa. The purpose of the TCC test is to determine the axial strain over time within the sample. The results showed that strain rates started high immediately after the axial stress difference was applied, slowing to a near constant rate of strain with time. The predicted steady-state strain rates generally correlated well with the calculated steady-state strain rates.

From the TCC tests, the estimated stress exponent for roof and floor salts was n = 3.6. For potash ore the estimated stress exponent was n = 5. The laboratory creep data parameters utilized for the Jansen mine design are within the expected range for the potash basin. The validation process for the geotechnical parameters has been initiated with installation of geotechnical instrumentation within the shaft barrel and shaft stations. The shaft pillar ground monitoring program has been planned to further quantify the actual creep rates for each cutting horizon.

The test results are listed in Table 7-5 for the CSR tests and Table 7-6 for the BRZ tests.

Table 7-5: CSR test results

Sample Location	Quantity	Average Young's Modulus (GPa)	Average Poisson's ratio
Dawson Bay	5	47.02 +/- 6.35	0.25 +/- 0.08
Second Red Beds	4	17.23 +/- 3.22	0.12 +/- 0.01
Potash	9	19.03	0.16
Salt	12	25.79	0.14

Table 7-6: BRZ test results

Sample Location	Quantity	Average Tensile Strength (MPa)
Second Red Beds	7	2.93 +/- 1.36
Salt	21	1.62 +/- 0.33
Potash	15	2.13 +/- 0.70

In the Qualified Person's opinion, the tests completed are those necessary to develop models for the assessment of short and long term stability conditions in Prairie Evaporite and into the Second Red Beds and Dawson Bay. Samples within the Prairie Evaporite covered the UPL, LPL and BP potash units and salt layers in between, which is necessary to understand what may cause ground instability.

The geotechnical samples represent mining areas at the northwest, central and southern end of the lease. In the Qualified Person's opinion the sampling seemed sparse, however, given the consistent results acquired from other properties within the Basin when compared to the Jansen samples, it provides confidence that the rock will behave similarly.

7.5 Exploration Target

There was no exploration work conducted during the period. Therefore, no exploration results are included in this report.

8 Sample Preparation, Analyses, and Security

8.1 Sample Preparation Methods and Quality Control Measures

8.1.1 Methods

Mineralized zones in each of the Jansen drill holes completed by BHP Canada were subject to coring and geochemical analysis. The salt beam between the UPL and LPL was included in the geochemical analysis. Once the core was recovered from each new drill hole, logged, photographed on site, and wrapped in waterproof plastic to protect the carnallite sections, the cores were securely transferred from the drill site to BHP Canada's core lab in Saskatoon. The core box summary sheet, core transport waybill, and hard copy geophysical well logs accompanied the core.

The climate-controlled core lab facility rented from the Saskatchewan Research Council – Saskatoon (SRC) was equipped with roller tables, core racks, work tables, rock saw and crusher, lift trolleys, dust collector, and air compressor. SRC provided saw and crusher operators, as required. Air quality was monitored periodically or at the request of core lab geologists. Temperature and humidity were monitored and recorded twice daily, because carnallite is deliquescent and therefore sensitive to atmospheric moisture.

Geological consultant company Norwest Corp. compiled geological reports for each BHP Canada exploration hole, field records originated from wellsite geologists, drilling supervisors and coring contractors. Norwest Corp. geologists, who were trained in potash logging, operated the core lab. After the core was delivered, it was unloaded onto roller tables. Geologists ensured all core runs were properly oriented in the boxes and depths were corrected to match the geophysical well logs. The core was then subject to descriptive logging completed electronically on spreadsheets and emailed to BHP Canada geologists. (i.e., lithology, texture, crystal sizes, contacts, colour, sedimentary structures, constituents, fossils, and geotechnical features), and high-resolution colour photography. Sample interval selection completed with collaboration with BHP Canada geologists. A flow chart of the core logging process is shown in Figure 8-1.

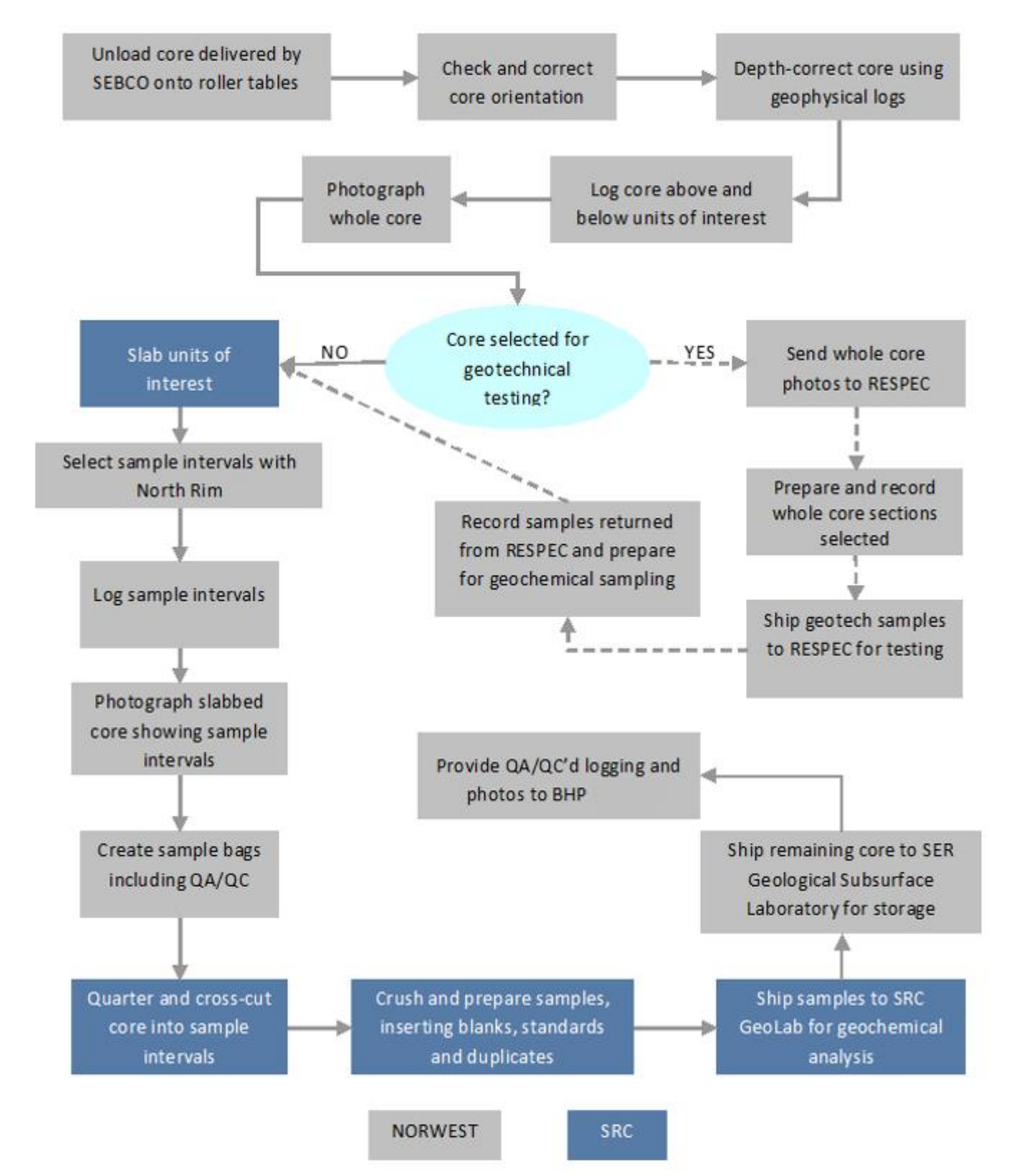


Figure 8-1: Core logging and sampling workflow

If the core was selected for geotechnical testing, the photographs were reviewed for quality assurance and provided to the geotechnical consultants (RESPEC) from a secure file transfer site.

The units of interest (i.e., Upper Patience Lake (UPL), Lower Patience Lake (LPL), and Belle Plaine (BP)) were slabbed by SRC crews at the core laboratory under the direction of Norwest Corp. geologists. The slabbed core was divided into sample intervals as determined by the geologists in conjunction with senior potash geology consultants (North Rim).

Sample intervals were based on lithology and ranged in size from 2 centimetre to a maximum of 25 centimetre. Sampling began a minimum of 0.5 metres above the top of the UPL through to a minimum of 0.5 metres below the base of the LPL and then from a minimum of 0.5 metres above the top of BP to a minimum of 0.5 metres below the base of the BP. Slabbed intervals were photographed.

After the sample intervals and measurements were marked on the core and recorded in the logging Excel worksheet, one of the slabbed halves was quartered and one of the quarters was subsequently split into the noted intervals for geochemical analysis. The other quarter was packaged into plastic sleeves and reserved for shipment to the Government of Saskatchewan Subsurface Geological Laboratory in Regina, together with the entire core above and below the units of interest, as required by the regulations. The remaining slabbed half of the LPL was packaged for shipment to SGS Lakefield for metallurgical testing.

Norwest Corp. core lab geologists and senior potash consultant (North Rim) regularly transferred the logging, sample interval sheets, whole core photographs, and slabbed core photographs to BHP Canada for storage on the file server at the Saskatoon office. Each step followed proper procedures and documentation as well as cross checking between consultants and BHP Canada personal.

Historical drill hole reports, logging, collar location surveys and core assay data were acquired from the Saskatchewan Ministry of Energy and Resources database. All historical and BHP Canada drill hole core are available at the Saskatchewan Subsurface Geological Laboratory for storage and public access.

8.1.2 Sample Security

Chain of custody protocols were implemented, covering the sampling process from core collection at the drilling site, through sampling at the core laboratory, and to sample delivery to the analytical laboratory. These included:

- Boxing, labelling, and sealing of the core at the drill site before transferring to the laboratory preparation facility
- Photographing the core at the drill site then before and after sample selection
- Despatch requests were sent with the samples and emailed directly to the laboratory
- Laboratory confirmation of sample receipt
- Emailing the analysis results directly to BHP Canada
- Returning leftover samples to BHP Canada for storage

Additionally, in the core laboratory, before sampling, the core was verified against the in-situ collected geophysical logs and any discrepancies were addressed.

No sample security documentation is available for the historical holes.

8.2 Sample Preparation, Assaying and Analytical Procedures

During BHP Canada's drilling campaign (2008, 2009) 3,956 samples were collected. The length of the samples was variable (average sample length 15 centimetres) to capture key geological features. Sampling protocols and procedures are aligned with industry standard practices. The sample preparation protocols (crushing and pulverising sizing requirements, etc.) at laboratories meet standards defined in contracts in line with ISO standards, with QA/QC targets established.

BHP Canada submitted samples for geochemical analysis to SRC Analytical Laboratories -– Saskatoon, which is independent of BHP. SRC analysed all the geochemical samples using the Inductively Coupled Plasma – Optical Emission Spectroscopy (ICP-OES) method. Metallurgical testing of all metallurgical samples was conducted in SGS Lakefield Ltd. laboratory. SGS is a commercial facility and is independent of BHP. Both laboratories are ISO/IEC 17025 certified. The samples were analyzed for the following: Soluble ICP CaO, K_2O, Na_2O and MgO wt%, wt% insoluble, wt% moisture, as part of the potash exploration package. The geochemistry analysis method termed “POT” by SRC.

Historical drilling (1952-1965) contributed 1,170 samples with variable sampling interval thicknesses to the exploration data set. Historical drill hole samples collected by Kerr-McGee Corporation were processed in their internal laboratory (Kerr-McGee Research Laboratory) by titration method.

Once the quartered core was cut into selected sample intervals, the samples were jaw crushed by SRC crews on site at the core lab. AA revision was made to the POT method after sampling the first core when it was discovered that crushing was too fine to enable the metallurgical testing of reject material. Initially, samples were crushed to 60 per cent at -2 millimetres. The standard operating procedure for the POT method was subsequently revised, and all subsequent samples were crushed to -6 millimetres. A comparison of analytical results from samples subjected to both crushing resolutions has verified that the degree of crushing does not materially affect the analyses. This parameter is continually monitored as part of the QA/QC program by comparing the analytical results of inserted site duplicate samples.

After the sample was crushed, a 100 gram to 200 gram sub-sample was split out using a riffler splitter, and transferred to a sealed plastic vial for transport to the SRC Geoanalytical lab. The reject crushed material was stored by SRC in sealed pails at a separate storage location.

At the SRC facility, the samples were pulverized to -106 microns using a puck and ring mill, and were then submitted for analysis. Pulps were analyzed for solubles, insolubles, and moisture content. Solubles were analyzed by Inductively Coupled Plasma - Optical Emission Spectroscopy (ICP-OES).

8.3 Quality Control /Quality Assurance Procedures

BHP Canada defined a Quality Control/Quality Assurance (QA/QC) program to ensure an appropriate level of confidence in the accuracy, precision and control of contamination of the geochemical data derived from core sampling and analysis. Precision is the capability of consistently repeating the results of a certain measurement in a similar condition, accuracy is the proximity to a certain measurement to a real or accepted value and the contamination is the unintentional transfer of material from one sample to another during the process. This program includes standards, blanks, as well as laboratory and site duplicates. All the BHP Canada control samples were inserted “blind” within the batches delivered to the SRC laboratory thereby not being disclosed to the laboratory as is standard industry practice.

Standards

The standard samples employed were selected based on their mineralogical characteristics to ensure a wider spread of QA/QC check validity for the relevant mineralogical compositions. BHP

Canada inserted 2.5 per cent (1 in 40) standards to check primarily for analytical accuracy and secondarily for analytical precision. SRC results demonstrated good performance for K_2O analysis, all lie within +/-5 per cent error range. MgO results were within +/-10 per cent error range except for <1 per cent of the samples. Na_2O samples performed well in the 32.49 %Na_2O standard. Results were all inside the +/-2.5 per cent error range. However the standard containing only 1.61 %Na_2O, 7 per cent of the samples were presenting more than a 10 per cent error. As is to be expected at low to very low levels for these compounds some samples present values that are out of acceptance limits. Similarly, analyses for insolubles and moisture determination, which are generally at low to very low levels, also present poorer accuracy and precision as a consequence of working close to lower detection limits of the methodologies used to make these determinations. In the case of analyses for moisture analytical quality may also be due to the exposure of the cores to varying environmental conditions. (i.e. humidity and temperature).

Analytical Blanks

Analytical blanks (coarse or fine material i.e. silica sand with negligible levels of the main elements of interest) were inserted to check for cross contamination during the pulverization and analytical stages and as a check on analytical precision and accuracy. A total of 96 blanks inserted containing K_2O at 0.09 per cent, MgO at 0.0076 per cent, Na_2O at 0.11 per cent and the moisture at 0.08 per cent being constituted entirely of insoluble residue at 98.98 per cent. Blanks were also employed to verify the laboratories real lower detection limits. SRC's performance with the analytical blanks was very good. A few samples (<2 per cent) indicated some very minor contamination from earlier samples in either preparation or analyses, however the level of contamination never exceeded (0.38 %K_2O) and is considered close to established analytical precision and accuracy.

Site duplicates

Site duplicates are included to test representativity and variability of taking two separate crushed drill core samples from the sample length of core. These duplicate samples are generated after crushing and being split off using a riffle splitter for the analytical work. 97 per cent site duplicates fell within the +/-10 per cent tolerance level for the entire suite for K_2O, MgO and Na_2O analyses.

Laboratory Duplicates

BHP Canada inserted laboratory pulp duplicates to test laboratory precision (reproducibility) of the various analyses performed. Data for the insolubles, mostly fell within the +/- 10 per cent error bars, with a few pairs falling slightly outside this when the insoluble content got below 5 per cent, more so below 2 per cent.

SRC Geoanalytical Laboratories Internal QA/QC

SRC Geoanalytical Laboratories also undertake internal quality control measures and data verification procedures. These included the preparation and insertion of standards one in every 20 samples and laboratory duplicates (repeats), one in every 40 samples to each analytical batch. Instrumentations were calibrated according to ISO/IEC 17025. These data were reported to BHP Canada.

SRC performed well with the standards as K_2O, MgO and Na_2O all were within 5 per cent tolerance range. Laboratory duplicate pairs all fell within +/-10 per cent with most pairs being in +/-5 per cent error ranges for K_2O, MgO and Na_2O.

Data Verification

The assay data collected by BHP Canada were checked against geophysical logging data for every drill hole. This process provides additional verification of the collected assay sample data.

For the validation of SRC's analyses, a subset of 193 samples was analyzed by another geoanalytical laboratory (SGS Lakefield), and compared to the SRC results. As previously mentioned, SRC's analytical method is ICP-OES. However, the analytical method used by SGS is titration, which analyzes for K and not K_2O, and the results must be converted to K_2O (%K x 1.2 = %K_2O). Since K_2O is the compound of principal interest, the %K_2O determinations formed the basis of the comparison.

A slight bias was noted in the SRC data, reported as slightly higher K_2O values on average than SGS. Because both labs are providing very similar values for the standards, duplicate pairs and blanks, it is difficult to determine which lab is reporting the "correct" values for %K_2O. However, this bias is minor therefore the Qualified Person's opinion is that the analytical variation for the different %K_2O determinations from the two labs is within acceptable limits of analytical variation and tolerance.

Historical Drill hole data verification

Historical drill holes represent approximately 50 per cent of the total drill holes, totalling 1,170 samples. The analytical data associated with these historical drill holes, which had been collected in the period of 1956-1965, does not possess any QA/QC information from that period, as was typical at that time. BHP Canada has validated the quality of this analytical information through a review of the geology of the drill hole cores (relogging) and statistical comparisons against the BHP Canada collected data (3,956 samples). To ensure confidence in this historical data, BHP Canada drilled one twin hole 17 metres from a historical hole. Overall K_2O grade for the LPL zone in both drill holes were in agreement. The average grade of the K_2O interval in the historical hole was 26.8 per cent compared to the BHP Canada twin hole was 26.5 per cent.

The statistical analysis showed that the quality of the K_2O geochemical analysis done on the historical data is statistically not different from the analysis done on the BHP Canada collected samples.

The statistical analysis done on the historical insoluble analysis indicated that these measurements contain a systematic bias compared to the BHP Canada data, therefore insoluble data from the historical drill holes was not used in the resource estimation.

Discussion and Qualified Person's Opinion

The deposit shows limited grade variability. This is demonstrated by the relatively simple mineral composition characteristics, lack of structural complexity, and the continuous nature of the mineralization. The K_2O grade average is 25.6 per cent for the historic drill holes and 25.9 per cent for the BHP Canada drill holes.

Historical drill hole data was manually entered from the copies sourced from the Saskatchewan Ministry of Energy and Resources database. An internal review of the data entered against the source files was completed and entry errors corrected.

BHP Canada exploration data is managed internally using processes and systems that follow the BHP Canada data management procedures and protocols. The BHP Canada potash exploration database has a security model, which restricts user access to those with supervisor approval and the system tested and reviewed yearly. All primary data sources for the drill holes are stored on a secure server that is backed up routinely.

BHP Canada's modelling work procedures require statistical checks to ensure the data used for interpretation honours the exploration database source data.

In the opinion of the Qualified Person the sampling procedures and analytical data control processes undertaken by SRC ensure data of sufficient accuracy, precision and control of contamination for the main chemical elements of interest and that the data is suitable to support resource estimation. Additionally in the opinion of the Qualified Person the historical K_2O values were found to be suitable to be used in resource estimation.

8.4 Opinion on Adequacy

The Qualified Person's opinion is that drill core logging, core sample selection, preparation, assay, and security measures taken to ensure the validity and integrity of the samples and all QA/QC measures during these stages in both historical drilling and BHP Canada exploration drilling are adequate and acceptable. Data collection and quality is to industry best practices to support the current resource model and is adequate in terms of accuracy and precision for the main elements of interest, K_2O, MgO, and Na_2O at the level of interest.

8.5 Non-Conventional Industry Practice

There were no procedures followed that are not part of conventional potash industry practices.

9 Data Verification

9.1 Data Verification Procedures

9.1.1 External Reviews

As confirmation of the mineral reserve and resource process, third-party consultants are occasionally hired to perform verification studies. The Jansen Mineral Resources were most recently reviewed by an independent third party in May 2020. That review included database checks and concluded that the database supporting the geological information of the resource estimate is complete and complies with mining industry standards. The review did not identify any major issues with the geological model or resource estimate. All issues identified have been addressed and no update to the resource estimate has been made. No changes in the geological modelling or resource estimate processes have been implemented since the 2020 review.

Assay database verification was undertaken by a contracted database company hosting the acQuire database. Any new data input into the database underwent strict verification to ensure the data was accurate. Any issues with data caused the database to reject the dataset and an error report was generated to reflect any issues with import. When this occurred, the data was corrected by a BHP Canada representative in charge of the database maintenance and re-imported. Administrative access to the database was restricted to a single user.

After the transfer of the assay data from the acQuire database to the OpenWorks database, a database verification process was carried out to ensure that the data was transferred properly. During the currently ongoing OpenWorks to EPOS data transfer, similar QA/QC processes were put in place to check the data integrity and potential errors.

In 2006 and 2007 extensive review of historical holes were conducted by NorthRim Exploration.

9.1.2 Internal Reviews

An independent internal review of the sampling and data collection was undertaken after the completion of the BHP Canada drilling program at Jansen in 2012, and on the geophysical data collection and interpretation in 2015. QP's had been involved in reviews. No material risks to the project were identified and all key recommendations have been completed.

A twin hole was drilled 17 metres away from one historical drill hole and the results were compared. The grade difference was within an acceptable range.

A self-audit was performed by the QP for historical drill hole geochemical data in the database back to the original data to verify the quality of the original manual database input in 2019. Overall, the historical drill hole database geochemical entry error was negligible. In summary, data verification for the Jansen has been performed by BHP Canada staff, and external consultants contracted by BHP Canada.

9.2 Limitations

Excessive drill holes are not desirable in potash mining as they may present a risk for an inflow by connecting mine openings to the above or below aquifers. The spacing between drill holes is approximately 3.6 kilometres. However, the drill hole spacing is supported by both geological considerations and aligned with Saskatchewan Potash industry practices. The drilling program was supported with 3D seismic surveys for detailed resource characterization.

9.3 Opinion on Data Adequacy

The historical data collected (1956-1965) has no QA/QC data available. BHP Canada has verified the quality of this information through a review of the geology of the cores (relogging) and statistical comparisons against the BHP Canada collected data (3,956 samples). It is the Qualified Person's opinion that the historical K_2O values are suitable to be used in resource estimation. The statistical analysis done on the historical insoluble analysis indicated that these measurements contain a systematic bias compared to the BHP Canada data, therefore insoluble data from the historical drill holes was not used in the resource estimation.

The Qualified Person's opinion is that Jansen drill hole data and other supporting geological data align with accepted industry practices and are adequate for use in mineral reserve and mineral resource estimation.

10 Mineral Processing and Metallurgical Testing

Metallurgical testing for the Jansen project occurred in several phases. The initial test work was conducted at SGS Lakefield (SGS) to investigate the amenability of the Jansen ore to recovery by froth flotation and to get an estimate of the recovery that could be expected. SGS is a commercial facility and is independent of BHP. The SGS test work using core samples representing the Lower Patience Lake mining horizon of the Jansen orebody, was completed between December 2008 and June 2009. Additional metallurgical test work was performed initially at Eriez Flotation Division, USA in 2015 to verify flotation equipment technology selection and later at the Saskatchewan Research Council (SRC) in Saskatoon between August 2016 and August 2017 to verify process equipment selection and process design. The SRC laboratory is independent of the BHP. The ore used for the 2015-2017 test programs was from remaining Jansen drill core and representative sourced ore from an operating Saskatchewan potash mine that was determined in the QP's opinion to be representative of the Jansen run-of-mine ore. Additional supporting test work was completed in 2018 that duplicated the 2015-2017 test programs with ore from the shaft sinking program which was from the Jansen Lower Patience Lake formation. The ore from the 2018 testing program was determined to be representative of the Jansen run-of-mine ore in components and particle size.

10.1 Testing and Procedures

Initial metallurgical test work was performed from 2009 to 2018 to confirm assumptions and to generate process design data where none previously existed. The process design parameters requiring quantification during the test work programs included:

- Liberation size determination to indicate what comminution (particle size distribution) is required
- Influence of process water on flotation performance
- Effectiveness of insoluble mineral liberation processes as water insolubles must be mostly removed before flotation
- Reagent type, dosage, and method of application
- Degree of variability in potash recovery results across the ore-body under standard test conditions
- Recovery and product grade achievable during locked cycle tests
- Flotation product size distribution
- Settling rate of liberated insoluble minerals for equipment sizing
- Flotation recovery and throughput expectations with chosen flotation equipment for mass balance and equipment sizing
- Product leaching kinetics for equipment sizing and process design
- Hot leaching tests for crystallization process design
- Variability testing to better understand coarse and fine flotation performance with varying feed characteristics, feed rates, equipment operating parameters, and reagent rates. This

was completed to enhance understanding for process design and for programming of dynamic simulation.

To determine the assays of key elements in the test work (e.g., potassium [K], sodium [Na], calcium [Ca], and magnesium [Mg]), accuracy of various analytical methods were compared, including:

- Atomic emission spectroscopy (AES)
- Atomic absorption spectroscopy (AAS)
- Inductively coupled plasma spectroscopy (ICP)
- Whole rock analysis (WRA)

This comparison resulted in selecting the AES technique to determine K and Na assays, and the AAS technique to determine Ca and Mg assays. Analyses of water insoluble minerals within the ore (i.e., insoluble minerals) were determined using ICP scan and WRA techniques.

Key data generated from the early metallurgical test program, in conjunction with test work performed in the later study phases was used to validate the process simulation model used for developing the Jansen processing flowsheets and mass balance.

10.2 Sample Representativeness

For the SGS metallurgical test program, seventeen core samples from the Lower Patience Lake (LPL) ore horizon were provided to SGS for metallurgical and mineralogical characterization.

In total, 531 kilograms (kg) of samples were available for test work as 402 kg of slabbed core, plus an additional 129 kg of residual crushed core that remained after a quarter of the core from each ore horizon was crushed. After assay, samples were split out as required.

Metallurgical test work and chemical characterization was performed on the following samples, which provided a relatively high degree of representativity to the ore in the Jansen ore body and planned mining areas

- 17 individual drill holes
- Five regional composite samples
- One global composite sample

Detailed mineralogical analysis and chemical characterization was performed on the following samples:

- Designated Head sample
- Insoluble mineral seams 401 through 406 from head sample
- Head samples of regional composite samples, including a global composite sample
- Metallurgical products, including flotation concentrate and tailing samples

As received, the crushed reject samples were prepared separately according to their Jansen designations. Each of the reject samples from a drill hole were combined, crushed to −10 mesh (−1.70 millimetres) and rotary split into 1 kg charges for use during flowsheet development testing.

A single 1 kg charge from each drill hole was further riffled to produce a 150 gram sample that was submitted for chemical analysis.

Samples from each drill core were ultimately crushed to −8 mesh (−2.36 millimetres), then blended and homogenized. Two 5 kg subsamples from each Jansen sample were set aside for regional composite sample preparation. The remainder of the crushed and homogenized sample from each hole was rotary split into numerous 1 kg charges for use in subsequent testing. A representative sample from each Jansen composite sample was submitted for chemical analysis.

Global and regional composites designated as northern, eastern, southern, western, deep south, and global were formulated according to the geographical locations of the drill holes. Each composite sample was prepared by combining 5 kg of the core sample from each drill hole of the region. The composite samples were then riffled and rotary split into numerous representative 1 kg charges for use in subsequent testing.

Figure 10-1 shows a map of the Jansen ore-body with individual drill core sample locations and division of the ore-body into various regions by geography.

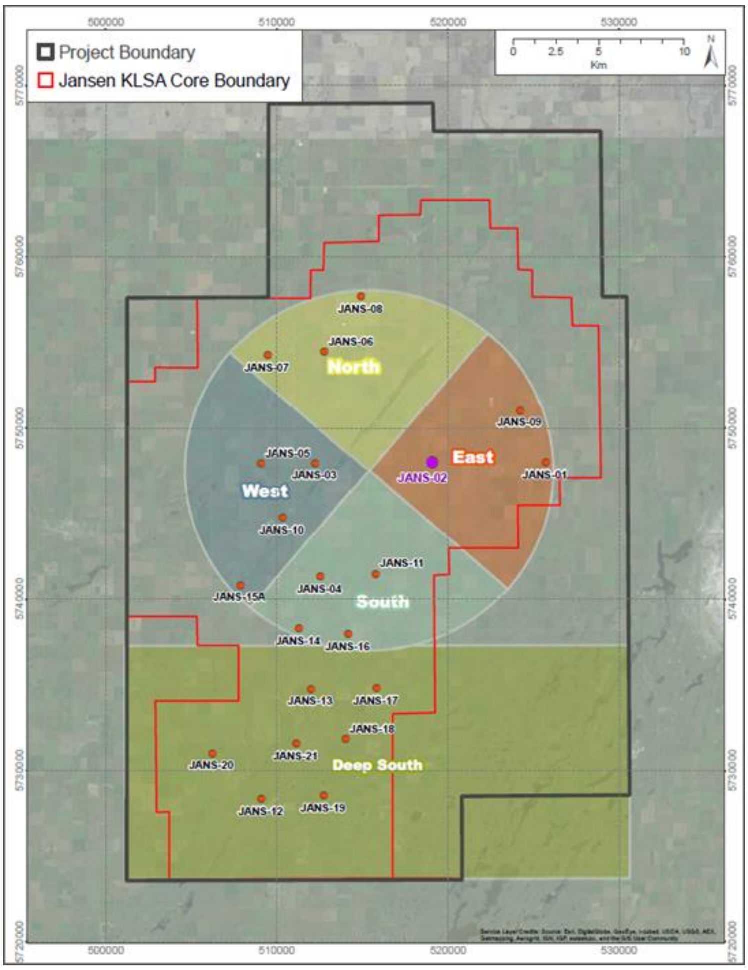


Figure 10-1: Geographical regions for metallurgical testing.

The SGS metallurgical program consumed most of the available drill core that could provide representative samples of the entire Jansen orebody that was part of the mining plan. It provided evidence that the Jansen ore body could be processed with froth flotation and at high recoveries. Further test work used other sources of ore that are discussed below.

Metallurgical test work that occurred between 2015 and 2017 had ore from two sources. The first was an existing Saskatchewan potash operation that supplied BHP Canada with ore. This sourced ore was of similar potassium chloride, sodium chloride, and water insoluble grades as Jansen ore. The particle size distribution of the sourced ore was also similar to anticipated Jansen run-of-mine ore. The sourced ore came from the Upper Patience Lake member, while BHP Canada plans to extract ore from the Lower Patience Lake member. The differences identified in the ore from these members are not, in the opinion of the Qualified Person, significant to the test program. In particular, the UPL has higher KCl and NaCl content variations, and can have lower water insoluble content. However, any BHP Canada test work involved water insoluble removal, so water insoluble content does not impact the flotation test work in any material respect. The sourced ore characteristic that differed from Jansen ore was the components of the water insolubles and the potential impact it could have on fine flotation. The Jansen process design has a water insoluble removal circuit that ensures minimal water insolubles arrive at coarse flotation. Therefore, it is the opinion of the Qualified Person, that the sourced ore was representative of the Jansen ore after undergoing water insoluble removal as per the Jansen design. Accordingly, it was determined to be reasonable for the sourced ore to be used for metallurgical testing for the coarse flotation circuit, as well as the desliming/attrition scrubbing circuit. The second ore source used for test work during this period was residual Jansen drill core. The Jansen ore used in this test work program was a blended sample of residual drill core cuttings made to be representative of the ore in the Jansen mine plan. The unit operations tested with this ore were attrition scrubbing, coarse flotation, fine flotation, and fine scavenger pneumatic flotation.

The 2018 metallurgical test program was conducted to further verify performance expectations in attrition-scrubbing, coarse flotation, fine flotation, scavenger pneumatic flotation, hot leaching of flotation tails, and to conduct further variability testing. The ore source for this test program was from the shaft sinking operations at Jansen. When the shaft sinking operations went through the Lower Patience Lake member 600 tonnes of ore were taken to SRC. Separate piles of the ore were sized and assayed to allow the creation of a composite head sample that was representative of the Jansen mine plan ore. The composite head sample was representative in KCl, NaCl, and water insoluble content, as well as in particle size distribution. It is the opinion of the Qualified Person that this composite sample was representative of the future feed to the Jansen process plant, and was acceptable for this metallurgical testing program.

The ore from the shaft excavation operations was also used in equipment testing with vendors. The type of testing done was for equipment sizing or for performance testing, and was carried out with the vendors. The type of testing that was done was for wet screening, centrifuge performance, thickener sizing, pipe flow kinetics, and for bulk material handling equipment. In each case BHP Canada worked with SRC and the vendors to verify that the samples used in the test programs match the material balance expectations.

10.3 Laboratories

Test work, first conducted by SGS Lakefield to investigate potash recovery using core samples representing the LPL mining horizon of the Jansen ore-body, was completed between December 2008 and June 2009. Subsequent flotation test work was conducted at the Eriez Flotation Division, USA in 2015. Process design verification work was completed by the Saskatchewan Research Council (SRC) in Saskatoon between August 2016 and August 2017 on the remaining

Jansen ore and a sourced ore. Additional supporting test work was completed in 2018 once the shaft sinking program reached the LPL formation and a bulk sample of Jansen ore was obtained. Both SGS Lakefield and SRC are independent, well respected labs that perform potash metallurgical test work for the mining industry. Both labs are ISO/IEC 17025 certified and use standards and procedures that are proven in the mining industry.

10.4 Relevant Results

2008/2009 Test work

Mineralogical and chemical characterization of head samples indicated a high degree of liberation of sylvite in all size fractions. Mineralogically limited grade-recovery curves, generated using QEMSCAN technology, indicated that a theoretical sylvite recovery of 90 per cent should be possible at the targeted grade of 60 % K_2O. This has been supported by metallurgical flotation test work as demonstrated in the following sections.

Heavy liquid testing determined the liberation size of the Jansen ore as being slightly coarser than 1.18 millimetres (14 Tyler mesh), which is consistent with the sizes observed at other Saskatoon area potash mines.

Following two stages of attrition scrubbing and desliming, potash recovery using a flotation process has ranged from 89.3 per cent to 95.7 per cent during variability tests performed on individual core samples, and regional composite samples. Recovery efficiencies averaging 89.7 per cent with concentrate grades of 60.4 % K_2O were achieved during locked cycle tests. These results were strongly aligned with GeoMet predictive analysis.

2015-2017 Test work

Test work was performed during this period to validate the process design changes, with the goal of verifying the same beneficiation in the process mass balance can be achieved. This involved verifying the concentrate grade and recovery could be achieved.

Attrition scrubbing and cyclone desliming tests were performed to verify scrubber design parameters and to prepare samples for flotation tests.

Flotation tests were performed to prove fine flotation using flotation columns, (Eriez, Flotation Division, USA; and SRC), coarse flotation using hydrofloats (Eriez, Flotation Division, USA; and SRC), and ultra-fine flotation using self-aspirated pneumatic flotation cells (SRC).

Metallurgical testing was performed to verify technology selection and initial performance expectations for coarse, fine, and ultra-fine flotation technology. This testing was conducted with sourced ore due to the limited availability of BHP Canada Jansen ore. Additional metallurgical testing was performed to verify the sourced ore was representative to the Jansen ore. The results of both the sourced ore and Jansen residual drill core verified the expected recovery, concentrate grade, and performance expectations of existing Jansen process design.

Ore characteristics that require discussion are water insoluble content, mineralogy, and liberation size. Water insoluble content is critical to mill design because the majority of the insolubles must be removed prior to flotation. An excess of water insolubles in flotation feed results in the water insolubles absorbing the majority of the collector (amine) resulting in poor KCl flotation. In addition, some insolubles are more hydrophobic, which cause them to resist desliming and consume more depressant reagents.

Neither sourced nor Jansen ore showed resistance to mechanical desliming. The sourced ore has a water insoluble content of 5 per cent to 5.6 per cent while the Jansen mine plan LPL member has a higher range of 5 per cent to 10.8 per cent, as seen in the BHP Canada design water insoluble grade of 7.44 per cent. This range was irrelevant to metallurgical testing because samples of both fine and coarse flotation testing were deslimed (water insolubles removed) prior to the testing to levels comparable to the BHP Canada design. Also, the BHP Canada desliming circuit is designed on metallurgical testing that was performed on BHP Canada Jansen ore, so it is robust enough to handle the higher water insoluble content.

Liberation size needs to be considered. The Saskatchewan potash industry sees differing regional liberation, but this is not the case between the UPL member and the LPL member ores. Benchmarking of available literature shows that both members achieve 95 per cent liberation at 1.2 millimetres. Metallurgical testing also shows very similar liberation curves for both LPL and UPL members. Therefore, it is the opinion of the Qualified Person, that use of UPL ore is acceptable to verify comparative technology selection for the BHP Canada Jansen processing facility. These tests demonstrated a range of grade-recovery points that support values used in the Jansen process design.

These metallurgical tests demonstrated a performance that supports the process design for potassium chloride recovery. Testing was performed with coarse, fines, and scavenger pneumatic flotation lab-scale equipment that is representative of that used in the plant design.

Reagent consumption levels during metallurgical test work were generally higher than those observed in industry, which is typical of laboratory scale testing. Reagent optimization work was performed during this period to further define consumption levels with Jansen LPL ore. However, standard Saskatchewan potash reagents were proven effective to achieve the required performance.

2018 Test work

In 2018 the Jansen shaft excavation program went through the Lower Patience Lake member. This ore was saved, and the test work that was performed in 2015-2017 was performed one additional time on ore from the Jansen shafts. The whole cross section of the LPL was captured and a sample representing the Jansen mill feed was created as a head sample for assurance of previous test work programs The test work program included attrition-scrubbing tests, rougher coarse flotation tests, scavenger coarse flotation tests regrind column flotation tests, fine column flotation tests, fine scavenger pneumatic flotation tests, and hot leaching tests of flotation tails. All of the 2018 tests verified the previous test work expectations, and confirmed the process design and performance expectations.

The metallurgical testing results were inserted into the process simulation and the resulting simulated recovery was 91.3 per cent, plus an additional 1.9 per cent recovery from the addition of slimes leaching to the crystallizer circuit for an expected plant recovery of 93.2 per cent.

10.4.1 Impact of ore variability on plant recovery

A correlation between ore grade (KCl and Insolubles) and overall process recovery was developed by doing a double regression on the process simulation model runs completed at various KCl and insoluble ore grades. The relationship, which can be used to predict the impact of ore grade changes with or without proportional changes in the other component, can be represented by:

Recovery = 86.20 + 0.25 × %KCl – 0.38 × %Insolubles

With recovery and grade expressed as percentage numbers.

This relationship is valid for ore grades ranging from approximately 38 % KCl up to 41 % KCl and from approximately 6.9 % Insolubles up to 8.0 % Insolubles (Figure 10-2, Figure 10-3). Below or above this range, the relationship is not expected to be linear and equipment is not designed to handle further excursions. Range analysis of the mine plan and ore body model has shown that expected hoisted ore grade and plant feed grade are generally expected to be within this range The design feed grade of the Jansen process plant is 39.4 % KCl.

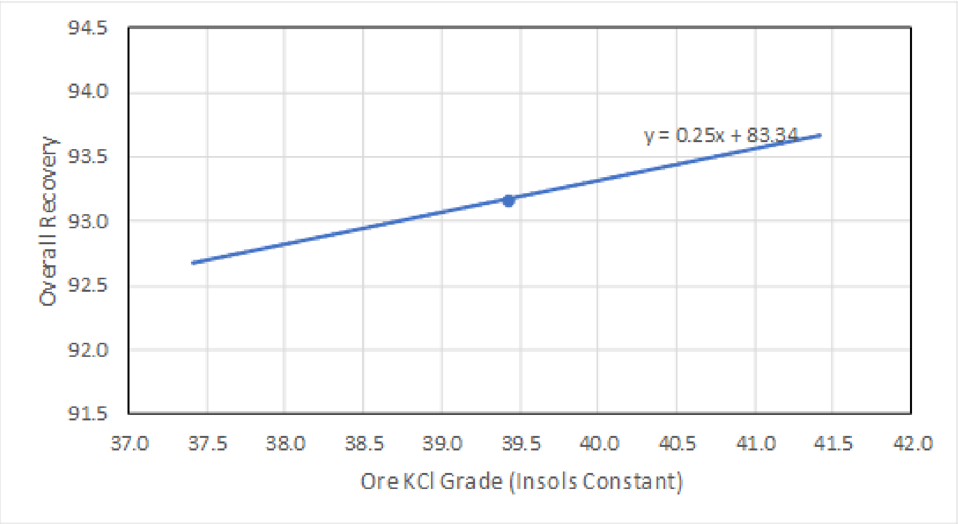


Figure 10-2: Percentage recovery vs. ore grade % KCl.

The process simulation model indicates that for every 1 per cent increase in insoluble ore material, a loss of 0.38 per cent will be experienced in percentage recovery with KCl held constant. If a reduction in insoluble is partly made-up for by an increase in KCl, the equation above can be used to determine the combined impact of an increase in KCl and a decrease in Insolubles. The design water insoluble content of the Jansen process plant ore is 7.44 % KCl.

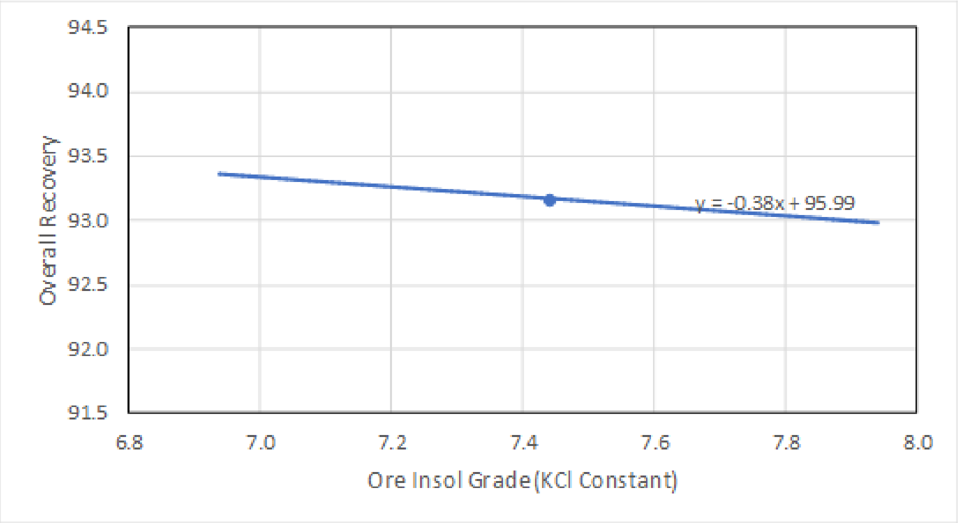


Figure 10-3: Percentage recovery vs. insolubles.

The effect of fines and coarse content in the ore was investigated through the process simulation modelling and is shown below. Fine ore is any material that is below 100 mesh Tyler (0.15 millimetres) and coarse ore is larger than 54 millimetres (Figure 10-4).

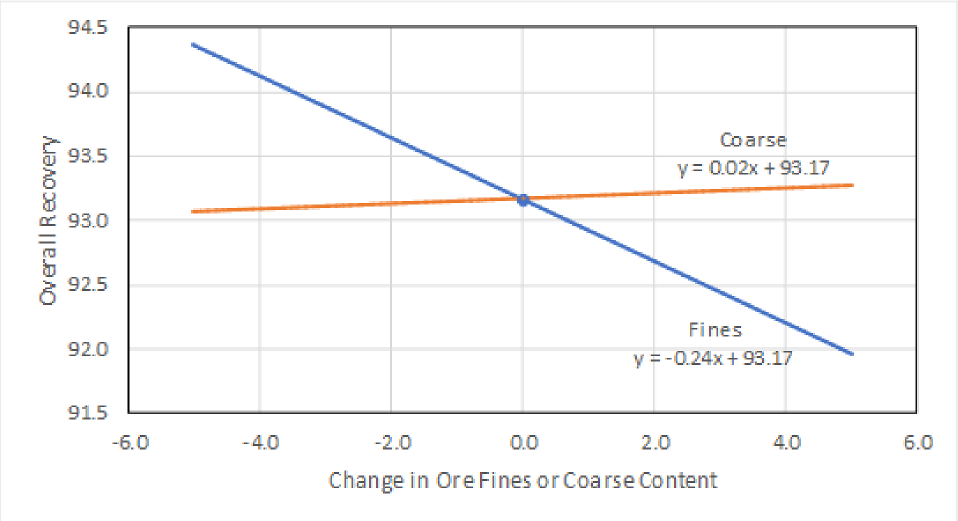


Figure 10-4: Percentage recovery vs. fines and coarse content in ore.

Ore grade variability will not only impact plant recovery, but also the amounts of different reagents required. However, it is the opinion of the Qualified Person that the limited range of ore variability indicated in the mine plan can be easily managed with the existing process design.

10.5 Adequacy of Data and Non-Conventional Industry Practice

The Qualified Person validates that conventional practices were used in the metallurgical test work, process simulation, and evaluation of results. The only area that moved away from convention was in using a bulk ore sample for the final process design metallurgical test work. The initial 2008/2009 samples, that were representative of the whole orebody, were used up in the metallurgical testing at SGS that was based on the initial process design. As BHP Canada continued engineering, the design of the flotation circuits changed from bulk flotation to fines/coarse flotation. There was inadequate Jansen sample available for the complete metallurgical test work program, so purchased ore was used, and confirmation test work was done with a small amount of Jansen drill core available. The construction of the shafts also provided an additional opportunity to test the process design with Jansen ore. A bulk sample was obtained from the Jansen shaft excavation of LPL ore. This ore was analyzed to verify that it was geologically similar to the representative ore that had been drilled previously. The metallurgical test program was then duplicated using Jansen ore, and the Qualified Person validates that the results were as expected and previously reported.

10.6 Opinion on Influence for Economic Extraction

In the opinion of the Qualified Person, the data derived from the various sources detailed above is adequate for design of processing facilities and provides suitable product grade/recovery predictions for use in production rates. Confidence is further increased with the use of proven equipment in the potash industry and numerous Saskatchewan companies processing ore of similar composition.

11 Mineral Resources Estimates

The resource estimation process that BHP Canada follows is well established, consistent with industry practices, and is based on the integration of 3D seismic data and drill hole information. A set of procedures governs geological interpretation, estimation, and reporting of Mineral Resources including peer reviews. Documentation of the resource modelling work used for reporting is stored electronically in a secure centralised location. These documents contain information on deposit extents, geometry, detailed geological and geostatistical modelling, data preparation including compositing, and classification parameters.

The Mineral Resource qualified persons visited the sites regularly for program planning and reviews, gaining further understanding of the exploration program.

11.1 Key Assumptions, Parameters, and Methods Used

Cut-off parameters

The Mineral Resources are constrained stratigraphically, from the top of the 406 clay seam contact with the salt unit to a thickness of 3.96 metres. This thickness corresponds on average to the thickness measured from the top of the 406 clay seam to the bottom of the 402 clay seam. The style of mineralization and the mining method does not support selective mining based on quality cut-off values. The horizontal extent of the resource is defined by the occurrence of mapped anomalies and by a boundary that is 800 metres away from the lease edge.

Mining factor

The mineralization will be mined with continuous boring machines in a single pass within the stratigraphic bounds of the seam. During mining, it is expected that dilution from low-grade material cut from outside the stratigraphic markers may occur to maintain ground stability. The dilution is accounted for in the Mineral Reserves. Areas containing large numbers of hazardous geological features which do not allow practical extraction with the proposed mining method, are not included in the resource (Figure 7-2, Figure 11-2).

Metallurgical factors

Carnallite anomalies are mapped and included in the resource model with appropriate mineralogical parameters, as magnesium from the carnallite can interfere with ore processing. Insoluble content is also included as a resource model parameter because insoluble material is required to be removed during processing.

The moisture content of the LPL sub-member is estimated to be 0.3 per cent based on analytical testing.

An 800 metre wide zone from the lease boundary is excluded from the Mineral Resources, as it is assumed that no-mining will take place within 800 metres of the lease boundary.

Environmental factors

Brine waste from the processing operation planned to be disposed into an aquifer approximately 400 metres below the LPL mining horizon.

The solid salt waste from processing will be temporarily stored on the surface in a tailings management area, together with the insoluble fraction of the mineralization.

The estimation of these volumes is based on the resource and subsequent reserve model parameters, and environmental precipitation model. The related Environmental Impact Statement has been submitted to, and approved by, the Saskatchewan Ministry of Environment.

11.2 Geological Modelling

Geological modelling techniques employed by BHP rely on the close integration of drill hole data and 3D seismic information, including quantitative interpretation of seismic data.

Drill hole data interpretation is based on drill core and collected downhole geophysical data. Detailed mapping of geology relies on the identification of clay seams and related features and is based on visual core logging, geochemical assay data (BHP Canada and historical drill holes), and geophysical data from BHP Canada drill holes, including high-resolution acoustic televiewer data.

The 3D seismic data is first matched to drill hole data using standard geophysical techniques. This is followed by the mapping of geological horizons throughout the seismic volume and by the identification and mapping of structural geological features.

Quantitative interpretation of the 3D seismic data includes inversion of the seismic data using advanced seismic techniques to generate volumes of physical properties (Acoustic Impedance and Density) that reflect the mineralogical composition of the deposit and surrounding geology.

Mineralization domains are established based on information generated by the quantitative interpretation information. The domains within the LPL Mineral Resources include: the mineralization, areas of extensive no-potash anomalies, carnallite anomalies, and areas with structural features that pose a hazard to mining. The established domains are verified against drill hole data.

The geological model also includes geotechnical features present immediately above the mining horizon.

Drill hole and seismic data interpretations undergo an internal peer review process to ensure accuracy and consistency. Datasets are cross-checked and verified against each other to ensure the consistency of interpretation.

11.3 Block Modelling

Due to the horizontally continuous nature of the deposit, lack of structural complexity, and proposed extraction method, the resource is modelled on a two-dimensional grid. The resource is divided into layers, or plies, based on geological factors and mining constraints. The primary and thickest layer contains the bulk of the resource and the highest grade. Additional thinner layers above and below are included to model the resource outside of the main zone (Figure 11-1).

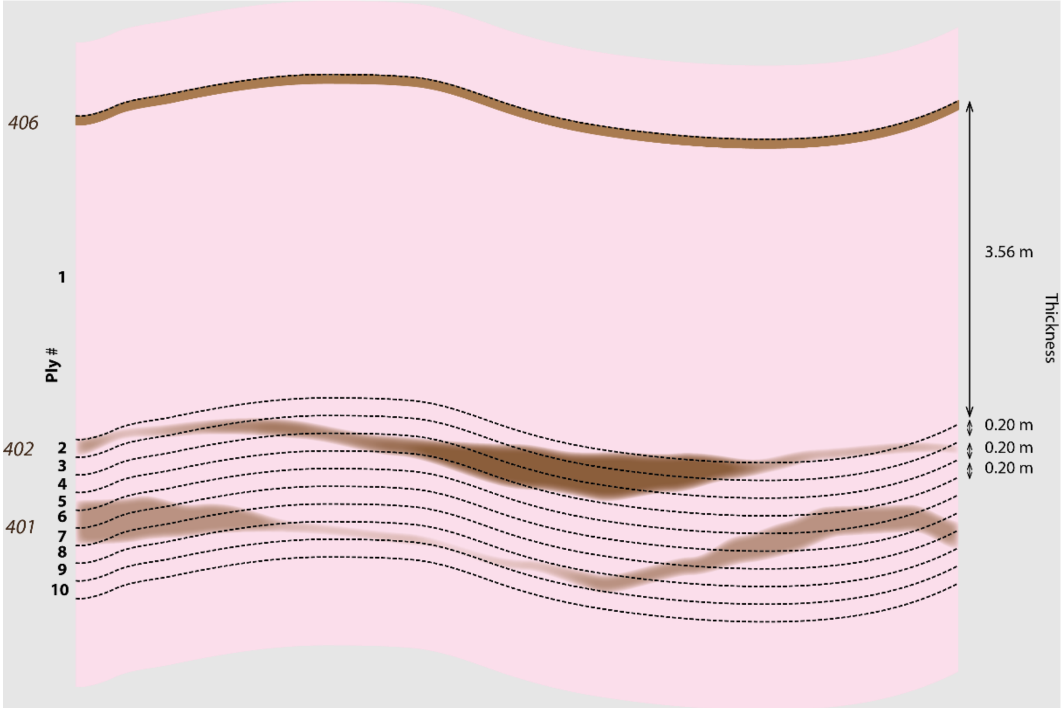


Figure 11-1: Schematics of the block model set up for resource modelling. The model is referenced from the 406 seam, approximate location of the 402 and 401 seams are also shown for reference.

Drill hole data preparation for resource modelling starts with identification and recording of clay seam locations, followed by the compositing of geochemical assays and physical property data from well logs over the defined model layers. For example, geochemical data at the wells from the top of the 406 seam down to 3.56 metres was composited by sample length weighted averaging and assigned to Ply#1. Intervals with missing data are automatically excluded from the process. Correlations between physical properties of the resource are established and noted for use during the resource estimation process.

Information from the inverted seismic volume is extracted for the LPL level. This information, together with the composited drill hole data, are used to generate the resource model. The modelling grid spatial dimension is set to 30 metres by 30 metres, which corresponds to the seismic survey bin size. This ensures that the full detail of the geological information, captured by the seismic survey, is used in the resource modelling process.

The estimation of qualities (K_2O, MgO, insoluble) and density was performed using the co-located co-kriging approach, where the hard data are the composited drill hole information, and the soft data are the seismic information. This methodology allows the integration of high-resolution seismic data and sparse drill hole data without the loss of spatial resolution, and an increase in the confidence in the estimate due to integration of all available data.

Parameters for the estimation that describe the spatial continuity of the deposit, variogram range, nugget and sill, were obtained from the physical property map of the inverted seismic data. The sensitivity of the Resource Model to the uncertainty in the estimation parameters was tested and considered in the resource classification. The large and sparse drill hole spacing does not allow the estimation of spatial continuity in a reliable manner. The modelled deposit qualities (K_2O, MgO, insoluble, and density) are estimated in a sequential manner to ensure the observed correlations among them are preserved. In carnallite domains, the grade and physical property values are assigned to cells due to the limited data availability from drill holes. In no-potash domains the grade is assigned and physical property values co-estimated.

The moisture content of the potash was considered extremely low and showed little variability and was estimated by averaging the analytical results.

Geological features that are important for geotechnical consideration and are not imageable by the seismic methodology, are modelled based on drill hole intersections using geostatistical techniques. The modelling parameters used were established based on the recommendation of internal experienced subject matter experts.

Outside of the 3D seismic area the qualities and tonnages of the resource are estimated based on limited information. In the Qualified Person's opinion the resource quality of the LPL is consistent over large areas, therefore it is reasonable to expect that the inferred resource quality and thickness is very similar to the measured resource. Hence, the reported qualities of the Measured Resource are assigned to the Inferred Resource. Geological features and anomalies identified on the 2D lines are used to exclude areas without mineralization and estimate the available tonnage based on the remainder area.

The Qualified Person considers that the resource estimation process is adequate to support the Jansen Mineral Resource estimates.

11.4 Validation

Validation of the estimates include:

- visual and diagrams-based validation of models to check ranges, outliers, unexpected model behaviour
- global statistical comparison of volume weighted average cell grades to both raw and de-clustered drill hole grades
- comparison to previous resource estimates
- comparison of resource model predictions to post exploration drilling (Disposal zone testing and monitoring, brine injection) results
- comparison to regional resource information available outside of the Jansen lease

The resource quality data tabulated from different sources (Table 11-1) demonstrate that the estimated resource qualities from the resource model are well aligned with the exploration data. Based on the conducted validations it is the opinion of the Qualified Person that the resource model is appropriate for resource estimation and well supported by the available exploration data.

Table 11-1: Comparison of drill hole, declustered (area weighted drill hole), and resource model K_2O values from Ply#1.

% K_2O	Min	Max	Mean	Median	Standard deviation	# of data points
Drill hole data	22.3	30.7	26.4	26.3	1.8	38
Area weighted drill hole data	22.3	30.7	26.2	26.1	1.7	38
Resource model	22.3	31.5	26.2	26.3	0.3	805,230
% Insoluble						
Drill hole data	5.1	10.3	7.2	6.8	1.6	23
Area weighted drill hole data	5.1	10.3	7.1	6.6	1.5	23
Resource model	5.1	10.3	7.8	7.8	0.1	805,230

11.5 Cut-Off Grades Estimates

The LPL deposit is vertically confined by sharp stratigraphically defined mineralization boundaries and has spatially consistent quality. The material is believed to be economical within the defined boundaries based on pricing developed within the market study section of this report (Section 16). Due to this there is no cut-off grade applied.

11.6 Reasonable Prospect for Economic Extraction (RPEE)

The Inferred Mineral Resource extends around the Measured Mineral Resources Figure 11-2.

Key assumptions that support the potential economic extraction of the Inferred Resources include (but are not limited to):

- The resource will be mined with the same methodology as the current Mineral Reserves;
- The Inferred Resource will be accessed by extending the current Mine Design;
- The qualities of the Inferred Resource are expected to be closely aligned with the qualities of the Measured Resources that have been converted to Probable Reserves. This is supported by the already described consistent nature of the deposit and available, albeit limited in the Inferred Resources area, exploration data; and
- The modifying factors and price assumptions of the current Mineral Reserves are applicable to the Inferred Resources

It is the opinion of the Qualified Person that the major barrier that might hinder the potential extraction of the Inferred Resources are the unmapped anomalous geological features that are present within the Inferred Resource or the features that would prevent access to the Inferred Resource from the current Mine Design. Further exploration work, primarily 3D seismic, will be required in the Inferred Mineral Resource area to upgrade it to Measured category, and potentially to Mineral Reserves.

11.7 Resource Classification and Criteria

The classification of Mineral Resources takes in account two main factors:

- exploration data coverage (2D seismic, 3D seismic, and drill hole data)

- estimation uncertainty

There is no industry wide classification available for Saskatchewan potash. The classification below has been developed by BHP Canada.

Measured

The resource estimate is classified as measured when it is based on a resource model that integrates 3D seismic and drill hole information and the estimated uncertainty of predicted tonnage and grade estimates are less than ±10 per cent over an approximate annual production area.

Indicated

The resource estimate is classified as indicated when it is based on a resource model that integrates 3D seismic and drill hole information and the estimated uncertainty of predicted tonnage and grade estimates are less than ±15 per cent over an approximate annual production area.

Inferred

The resource is classified as Inferred where the presence of the intact Prairie Evaporite Formation is confirmed by 2D seismic data with line spacing no wider than 4,000 metres and a sufficient number of drill hole intersections are available to infer the presence of the LPL sub-member.

The areal extent of the classified Mineral Resources is shown in Figure 11-2.

Zones within the tenure boundary that have not been classified represent areas where no mineralization is present due to the presence of carnallite or no-potash anomalies, areas of hazardous geological features, stand-off around tenure boundaries, or where BHP Canada does not have tenure rights.

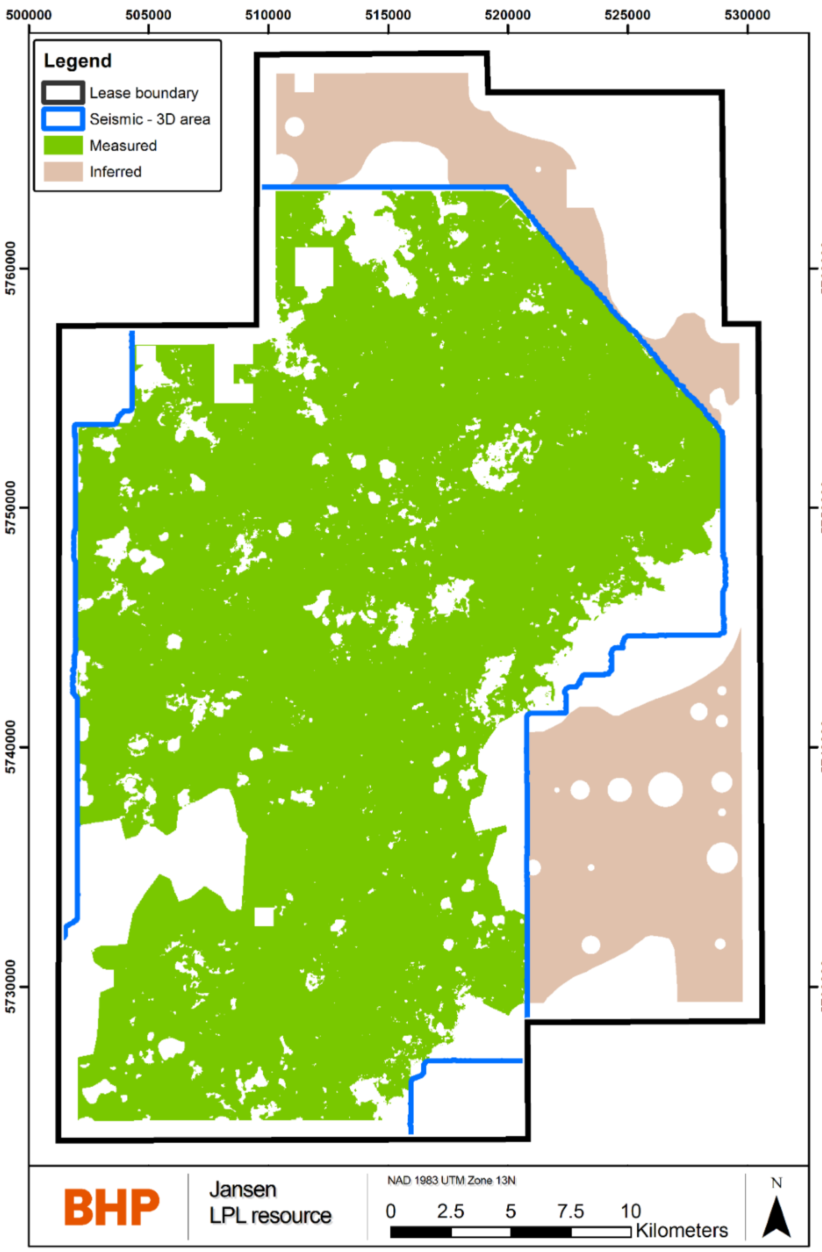


Figure 11-2: Plan of the Jansen LPL classified Mineral Resource. Note that only Measured Resource has been converted to Mineral Reserves. White areas are not part of the resource.

11.8 Uncertainty

Jansen Measured Resource

Uncertainty of the measured resource was assessed using statistical techniques. Models of the measured resource estimate with different probabilities were generated to quantify the uncertainty in resource qualities and geological features relevant for geotechnical considerations. These resource estimates were used to generate uncertainty estimates for the Mineral Reserves. Five measured resource models were generated:

- Minimum case – 99 per cent chance that the actual will equal or exceed the estimate
- Low case – 90 per cent chance that the actual will equal or exceed the estimate

- Mid case – 50 per cent chance that the actual will equal or exceed the estimate. Reported resource qualities are based on this estimate
- High case – 10 per cent chance that the actual will equal or exceed the estimate
- Maximum case – 1 per cent chance that the actual will equal or exceed the estimate

The sources of uncertainty for the measured resource qualities are:

- Finite number of physical samples obtained with drilling
- Relatively small size of the physical samples compared to the nature of the mineralization

The sources of uncertainty of geological features relevant for geotechnical considerations are:

- Finite number of core samples obtained with drilling
- Relatively large distance between drill holes compared to the features size

The outline of geological features identified on the 3D seismic image has uncertainties that are related to the spatial resolution of the seismic data. Uncertainties in these boundaries are not material to the measured resource as they have minimal impact on the reported tonnage. The impact of their uncertainty on mine design is considered in the Mineral Reserves.

Jansen Inferred resource

The area classified as inferred resource has limited exploration drilling data and only sparsely spaced 2D seismic lines. The inferred resource tonnage has a high degree of uncertainty as the extent and number of anomalous and hazardous geological features are unknown. The Qualified Person’s opinion is that this uncertainty is adequately reflected in the inferred classification of the area.

11.9 Mineral Resource Statement

Table 11-2 contains the statement of Mineral Resources for Jansen as at 30 June 2022. A detailed breakdown of the Mineral Resources by individual deposit, classification and material type is presented on an Exclusive basis (i.e. exclusive of those Mineral Resources that have been converted to Mineral Reserves).

Table 11-2: Jansen - Summary of Potash (Exclusive) Mineral Resources (as at 30th June 2022)

		Measured Resources				Indicated Resources				Measured + Indicated Resources				Inferred Resources				
		Tonnage	Qualities			Tonnage	Qualities			Tonnage	Qualities			Tonnage	Qualities			
Potash (1)(2)	Mining Method	Mt	$\%K_2O$	%Insol.	%MgO	Mt	$\%K_2O$	%Insol.	%MgO	Mt	$\%K_2O$	%Insol.	%MgO	Mt	$\%K_2O$	%Insol.	%MgO	BHP Interest %
Canada Jansen (3)(4)(5)(6)(7)(8)(9)(10)(11)																		
LPL	UG	–	–	–	–	–	–	–	–	–	–	–	–	1,280	25.6	7.7	0.08	100
Total potash		–	–	–	–	–	–	–	–	–	–	–	–	1,280	25.6	7.7	0.08	

(1) Mineral resources are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals.
(2) Mineral resources are presented exclusive of mineral reserves.
(3) Jansen, in which BHP has a 100% interest, is considered a material property for the purposes of item 1304 of S-K 1300.
(4) The point of reference for the mineral resources was in situ.
(5) Mineral resources estimate was based on a potash price of US$338/t.
(6) Mineral resources are stated for the Lower Patient Lake (LPL) potash unit and using a seam thickness of 3.96 m from the top of 406 clay seam.
(7) Mineral resources are based on the expected metallurgical recovery of 92%.
(8) Potash or sylvite (KCl) content of the deposit is reported in potassium oxide form (K_2O). The conversion from KCl to K_2O uses a mineralogical conversion factor of 1.583, for example, 25.6% K_2O grade is equivalent to 40.5% KCl.
(9) % MgO is used as a measure of carnallite ($KCl.MgCl_2.6H_2O$) content where per cent carnallite equivalent = % MgO x 6.8918
(10) Mineral resources tonnages are reported on an in-situ moisture content basis and was estimated to be 0.3%.
(11) The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and the historic average prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

11.10 Discussion of Relative Accuracy/Confidence

Estimates of Inferred Mineral Resources have significant geological uncertainty and it should not be assumed that all or any part of an Inferred Mineral Resource will be converted to Measured or Indicated categories with further work. Mineral Resources that are not Mineral Reserves do not meet the threshold for reserve modifying factors, such as estimated economic viability, that would allow for conversion to mineral reserves.

In the Qualified Person’s opinion, the relative accuracy and therefore confidence of the resource estimates is deemed appropriate for their intended purpose of global resource reporting and medium to long-term mine planning studies. The factors influencing the accuracy and confidence as stated in Section 11.7 are taken into consideration during classification of the model and are therefore addressed by the Qualified Person in the attributed resource classification.

12 Mineral Reserve Estimates

The Jansen Mineral Reserves are summarized from the approved Life of Asset (LoA) plan for Jansen Stage 1 completed in Fiscal Year 2021 (FY2021) in accordance with the BHP requirements for Major Capital Projects. The Jansen potash project mineral resource model and mineral resource estimate have been used for the mine planning and conversion to the Mineral Reserves as at 30 June 2022. The LoA plan incorporates:

- Scheduling material movements from designed final mining excavation plans with a set of internal development sequences, based on the results of the resource evaluation process;
- Planned production from scheduled deliveries to processing facilities, considering metallurgical recoveries, and planned processing rates and activities;
- Capital and operating cost estimates for achieving the planned production;
- Assumptions for major commodity prices and other key consumable usage estimates;
- Revenues and cash flow estimates;
- Financial analysis including tax considerations.

Mineral reserves have been evaluated considering the modifying factors for conversion of measured and indicated resource classes into proven and probable reserves. The details of the relevant modifying factors included in the estimation of mineral reserves are discussed in the following section.

12.1 Key Assumptions, Parameters and Methods Used

The deposit is relatively two-dimensional (laterally extensive and relatively thin) and is “soft rock” thus amenable to mining using track-mounted boring machines, roof-mounted or floor-mounted conveying systems, and ancillary rubber-tired mining and transport equipment. The primary method of extraction is continuous mining using long room and pillar method within the Lower Patience Lake (LPL) sub-member.

The mine is designed to reduce the risk of water inflow from over lying aquifers and to provide room stability for safe working conditions and managed through varying the extraction ratio relative to the life of the entry. Production panel mining extraction ratio ranges between 41 per cent and 44 per cent and long term travelways are planned to have a reduced extraction ratio of approximately 10 per cent for stress shielding. Further reduction in extraction ratio occurs with the placement of panels relative to one another to reduce the influence of stress. This is achieved through establishing pillars between active and future zones of mining, which is shown in Figure 12-1. Pillar sizes are shown in Table 12-1.

The geotechnical parameters have been supported and developed by external consultants and the Jansen geotechnical Qualified Person. The parameters were developed after empirical and numerical modelling analysis, including benchmarking studies of the deposit assessing; the geological conditions, depth, extraction ratio, extraction rates, and expected useful life of the entries. The pillar widths are based upon the study outcomes and recommendations, and guide the mine design, with depth and overburden type forming the calculation basis of the in-situ stress for the Prairie Evaporite. Pillars within the mining horizon are used to enable safe mining of entries, maintain entry stability throughout their required life, and maintain the integrity of the overlying strata.

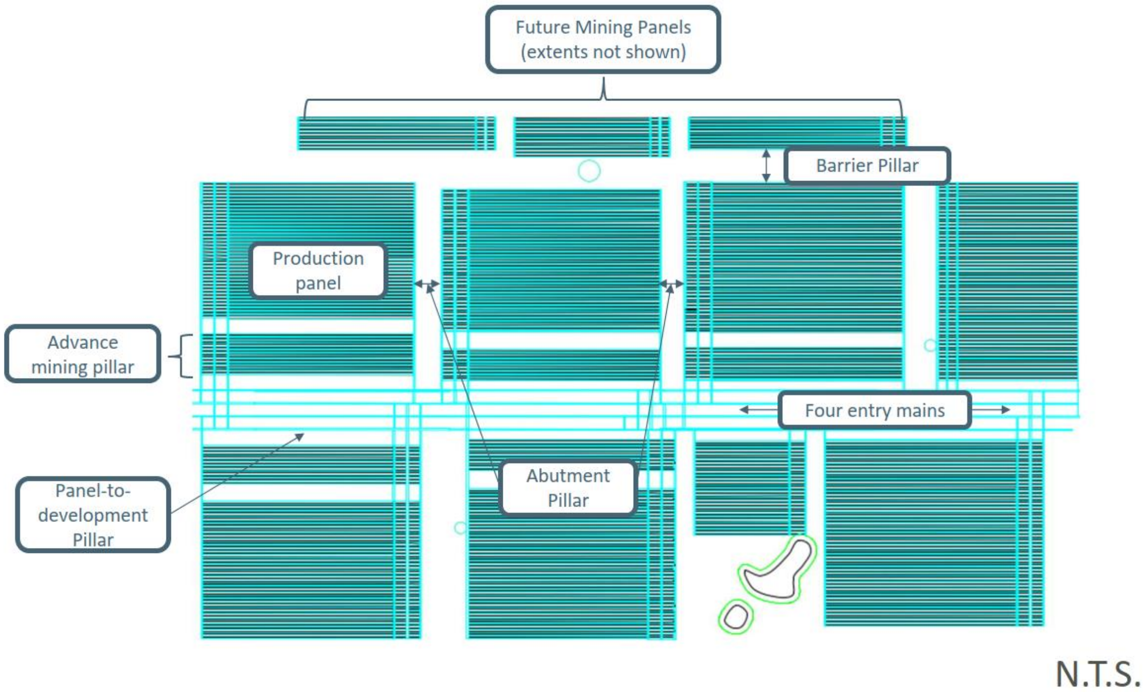


Figure 12-1: Naming convention and typical arrangement of pillars

Table 12-1: Mine Design Modifying Factors

Modifying factor	Pillar Distance (m)	Note
Shaft (pillar diameter)	4,000	Production mining exclusion zone
Mainline development	100	
Block development	60	
Advance mining	500	Function of distance to end of mining block
Panel to development	150	
Abutment	150	
Barrier	300	
Town limit	500	Standoff from demarked town limit
Collapse Anomaly– (Severity Class 1, 2, 3)	300, 300, 50	Refer to Section 6.4 and Figure 7-22,
Drill Holes – Historic, BHP (pillar diameter)	180, 100	Historical refers to all holes pre 2008
Brine disposal well (pillar diameter)	200	

Mechanically-anchored rock bolts are the planned ground support method for the mine. The support design is based on overlying salt beam thickness and/or a change in material characteristics. The salt beam thickness is the distance from roof to the next overlying clay seam or plane of weakness. When the overlying strata is thinner than the practical limit of rock bolt ground support, the strata will be excavated and become part of the processing stream as dilution. The design of the mine excavations is not driven by roof beam thickness prediction models. Roof beam thickness thresholds are listed in Table 12-2. The Mineral Reserve estimate is considered to be fully diluted for reporting purposes and a reference point of Run of Mine ore delivered to the Mill for processing.

Table 12-2: Roof beam thickness thresholds

Entry Type	Cut	Bolt	Planned Overcut
Production	0 to 30 cm	30 to 50 cm	10 cm
Development	0 to 50 cm	>50 cm	10 cm

The mine design shapes are outlined in two dimensions with their position optimised on a lease wide scale to maximise the conversion of mineral resources, production tonnes to the development required, and capital efficiency of the bulk materials handling system. The mine design shapes are populated with the ply information from the resource model characteristics and the respective roof dilution guided by the aforementioned roof beam thickness thresholds and loaded into the mine planning model. The thickness of the planned overcut from the target roof strata is expected to be 10 centimetres.

Major geological features such as collapse anomalies, carnallite, and large leach areas indicate the areas where mine excavations are to be avoided. Some smaller scale anomalies are included within the mine design and therefore in plant feed. This dilution is unavoidable since no waste handling system exists. The combined dilution tonnage of planned carnallite zones and no-potash anomalies is less than 10 million tonnes.

The excavation sequence (Figure 13-5) is determined within the mine planning model. The mine layout is divided into four districts, with active mining planned in two districts at any given time. Mining will begin in the East and North Districts. The mine schedule does not plan for losses through abandonment of mining rooms. The tonnage and volume based consumables from the mine planning model are used in the calculation of the mine operating expenses, and serve as the trigger for maintenance based outages such as equipment rebuild cycles.

The mine planning model is limited in the breath of scope, and as a result simplifies the operation of the hoist and processing plant, and excludes all activities further downstream of the processing plant. The Production Volume Estimate (PVE) is a simulation model of the entire Jansen Value Chain; mine face through to ship loading, and considers variability and correlation within and between activities. The Expected production rates are a result of the PVE model and represent the most likely production rate of the entire Jansen Value Chain. The mine planning model is explicitly linked to the resource model and generates a deterministic ore grade profile which is used in the Economic Evaluation. The PVE model is not linked to the resource model and therefore cannot produce a corresponding grade profile to the Expected production.

Inferred Resources and Indicated Resources are not used in the estimation of the Mineral Reserve.

As described in Section 16, the through-cycle price average is estimated using Nutrien Ltd. (nee Potash Corporation of Saskatchewan Inc.) quarterly published offshore and onshore realised prices during 2008-2020. A longer duration is considered to establish the through cycle average price, with the upswing average from 2008 to 2013 and the downside average from 2014 to 2020. An average price calculation method was used to preserve the upswing and downswing pricing in the pricing cycle. After accounting for product type and geographical sales mix to a Jansen operation equivalent, the average price is US$313/t FOB mine (Saskatoon, Real July 2020 basis). The price is converted and represented in current dollars at US$338/t FOB mine (Saskatoon, Real June 2022 basis) for the economic analysis. Price assumptions are discussed further in Section 16.

In this Qualified Person's opinion, it is appropriate to the commodity to use a through-cycle average price trend to estimate a reasonable reflection of the long-term potash market fundamentals. The drivers of the Potash market are more foundational and largely attributed to population, diet, and soil fertility. Short term pricing swings are largely attributed to weather, government policy, and local farm economics.

The operating cost estimate for Jansen, outlined in Section 18.2, is developed to a pre-feasibility level of accuracy. The estimate includes all costs spanning from the mining face underground to the loading of product to rail at the site. The majority of the direct capital cost estimate is based on engineering designs, and the majority of the direct bulks and equipment supply pricing are based on budget pricing from the market. Operating expenses estimates, sustaining capital, and project capital cost estimates are detailed in Section 19.

12.2 Cut-Off Grades Estimates

The orebody gently undulates over large distances, has well defined boundary conditions, and has a reasonably consistent ore grade over the Jansen lease with mining occurring on a single level. The cut-off grade has been estimated at 11.6 %K_2O and considers mining 1,070 Mt over the life of the mine using the cost data shown in Table 12-3 and mid case values shown in Table 12-6. The cut-off grade is a calculated value within the economic analysis model. The economic model intakes the production profile shown in **Figure 13-4**, and sequentially reduces the run of mine ore grade over the life of mine, until the calculated Net Present Value equals zero.

The Minimum range case, shown in Table 12-6, has aggressive overcut conditions with a complete removal of all Shadow band types when present, 20 centimetre overcut in all instances, and a fixed 4 metre production room cut height which cuts low grade material. Achieving a run of mine grade that approaches the calculated cut-off grade is believed to be unlikely and holds the assumption that no mitigating actions to improve grade are taken or successful over the life of mine.

The economic viability of the Mineral Reserve has been tested against a range of commodity prices, with detail available in Section 19. The basis for the price forecast is outlined in Section 16 of this report.

Table 12-3: Assumptions / Estimates for Cut-off Grade[1]

Assumption / Estimate	Units	Value	Comment
Potash price (%KCl)	US$/t	338	2022 Real basis. FOB Mine
Exchange rate CA$/US$		1.32	3 year historic average (Jul ’18 through Jul ’21)
Mill recovery	%	92	
Mining cost	CA$/t	24	
Processing cost	CA$/t	32	
Administration and overheads cost	CA$/t	24	
Total cost	CA$/t	80	
Discount Rate	%	6.5	
Cut-off grade	% K_2O	11.6	

Table 12-4: List of Cut-offs Currently in Use[1]

Area / Deposit	Ore Type	Mineral Reserve Cut-off grade	Comments
Jansen	Potash	11.6 % K_2O	

Ranging occurred throughout the Jansen Project development, with the latest exercise independently facilitated with a broadened external industry engagement, constraining the timeframe considered to remove the effects of mitigations, and aligned to BHP’s Ranging Guidelines. The Key Value Drivers (KVDs) of the project are found in

Table 12-5. A mine schedule was developed for the Minimum, Low, High, and Maximum range scenarios, which determined the tonnes and grade per period, and the total minable tonnes. A summary of ranged dilution values and resource grade are shown in Table 12-6.

Table 12-5: Jansen Project Key Value Drivers

Area	Key Value Driver	
Mine	Borer Cutting Rate (tph) Borer Failure Rate (%) Extendable Belt System (EBS) Failure Rate (%) Conveyor Failure Rate (%) Shift Change (hrs/day)	Relocation Duration (hrs/event) Turnaround Relocation (hrs/event) Bit Change Duration (hrs/event) EBS Extension Duration (hrs/event)
Hoist	Scheduled Downtime (hrs) Unscheduled Downtime (hrs)	Skip Cycle Time (seconds / cycle)
Processing	Dilution (%K_2O loss) Scheduled Downtime (hrs) Unscheduled downtime (hrs) Ore feed rate (tph)	Crystallizer recovery (%) Dissolution losses (%) Fines flotation recovery rate (%) Coarse rougher flotation recovery rate (%)
Rail	Overseas – Transit cycle time (hrs)	Overseas – Non-transit cycle time (hrs)
OPEX	Mine Production (# FTE) Mine Maintenance (# FTE) Surface Maintenance (# FTE) Mine Production ($/FTE) Mine Maintenance ($/FTE) Surface Maintenance ($/FTE)	Operations Support ($/FTE) Indirect labour ($) Mine Sustaining Capital ($) Process Sustaining Capital ($) Export Rail Freight & Fuel ($)

1 - The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and the historic average prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

Table 12-6: Range cases - Grade summary

KVD	Min (P99)	Low (P90)	Expected	Mid (basis for Mineral Reserves)	High (P10)	Max (P1)
Shadow band	100% cut	50% cut	N/A	Dev. cut 0-50cm; Prod. cut 0-30cm	Cut 0-20cm	Bolt all
Global overcut (cm)	15	15	N/A	10	5	0
Extraction Ratio (%)	30	37	N/A	44	50	70
Inter Panel pillar (metres)	300	150	N/A	100	100	50
Inter block pillar (metres)	300	300	N/A	300	100	50
Panel room length (metres)	400	800	N/A	1,800	2,500	6,000
Resultant Dilution (%K_2O)	4.0	3.6	1.8	1.2	0.9	0.7
Resource grade (%K_2O)	25.3	25.7	26.2	26.1	26.7	27.0
Resultant RoM (%K_2O)	21.3	22.1	24.8	24.9	25.8	26.3

12.3 Reserves Classification and Criteria

The Probable Mineral Reserves are comprised of Measured Mineral Resources because the targeted mineralised zone has not been exposed to any significant degree to validate the modifying factors. At the time of writing, the LPL has been exposed in the wall of each shaft and no LPL lateral development has been completed to date. Given the minimal amount the orebody has been physically revealed, the pillar sizes, pillar recovery, and the overlying roof beam thickness which correlate to the total recoverable tonnes and mining dilution are uncertain

12.4 Mineral Reserve Statement

Table 12-7: Jansen - Summary of Potash Mineral Reserves (as at 30th June 2022)

		Proven Reserves				Probable Reserves				Total Reserves				
		Tonnage	Qualities			Tonnage	Qualities			Tonnage	Qualities			
Potash [1][2]	Mining Method	Mt	%K_2O	%Insol	%MgO	Mt	%K_2O	%Insol	%MgO	Mt	%K_2O	%Insol	%MgO	BHP Interest %
Canada Jansen [3][4][5][6][7][8][9][10]														
LPL	UG	–	–	–	–	1,070	24.9	7.5	0.10	1,070	24.9	7.5	0.10	100
Total potash		–	–	–	–	1,070	24.9	7.5	0.10	1,070	24.9	7.5	0.10	

(1) Mineral reserves are being first time reported in accordance with S-K 1300 and are presented for the portion attributable to BHP's economic interest. All tonnes and quality information have been rounded, small differences may be present in the totals
(2) Jansen, in which BHP has a 100% interest, is considered a material property for the purposes of item 1304 of S-K 1300.
(3) The point of reference for the mineral reserves was ore as delivered to the mill for processing.
(4) Mineral reserves estimates were based on a potash price of US$338/t.
(5) Mineral reserves estimates cut-off is a function of mining parameters and seam thickness. The calculated cut-off grade from economic modelling where the mine plan would be break-even is 11.6% K_2O.
(6) Mineral reserves are based on the expected metallurgical recovery of 92%.
(7) Potash or sylvite (KCl) content of the deposit is reported in potassium oxide form (K_2O). The conversion from KCl to K_2O uses a mineralogical conversion factor of 1.583, for example, 25.6% K_2O grade is equivalent to 40.5% KCl.
(8) % MgO is used as a measure of carnallite ($KCl.MgCl_2.6H_2O$) content where per cent carnallite equivalent = % MgO x 6.8918.
(9) Mineral reserves tonnages are reported on an in-situ moisture content basis and was estimated to be 0.3%.
(10) The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and the historic average prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

12.5 Discussion of Relative Accuracy/Confidence

In the opinion of the QP, areas of uncertainty that may materially affect the Mineral Reserve estimate include (but are not limited to):

- The Jansen mine is not yet producing and has no operational performance data;
- Price and other economic assumptions;
- Ability to continue sourcing water from the Saskatoon South East Water Supply
- Ability to maintain environmental and social license to operate
- Integrity of the shaft liner beyond the design life of 70 to 80 years.
- Changes in assumptions related to the mine design evaluation including geotechnical, mining capability, processing capabilities, and metallurgical recoveries.

The Jansen mine is not yet producing and therefore actual results are uncertain and have not yet been reconciled against the planned performance. A Production Volume Estimate (PVE) model was developed and applied across the entirety of the value chain in an effort to understand the impact of uncertainty. The PVE model is a mine-face-to-market model of the integrated chain for Jansen. Monte Carlo simulations were performed to quantify the uncertainty of value chain inputs on the integrated capacity.

There remains uncertainty with respect to the validation of the production panel pillar sizing. Production panel mining represent approximately 90 per cent of the Mineral Reserve, with development entries comprising the remaining approximate 10 per cent. The pillar sizes have been selected to mimic stress conditions that are successfully managed in the Saskatchewan basin. The geotechnical instrumentation installation, data collection program, and numerical modelling validation plan exists and is planned to begin with lateral development start.

Managing mining face dilution via the roof beam thickness thresholds will evolve with time and ground performance data collection and analysis. Sensitivity ranging has been performed.

The mining recovery is currently planned to be 100 per cent, and includes the mining of advance mining pillars. Upon retreat from a mining block, the larger advance pillars will be mined and subject to the abutment pillar sizing. Advance pillar mining represents 100 Mt of the mineral reserve and mining of this type occurs steadily over the mine life. There is a level of uncertainty regarding the mining of the rooms within the advance mining pillars. The pillars have been designed such that the stress conditions are favourable for excavation. The recovery of the advance mining pillars does not have a material impact to the economic viability of the mineral reserve.

The shaft liners have a design life of 70 to 80 years. Planning for and adherence to shaft maintenance is a critical component to extend the life of the shaft liners. Shaft liner monitoring instrumentation exists, and can provide an idea of when additional maintenance may be required. The shaft has been identified as a critical asset.

In the Qualified Person's opinion, the relative accuracy and therefore confidence of the reserve estimates is deemed appropriate for their intended purpose of global Mineral Reserves reporting and short to long-term production planning. The application of modifying factors affecting the accuracy and confidence as stated in Chapter 11 are taken into consideration during classification of the model and are therefore addressed in the Probable Mineral Reserve classification.

13 Mining Methods

13.1 Selected Mining Method

At Jansen, the LPL ore zone was selected as the target mining zone. The LPL ore zone offers several advantages over the Upper Patience Lake and Belle Plain members. Refer to Figure 6-4. Based on the available information over the Jansen lease, the LPL has a more consistent and greater thickness, a thicker overlying salt beam for long-term stability of the overlying strata and mine workings, and a higher and more consistent grade than the UPL ore zone.

The planned mining method is long room and pillar utilizing continuous mining equipment for excavation. Refer to Figure 13-1. The mining method was selected as the deposit is stratified, generally flat lying, and suitable for mechanical cutting as the means for excavation. The thickness and the grade intervals of the LPL zone in the Jansen lease area do not vary significantly.

The mine is divided into four districts, which contain mining blocks comprised of development entries and production panels. Excavated ore is transported via conveyor network to the shaft for hoisting and subsequent processing. Development mining takes place within the LPL zone. Production room mining is completed in a two pass routine, where pass 1 is excavated from the panel travelway to the turn-around entry while a temporary conveyor system is installed as the mining face advances. Pass 2 follows the excavation wall from pass 1, and reclaims the conveyor as the mining face advances back towards the travelway. This process is repeated until all rooms have been mined in a panel.

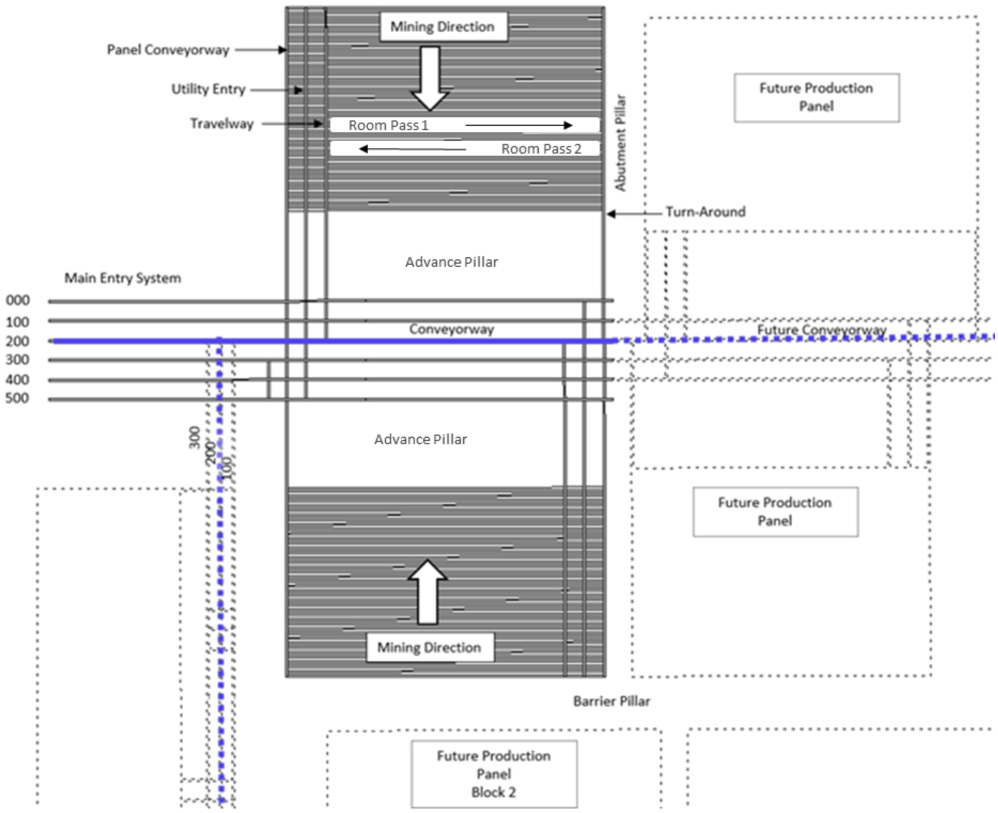


Figure 13-1: General arrangement of development access and production panels

13.2 Additional Parameters Relevant to Mine Designs and Plans

As discussed above, the Dawson Bay aquifer is in close proximity to the mining horizon (Figure 7-8). The mine is designed to avoid the occurrence of mine inflow by designing the extraction ratio such that the integrity of the overlying strata remains intact. The Dawson Bay formation in the Jansen area is expected to have low permeability or relatively low inflow deliverability potential, but may pose potential risk of water inflow if hydraulically connected to vertically adjacent aquifers. In an effort to reduce the risk of a mine threatening inflow, the Dawson Bay formation is treated as though it has a high permeability. The Hydrogeological models developed contribute to the risk analysis of water inflow to the mine and mine dewatering design (refer to Section 15.8.4 below).

13.2.1 Geotechnical Models

Geotechnical models have been developed to assess the long-term and short-term effects from mining over the life of the entries. Considerations were given to ground stability, management of mine induced inflow and surface subsidence.

Maintaining the integrity of the Second Red Beds, is one consideration for the assessment of long-term stability. Conducting geotechnical model assessments on the Second Red Beds planned mine designs has provided confidence that mining induced damage will likely not occur to the Second Red Beds or Dawson Bay limestones. These model assessments confirm assumptions that with expected local geology, fractures between the mining rooms within the Prairie Evaporite are not created connecting the mining rooms with the overlying aquifers within the Souris River, Duperow and Mannville. Maintaining the integrity of the overlying shale, limestone and halite units act as a protective barrier from risk of brine inflow. An additional control to manage the brine inflow risk, is pillar size which is controlled to reduce impact from subsidence. Zones that have the potential to contain brine, such as water bearing Dawson Bay, are marked as exclusion zones and can be avoided to further reduce the risk of potential brine inflow. Modelling of pillar design is critical to ensure mining induced fracturing of the overlying strata does not occur.

Determining the integrity of the Second Red Beds involves looking at the strength of the member versus the mining induced stresses with time. The factor of safety while mining within the LPL mining horizon, is expected to exceed 2.5. The factor of safety while mining in UPL entries is expected to exceed 1.4 with the difference in factor of safety primarily attributed to proximity of the Second Red Beds from the mined horizon.

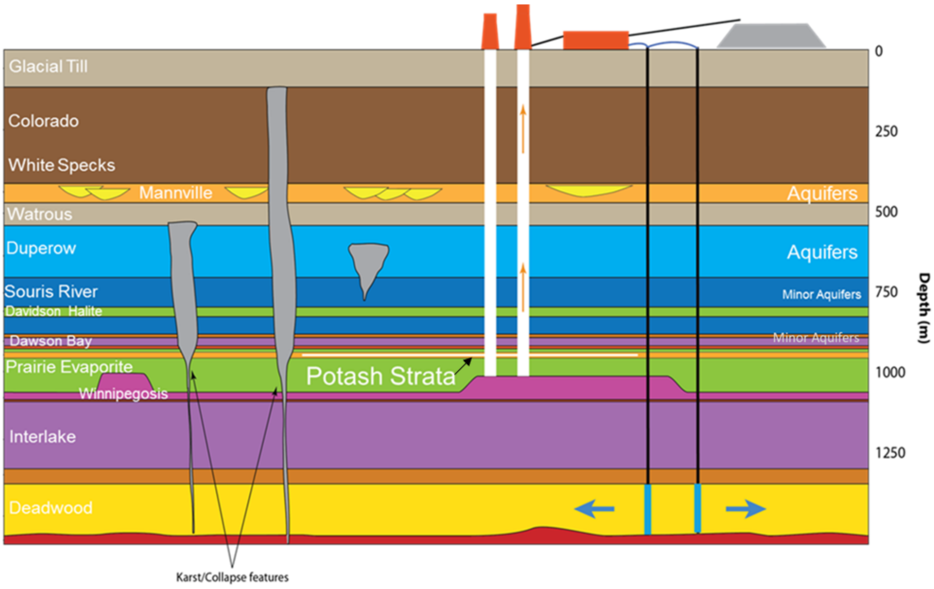


Figure 13-2: Schematic of Local Geology, Aquifer locations in relation to Potash Strata

The stability of the mined entries is controlled through room and pillar size and extraction ratio in conjunction with geological and operational considerations. Table 12-1 shows the parameters used to develop the life of mine design, whereas Table 12-2 shows the decisions in response to geological and operational outcomes. The LPL ore zone within the mine design foot print dips relative to surface 130 metres from the northeast down to the southwest (Figure 7-5). Due to increase in overburden weight, the magnitude of stress is expected to also increase in the south-west. The response from the increase in in-situ stress is to change the pillar size within panels resulting in reduced extraction, this is shown in Figure 13-3. An exception is shown for early mine life panels, where pillar size is planned for 17 metres, to enable early ground calibration in a more conservative design.

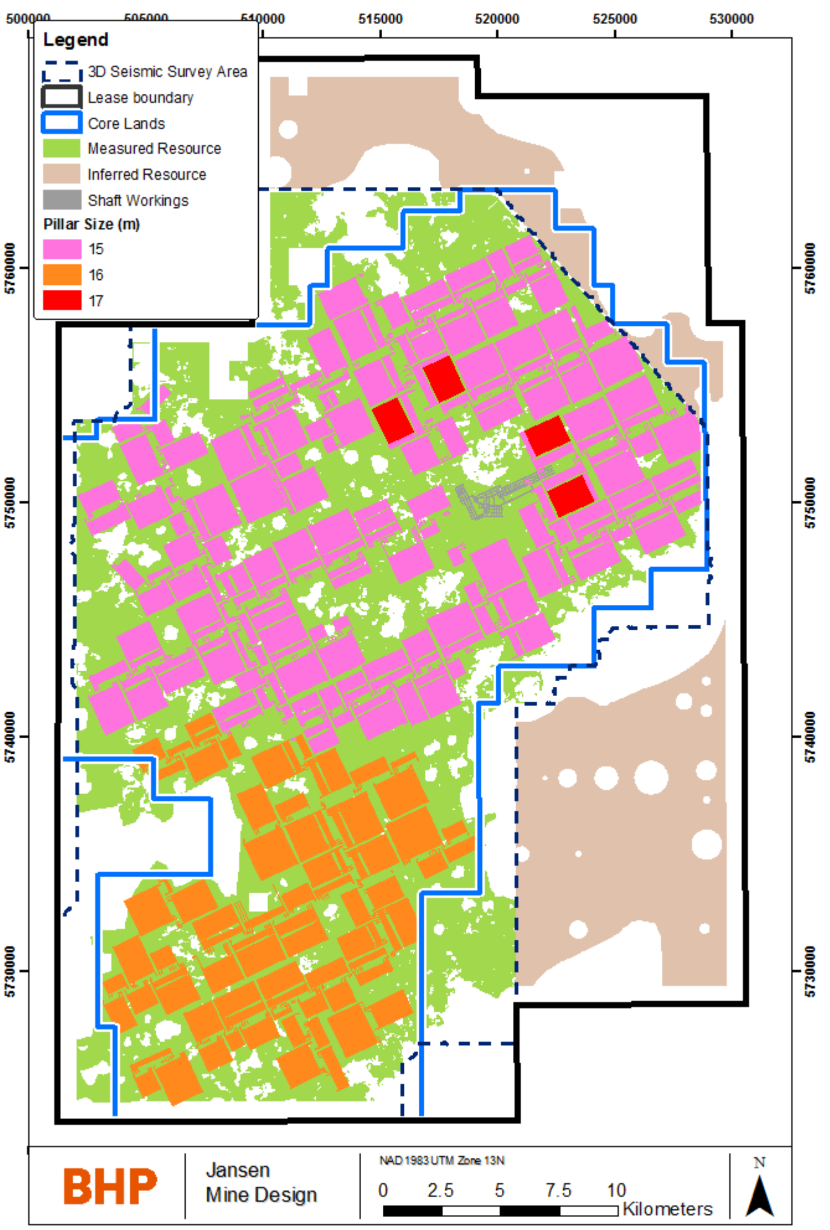


Figure 13-3: Change in panel extraction with increasing depth

The geotechnical model consists of analysis completed for all expected designs for the Jansen mine. Jansen specific mine designs that have been evaluated include shaft pillar life of mine entries in the UPL and LPL mining horizons at varying dimensions, raw ore bin, surge bin and ramps. Modelling external to the shaft pillar, was conducted on a variety of production panel and development entry layouts, including various room and pillar sizing.

In the Qualified Person's opinion, the Jansen mine design is geotechnically feasible. The design is supported through documented similarities with the neighbouring Nutrien Lanigan mine, located approximately 40 kilometres west of the Jansen mine site, which has been in operation since 1968. There are differences between those mines –e.g., in height of room excavated and room and pillar sizes between the Lanigan mine design and Jansen mine design—however, both mines share similar area extraction ratios which is a common metric for assessing overall geotechnical conditions for entries. Furthermore, the Jansen design utilizes a narrower room width and with a planned reduced duration in room, exposure to geotechnical risks will be reduced.

There is uncertainty with the geotechnical model, particularly with pillar response, regionally for the Jansen mine as test work in the ore zone was primarily completed for one drill hole. The viscoelastic plastic response was tested on Jansen drill core, including samples from the UPL to BP. Analysis of representative intervals from the drill hole were tested in relation to proposed mine plan design. Testing from nearby exploration drill holes provide additional confidence in Jansen modelling parameters. To address the uncertainty, a ground monitoring plan for shaft pillar mine development has been developed to build upon the geotechnical database and calibrate against the existing geotechnical model prior to panel development.

13.2.2 Hydrogeological Models

The brines in the aquifers adjacent to mine levels are found to be saturated to a varying degree in potash mines. Undersaturated brines may pose substantial risk to potash mining. Even saturated brines may still have the ability to dissolve rock salts causing erosion of the rock and fluid movement resulting in potential mine inundation (i.e., groundwater inflow into a mine). Therefore, inflow is considered a material risk to the Jansen mine.

The Dawson Bay Formation is deemed to pose a potential risk of water inflows into a mine due to its water bearing potential and close proximity to the mining level ((Figure 7-2 and Figure 13-2). Porosity and formation water content in the formation are found to be variable across the Jansen mine area despite the stratigraphy being uniform and consistent. The drill hole geophysical logs and seismic data found no high porosity areas in the Dawson Bay carbonate that overlies and is closest to the planned mining zone. If the Dawson Bay formation is hydraulically connected to other adjacent aquifers through geological structures (such as collapse anomalies), this may pose an additional risk of increased water inflows (Figure 13-2). Collapse anomalies are the post-depositional geological structures, which are the products of complex geological, hydrogeological and hydrogeochemical processes. The processes include fracturing, fluid movements, rock dissolution, and rock failure. The structures are high risk features for mine excavation as they may connect aquifers and can act as a conduit to increase inflows into a mine in a short period of time. 3D seismic technology mapped the size and geometrical extent of these structures (Sections 6.4 and 7.1.4). The mitigation of potential hydraulic connection with the overlying aquifers is discussed in Section 13.2.1.

The hydrogeology of the Dawson Bay Formation was characterized by utilizing the available site-specific data and conceptualized to understand the site scale groundwater flow system. A groundwater model was developed using commercially available industry standard groundwater modelling software FEFLOW. The model was constructed based on the site scale hydrostratigraphical units and geological structures (such as collapse anomalies). Due to the variability of available site-specific hydraulic parameter values of the Dawson Bay formation, the model considered Min, Mid and Max inflow cases for Base Case inflow scenario (i.e., inflow from the Dawson Bay Formation only) and Special Case inflow scenario (when mine excavation intersects collapse anomalies). The model was built to inform potential inflow risk and provide critical information for decision making in support of mine design and mine dewatering.

In the Qualified Person's opinion, the level of technical details in the study of the Dawson Bay Formation and collapse anomalies is adequate for the assessment of their risks to potential mine inundation at the time of preparation of this report. The model needs to be updated to refine the current prediction of inflows when additional site specific data for the Dawson Bay Formation are available. The calibration and uncertainty analysis of the model will also be required as mine operation begins and advances.

13.3 Production Rates and Mine Life

The estimated annual tonnage and grade profile is shown in **Figure 13-4**, with values shown in Table 13-1. The production profile is aggregated from the mine schedule which is planned on a monthly basis for the first 10 years, and annually thereafter through to end of mine life. The active mining area progression by period map can be seen in Figure 13-5.

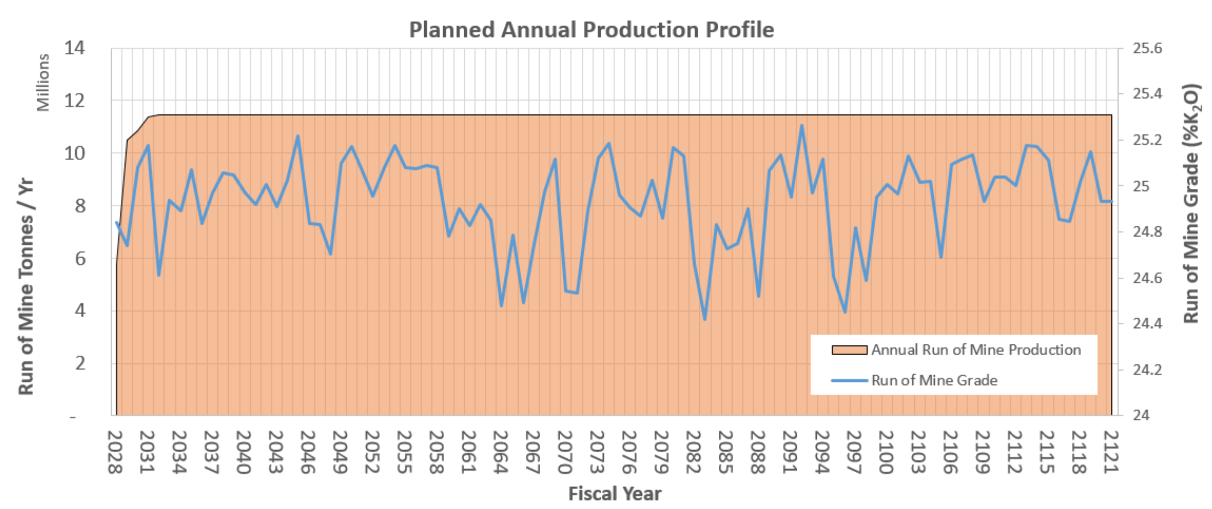


Figure 13-4: Jansen Estimated Production Profile[2]

Table 13-1: Estimated Run of Mine Production (by financial year 1 July – 30 June) (based on FY22 LoA)[2]

	Fiscal Year Ending (1 July - 30 June)									
	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Tonnes (million)	5.8	10.5	10.9	11.4	11.4	11.4	11.4	11.4	11.4	11.4
Grade (%K_2O)	24.8	24.7	25.1	25.2	24.6	24.9	24.9	25.1	24.8	25.0

	Fiscal Year Period (1 July – 30 June)								
	2038-2047	2048-2057	2058-2067	2068-2077	2078-2087	2088-2097	2098-2007	2108-2117	2118-2127
Tonnes (million)	114	114	114	114	114	114	114	114	46
Grade (%K_2O)	25.0	25.0	24.8	24.9	24.8	24.9	25.0	25.0	25.0

2 - The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and the historic average prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

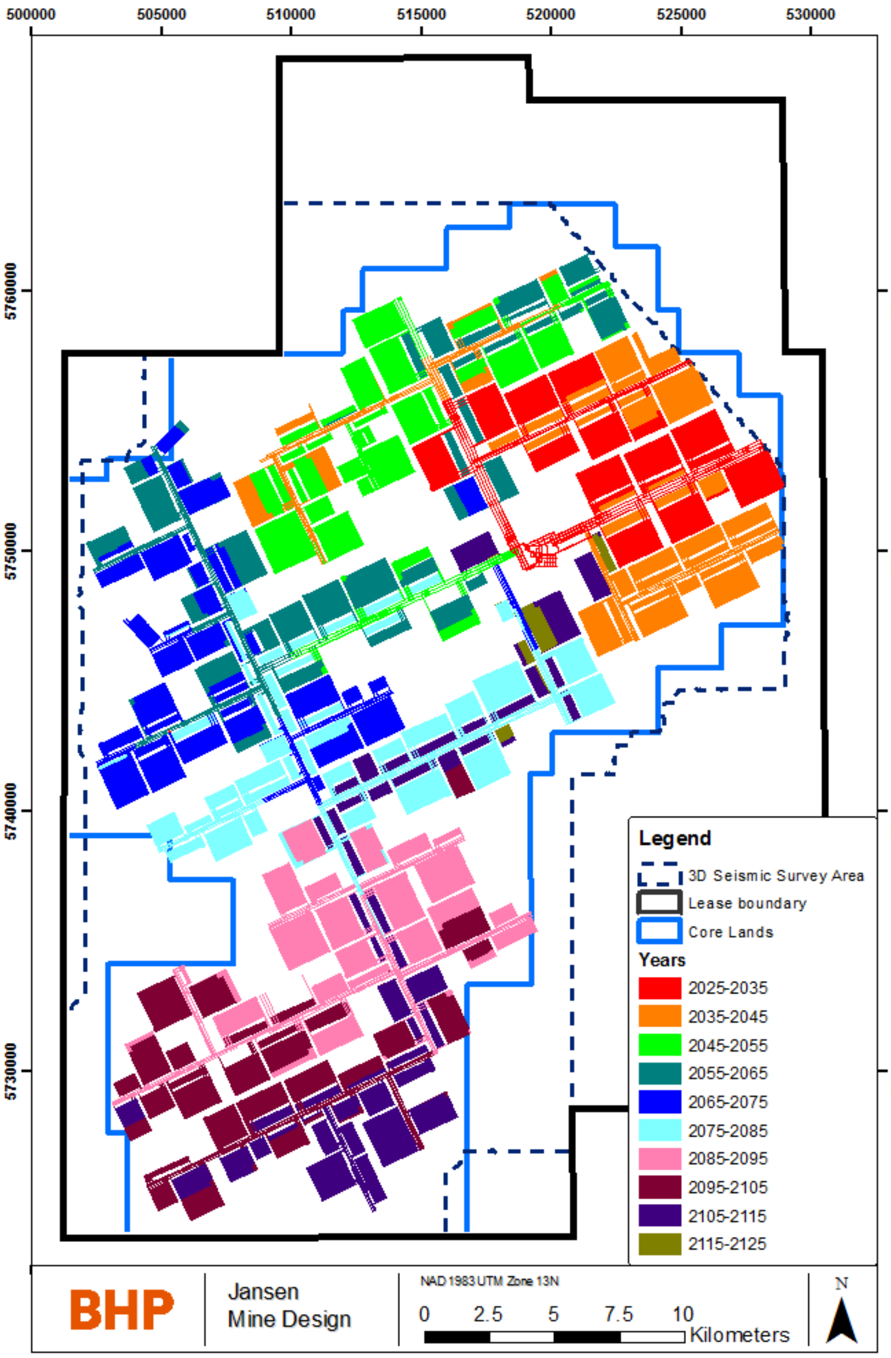


Figure 13-5: Active mining area progression

13.4 Mining Unit Dimensions, Mining Dilution and Recovery Factors

The production mining rooms are excavated in two passes, yielding a 12 metre wide opening of varying length. Production panel pillar widths vary with deposit depth between 17 metres and 15 metres. There is no minimum room design length, rather minimum pillar dimensions. In general terms the mine design strives for the longest panel room length, up to a maximum of 1,800 metres. The mine plan strives to assign mining rooms less than 1,000 metres in length to be excavated by a drum miner with batch haulage.

Development mining rooms are subject to the same minimum room sizes, although are excavated larger given the required useful life of the development entry is longer than a production mining room.

Mining height is variable between 3.7 metres and 4.4 metres. A histogram of planned room excavation heights can be found in Figure 13-6. Except for the shaft pillar area, all excavations are expected to occur in the LPL. Each mine design shape undergoes an evaluation of excavation heights to determine the highest ore grade. Determining the planned excavation height is an iteration which first considers the grade of the minimum mining height and the thickness of the overlying dilution material, then compares the grade against a mining height that includes an additional resource model ply. Resource block model ply thicknesses are illustrated in Figure 11-1.

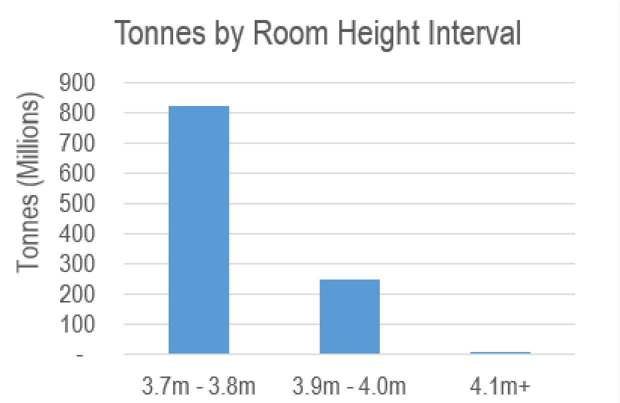


Figure 13-6: Histogram of mining room design heights

Mining dilution is captured in the mine plan through the planned overcut of the 406 clay seam and, where required, cutting the overlying halite unit to achieve stable roof conditions. The overlying roof dilution is primarily salt and has a fixed grade of 3 % K_2O applied. The primary driver for excavating roof dilution is the depth and type of the shadow band (SB). The SB has been interpreted and modelled as a continuous zone of clay bands with categories of alteration. The first category of shadow band are recognised as discrete mud parting planes with varying thickness. The remaining SB do not form a distinct defined parting plane. The SB that form discrete parting planes within the roof beam thickness thresholds discussed in Section 12.1, are planned for excavation. The regional geological deposition is discussed in Section 6.1.

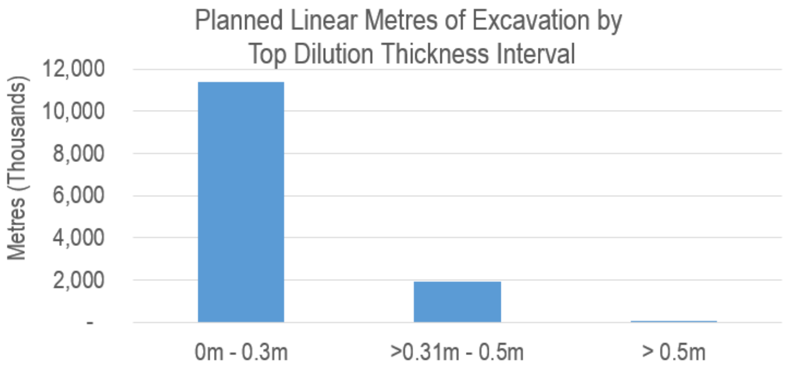


Figure 13-7: Histogram of planned linear metres to be excavated by top dilution thickness interval

It is the opinion of the Qualified Person that the mining dilution has been reasonably reflected in the mine plan, and therefore the economic evaluation, through the use of a planned global overcut of 10 centimetres on the targeted roof strata, and the use of roof beam thickness thresholds triggered by the capability of the ground support and a modelled shadow band interpretation. Of noteworthy comparison is the positive economic value shown in the Min range case, Table 12-6, despite an aggressive overcut of 20 centimetres in all instances, and complete removal of all shadow band types for the entirety of the mine life.

As no production has occurred to date, no reconciliation data is available. The mining recovery is estimated to be 100 per cent recoverable. Ore losses from transport between mining face and the ore processing plant have not been considered. The reported mineral reserve grade is considered fully diluted.

13.5 Overburden Stripping, Underground Development and Backfilling

The use of backfill at Jansen is not currently planned. Fine and course tailings will be placed in the tailings management area.

Refer to Figure 13-5 for the active mining area progression. Mine development entries will be excavated in the LPL ore zone.

Backfill in the sense of providing geotechnical support is not currently planned at Jansen. However, periodic storage of material will occur due to rehabilitation work that will take place over time. The destination of this material may either be stored in stable old entries or loaded onto the conveyance system to the mill.

13.6 Equipment and personnel

According to the mine plan, underground construction and mining activities of the Jansen mine will be supported by a fleet of mobile equipment (Table 13). The listed equipment is to be purchased and commissioned prior to the start of CY2028. The dimensions of the mine design reflects the use of this equipment. Asset management at Jansen is based on fit-for-purpose life-cycle cost analysis and maintenance planning is in alignment to the life of mine plan. The mine plan considers the frequency and duration of maintenance activities in the schedule.

The underground mobile equipment fleet is expected to include all equipment required for:

- Early shaft pillar development and mine construction
- Shaft and mine services, including conveyance system construction and upkeep
- Production panel support, including development of cross-cuts and stubs
- Mains development support
- Ground support and rehabilitation
- Emergency response
- Personnel transport

The Sandvik MF460 borer miner and PO140 EBS make up the selected mining system for continuous mining in both production rooms and development drives. The fleet will consist of five MF460 borer miners and four PO140 EBS units.

Table 13-13-2: Jansen life of mine mobile equipment list

Group	Equipment	Quantity
Ground Control	Roof Bolter	8
	Scaler	4
Continuous Drum Miner and Support Fleet	Battery Ore Haulers	8
	Drum Miner –	3
	Feeder Breaker	5
LHD Fleet	LHD - 3 to 18 tonne	13
Transport Fleet	Crew Carrier & Transport-Mine Rescue	2
	Fire Truck - Mine Rescue	1
	Personnel Carrier - Service Truck	12
	Personnel Carrier	31
	Cassette Carrier Truck	7
Multi-Purpose Chassis Fleet	Diesel Fuel Cassette	2
	Lube Cassette	2
	Mechanical Heavy Duty Service Cassette	3
	Scissor Deck Truck	2
	Utility Cassette	2
	Water Collection - Vacuum Cassette	1
	Water Cassette	1
Specialized Fleet	Mobile Crane / Forklift	3
	Mobile Belt Line Clean-up conveyor	1
	Motor Grader	1
	Skid steer or Compact track loader	1
	Tractor	1
	Tractor - UG Large	1
Flexible Mobile Conveyor	Flexible Mobile Conveyor	1
Telehandlers	Telehandler - 2.5 to 20 tonne	12
Total		**128**

The total headcount for the Jansen operation, under the current mine planning assumptions, is expected to be 510 total BHP employees (Table 13-3). Under normal operating conditions Jansen mine will operate 24 hours per day, 7 days per week. The roster options will vary by role and by location. The headcount at Jansen is expected to remain reasonably constant for the life of mine. The headcount includes:

- all operations direct BHP Canada employees working in traditional operational work execution, supervisory and planning functions;

- All Jansen-related business functional support employees including Human Resources, Health, Safety and Environment, Indirect Technology, Finance, Supply, Corporate Affairs, Legal, Marketing, Planning & Technical, and the Asset President;

The headcount excludes the following roles, with the associated costs captured in the Intragroup Service Charges (IGSC):

- All Global functions indirectly supporting Potash, including Strategy and Development, port and rail operations.

Table 13-3: Jansen Full Time Equivalent personnel at steady state

	Total FTE
General Manager and Administration	2
Production	98
Maintenance	182
Operations Support Surface	64
Integrated Operations Management	41
Planning	28
Engineering	15
Maintenance Strategy and Planning	38
A&I	20
Technology Direct Team	22
TOTAL	**510**

13.7 Final Mine Outline

The LoA mine design is shown in Figure 13-8.

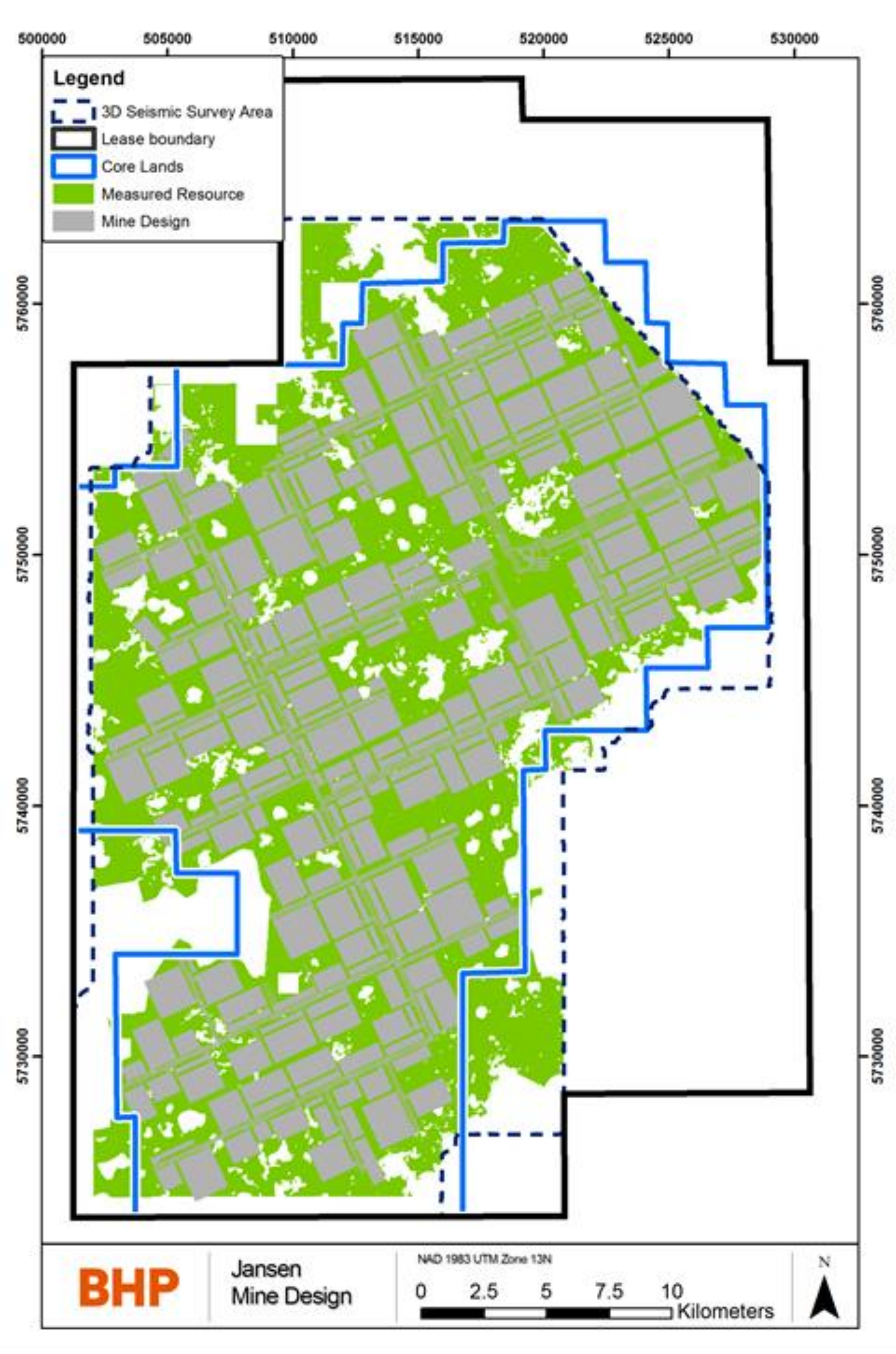


Figure 13-8: Jansen mine design.

14 Processing and Recovery Methods

Conveyors will transport raw ore (approx. 40 % KCl salt, 53 % NaCl salt, and 7 % water insoluble) from the Service shaft to the processing plant or the raw ore stage building. The raw ore is then crushed and screened before being fed to the wet scrubbing circuit, where it will be mixed with brine in the pulping tank. Water insoluble materials are removed from the salts with hydrocyclones, then the salts are pumped to a flotation circuit to form a potash concentrate by separating the potash salts (KCl) from the non-potash salts (NaCl). A crystallization circuit recovers potash from four tailings streams to maximize Jansen's overall recovery; this crystallized potash then joins the flotation concentrate. The concentrate is transferred to centrifuges to remove the brine, forming a concentrate cake. The concentrate cake is dried in a fluid bed dryer before final material screening and sizing. The processing circuit will produce two types of saleable potash; a standard red product and compacted red granular product. Saleable potash will be loaded into railcars and hauled to the port or to the United States.

The Jansen processing design is conceptually based on selecting equipment of the largest capacity available to achieve the process requirements and installing only minimal redundancy required for optimizing operating reliability. The processing facility is designed for a 1,483 tph feed rate, with a minimum 15 per cent design factor on all equipment to handle process variables.

Equipment known to exhibit high reliability based on reliability modelling and industry experience, such as belt conveyors, were selected to be single stream with no redundancy. When multiple pieces of equipment were selected for an individual unit operation (as a result of limited capacity of commercially available equipment or for reasons of reliability), an even number of equipment typically was preferable. This was to enable efficient flow splits between individual streams feeding or exiting the equipment, and keep the building heights and material lift heights to a minimum.

Use of multiple pieces of equipment allows continuation of operation during periods of equipment downtime, albeit at a lower production rate while equipment repair or maintenance is performed. Use of multiple pieces of equipment, where appropriate, also allows predictive and preventative maintenance on equipment as appropriate.

As a result of this philosophy, overall plant uptime will be maximized due to the parallel circuits available and reduction of single points of failure. An exception to this is equipment that typically exhibits high reliability levels, which would be cost prohibitive to duplicate (e.g. conveyors immediately upstream or downstream of the mill), combined with an optimized maintenance and operating strategy.

The raw ore handling and ore storage portion of the surface processing facilities is designed to be operated by feeding the primary crushing equipment directly from the service shaft skip bins using belt conveyors. Ore delivered from the hoist skips in excess of mill feed requirements is diverted, using a splitter gate, to the raw ore storage building to build an inventory of raw ore. Raw ore in the 25,000 tonne storage building is reclaimed as required during hoist down periods. In this way, the raw ore bucket wheel reclaimer is needed to operate less than one quarter of the scheduled mill operating time, reducing operating and maintenance costs as well as allowing raw ore reclaimer servicing as required.

The mill processing system design is based on a high level of automation for process control using on line measurement, including weigh scales to monitor dry material flow monitoring, flowmeters for liquid flow monitoring, and potash grade analyzers for reagent control and performance monitoring. All automation signals are monitored and controlled from a remote central control room.

Specific pumps and crushers are installed with variable speed drives for control and to allow metallurgical process variability as required. Various types of crushers are used throughout the processing facilities. Crusher types were individually selected based on the optimal type to serve that particular duty.

Scrubbing and desliming of the ore uses mechanical scrubbing and cyclone desliming, which is typical in the potash industry. Separate coarse and fine flotation circuits allow enhanced recovery of potash due to the modern and proven flotation technologies targeting recovery of specific potash particle size ranges. Separation of ore into coarse and fine streams is accomplished using hydraulic classifiers that provide a separation of coarse and fine particle sizes. Flotation uses column flotation cells that are simple and highly effective in terms of recovery and operating costs.

The tailings process area is primarily a single circuit due to the high reliability of the equipment selected. Coarse salt tailings circuits are designed with two operating pumps and pipelines as well as one spare pump and pipeline. This configuration allows high mill operating time even when a tailings line may be inoperable due to plugging or pump failure.

Separate scrubbing and flotation brine systems are provided to prevent ore borne contaminants from reaching the flotation circuits and adversely affecting recovery. These systems also maintain reagent-free brine for scrubbing and desliming circuits to maintain process efficiencies in these circuits.

A crystallizer circuit uses hot leaching and evaporative cooling to recover potash from the fine flotation tailings and produce standard size product at a higher grade than normal agricultural grade potash product. The higher grade crystallizer product is added to flotation concentrates prior to debrining and drying. Flotation concentrate is thereby upgraded without adding higher volumes of leach water, which creates a recovery loss due to dissolution of potash while dissolving salt. Additional recovery from the crystallizers will allow Jansen Stage 1 to achieve overall mill recovery in the top quartile of the Saskatchewan potash industry.

Parallel process circuits in drying and product screening allow control of the equipment at lower operating rates and to maximize plant operating time. Debrining prior to drying uses latest technology centrifuges that are capable of producing low moisture levels in the dryer feed. Product drying is achieved through conventional horizontal fluid bed dryers.

Dried discharge is screened, and product that meets standard product size requirements is cooled and sent to product storage. Product, that does not conform to standard sizing specifications, is processed in compaction circuits, by six installed compactors, to produce granular product, which is subsequently glazed and screened, then dispatched directly to 200,000 tonne product storage.

Product reclaim and loading of railcars comprises reclaiming, screening, treating with anti-cake and dedusting reagents, and loading railcars in a unit train of up to 177 railcars within a 12-hour time period. As a result of this loading rate requirement, loading is continuous, using automated product reclaiming and BHP Canada railcars.

The BHP Canada philosophy governing the process design was for a “fit-for-purpose” facility. That is, a facility that maximizes the project value with acceptable capital costs, while providing a productive, efficient, and safe operating environment for personnel. The Jansen processing facility was designed to use state-of-the-art, proven process control technology to ensure high yields, low cost of production with remote operation capability, and reduction in the amount of field operator support.

14.1 Process Plant

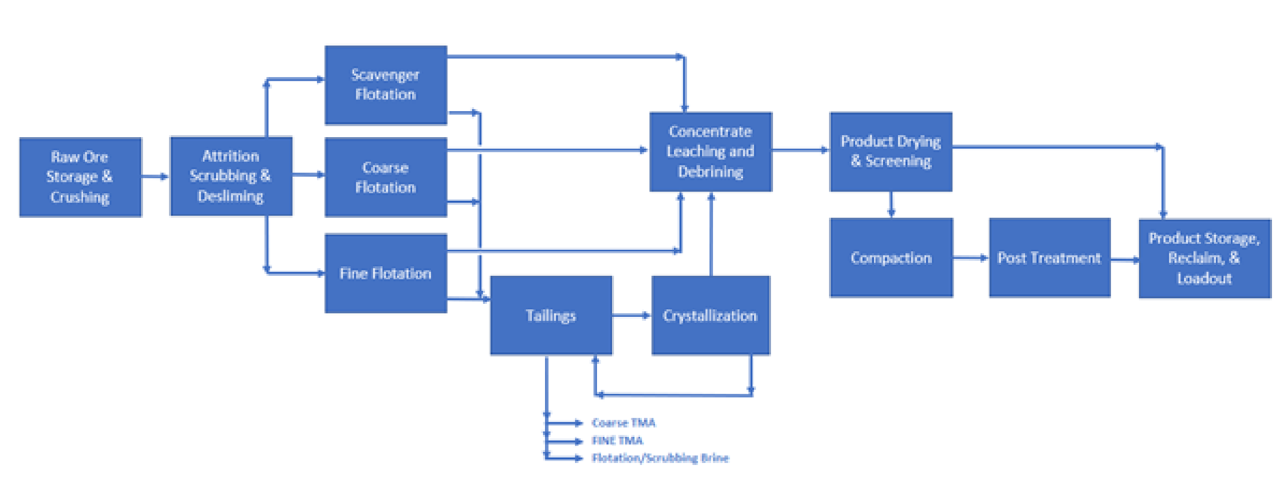


Figure 14-1: Jansen processing flow sheet

Raw ore is received from the mine through the service shaft skip bin. A moving hole feeder is used to draw raw ore from the bin onto the service shaft raw ore belt conveyor. A belt conveyor scale and tramp metal removal magnet are provided for the service shaft material handling system. Material from the service shaft then reports to the storage building or mill feed.

The raw ore handling and crushing circuit is to maintain a constant flow of ore to the mill for processing. The conveying and splitting functions source ore in a variety of feed situations and the crushing stage ensures the material is small enough to feed the attrition scrubbers and be hydraulically pumped to the next process steps.

Attrition scrubbing and desliming circuits prepare the ore for downstream flotation separation stages. This involves wet crushing and scrubbing of the ore to liberate insoluble materials, in conjunction with size separation equipment that prepares three size fractions. Coarse, fines, and slimes streams are then sent to three different sets of downstream equipment, chosen for best performance within the selected size range.

The purpose of the coarse flotation and regrind circuit is to recover coarse sylvite minerals using conventional potash flotation technologies. Concentrates generated within this circuit are generally near grade and require minimal leaching. The waste materials are relatively clean halite with some unliberated sylvite. Only one regrind circuit services both Stage 1 production lines since its contribution to overall plant production is relatively small, making it non-critical.

The fines flotation circuit recovers fine highly liberated sylvite minerals, using conventional flotation technologies. Concentrates generated within this section are generally high grade and require minimal leaching. The particle sizes are relatively fine, so most conventional hard rock flotation equipment is effective. Pneumatic columns are the chosen technology since they achieve high grades and recoveries in potash applications. Waste materials are relatively clean halite with some minimal sylvite losses.

The scavenger cyclone and flotation circuit is used to recover very fine highly liberated sylvite minerals, using conventional flotation technologies. Concentrates generated within this section are generally lower grade than the other circuits due to the higher difficulty in physical separation of very fine materials. The fine particle sizes require higher energy flotation equipment to be recovery effective. Self-aspirating pneumatic cells are the chosen technology since they achieve acceptable grades and recoveries in potash applications. Only one scavenger circuit services both Stage 1 production lines.

Leaching and debrining circuit provide secondary control for concentrate grade control, flotation brine recovery, and preparation of the solids for the drying and screening circuit. The large volume leaching tanks serve a secondary function by acting as buffers between the wet and dry circuits. The individual line tank can buffer 30 minutes of production in the event of a downstream interruption.

The primary purpose of the product drying and screening circuit is to remove residual moisture, heat the product sufficiently to remove residual reagents, and prepare the material for compaction. The production dryer circuit serves a secondary function to produce the KCl-rich brine needed for grade control using its dryer scrubbers. The screening circuit follows the dryers. Standard grade final product goes directly to storage, while the rest of the material flows to the compaction circuit.

Compaction and post treatment circuits ensure the Jansen products meet quality standards and prepares the product for storage prior to shipment. While standard-sized material meets national and international accepted standards, finer and coarser materials produced in the wet mill do not. The compaction process uses high pressures and temperatures to convert these materials into a marketable size fraction. Post-treatment circuits are physically located after compaction and treat both standard and granular products.

For standard production, the standard product (mid-size particles) from the product screens not sent to compaction feed is conveyed to two parallel product coolers. The material is cooled below 80°C using a glycol loop that is integrated into the plant heat recovery system. Cooled product is then weighed as it continues by conveyor to product storage.

For granular production, a multi-step process is employed to increase the product durability and minimize storage lump generation. This consists of a surface hardness and rounding step, a cooling step and then a final size quality circuit. Product from the secondary compaction screening circuit is moistened in the glazing dryer conditioning drum using carefully controlled amounts of process water. Sufficient water, approximately 1 per cent to 2 per cent by mass, is added to dissolve and soften only the surface KCl on each particle. The tumbling action and abrasion in the conditioning drums rounds off the sharp edges of the moistened potash granules. This product is fed into the glazing fluid bed dryer/coolers, which act as an evaporative cooler. When the surface water on the granules evaporates, a harder coating is formed on the surface of each particle, which increases its resistance to degradation during subsequent handling and transport. In addition, water evaporation in the glazing dryer cools the granular product to the target 80°C before it is discharged into the glazing screen feed bucket elevators. Exhaust gases from the compaction glazing dryers and dust collected within the compaction circuits are processed in baghouses.

The primary function of the product storage, reclaim, and loadout circuits is to collect enough product to fill a shipment order and load a full 177-car unit train in under 12 hours with treated quality product. The product storage building holds 200,000 tonnes of combined standard and granular product and uses a portal scraper reclaimer to provide a steady high flow rate. Product loadout screening removes lumps in all products and any fines that may have accumulated in the granular product. The last step is the weigh bin system that loads a continuously moving train.

14.2 Plant Throughput and Design, Equipment Characteristics and Specifications

The Jansen mining and processing facilities have been designed for continuous 24-hour operation, with scheduled outages to perform inspections and maintenance. Production operations and maintenance will consist of two 12-hour daily shifts covering 7 days per week. Since the mill is essentially split into two parallel processing trains, maintenance will typically occur on one train at a time, using additional contract maintenance workers as necessary to perform the scheduled maintenance and inspection tasks. The entire processing facilities will also be shut down less frequently to provide for maintenance on equipment serving both processing trains.

The Jansen mill operating schedule is intended to closely align with the mine's planned operating schedule. Major raw ore storage facilities on site include:

- Underground ore storage capacity within the shaft pillar, which for Stage 1 consists of a 5,000 tonne bin, 40,000 tonne remote storage, as well as belt bunkering as the material handling system extends (equivalent to 32 hours of hoisting);
- 25,000 tonnes of raw ore storage capacity on the surface to support the Stage 1 capacity of 1,483 tph mill feed rate (equivalent to 17 hours plant feed).

Underground and surface ore storage enable the mine to stockpile ore to ensure the mill feed remains constant during equipment outages for inspection or maintenance. Surface raw ore storage allows ore processing activities to continue for up to 17 hours at nominal feed rates whenever ore hoisting facilities are unavailable for use or equipment failure occurs upstream from the raw ore storage pile. Regular inspections are expected to include items such as shaft, hoist and rope, and various mine-related maintenance functions that may prevent or reduce the rate of ore delivery to the surface.

The feed throughput range, within which the mill can operate, is 33 per cent to 100 per cent of rated capacity, or 489 tph to 1,483 tph.

In addition, buffers downstream of the mill allow the processing facility to continue operation between train shipments. A 200,000 tonne finished product warehouse (Stage 1) will store both standard and granular products and act as a buffer between mine production and the port.

The processing facilities will be controlled and monitored from the Process Control System (PCS). The PCS will provide the control and operator interface for all the areas of the facilities and will be run by a control team in the Integrated Operations Centre (IOC).

The level of automation will be high and will include automation of normal process control functions, start-up, and shutdown activities. The PCS will be a fully integrated system using a common control platform across Mining, Process and Non Process Infrastructure. The PCS will provide human-machine interface (HMI), process control, monitoring, alarming, and data archiving for all operating areas of Jansen site. The PCS will also interact with the Advanced Process Control (APC) system benefiting from advanced algorithms that will assist determining the most efficient operating set points to increase throughput, reduce energy cost and reduce reagents consumption.

The process will be controlled from an IOC located off-site in Saskatoon and will be completely centralized with the ability for controlling mine, plant, rail yard, and port control stations. This arrangement provides operators with greater levels of live operating data across the potash operation and fosters collaboration. Trend identification, troubleshooting, and the prevention of potential operating losses can be anticipated and resolved more efficiently compared to traditional decentralized control systems.

14.3 Requirements for Energy, Water, Process Materials, and Personnel

Raw water

Water is used at the Jansen site for both process and non-process activities. Process water is used for: (among other things)

- Wet scrubbers
- Concentrate leaching
- Process reagent mixing
- Pump gland water and instrumentation flush
- Product centrifuges
- Flotation columns and cells
- Crystallizer
- Glazing dryer conditioning drum
- Salt tailings flushing

Ore processing activities will use 0.17 m^3 water per tonne of product produced or ~47 per cent of all water consumed on site. Non-process uses (i.e., non-routine water, utilities, and potable water) account for the remaining 53 per cent of water consumption on site, which is equivalent to 0.19 m^3/t of product. A considerable amount of this water will be used by maintenance, because all equipment must be washed down before being serviced. Spill clean-up and line flushing are other services that will contribute to this amount.

Energy

The incoming gas supply battery limit for natural gas is located on the southwest side of the plant site, outside the main plant, to allow free access by SaskEnergy and TransGas.

An existing metering building is currently constructed and operational at site for gas supply to on-site accommodation, sewage treatment plant, and concrete batch plant. A natural gas connection to the site will be provided for gas supply to the processing plant (i.e., gas metering and pressure reducing station). The natural gas pipeline follows a pre-determined utility corridor to the natural gas metering station. The interface point between the off-site supply and on-site distribution system is at the flange connection just downstream of the pressure reducing station.

A total of two natural gas supply pipelines will be located downstream of the natural gas metering station. One pipeline feeds the process plant and ancillary buildings. The other feeds on-site accommodation and the concrete batch plant.

Throughout the plant site, the buried natural gas distribution system will be sized to support future production capacity increases. It will consist of medium density polyethylene pipelines. Major line isolation valves will be installed at specific locations to isolate a branch of the gas network. These line isolation valves will be located above ground. Furthermore, each building connection will include a dedicated isolation valve.

Power is supplied by SaskPower's 230 kV overhead lines. The main site 230/35 kV substation and 35, 5, and 1 kV distribution systems are sized to support future expansions. The underground is fed by two 35 kV shaft feeders from the service shaft for Jansen Stage 1. In the event of a utility power off the essential loads will be fed from the site's generation facility.

The Jansen Stage 1 natural gas usage is estimated to be 2,254,040 GJ/year. Electricity is estimated to be 543,823 MWh/year, and diesel is estimated to be 1,569,993 L/year.

Process Materials

A variety of reagents are required for operating the flotation circuits, thickener operation, and treating the product for shipping. Process reagents include flotation amine, acid, flotation oil, frother, depressant, and flocculent. Product anti-cake amine combined with dedusting oil is applied in product loadout. These reagents are available in Saskatchewan and are used in existing potash facilities. Sufficient work has been completed to ensure supply and availability to the BHP Canada Jansen site.

Personnel

See Section 13.6 for Jansen staffing information. See Section 13.6 for Jansen staffing information.

14.4 Novel Processing Methods

The Jansen processing facility is expected to use proven process control technology designed to support high yields, low cost of production with remote operation capability, and reduction in the amount of field operator support. In addition to common process control technology, Jansen is expected to employ additional digital technology to improve recovery, operability, and availability using systems such as advanced process control, digital twin for raw ore pile management, and use of equipment health monitoring for predictive maintenance. No new processing methodologies or commercially unproven methods are expected to be incorporated into the Jansen process plant design.

15 Infrastructure

Jansen is currently in construction phase and has completed a significant amount of development in the past several years. The US$4.5 billion (pre-tax) of capital invested to date includes construction of the shafts and associated infrastructure, as well as engineering and procurement activities, and preparation works related to underground infrastructure.

A substantial portion of the site grading, drainage and road network is in place that allows for access to all areas of the site and facilitates water management during spring melt, rain events and ongoing construction.

The site is connected to off-site infrastructure including natural gas, temporary electrical power, communication fibre and non-potable water. These utilities are provided by Crown Corporations and contractual agreements have been reached for service provisions as necessary. The local road network has been upgraded to allow for year-round access for primary weight vehicles to support the movement of equipment and materials as necessary during the construction period.

Additionally, there have been several facilities for both permanent operations and temporary construction purposes that have been successfully installed to date including:

- The Discovery Lodge camp (2,600 beds) for housing the construction work force;
- A modern water treatment plant and raw water well for provision of potable water;
- A state-of-the-art sanitary treatment plant for treating sewage;
- A concrete batch plant;
- Temporary offices, locker rooms and lunchrooms for construction team;
- Service and Production headframes;
- Freeze plant to support shaft sinking and lining;
- Temporary warehousing and maintenance buildings;
- Permanent cold storage warehouse;
- Vehicle wash bay;
- Guard houses and site fencing for access control;
- Laydowns for material storage/staging ;
- Storm water ponds and effluent storage facilities;
- Environmental monitoring equipment for ground water, air quality, noise and vibration levels.

Starting in 2022, the remaining earthworks, the utility distribution system, piling for building foundations, diesel storage area and the Tailings Management Area are scheduled to begin.

In the subsequent years, BHP Canada plans to erect the following:

- Mill buildings
- Raw ore storage

- Conveyor galleries
- Product storage buildings
- Product loadout building

Once these buildings are complete, the equipment and building services are scheduled to be installed to support commissioning activities leading to a planned first production and ramp up to full production accordingly.

In the Non Process Infrastructure scope space, the remainder of the Tailings Management Area (including disposal wells) are scheduled to be developed, the rail infrastructure and control systems are scheduled to be installed and a number of permanent facilities are scheduled to be constructed. These facilities are expected to include:

- Admin Building with offices, locker rooms, security and training
- Heated warehousing
- Mechanical and mobile equipment repair shops
- Laboratory
- Mill support facility
- Rail support facility
- Modular Data Centre, electrical houses and substations
- Pump houses, environmental data collection units and/or other small buildings

Figure 15-1 below, shows the current design layout of the surface infrastructure of a fully completed Jansen Stage 1 and includes the processing and non-processing facilities, tailings management area and the mining headframes with their respective shafts below ground.

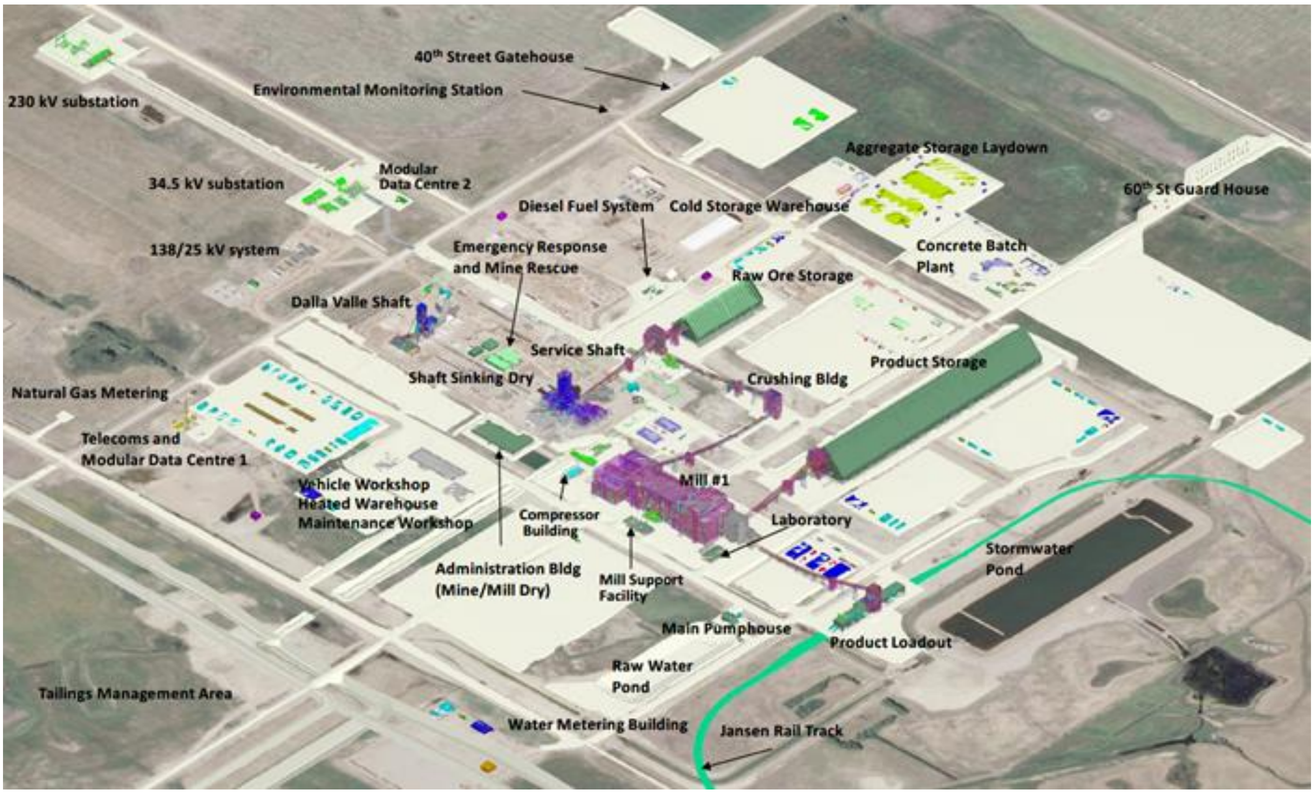


Figure 15-1: Schematic of Jansen Operations when in production

The Jansen basic value chain is comprised of a number of major sub-systems and process steps as shown in Figure 15-2.

1. mining, including continuous miner, and conveyor
2. Ore hoisting via shaft conveyance
3. mine processing and ore handling plant including crushing and screening
4. mine stacking (stockpiling) into the product types
5. train loading
6. train empty and loaded travel to and from the port facilities
7. port car dumping (train unloading)
8. port direct ship loading (product is taken directly to the vessel, skipping process steps eight to ten)
9. port stacking (stockpiling) into the product types
10. port reclaiming
11. port ship loading

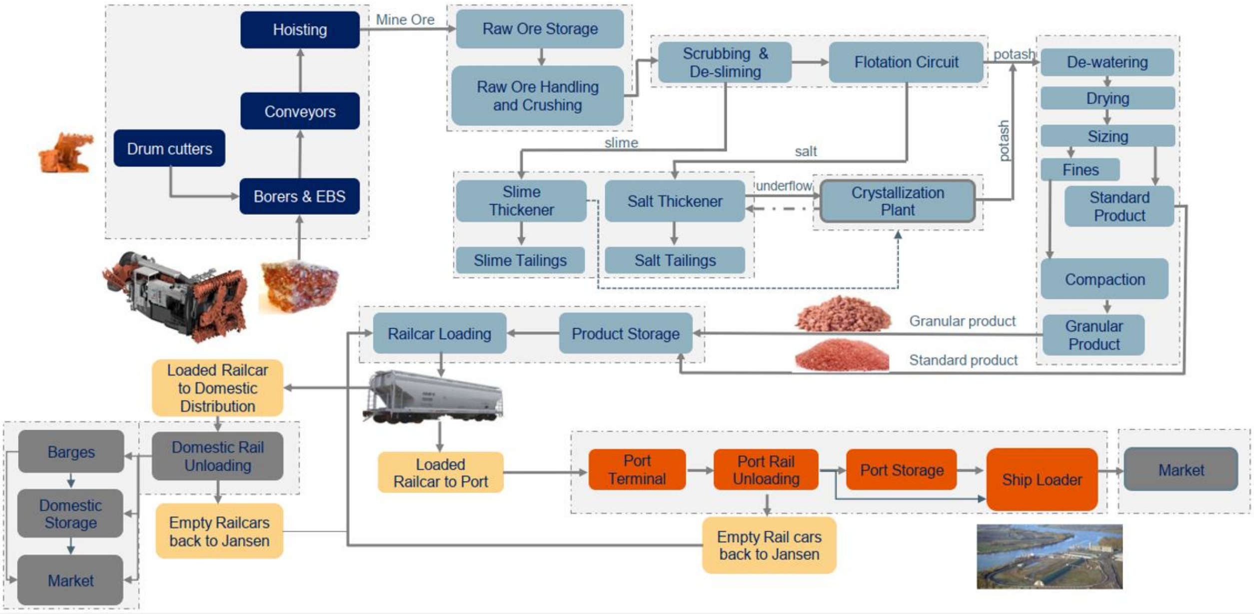


Figure 15-2: Basic Value Chain

15.1 Roads

The road work for the site consists of new roads and upgrading existing roads. All new site roads constructed are expected to be gravel roads with subbase and base course materials. Most of the existing plant site roads have a subbase course and are expected to be upgraded during construction. These existing roads range between 11 metres and 13 metres wide and planned to be topped with a granular base course to a 9.4 metres width. All roads are expected to be crowned with a 3 per cent cross slope to allow storm water drainage.

Many existing roads that form the majority of Jansen site road workings are already in use. Some of these existing roads need to be upgraded with a granular base topping. Some are expected to be demolished because they are located in areas where facilities are to be constructed.

15.2 Rail

The on-site railroad, including the Joint Access Spur and Onsite Rail, for the mine site is planned to be constructed during the project execution period. A series of switches (ladder) are located just inside the Jansen property fence line to provide an inbound/outbound yard. This yard terminates at the north end at a double crossover. Beyond the crossover is a loop track through the loadout facility, where empty trains are planned to access the loading area in a clockwise manner.

The off-site railway is planned to connect the on-site railway to both Class I carriers as shown below in Figure 15-3.

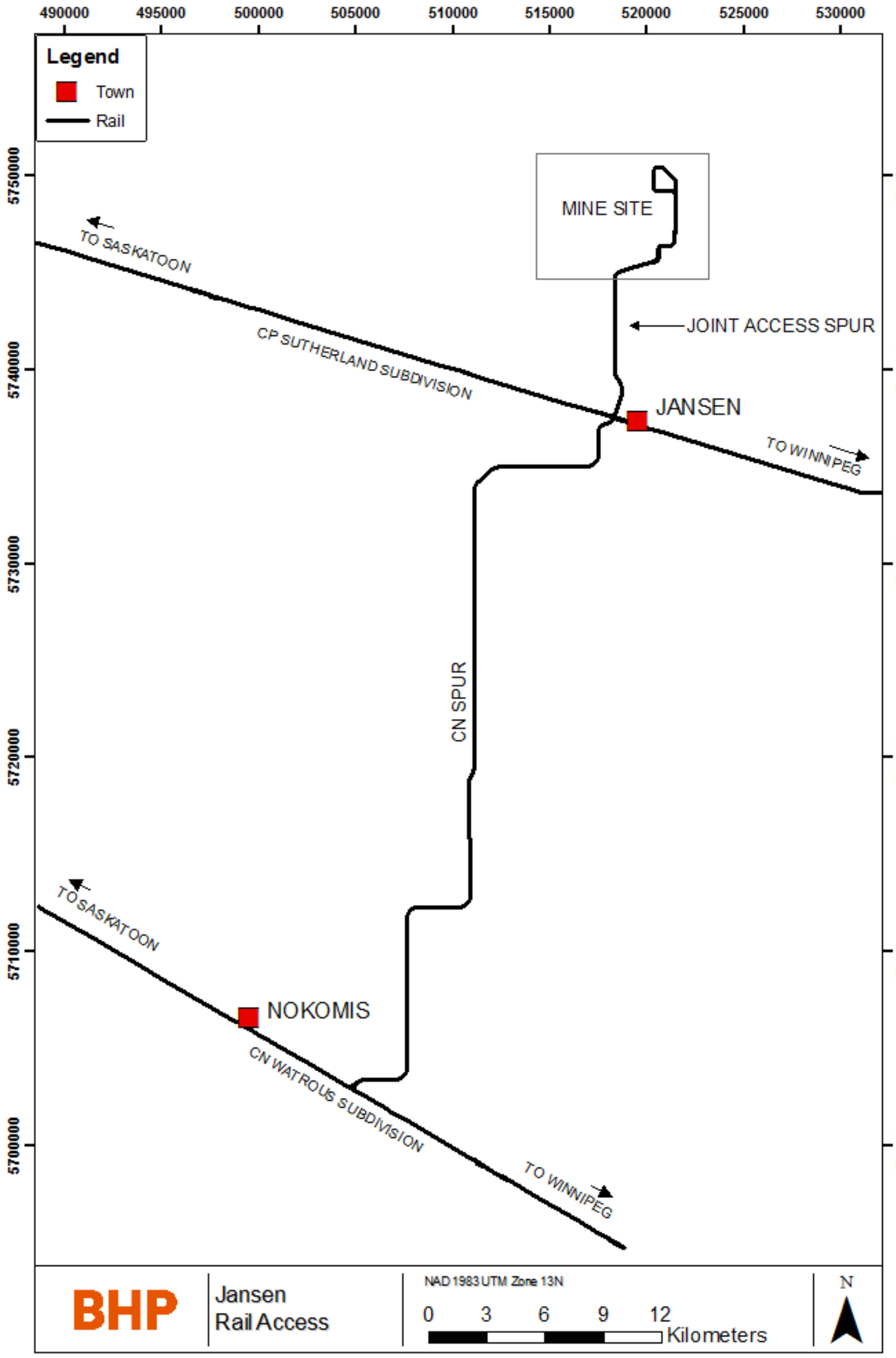


Figure 15-3: Off–site rail connections

15.3 Port Facilities

Potash for export is expected to be shipped out of Westshore Terminals Limited Partnership (Westshore). Westshore is an existing coal export terminal operating since 1970 at Roberts Bank, Delta, British Columbia on Vancouver Fraser Port Authority managed federal lands and waters. Currently the terminal handles coal, and with financial support from BHP Canada, Westshore has agreed to convert their facilities from exclusively shipping coal to shipping BHP Canada potash and some third-party coal. All required permits for the facility development have not been issued. BHP Canada currently has a terminal services and development agreement in place with

Westshore for this development and shipping services with an initial service term through CY2051.

15.4 Dams

The perimeter dykes within the Tailings area is expected to be constructed of suitable earthen material with an upstream slope of 2.5H:1V and a downstream slope of 3H:1V. The minimum dyke crest width is 5 metres to accommodate one-way mine traffic. A dyke key is to be constructed at the center of the dyke's base to assist with stability and seepage. Interceptor ditches is expected to be constructed with interior and exterior side slopes of 2.5H:1V and expected to have a minimum bottom width of 2 metres.

To reduce erosion from wave action, rip-rap material is expected to be placed on the interior slopes within the decant pond as well as the coarse and fine tailings areas. Rip-rap is expected to also be placed at locations where continuous concentrated flow is anticipated, such as the outlets of the granular toe drains.

15.5 Dumps and Leach Pads

There are no dumps or leach pads required for Jansen mine.

15.6 Tailings Disposal

Waste produced from the mill processing is planned to be composed of fine tailings (insolubles), coarse (salt) tailings, and brine. Fine tailings are expected to consist primarily of silt and clay particles with some fine salt. Coarse tailings are expected to be medium-to-coarse grained salt crystals. The fine and coarse tailings are expected to be separated during processing and transported hydraulically (i.e., pumped) to the TMA with brine, where they are deposited in their respective storage areas. Separate coarse and fine tailings storage areas are expected to be contained by perimeter dykes. The collective footprint of the TMA is planned to be surrounded by an interceptor ditch.

Brine storage in the TMA is expected to consist of a decant pond in the fine tailings area and a tailings free area within the footprint of the coarse tailings area. Brine is expected to be recycled back to the mill by a floating brine pumping barge located in the coarse tailings area and excess brine is expected to be pumped to the disposal wellfield for injection into the Winnipeg-Deadwood Formation (the disposal horizon). This disposal horizon has historically demonstrated sufficiently permeable and compatible water chemistry, and is the disposal horizon of choice for the potash mines in central Saskatchewan. The number of wells is expected to increase over time as required to support the disposal requirements of the mine site.

On-site water balance is planned to be maintained by disposing of excess brine using disposal wells. The disposal wells are planned to inject brine, created during operations and closure phase of the project, into the deep disposal horizon. In accordance with the Jansen Site Closure Plan, brine disposal is expected to be an essential step for reducing the coarse tailings pile.

Deep well injection is the regulatory accepted method to dispose of excess brine for all existing potash mines in Saskatchewan. No feasible alternatives to using disposal wells at Jansen are known. The alternatives considered unfeasible include evaporation, other desalination methods (which would not allow Jansen to meet its closure objectives), and brine disposal to the environment.

15.7 Power, Water and Pipelines

The estimated peak power demand is expected to be approximately 66.5 MW. Power is expected to be supplied by SaskPower using 230 kV overhead lines terminating at the 230 kV main plant substation dead-end structure (the point of common coupling). Main plant electrical services (i.e., 230 kV substation plus 34.5 kV substation and distribution) were sized to support future expansions. The electrical distribution system is expected to be designed for expansion without requiring a significant shutdown of plant equipment.

The Jansen site is located in an area with no access to a major watercourse to support on-site infrastructure. The raw water system consists of the incoming water supply line from SaskWater and groundwater sourced from the existing Raw Water Well 1 (RWW 1). The ultimate capacity of the water supply pipeline is expected to be 7M m^3/y for the Jansen project.

During construction and operations (all stages), potable water is expected to be supplied to both on-site accommodation (Discovery Lodge) and construction management facilities through a centralized water treatment system located near Discovery Lodge. Potable water is expected to be distributed to the plant site by centrifugal potable water distribution pumps. Three pumps are expected to be provided with two pumps operating and one on standby. Potable water is expected to be distributed by an underground HDPE pipeline network. A single network is expected to be provided for the plant site. The potable water distribution system is expected to ensure a minimum pressure of 415 kPa (60 psi) at the buildings. Connections to future buildings (process plant lines or ancillary buildings) are expected to be installed complete with valves and blind flanges to enable straight tie-ins in future.

Sanitary sewage is expected to be treated by an existing Sewage Treatment Plant (STP) sized to accommodate the anticipated loading from construction activities, including the Discovery Lodge. Sewage is expected to be collected and directed to the STP through a combination of gravity and pressurized systems that collect sewage from both process and non-process buildings. Both the existing and future systems lead to the existing STP. The sanitary sewer lines is expected to have enough capacity to convey the design peak flow as well as infiltration and inflow. The minimum diameter for gravity sanitary lines to be used for single building lateral drains is 150 millimetres. The minimum diameter for gravity sanitary sewer systems is 200 millimetres. All pipes are expected to be polyvinyl chloride (PVC) and are expected to have a minimum slope to achieve self-cleansing velocity.

The incoming gas supply battery limit for natural gas is located on the southwest side of the plant site, outside the main plant, to allow free access by SaskEnergy and TransGas. Throughout the plant site, the buried natural gas distribution system is expected to be sized to support the production capacity up to and including future expansions. It is expected to consist of medium density polyethylene pipelines. Major line isolation valves are expected to be installed at specific locations to isolate a branch of the gas network. These line isolation valves are expected to be located above ground. Furthermore, each building connection is expected to include a dedicated isolation valve.

15.8 Underground Infrastructure

15.8.1 Mine bulk material handling (BMH) system

The mine conveyor network is designed to transport ore from each mining face to the shaft pillar, where it is transferred to the raw ore storage bin or horizontal remote storage area before being transferred to the surge bin and hoisted to surface for processing. The conveyors are expected to be installed using modularized units, each consisting of a head/drive station, take-up station, belting, and structure. These units are expected to have standard lengths and widths, depending on their duty requirements. Permanent conveyors are rigid frame structures that are suspended from the back (roof) to minimize effects of ground movement. Where the design warrants it and the salt beam in the floor is of suitable thickness some parts of the BMH may be floor mounted. The three main conveyor system configurations are panel, block and mainline conveyors shown in Figure 15-4.

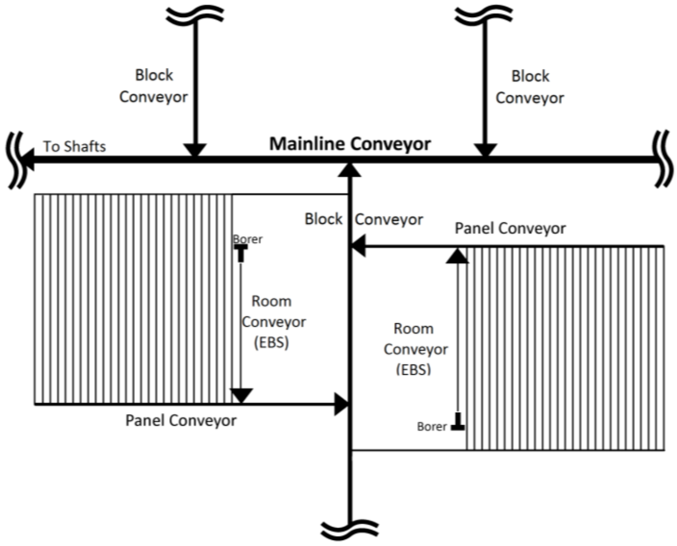


Figure 15-4: Simplified flow diagram of underground conveyor systems

15.8.2 Underground Electrical Distribution

The Jansen mine is expected to be supplied from the surface 34.5 kV distribution system. The two service shaft feeder circuits are expected to each consist of two 350 MCM cables. They are expected to terminate in a mine substation through which power is expected to be transformed from 34.5 kV down to 13.8 kV for distribution into the mine. Design of the main substation enables complete isolation of any one of the shaft circuits while still maintaining power into the mine. The 13.8 kV distribution voltage is expected to supply all electrical power for Stage 1 loads within the shaft pillar area as well as out into the mine. A radial distribution is expected to branch out from the main substation with circuits strategically run so that only minimal disruptions are intended to occur with the failure of any one.

Providing a ground path back to earth is a critical safety feature in all electrical distribution systems. Potash rock cannot be used for direct earth grounding. Therefore, the mine distribution system is expected to use three internal bond conductors in each cable. The shaft cables are expected to also have three internal bond conductors working in parallel with separate bonding cables in the shaft. These together are expected to be used to tie the mine bonding network to the surface ground network.

15.8.3 Mine ventilation infrastructure

The mine ventilation system is designed to provide adequate airflow to all active areas of the underground mine to ensure the health and safety of workers is maintained throughout development, construction, and steady state production. The ventilation system is expected to control accumulation of heat, gases, dust, and other contaminants within all accessible areas underground by diluting the air to safe concentrations and/or removal of the contaminants.

The ventilation system mechanical components consist of a push-pull arrangement with both surface and underground fans. Under normal operating conditions, the Service shaft is the fresh air path and the Production shaft serves as the return air path. Each shaft has a sub collar connection to the ventilation plenum and two surface ventilation fans are expected to be installed, and optionality for a third fan. The intake air is expected to be heated by a natural gas fired heating plant to supply a minimum air temperature of 4°C.

Surface fans are designed to push intake air to just below the shaft collar. The main underground booster fans are designed to draw the intake air down the shaft and distribute it within the shaft pillar and into the mining districts. Each mining district is expected to have a set of booster fans to circulate the air to the working area, with local ventilation fans and ventilation tube to direct air to the working face. Return air is expected to flow from the district conveyorways. The main return air underground booster fans are designed to mirror the fresh air arrangement. The return air is expected to exit the mine through the DV shaft. DV shaft surface return air fans are expected to be used to bring the return air from just below the shaft collar through to atmosphere.

Controlling risk related to ventilation is composed of several systems and strategies, namely the use of electric vehicles to reduce the exposure to Diesel Particulate Matter, network connect ventilation stations to monitor the flow and air quality at key points in the mine, and proper maintenance of heating and ventilation control systems.

15.8.4 Dewatering

A mine dewatering system is expected to be installed to collect drainage water in the shaft pillar area. Sources of drainage water are expected to include the wash bay water, raw water tank overflow, air condensation from mine ventilation, and shaft drainage from leakage and periodic shaft wash-downs. Jansen intends to limit the use of water underground.

The dewatering system is expected to consist of sumps at the bottom of the Service shaft and DV shaft as well as in the wash bay. The sumps are expected to be wide enough to allow for slimes removal using an LHD where feasible. Submersible pumps in each of the sumps are expected to pump to a main mud separation storage tank in the mine dewatering station for collection and settling prior to delivery to surface. The mine dewatering station is expected to consist of two dewatering pumps as well as a settling tank. Discharge lines are expected to be installed in each of the shafts with the ability to be drained back into the dewatering tanks when the pumps are not operating.

The planned mine discharge design flow rate up the shafts is 30 L/sec from two 15 L/sec pump skids, with latent pipe capacity in the shaft enabling up to 60 L/sec of extra capacity to be installed as a first response to an inflow event.

15.8.5 Underground maintenance

Areas are expected to be developed in the shaft pillar area to cater for the various underground facilities. All facilities are expected to include suitable power, compressed air, lighting, offices, and other services to complement the planned use of the facility. Adequate parking is expected to be provided for the underground mobile equipment fleet including charging facilities for battery and electric equipment. The shaft pillar facilities are planned to include areas for equipment assembly and rebuild, mobile equipment maintenance shop, electrical shop, wash bay, warehouse and tool crib, fuel and lube storage, refuge chambers, lavatories, raw water storage, and central office space.

15.9 Shafts and Hoisting

15.9.1 Hoist and headframe

The Jansen Project has two mine shafts, the service shaft (SS) and the production shaft (DVS). Both shafts have an internal diameter of 7.3 metres and go down to a depth of approximately 1,000 metres. For Jansen Stage 1 only the Service shaft is required for production. During this phase the production shaft is expected to be equipped to support initial underground infrastructure development using two skips with the existing sinking hoist. The cage, for personnel and equipment, is expected to rely on a new Blair hoist. Once the development work is completed this shaft is expected to be used for ventilation and as a second means of egress. For Jansen Stage 1 the production shaft headframe is the existing sinking headframe used for the sinking and lining of the shaft. Although this headframe has been modified to accommodate the new skips and cage configuration. The conveyances is expected to rely on guide ropes for this shaft.

In the service shaft, the hoist system uses ground mounted Koepe hoists (friction hoists) supplied by ABB and designed by the Hatch Bantrel Joint Venture (HBJV). The hoists are expected to be delivered as per specifications defined by the designer (HBJV). The headframe is a typical A-Frame steel construction. The system comprises a cage and counterweight for personnel and material as well as two skips for ore hauling. The cage and hoist travel through the shaft on a system of rigid steel guides. The system is designed as a Class A guide system to support skips travelling at speeds that could reach 18 m/s. In the opinion of the Qualified Person, the hoisting system is expected to be capable of sustaining the production rate anticipated.

The shaft steel is designed on a fully cantilevered Bunton to minimize stresses transferred to the shaft liner. This is to promote a longer design life of the liner. As the liner in these shafts is a fully hydrostatic design, the conditions in the shaft are designed to be dry (meaning no seepage). In the opinion of the Qualified Person, for such conditions, coupled with a good maintenance program, the design life of the shaft steel could be expected to be 50 years.

15.9.2 Shaft liner

The Jansen shafts have an internal diameter of 7.3 metres. Both shafts are lined with an integral hydrostatic concrete/steel composite design. From one shaft to the other the geology is similar but shows slight elevation differences. For that reason, although the liner design is the same in both shafts, there are slight variations in the elevations of the liner features from one shaft to the other. The waterproofing being provided by an integral outer welded liner (OWL) from a depth of approximately 835 metres all the way to the top. This combined with a set of redundant water seals at the bottom. The basis of Design for these liners is for a design life of 70 to 80 years. Considering the performance of other potash mines shafts, coupled with the asset integrity management plan, it is the opinion of the Qualified Person that the design life of these liners could be extended beyond the 70 to 80 years stated in the design basis. By promoting dry shaft conditions, the maintenance requirements should be minimized which in turn supports the higher availability of the hoisting system.

To support better design life of the shaft liner, the service shaft steel guide system was designed with a fully cantilevered configuration. This promotes a reduction of the slamming loads transferred to the liner, hence reducing the cyclic stress levels supported by the liner. In the opinion of the Qualified Person, this design choice will be beneficial to the shaft liner design life as well as the steel design life.

15.10 Infrastructure Layout Map

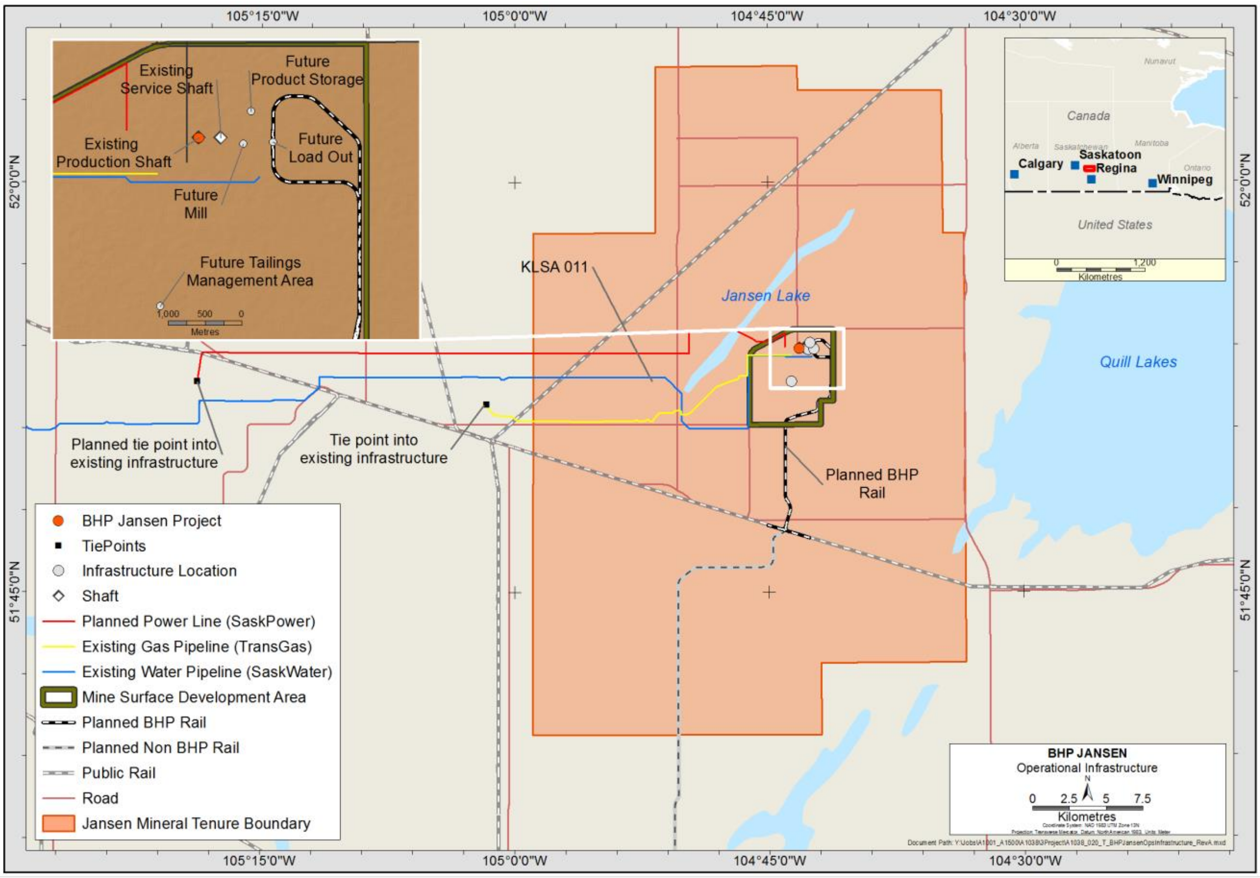


Figure 15-5: Infrastructure Layout Map

Figure 15-5 above shows the layout of the surface infrastructure for Jansen Stage 1 and includes the processing and non-processing facilities, tailings management area and the mining headframes.

16 Market Studies

16.1 Market Information

Potassium (K) is one of three essential macronutrients that plants need to thrive, along with nitrogen (N) and phosphorus (P). Total potassium uptake of global agriculture is determined by the quantity and mix of crops that is grown.

Potassium nutrient is supplied to crops in three ways:

- through the application of mineral fertilizers
- through organic manures and crop residues
- from the native mineral content of the soil

Native potassium levels vary geographically, and within areas from field to field, and may be depleted over time through intensive cultivation, so farmers commonly provide additional potassium through the application of organic materials (principally, crop residues and animal manures) and/or potash fertilisers to ensure that yields are not limited by inadequate potassium availability.

Potash is the name of a group of potassium compounds. Specifically, it usually refers to potassium chloride (“KCl”), which is by far the most widely used potassium product. Potassium chloride is also known as “MOP”, from the archaic name “muriate of potash”. The potash market is projected to be around 71 Mt-73 Mt (MOP equivalent) in 2021, with MOP representing around 90 per cent of this. MOP is consumed principally as fertilizer (92 per cent), although numerous industrial end-uses make up a small minority of the market. As fertilizer, it is most commonly used straight or physically blended with other fertilizers (‘bulk-blends’), but it can also be processed into other forms of potash or Nitrogen-Phosphorus-Potassium (NPK) compound fertilizers.

16.1.1 Product Specifications

Potassium content is commonly measured in units of potassium oxide (K_2O), a notional substance, rather than units of K. MOP used in agricultural application is typically ~95 % KCl, which is equivalent to ~60 % K_2O; this is in general the threshold required to qualify product in most major agricultural markets.

A large proportion of global market production is chemically/physically similar and produced from similar sylvinite ore in Canada, Belarus, and Russia, and processed by one of two methods of beneficiation. Most suppliers produce a ‘fine’ or ‘standard’ crystalline powder (primarily used to manufacture compound NPK fertilizer and for direct application by hand) and a larger-sized ‘granular’ grade (used for mechanical application, either straight or bulk-blended with other granular fertilizers), that together comprise the large majority of their sales. These may be red/pink or white (sometimes dyed red) and usually have a guaranteed purity of 60 % K_2O. Some suppliers also make higher purity grades and/or more sizes that are sold for industrial use, niche agriculture applications or feedstock for derivative fertilizers.

Jansen plans to sell two agricultural potash grades, red standard (~60 % K_2O equivalent, ~0.5 to 1 millimetres in size) and red granular (~60 % K_2O equivalent, ~3-4 millimetres in size) potash, to retain simplicity while ensuring sufficient market access.

16.1.2 Supply Demand and Pricing

Demand

Global demand for potash fertilizers is driven by the need for higher crop production to feed a growing and more affluent, global population. It is also driven by the need to reduce reliance on native soil potassium, which in many places will be unable to support the necessary increase in crop yields. Fundamentally, the relationship between population growth, crop production and potash demand has been extremely reliable and provides a solid basis for projecting future fertiliser needs.

As shown in the two charts below (Figure 16-1), over the last sixty years, crop production has consistently outgrown population while potash has in turn exceeded growth in crop production.

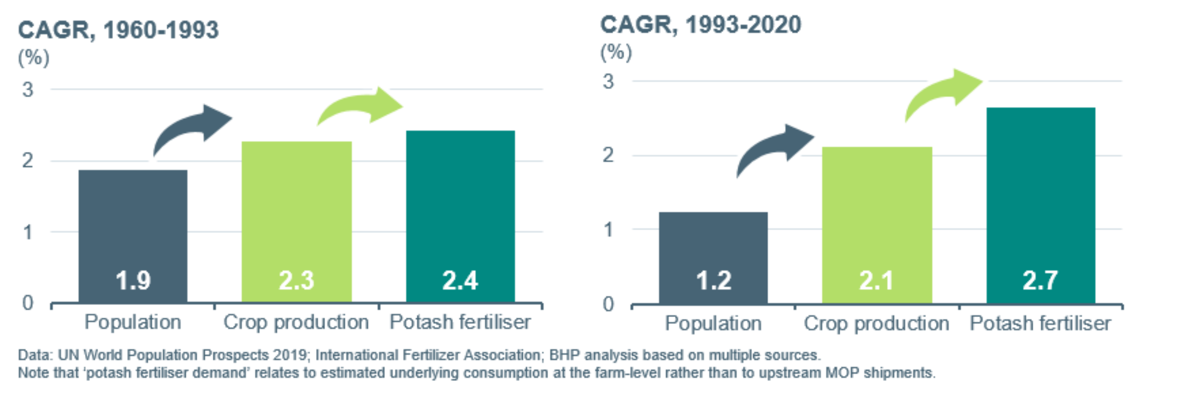


Figure 16-1: Historical relationship between crop production, population and potash demand

While the demand trend is reliable over five to 10 year periods, potash demand is at times subject to considerable year-to-year variations due to shifting farm economics, weather, policy and the ability of soils to retain potassium from one season to the next. However, long term demand is underpinned by slow moving, yet very reliable drivers consistent across decadal time spans. This broadly includes the number of mouths to feed, the scale and scope of diets and long run trends in soil fertility and the associated interplay with fertiliser application rates.

Historical growth since 2000 has been 2.7 per cent per annum on average, with the most recent ten year period coming in around 2.4 per cent. Global potash demand growth over the next decade is estimated in the range of 1-3 per cent.

Supply

According to independent market analyst CRU about three-quarters of MOP production comes from underground ores – mainly located in Canada, Russia and Belarus (Figure 16-2). It is simple and established technology, low-cost and energy-efficient. Much of the remainder is extracted from natural brines in China and Dead Sea. Ore is most commonly processed through flotation that yields a product that is pink or red and usually about 95 per cent pure. Jansen is designed to employ the conventional underground mining and flotation route. As of 2021, there are only two large-scale solution mines, both in Canada.

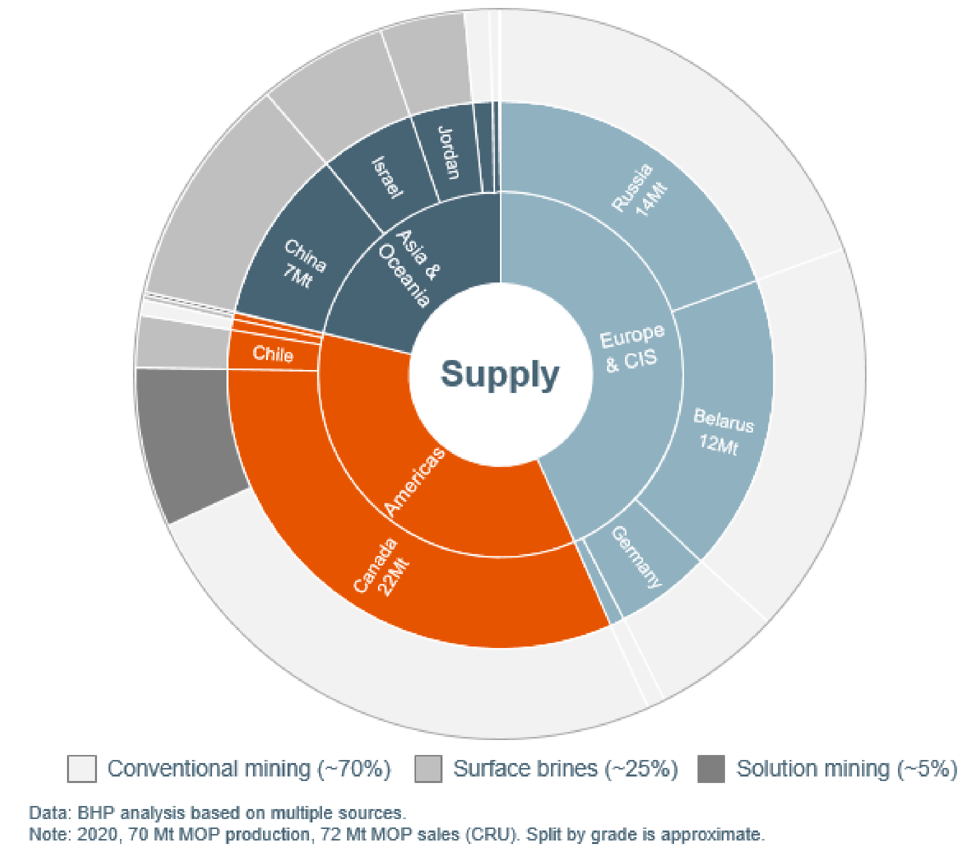


Figure 16-2: MOP supply by regions (Mt)

Most potash operations produce between 1 and 4 Mtpa. The mines in Canada mostly date back to a period of rapid development in the 1960s and 1970s, while much of the capacity in Russia and Belarus was built in the Soviet era. The potash industry structure is presently characterized by a small number of large suppliers. In terms of supply concentration, four producers (Nutrien, Mosaic, Uralkali and Belaruskali) accounted for ~65 per cent of global production in 2020. During periods of excess capacity and short term demand volatility, parts of the industry have historically adjusted utilization rates with the objective of "matching supply with demand". Excess production capacity has been absorbed through curtailed production.

In addition to existing supply capacity, there are ten major MOP mine projects under construction or already ramping-up. Four of these are replacing exhausted reserves and planned to feed existing processing plants. If successfully executed, these projects are expected to add about 10 Mtpa of net incremental supply versus calendar 2020.

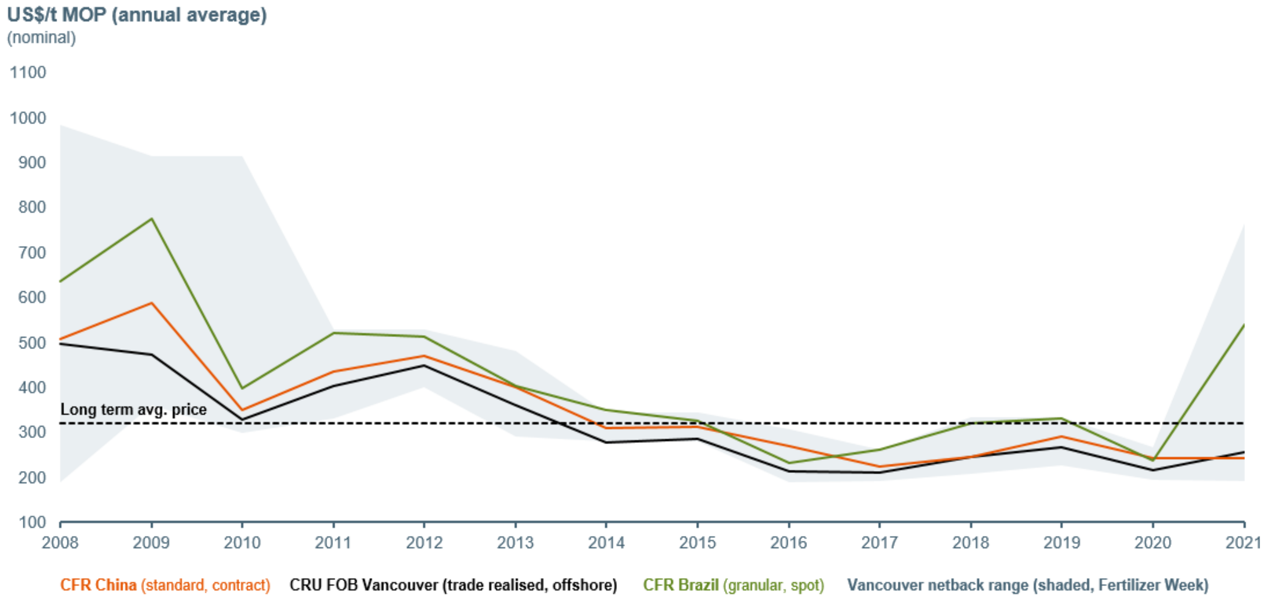
Potash Pricing

Potash is not an exchange-traded commodity and there is no single benchmark representing global market pricing. Transactions are typically bilateral between seller and buyer. There are a number of specialist publications that journalistically assess transacted prices. Most potash sales are made on a delivered "CFR" basis, like granular MOP CFR Brazil or standard MOP CFR China. Prices are published in ranges to reflect the inherent variation in observed pricing due to various factors.

Published journalistic price assessments do not always neatly reflect the net price the seller receives. To estimate a mine netback from a particular delivered location, a number of factors need to be considered. These could include:

- Regional prices (Brazil CFR, SE Asia CFR and US Free-On-Board "FOB" Midwest) are considered, in addition to annual contract prices in China and India.
- Customary industry discounts and rebates are deducted from the listed price – this information is not publicly available.
- Freights are subtracted for CFR (or delivered) sales.
- Port costs and inland freight are subtracted.

The resulting netback gives the approximate realised price. The chart below, Figure 16-3, illustrates import price of MOP to Brazil against the annual contract price that is fixed for imports in China. The shaded area shows the implied range of netbacks FOB Vancouver after deducting ocean freight from these and other delivered benchmarks (reported by Fertilizer Week). The lower line is CRU reported FOB Vancouver for offshore sales (trade-weighted export price).



Source: CRU (Fertilizer Week)

Figure 16-3: MOP pricing (US$/t annual average)[3]

3 - The sole purpose of the presented information above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and the historic average prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to "Note Regarding Forward Looking Statements" at the front of this Technical Report Summary.

Pricing assumption for economic analysis

The potash market has underutilised supply capacity which would need to be absorbed before a structural balance is achieved. The potash price of US$338/t is based on a central case for BHP that demand is expected to have "caught-up" by the late 2020s or early 2030s by when new supply is expected to be required.

Before the market reaches a structural balance, we expect prices to cycle at or trend slightly above forward looking estimates of short run marginal cost (SRMC), which are similar to the average prices seen since 2014. This does not preclude the possibility of price upswings, as witnessed for most of calendar 2021. It essentially implies that while excess capacity is present, prices are unlikely to sustain at inducement levels.

Once structural balance is achieved, and with demand expected to continue to increase, new supply would be induced. In a central case for BHP, the estimate of the inducement price for the most likely consistent source of Greenfield supply (identified as a large "bench" of Canadian resource suitable for solution mining), is similar to the average through cycle price realised over the last dozen years. In short, the forward looking long run marginal cost (LRMC) is broadly in line with through-cycle averages, which is considerably above SRMC experience of the last few years.

To estimate this through-cycle average, Nutrien's published (quarterly) offshore and onshore realised prices during 2008-2020 were considered and with quality (standard/granular) and geographical sales mix adjustments to suit future expected sales from the Jansen operation, as exhibited in our current plans. Nutrien's realised prices are net of discount/rebates/freight, reported on FOB mine basis. After accounting for above adjustments, the average price is estimated at US$338/t FOB mine (Saskatoon, Real June 2022 basis). For the economics analysis covered in Chapter 19, the FOB mine price is used as defined above.

16.1.3 Competitors

Existing producers collectively sell the vast majority of their MOP on a CFR basis, typically as standalone product, directly to independent bulk buyers, utilizing regional offices, and sometimes agents. Producers typically sell to well over a hundred buyers that collectively form a diverse and competitive demand pool. MOP producers' geo diverse sales help to balance regional offtake variation that occurs due to local weather conditions, seasons, and crop economics.

Post CFR logistics span from discharge port to 100s of millions of farms around the world. In-market supply chains can be complex. For the most part, in-market distribution is disaggregated and managed by many independent downstream entities. Barriers to entry are often low and margins are often smaller than those captured further upstream.

Where producers choose to sell a portion of their production via their own distribution, manufacturing or retail assets, it is usually done when they want to capture downstream synergy from selling other fertilizers, agricultural products, and/or services. Even in regions where potash producers are particularly active downstream, such as the US and Brazil, the majority of the in-market supply chain remains independently owned.

Competitors currently produce between two and ~fifteen grades of Potash. Product characteristics are principally due to the 'natural' result of variation of the mill feed and choice of beneficiation method, but also to suit customers' needs and preferences. Below is a summary of key potash producers[4]:

Nutrien

Nutrien is a member of Canpotex, an export association of Canadian potash producers through which they sell their Canadian potash outside the US and Canada. Nutrien was formed through a merger between Potash Corporation of Saskatchewan and Agrium. The merger officially closed on 01 January 2018 and formed the world's largest provider of crop inputs and fertilizers. Nutrien is the world's largest potash producer with over 20 million tonnes of potash capacity at six potash mines in Saskatchewan. Nutrien sells nine MOP products including speciality products such as soluble grade, turf grade, chiclets, animal feed, micro-nutrients, and pharmaceutical grade.

Mosaic

Mosaic is a member of Canpotex, an export association of Canadian potash producers through which they sell their Canadian potash outside the US and Canada. Mosaic has approximately 10 million tonnes of operational potash capacity. Mosaic sells eight different MOP products including red/white granular and standard products, and crystal turf.

Every year, Canpotex sells a little less than 20 per cent of global MOP sales from Canada, outside North America. These sales are handled on behalf of Nutrien and Mosaic.

Uralkali

Uralkali is one of the leading global producers of potash. The Company accounts for a large share of global potash production. They sell eight different MOP products including: red granular and standard, white fine and standard and potassium chloride pellets.

Belaruskali

Belaruskali is one of the largest state-owned companies of Belarus and one of the largest producers of potash fertilizers in the world, accounting for 20 per cent global supply as of 2019. Belaruskali sells four MOP products including white/red standard and fine MOP.

K+S

K+S Potash Canada is part of the K+S Group, a German-based company that has been mining and processing potash and salt for over 125 years. K+S Potash Canada extracts potash crude salt which is further processed into three types of potassium chloride. K+S is the largest potash producer in Europe. K+S sell four products including pharmaceutical grade MOP.

EuroChem

EuroChem owns and operates plants in Russia, Belgium, Lithuania and China and produces both standard and enhanced nitrogen, phosphate, two potash products, complex fertilizers as well as several industrial product lines.

[4] Competitor information sourced from each competitor's corporate website

16.1.4 Market Entry Strategies

The marketing plans for the material are ultimately under the control of the registrant. As such, the Qualified Person has relied upon BHP for this information. In the Qualified Person's opinion and based on industry experience to date, the marketing plans provided by BHP appear to be reasonable in this context.

BHP expects to market directly to major customers via a network of regional offices, leveraging BHP's existing footprint and capabilities.

From a logistics perspective, like other established sellers, BHP intends to focus on upstream CFR sales. Jansen expects to also benefit from being able to direct-rail to North American customers. Jansen has logistics optionality and flexible granular processing capacity that means it could shift sales between export regions and North America, depending on the market. By staying upstream, Jansen can focus on the highest margin part of the value chain and leverage BHP's experience in exporting bulk commodity marketing and sea-freight.

BHP plans to target dozens of large buyers across growth regions in the Americas, Asia, and the rest of the world, by example Africa, noting Jansen will be under-weight in regions such as China given their historical product preferences. BHP plans to also sell some volumes into the US and other smaller established regions. Geographic and customer diversity is expected to provide competitive global access and average out regional demand variation and price netbacks. Actual sales splits are currently uncertain and depend upon various factors (including regional netback prices, logistics costs, reliability, and the need for location diversity) and vary over time.

BHP is new to potash, and intends to become in time one (of only a few) established sellers. Entry risk is only present for a relatively short period of time at the beginning of Jansen Stage 1. Market conditions at the time of entry are uncertain, and therefore any entry strategy must be fit for purpose under different conditions.

In anticipation of Jansen production coming to market, BHP established a dedicated potash marketing team in 2016 to build a practical understanding of how the potash market works. This team has recruited and consulted with many industry experts who collectively have extensive first-hand experience marketing and distributing potash. BHP has spoken with potential potash buyers and developed working relationships with major potash buyers and has non-binding Memorandums of Understanding (MOUs) in place with key strategic buyers. The marketing team is intended to be expanded to bring in more specific regional sales experience as considered to be appropriate.

16.2 Contracts and Status

All material contracts required for the development of Jansen Stage 1 are listed below in Table 16-1 and Table 16-2. Jansen does not intend to have agreements with affiliated parties and plans to create direct purchase engagements.

Table 16-1: Awarded Packages

Material Description	Mine Areas
Switchgear	Surface and Mining Electrical Equipment
Mine Ventilation Fans	Underground Mining Equipment
Hydraulic Power Packs	Underground Mining Equipment
Drag Conveyors	Underground Mining Equipment
Barge Pumps	Underground Mining Equipment
HVAC Equipment	Underground Mining Equipment
Bolter Fleet	Underground Mining Mobile Equipment
Conveyances, Pumps and Hydro-cyclones	Underground Mining Equipment
Axial Fans	Underground Mining Equipment
Valves, Transmitters and Process Control System	Mill Equipment
Modular E-Houses	Surface Electrical Equipment
Underground Conveyor Take-up Winches	Underground Mining Equipment
Dry Screens	Mill Equipment
Development Conveyors	Underground Mining Equipment
Blair Hoist	Mining Equipment
Surface and Underground LTE Communications	Surface and Mining Electrical Equipment
VFD Skids and Mine Load 15 kV Switches	Surface and Mining Electrical Equipment
Shaft Excavation, Steel and Equipping	Underground Mining Construction
Vent Plenums	Underground Mining Construction
Permanent Power	Surface Electrical Construction
Pulleys and Idlers	Mill Equipment
Surface and Underground Conveyor Belt Supply	Surface and Mining Equipment
Compactors	Mill Equipment
Fluid Bed Dryers	Mill Equipment
Gearbox and Conveyor Drives	Mill Equipment
Bucket Elevators	Underground Mining Equipment
Dust Collection Bag House	Mill Equipment
Crushers	Mill Equipment
Centrifuges	Mill Equipment
Survey, Drilling, Early Earthworks	Surface Civil Construction
Valves	Mill Equipment
Floatation Columns	Mill Equipment
Salt and Slimes Centrifuges	Mill Equipment
Coarse Particle Flotations Cells	Mill Equipment
Conditioning Drums	Mill Equipment

Table 16-2: Pending Packages

Package Description	Notes
Site Support Services	Bussing, Heavy Haul, Security, Emergency Response, Medical Services, Camp Management (including catering and janitorial), aggregate sourcing and management, courier services, trucking services, concrete batch plant, communications, general site services, testing and inspection services, Diesel supply and delivery, Bulk Propane Supply and Delivery,
Rail	Onsite rail, Offsite rail provider, Offsite earthworks, Spur Construction, Rail Cars
Mill Area	Foundations, Piling, Raw Ore Storage and Handling, Tailings Management, Dry and Wet Mill Area,
Mining	Underground Development, Headframe Changeover,

17 Environmental Studies, Permitting, Plans and Agreements

Operational controls for environmental management are guided by BHP's Charter Values. The Charter Values outline a commitment to develop, implement and maintain management systems for sustainable development that drive continual improvement and set and achieve targets that promote efficient use of resources. The Charter is reinforced by a series of *Our Requirements* (OR) documents that have been developed, including *Our Requirements for Environment and Climate Change* (OR E&CC). These enterprise-level documents set out minimum performance requirements to everyone in BHP that must be met to ensure the strategy is delivered, legal obligations are met, defined risks are management and productivity is improved. The OR E&CC applies to environment-related risks and potential impacts on the physical environment: air, water, land, biodiversity, communities and their interrelationships.

17.1 Environmental Studies and Impact Assessments

The Jansen Project was considered a development subject to the Saskatchewan *Environmental Assessment Act* and required the submission of an Environmental Impact Assessment (EIA). EIAs are used to assess the effect a proposed project may have on the environment by gathering information about the receiving environment and assessing the consequences that planned actions may have on the environment. EIAs help determine the necessary mitigations and other management or remedial measures that may be required for the project to proceed. EIAs define the receiving environment, identify any potential adverse impacts, and propose measures to reduce or prevent these impacts. Controls to manage significant impacts are conditioned in the relevant approval issued by the MOE.

The EIA also determines if any actual or reasonably foreseeable activities conflict with the following conditions, which are outside BHP's appetite for risk and listed in OR E&CC, including:

- Do not explore or extract resources within the boundaries of World Heritage listed properties
- Do not explore or extract resources adjacent to World Heritage listed properties unless you have approval and can demonstrate that the proposed activity is compatible with the outstanding universal values for which the World Heritage property is listed
- Do not explore or extract resources within or adjacent to the boundaries of International Union for Conservation of Nature (IUCN) Protected Areas Categories I to IV unless you have approval and you implement a plan that meets regulatory requirements, takes into account stakeholder expectations and contributes to the values for which the protected area is listed
- Do not operate where there is a risk of direct impacts to ecosystems which could result in the extinction of an IUCN Red List Threatened Species in the wild
- Do not dispose of mined waste rock or tailings into a river or marine environment

In November 2008, BHP Canada submitted a Project Proposal to the Environmental Assessment Branch. After a 30 day public comment period, the Environmental Assessment Branch issued its Project-specific Guidelines, which defined the type of information BHP Canada would need to submit in the Environmental Impact Statement (EIS). The Project Proposal was also sent to the

Canadian Federal Government for review in accordance with the Canada-Saskatchewan Agreement on Environmental Assessment Cooperation. Subsequently, the relevant federal agencies determined that there were no triggers for a federal assessment.

BHP Canada completed numerous environmental and socio-economic baselines surveys in 2008 and 2009 to support the EIS, inform environmental permit applications and provide information for management decision making. The survey scopes consist of air, noise, surface and groundwater, soils, wildlife and vegetation and heritage baseline and targeted surveys across BHP Canada's Jansen Project tenure.

Initial public feedback to support the scoping of the baseline surveys and submission of the EIS started in 2009. During the engagement process, a broad range of interested parties were engaged at the federal, provincial, regional and local levels. These included, local communities, Indigenous communities, non-governmental organizations, local business, Crown corporations and government agencies. Within the local communities, potash mining and its effects are generally familiar and well understood and the project received strong overall community and stakeholder support.

In December 2010, BHP Canada submitted the Jansen Project Environmental Impact Statement (EIS) to the Saskatchewan Ministry of Environment (MOE). The EIS and governments technical review were made available to the public for comment. The EIS received Ministerial Approval on 29 June 2011.

Since the EIS approval, further engineering and project optimization was completed that resulted in changes to the mine plan, site layout, and schedule. To maintain Ministerial Approval, two submissions were made in November 2017 to the MOE Environment Assessment and Stewardship Branch under Section 16 of *The Environmental Assessment Act*. The proposed changes included:

- change in ownership of the 7.98 kilometres (km) joint access rail spur connecting the on-site rail to the Canadian Pacific (CP) Railways mainline from CP to BHP Canada;
- increased potash production from 8 to 8.6 million tonnes per annum (Mtpa); and
- expansion of the tailings management area (TMA) from 388 to 450 hectares (ha).

Approval was received for both submissions on 19 April 2018.

The Jansen Project EIS identified several Valued Ecosystem Components, which were drawn from government requirements, public input, applicable legislation and guidelines, results of baseline studies, the Jansen Project description and the professional judgement of environmental and social scientists. The Jansen Project Valued Ecosystem Components are listed in the table below (Table 17-1), including mitigation measures.

Table 17-1: Jansen Project Valued Ecosystem Components and Mitigation Measures

Valued Ecosystem Components	Mitigation Measures
Air	Use diesel particulate filters, dust suppression, maintaining on-site unpaved roads, air quality will meet government standards for protection of people and the environment
Greenhouse Gas	Subject to Government of Saskatchewan mitigation regulations
Noise	Installation of noise reduction equipment, noise monitoring program to track noise, use best practises with mining equipment to minimize Project-related noise
Soils	Safe disposal of soil contaminants, re-vegetating soil surfaces to prevent wind and water erosion, designing refuelling stations and maintenance facilities to minimize and control spills, usage of seepage interceptor ditches to prevent brine migration
Groundwater	Ongoing monitoring program, control of brine (perimeter dykes and ditches, slurry walls, pile drainage system)
Ground Subsidence	Ongoing monitoring of ground elevation
Plants and Wetlands	Cleaning off-road equipment coming on to site for the first time, limiting soil disturbances, promptly re-vegetating disturbed areas, monitoring invasive plant populations
Wildlife	Habitat Compensation Plan, deterring birds from the brine area as appropriate, no-hunting policy on BHP controlled land, Canadian toad salvage program, avoiding clearing sensitive areas of vegetation during animal breeding seasons, minimizing light on tall site structures
Archaeology and Heritage	Avoid heritage and archaeology sites during construction and mining activities

The Jansen Project EIS found no significant effects on the Valued Ecosystem Components listed above after the proposed mitigation measures.

In accordance with the commitments and conditions in the EIS, long-term environmental monitoring programs were established to monitor for potential environmental effects arising from site operations. A network of monitoring stations were established in 2013 around the boundary of the Project. The monitoring programs include air quality, meteorology, noise, groundwater, wetlands, soils, and wildlife.

BHP Canada committed to developing a habitat compensation program to ensure no net loss of wetlands and associated habitat as a result of the Project. This program started in 2014.

BHP Canada committed to implementing an environmental management program for the Project that follows the framework outlined in the EIS. The Jansen Environment Management Plan (JEMP) describes site specific requirements that have been established for the Project to minimize environmental impacts during construction and future operations. The JEMP incorporates internal BHP environmental standards, federal and provincial environmental standards, and Project regulatory approval requirements.

17.2 Waste and tailings disposal

BHP’s commitment to safe tailings management, the Global Industry Standard on Tailings Management (GISTM) and our ambition to achieve zero harm from tailings is outlined in the BHP Tailings Storage Facilities (TSF) Policy available on bhp.com (see downloads section) as approved by the BHP Board in April 2021.

The BHP Tailings Policy outlines our approach to TSF management including:

- governance and accountability;
- TSF failure risk management (additional detail on risk management/ three lines model is available on the website);

- Emergency preparedness and response and mechanisms for recovery; and
- Transparency

Mandatory minimum performance requirements for TSFs govern how we manage TSF failure risks across BHP are aligned with the Global Industry Standard on Tailings Management (GISTM) (and outlined applicable processes and associated internal guidance). This is publicly available as the Our Requirements for Tailings Storage Facilities (see link to external OR above).

BHP has developed short-, medium- and long-term tailings management strategies.

- Our short-term strategy continues to focus on improving Key Risk Indicator performance in line with defined targets.
- Our medium- and long-term strategies focus on the development of technologies to improve tailings management storage. Asset-specific strategies have been developed for all of our operated and legacy assets and seek long term alternative tailings solutions.

17.2.1 Waste and Tailings Disposal

The waste produced from the mill process will be comprised primarily of fine tailings (insoluble), coarse tailings (salt) and brine. All tailings will be stored within the Tailings Management Area (TMA). Separate coarse and fine tailings cells will store the respective waste products and a brine recycling system connected to the coarse tailings cell will provide brine management for reuse by the mill. Excess brine from operations or resulting from precipitation events will be pumped to the disposal wellfield for injection into the Winnipeg-Deadwood Formation (the disposal horizon).

Containment for tailings and brine will be controlled by a combination of dykes, drains, and interceptor ditches. The coarse tailings area consists of a storage area surrounded by perimeter earthen dykes designed to store coarse tailings and brine produced during operations. The facility was designed to store the Environmental Design Flood (EDF) equal to a 1:100 year precipitation event occurring over a 24-hour period safely within the dykes while maintaining the minimum freeboard requirements. Additional flood storage will be available for precipitation events exceeding the EDF up to the Inflow Design Flood (IDF) utilizing overflow spillways constructed into the crest of the dyke. The overflow spillways allow for brine transfer into the interceptor ditches for temporary storage. The IDF used for design is 300 millimetres in 24 hours which is slightly greater than the calculated IDF for high Canadian Dam Association (CDA) consequence dam of 1/3 between 1:1,000-year and the rational Probable Maximum Precipitation (PMP). As the coarse tailings volume increases with production, a phased expansion of additional cells will be incorporated to maintain coarse tailings and flood storage capacity.

The fine tailings area will consist of a storage area surrounded by perimeter earthen dykes, including a decant pond, a filter dyke, decant structures and an underdrainage system. The facility was designed to store the fine tailings produced during operations and clarify the associated brine within the tailings through the filter dyke and the underdrainage system. This facility was designed to contain the IDF within a 24-hour period within the dykes while maintaining the minimum freeboard requirements in the system. As fine tailings volumes increase with production, a perimeter dyke raise and phased expansion of additional cells will be incorporated to maintain fine tailings and flood storage capacity.

The network of interceptor ditches will surround the TMA. These ditches were designed to collect shallow subsurface lateral brine migration below the perimeter dykes as well as contain any seepage collected within the perimeter toe drains. The base of the interceptor ditches will be keyed into the underlying unoxidized materials to intercept shallow brine migration and facilitate brine flow to a collection point at which the brine will be pumped back into the TMA storage facilities.

Slurry walls will be constructed as required in the future to mitigate migration of brine in the Upper and Lower Floral Aquifers from the area underlying the TMA. The timing of the slurry wall installations will be based on the results of regular monitoring of groundwater wells installed in these aquifer units.

17.2.2 Site Monitoring

Visual inspections of the TMA dykes and ditches will be completed on an annual basis by an independent geotechnical engineer. A comprehensive annual visual dyke inspection (AVDI) will be conducted to visually examine the containment structures and qualitatively evaluate the stability of the structures based on the observed appearance. The emphasis of the AVDI will be to identify any observable danger signs associated with failure mechanisms of the structures. The findings will be provided to the MOE.

Geotechnical monitoring instrumentation will consist of slope inclinometers, vibrating wire piezometers and standpipe piezometers installed to varying depths within the dyke, coarse tailings pile, and foundation soils to monitor pore water pressures and stability conditions. Geotechnical monitoring instrumentation are to be installed in the dykes and pile foundation soils shortly after construction, with a continuous growing network of instrumentation installed in the tailings pile as it grows to facilitate management of the facility.

The minimum calculated Factor of Safety (FOS) equal to 1.5 is presently required for containment dykes, as per the Saskatchewan Potash Industry Brine Pond Freeboard Guidelines and Reporting Requirements (MOE, 2018). The calculated FOS is modelled assuming the brine pond levels at the maximum flood storage level with all modelled dyke cross-sections exceeding the minimum FOS of 1.5. A minimum calculated FOS equal to 1.3 is required for all segments of the coarse tailings pile.

Site monitoring of environmental risks including brine migration outside of the TMA footprint will be completed predominantly through groundwater and surface water monitoring programs. A long-term groundwater monitoring plan was established for the Project in 2012. The objectives of the environmental monitoring are to detect and estimate the rate of lateral brine migration from the TMA and the extent and magnitude of drawdown due to groundwater extraction. Throughout operations, groundwater levels, surface water and groundwater water chemistry, and electromagnetic survey data will be collected and analysed in accordance with the Site’s Approval to Operate.

17.2.3 Water Management

In accordance with OR E&CC, the Project maintains a quantitative water balance. The water balance provides a summary of the meteorological data, camp occupancy, pond levels, and inputs and outputs.

In production, the raw water system will consist of the incoming water supply line from SaskWater, raw water pond, and main pump house. This area will provide raw water to the plant, for fire protection and to the operating facilities. The onsite storm water pond was designed for zero discharge; however, design changes have resulted in a requirement for construction phase discharge from the pond. Permits are issued by provincial regulatory agencies to discharge annually. During construction and operation, potable water will be supplied through the operating and permitted centralized water treatment system.

17.3 Project Permitting and Approvals

Construction and Operation Environmental Permits

Following the Approval of the EIS, the Jansen Project required federal, provincial and municipal permits and approval for construction and operation. BHP Canada has received all permits that have been applied for to-date and do not anticipate any risks to obtaining the required construction and operation permits for the Project.

The Project maintains an electronic permit register that lists all permits for the Project, which contains the permit details, requirements, and expiration dates. An internal notification system alerts the applicable parties when permits are up for renewal.

Decommissioning and Reclamation Plan

A Decommissioning and Reclamation (D&R) Plan has been developed in accordance with the Saskatchewan *Mineral Industry Environmental Protection Regulations*, Jansen EIS Commitments and EIS Approval. Provincial regulations also require that financial assurance be provided for the mining operations to ensure there are sufficient funds available for the necessary D&R activities. The D&R Plan was developed to provide information and costs on the concepts that would be implemented in the event the Jansen Project was to close in December 2021 and discusses the safety and security of the site, the decommission and reclamation concepts and addresses the residual risks of the Project through monitoring programs. In accordance with the *Mineral Industry Environmental Protection Regulations*, BHP Canada is required to submit and review the D&R Plan and financial assurance every five years. BHP Canada submitted and received approval for the first D&R Plan in 2016 and submitted a revised D&R Plan in 2021 and received approval in 2022.

Heritage

In 2009, a Heritage Resource Impact Assessment (HRIA) was completed to support the submission of the Jansen Environmental Impact Statement (EIS). The HRIA involved pedestrian surveys, documentation of existing heritage features and informal interviews. Three heritage sites were identified, one prehistoric archaeological site and two historic built heritage sites. The Heritage Conservation Branch (HCB) determined that no further work was required at the two historic built heritage sites. With respect to the third site, a Heritage Resource Impact Assessment (HRIA) was completed in May 2021. The assessment was submitted and the Saskatchewan

Heritage Conservation Branch determined all HRIA regulatory requirements had been satisfactorily completed, and there are no concerns with the project proceeding as planned.

17.4 Social Plans and Agreements

In the case of Jansen, no aboriginal rights were impacted by the project, the Duty to Consult with Indigenous groups was not triggered. However, during the development of the Jansen project, BHP Canada negotiated voluntary agreements with six local Indigenous communities to provide a basis for collaboration and for effective ongoing communication. As part of the agreements, commitments to capacity building initiatives on education, training and labour force development and addresses sharing of information important to environmental management practices. The agreements are refreshed every five years.

17.5 Closure Planning

Conceptual Closure Plan and Associated Costs

A Conceptual Closure Plan has been developed for the Jansen Project with an anticipated ore throughput of 11.4 Mtpa and an approximate 100-year life of mine. The main areas include the mine site, raw ore handling and storage, process plant, tailings and brine disposal, product storage and loadout, non-process infrastructure and onsite rail, joint access spurs and wyes. The objective of the closure activities is to achieve the conditions for physical and chemical stability of the mine site, similar to its pre-development condition and land use, to ensure public safety and environmental protection. Specific stakeholder consultation relating to closure has not been conducted to date but will be undertaken based on the stakeholder engagement strategy for the Project.

Progressive reclamation is the reclamation of areas no longer required for operations and provides a potential means to enable a cost-effective, timely closure. It is anticipated that the majority of the Project site will be actively utilized while the mine is operational and therefore opportunities for progressive reclamation may be limited.

Site decommissioning will be staged, first with the mine site, then process facilities and finally the TMA. All buildings and associated infrastructure will be decommissioned and demolished once no longer required for long-term closure activities. All waste will be classified as either hazardous or non-hazardous and disposed accordingly.

The TMA at closure will consist of the fine and coarse TMAs. The fine tailings are expected to consolidate to enable access for equipment to cover with granular fill, soil and re-vegetate. The coarse TMA will be closed and reclaimed through either natural or enhanced dissolution. The current conceptual closure plan for coarse tailings involves long-term natural dissolution by precipitation, and the collection and disposal of the resulting brine through brine disposal wells into the Winnipeg-Deadwood Formation, which are highly saline aquifers below the mining horizon. Enhanced dissolution involves the water sources identified in natural dissolution as well as utilizing poor quality water (unusable for consumption or irrigation) from an aquifer.

The end uses for the rehabilitated site are currently identified as a mix of agricultural and wetland/upland habitat, but will be subject to future stakeholder discussions.

An environmental monitoring and maintenance program will be conducted to assess the physical, chemical, and biological stability of the rehabilitated mine, where necessary, proactivity identify areas where maintenance is required. The intention of this program is to confirm whether the site closure criteria have been achieved, and to ensure the closure activities are progressing successfully towards meeting these criteria and attaining the close out status.

The conceptual closure cost model is made up of a detailed direct cost estimate for each of the reclamation activities identified for each project component. Despite the detailed estimation of the closure costs, there is a vast amount of time before the closure plan is to be executed, and consequently limits the accuracy of the cost, with the current conceptual closure plan representing one of many possible closure options. BHP Canada continues to work with the relevant provincial ministries to maintain an appropriate level of financial security for mine closure requirements

The conceptual closure costs are represented in the economic evaluation as a lump sum one year after active mining stops, with primary closure of the mine site buildings, processing plant, and non-process infrastructure occurring approximately within the first five years of closure. An annual cost of CA$2.7M, exclusive of indirect costs and contingency, is captured in the economic evaluation for the duration of the post closure monitoring, maintenance, and the reclamation of coarse tailings, accomplished through long-term dissolution by precipitation, collection and disposal of the resulting brine through disposal wells, and the reclamation of said disposal wells. The closure cost estimate is CA$2.4B, excluding contingency and indirect costs.

17.6 Local procurement and hiring

BHP works in partnership with Indigenous peoples around the world. The success of these relationships is critical to our success as a company.

BHP is committed to supporting the communities in which we operate through the delivery of local industry participation benefits.

Local and Indigenous Procurement

The Jansen Project brings significant potential for involving Indigenous and local contractors and suppliers with a focus on First Nation organizations. BHP Canada has signed voluntary Opportunity Agreements (OAs) with communities near the Jansen Project as follows: Kawacatoose First Nation, Day Star First Nation, Muskowekwan First Nation, Beardy’s and Okemasis’ Cree Nation, Fishing Lake First Nation, and George Gordon First Nation. The purpose of the OAs is to enable a collaborative working relationship between the First Nations and BHP Canada by providing business and economic, employment, training and community development opportunities. This, in addition to the introduction of 7-day payment terms for all small, local and Indigenous owned businesses, which took effect in June 2021.

Local and Indigenous Hiring

During Jansen mine operations, BHP Canada has publicly stated our intent is that our Indigenous workforce reflects the underlying demographic of the region. For more on Indigenous hiring, please see Section 17.4 on social value and agreements.

Additionally, BHP Canada is expected to implement processes designed to increase Indigenous and female participation in employment opportunities independent of the apprenticeship program.

17.7 Discussion of Relative Accuracy/Confidence

In the Qualified Persons opinion, the risks associated with environmental compliance and permitting, water management and cultural heritage are well understood and managed in accordance with BHP's *Our Requirements Health, Safety, Environment and Community Reporting* and regulatory requirements. Our approach to social investment and commitment to our local communities has resulted in long-term relationships that will continue for the life of the project.

In the opinion of the Qualified Person, there is a high likelihood that changes to the closure plan and cost will occur as it progresses from conceptual design to detailed design. The closure management plans should be regularly reviewed to reflect updated asset planning and include current knowledge from on-site experience, regionally, across other BHP businesses, and globally in the mining industry.

18 Capital and Operating Costs

18.1 Operating Cost

18.1.1 Operating Cost Estimate

The operating cost estimate for Jansen were developed to capture costs defined as mine gate. This includes all costs spanning from the mining face underground to the loading of product to rail at the site.

The operating cost estimate includes all personnel and activities within the battery limits of the scope, and also includes operational and statutory management, administration, and support personnel associated with the operation. Specifically, the operating cost estimate captures all costs related to:

- Mining operations and maintenance
- Processing operations and maintenance
- Non-process infrastructure operations and maintenance
- Indirect costs including:
    - costs associated with the Saskatoon Integrated Operations Centre (IOC)
    - Marketing and selling costs
    - Intra-Group Service Charges (IGSC's) and share & executive awards
- Carbon costs and applicable sales tax
- Sustaining capital associated with any of the items identified

There are tax-related expenses that will be incurred by Jansen that are not covered in the operating cost estimate and are instead captured within the economic analysis separately. These include:

- Royalties (including Crown royalties and Saskatchewan resource surcharge)
- Business income taxes including potash production taxes, federal income taxes and provincial income taxes)

The operating cost inputs and drivers have been primarily sourced from bottom-up estimates, operational experience and benchmarking, budget quotes from potential vendors, design specifications, and currently contracted rates where applicable. The operating cost estimate for Jansen Stage 1 is developed to an accuracy level within a +/-25% range. The estimate includes costs from all areas from the mine face up to and including the load out operations. Table 18-1 reflects the operating cost in CA$ and US$ equivalent with breakout between variable and fixed costs.

Table 18-1: Major Components of Operating Costs for Jansen[5]

Cost Category	Cost Sub Category	CA$/t KCl	US$/t KCl
Product Variable Costs	Mine Operating Costs	**5**	**4**
	Processing Operating Costs	**18**	**13**
	Other Variable Costs	**2**	**2**
		CA$M	**US$M**
Fixed Costs	Mine Operating Costs	**80**	**61**
	Processing Operating Costs	**64**	**48**
	Non-Process Infrastructure (NPI)	**19**	**14**
	Indirect & Overhead	**59**	**45**
	Other Fixed Costs	**16**	**12**
Sustaining Capital		**74**	**56**

Variable costs in each of the areas referenced in Table 18-1 include production consumables, utilities (power, natural gas, diesel, and water), as well as processing reagents as the primary drivers. These costs will be incurred with the start of saleable product being produced as outlined in Table 131. All consumption values per tonne were estimated considering the Jansen engineering design and benchmarked estimates from our Potash SME team. The unit costs used in the variable cost calculations were sourced from budget quotes from local vendors as well as publicly available information where possible.

Fixed costs within each area consist of labour and maintenance as the primary drivers. Labour costs unit rates referenced locally benchmarked labour rates in the region with total headcount estimated utilizing the Jansen mining and processing design. Maintenance costs utilized benchmarked annual costs for known equipment types multiplied with the known asset counts from within the design. Indirect costs were developed reviewing the current BHP benchmarked costs from other assets while considering the Potash specific work requirements.

Sustaining capital costs take into account the continued development of the mine and need to install additional material handling infrastructure. Other main drivers within sustaining capital are major maintenance programs, asset replacement, and tailings area expansions throughout the life of the mine.

18.1.2 Basis and Accuracy Level for Cost Estimates

The cost estimation procedure and the uncertainty analysis for the operating cost of the project has been reviewed and analysed by an independent 3rd party team to remove potential bias from the process. The uncertainty analysis was facilitated by the 3rd party team and utilized external subject matter experts. All outputs of the estimated process have been reviewed and approved as accurate in the opinion of the qualified person and are within level of accuracy stated at the

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time that they were developed. At the conclusion of the process the mid case estimate outlined within this document was acknowledged as within the range of accuracy with limited changes suggested.

The results of the ranging exercises determined the contingency for mine gate, on site rail, and sustaining capital fall within the 15% allowable contingency in a PFS. Contingency is developed for the Operating Cost estimate and applied within the economic analysis and economic evaluation modelling.

The culmination of the ranging exercises resulted in contingencies appropriate to prefeasibility accuracy, which were developed for the Operating Cost estimate and applied within the economic analysis, decision evaluation modelling.

The final resulting estimate that was utilized in the cost analysis was reviewed and endorsed by the operating cost estimate owner and deemed suitable for use in the opinion of the qualified person within the accuracy stated within this document.

18.2 Capital Cost

18.2.1 Capital Cost Estimate

Capital cost estimating is the predictive process used to quantify, cost, and price the resources required by the scope of an investment option, or project. The basic estimating steps are to understand the scope of the activity to quantify the resources required; apply costs to the resources; apply pricing adjustments and organize the output in a structured way that supports decision-making.

The Jansen Stage 1 Capital Cost Estimate (Capex) was developed by BHP Canada, its consultants and engineering service providers. Communications, power, water, and natural gas are provided by provincial crown corporations. Connections to the water and natural gas infrastructure are complete from the previous phase. Permanent power and communications will be completed during the execution phase of the project. The optimized scope for Jansen Stage 1 comprises:

A fully lined Service shaft with permanent hoists capable of 1,750 tph, equipped with steel guides and loading/unloading to accommodate two 50-tonne skips and a 90-person service cage;

A fully lined Production shaft, known as Dalla Valle (DV) shaft. The existing sinking arrangement will undergo a hoist and headframe changeover to accommodate the interim hoisting requirements for the lateral connection of the two shafts and subsequent shaft pillar development. The DV shaft will also serve as secondary personnel and materials movement as well as second egress and return air ventilation circuit. This shaft will be fully equipped in subsequent stages;

A shaft pillar area with skip loading facilities, conveyor networks, raw ore storage bin (vertical), remote storage area (horizontal), refuge stations, workshops, materials management areas, offices, principal refuge chambers, mobile equipment battery charging stations, and parking areas;

Establishment of two mining districts that each contain two production panels and supporting development units, and are connected to the shaft infrastructure through conveyor networks;

Production and development mining equipment, including MF460 borers, extendable belt systems, continuous miners, batch haulage, and supporting fleet of underground personnel and service vehicles;

A 1,483 tph ore processing plant including:

- Raw ore handling, storage, and crushing
- Process mill building wet area comprising attrition scrubbing, desliming, flotation, and debrining
- Process mill building dry area comprising drying, screening, compaction, and glazing
- Tailings processing, crystallizer, and reagents
- Product handling, storage, screening, and loadout

Non-process infrastructure, including a tailings management area, administration building, warehousing, workshops, utilities and rail.

The majority of the direct cost estimate is based on engineering designs which include design drawings, 3D models, equipment, and instrument lists based on process flow diagrams and piping and instrumentation diagrams, and other engineered quantities. The capex estimate includes quantities for common indirects, implementation contractor services (EPCM), owner's team that are based on personnel requirements for the duration of the project. Provincial sales taxes are calculated based on Saskatchewan tax regulations. Escalation estimates during execution are calculated based on IHS Markit indexes for various commodities and labour types.

The majority of the direct bulks and equipment supply pricing is based on budget pricing from the market. Some of the packages were at very advanced stages of development thus had been awarded to the vendors at the time of study completion. The majority of the direct trade labour rates are based on input from the tier 1 construction contractors as well as the negotiated project labour agreement with the trade unions. In the opinion of the Qualified Person, based on the engineering, execution schedule, project execution plan, market pricing and labour pricing information available at the time of study, the capex estimate includes all required elements of cost to cover the defined scope and is appropriate for the project.

Total Jansen Stage 1 capex summary is as follows (Table 18-2). Sunk costs are exclusive; economic evaluation is performed using go forward costing.

Table 18-2: Jansen Stage 1 Capex by Area, Real CA$M[6]

Description	Total Sunk Projected at end of FY22	Total to go FY23 Onwards	Grand Total Capex
Mine	131	1,927	2,058
Mill No. 1	45	2,002	2,047
Non-Process Infrastructure	92	862	954
Owners costs, and Operational Readiness Costs	45	409	455
Total Installed Cost (TIC)	**312**	**5,201**	**5,513**

Total sunk cost for FY22 (Jul-2021 to Jun-2022) in the above table is based on the capex input calculated in mid CY2021 for valuation purposes and may differ from the actuals by end of the FY22. All costs in Table 18-2 are Real CA$M and excludes escalation and inflation.

18.2.2 Basis and Accuracy Level for Cost Estimates

The majority of the quantities are developed from design drawings, 3D models, equipment, and instrument lists based on process flow diagrams, piping and instrumentation diagrams, and other engineered quantities. The majority of the pricing of bulks and plant equipment is sourced from the market.

The uncertainty and risk analysis for capex has been facilitated by a 3rd party team to remove potential bias from the ranging process, however BHP Canada led the effort for model and results. In the opinion of the Qualified Person, the process undertaken for ranging is appropriate and based on the project information available at the time of study, covers for all the uncertainties and risks that the project may be subject to during execution. The team that ranged the risks and uncertainties consisted of both internal and external subject matter experts while applying the ranging methodology as described below:

- Estimate roll-up of cost and schedule
- Solicitation of ranges from various internal and external subject matter experts
- Range modelling and analysis
- Incorporating Jansen Independent Peer Review recommendations
- Final results and reporting

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Uncertainties and risks are quantified by the following ranging categories:

- Scope of work
- Labour or service rates
- Labour productivity
- Supply rates of equipment and bulks
- Discrete project risks

The culmination of the ranging inputs available at the time of risks and uncertainties assessment resulted in a total installed cost (TIC) of Real CA$5,513M. This represents an expected contingency of up to but not exceeding 15 per cent of the total installed cost. The accuracy range around the expected overall capex of Real CA$5,513M is +/-25 per cent. In the opinion of the Qualified Person, based on the technical information available and associated ranging on this information at the time, resulting contingency and ranges are appropriate for the project to cover for uncertainties and risks during execution.

19 Economic Analysis

19.1 Key assumptions, parameters and methods used

The economic analysis presented in this section is based on annual cash flow projections including sales revenue (sales point FOB Mine), operating and closure costs, capital expenditures, royalties, income and production taxes.

19.1.1 Mine Plan Physicals

The mine production is modelled on an expected basis. The expected value is considered to be the most likely outcome when considering a range and likelihood of possible scenarios. The Expected run-of-mine (RoM) production is 11.45 Mtpa, life of mine grade of 24.8 per cent, recovery of 92 per cent and a concentrate of 60.4 per cent K_2O resulting in a life of mine average of 4.35 Mtpa KCl. The development of the reserves generated is available in Section 12 and the mining profile is presented in Sections 13 and 14. Jansen expected annual production is presented in Figure 19-1: Jansen planned annual production of finished product.

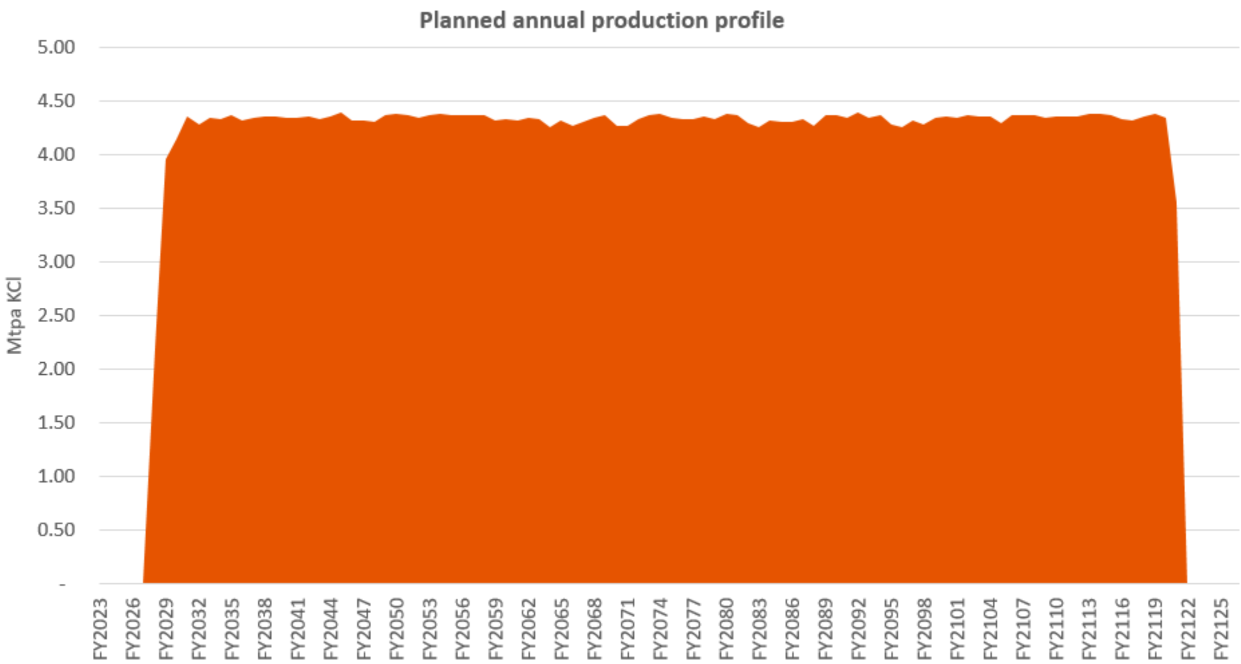

Figure 19-1: Jansen planned annual production of finished product[7]

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19.1.2 Potash Price

The sales point is assumed as Mine gate with annual revenue determined by applying the through cycle historic average price, FOB Mine, of US$338/t to the annual life of mine production. The development of the historic average pricing is outlined in Section 16 of this document.

19.1.3 Foreign Exchange Rate

Inputs into the economic analysis are primarily in Canadian dollars with some United States dollars inputs. An average foreign exchange rate for the preceding three financial years (July 2018 to June 2021) of 1.32 CA$/US$ was provided by the registrant to convert and present cash flows in US dollars.

19.1.4 Capital and Operating Costs

Capital costs (refer Section 18.2) prior to FY2023 have been treated as sunk costs and are not included in the analysis. Capital expenditure is aligned with mine gate prices and therefore exclude all port capital requirements.

Sustaining capital is estimated over the life of mine at an average rate of US$13/t KCl (refer Section 18.1).

The average operating cost over the life of mine is estimated to be US$61/tonne (refer Section 18.1). Operating costs are aligned with mine gate prices and therefore exclude all port cost.

19.1.5 Closure Costs

Closure and rehabilitation costs are included in the economic analysis following the end of mine life (refer Section 17.5 Closure Planning).

19.1.6 Royalties and Taxes

BHP Canada's potash mining operations will be subject to the following royalties and taxes in Canada:

Saskatchewan Crown Royalties: Royalties of 3 per cent of the value of potash produced based on the average price realized by the producer in the year as determined by revenues and sales under The Potash Production Tax Regulations.

Saskatchewan Resource Surcharge: The Resource Surcharge is a corporate capital tax levied at a rate of 3 per cent of the value of sales of potash in Saskatchewan.

Saskatchewan Municipal and School Taxes: Saskatchewan property taxes are levied by municipal councils and school boards to support local infrastructure and school programs.

Saskatchewan Potash Production Tax: The Government of Saskatchewan imposes a Potash Production Tax comprising two components, a Base Payment and a Profit Tax.

Corporate Income Taxes: The Government of Canada and the Government of Saskatchewan charge corporate income tax at rates of 15 per cent and 12 per cent, respectively, for a combined rate of 27 per cent of taxable income for the year. Saskatchewan Crown Royalties, Resource Surcharge, Municipal and School taxes, and Potash Production Tax are deductible for Corporate Income Tax purposes.

19.1.7 Valuation Assumptions

Discounted annual cash flows are calculated using a 6.5 per cent real, post-tax discount rate at a valuation date of 30 June 2022. The discount rate has been provided by the registrant for utilisation in the economic analysis and is based on the average of weighted average cost of capital disclosures by brokers, adjusted where required for inflation of 2.0 per cent per annum.

19.2 Results

Results of the economic analysis based on the LoA production schedule of Jansen Stage 1 mineral reserves is summarised in Figure 19-2. Total cash flow forecast of US$60.6 billion, discounted to June 2022 at 6.5 per cent results in a net present value (NPV) of US$5.5 billion. Refer toTable 19-1

Table 19-1.

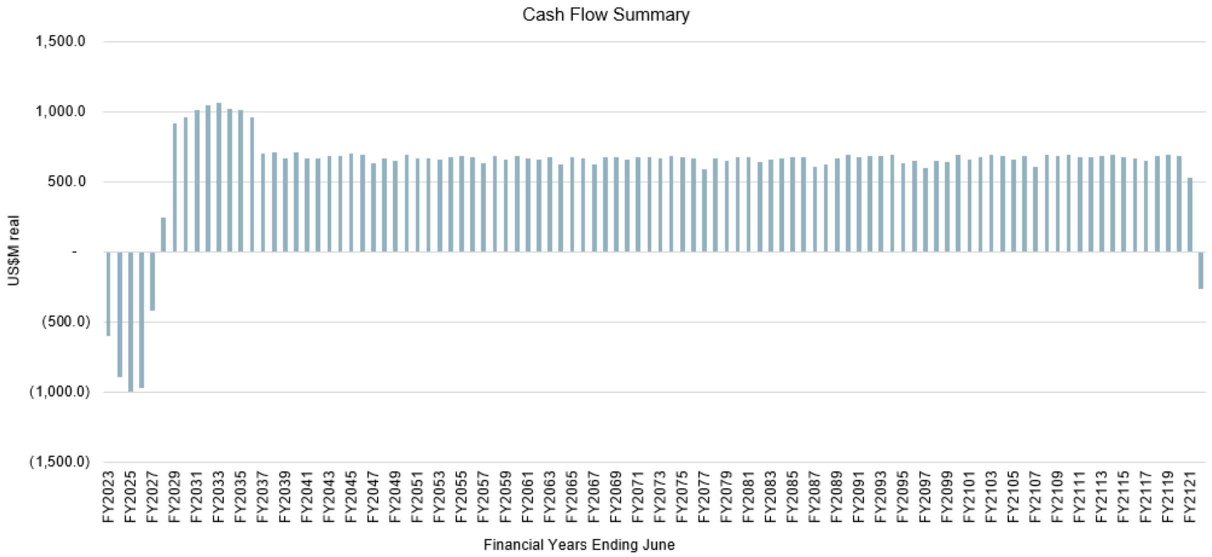

Figure 19-2: Cash Flow summary[8]

8 - The sole purpose of the annual cash flow data presented above is to demonstrate the economic viability of the mineral reserves for the purposes of reporting in accordance with S-K 1300 only and should not be used for other purposes. The annual cash flow data was prepared based upon Pre-Feasibility-level studies and the historic average prices and costs described in this Technical Report Summary; it is subject to change as assumptions and inputs are updated. The information presented does not guarantee future financial or operational performance. The presented information contains forward-looking statements. Please refer to “Note Regarding Forward Looking Statements” at the front of this Technical Report Summary.

***Table 19-1: Cash Flow Summary*[9]**

Jansen Stage 1 Mineral Reserve Cash Flow Summary US$ billion	
Revenue	136.6
Operating costs	(24.7)
Capital expenditures	(9.3)
Closure and rehabilitation	(0.3)
Taxes	(41.8)
After-tax cash flow	60.6
Net present value (6.5%, Jul-22)	5.5

The annual projected cash flow presented in Figure 19-2 includes all closure and rehabilitation related annual cash flows summed after the final year of mineral reserve production.

The internal rate of return (IRR) is 15.2 per cent and the payback period is 5 years following first production. It is the Qualified Person's opinion that extraction of the mineral reserve is economically viable.

19.3 Sensitivity Analysis

Economic sensitivity analysis results are presented in Table 19-2: Results of sensitivity analysis are based on variations in significant input parameters and assumptions.

***Table 19-2: Results of sensitivity analysis*[9]**

NPV US$ billion	-10%	Reference	+10%
Potash price	4.5	5.5	6.5
Throughput	4.5	5.5	6.5
Grade	4.5	5.5	6.5
Recovery	4.5	5.5	6.3
Exchange Rate	5.1	5.5	5.9
Capital expenditure – project costs	5.8	5.5	5.2
Operating costs	5.7	5.5	5.3

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20 Adjacent Properties

Figure 20-1 shows the properties and their owners adjacent to the Jansen project. BHP Canada owns additional potash dispositions north, south, and south-east of Jansen. Exploration on the KL 218, KL 211 (Burr) and on KL 205, KL 206, KL 207 (Boulder) properties includes 2D seismic surveys followed by some 3D seismic surveys and limited drilling.

West of Jansen is Nutrien's Lanigan operation (KLSA 001). Publicly available NI 43-101 reports indicate that the Lanigan operation has extracted potash from the same LPL sub-member as Jansen is planning to mine since production begin in 1968. Since 2007 the Lanigan operation has also expanded mining to the UPL sub-member. Lanigan currently operates three disposal wells that inject waste brine into the Winnipeg and Deadwood formations.

Based on the Saskatchewan Ministry of Energy and resources information the KL 282 Potash disposition north, north-east of Jansen is owned by Canada Golden Fortune Potash Corp. a wholly owned Canadian subsidiary of the Shanghai Jingdi Investment Ltd. company based in Shanghai, China. The company's website indicates that exploration activities at the property were limited to 2D seismic surveys.

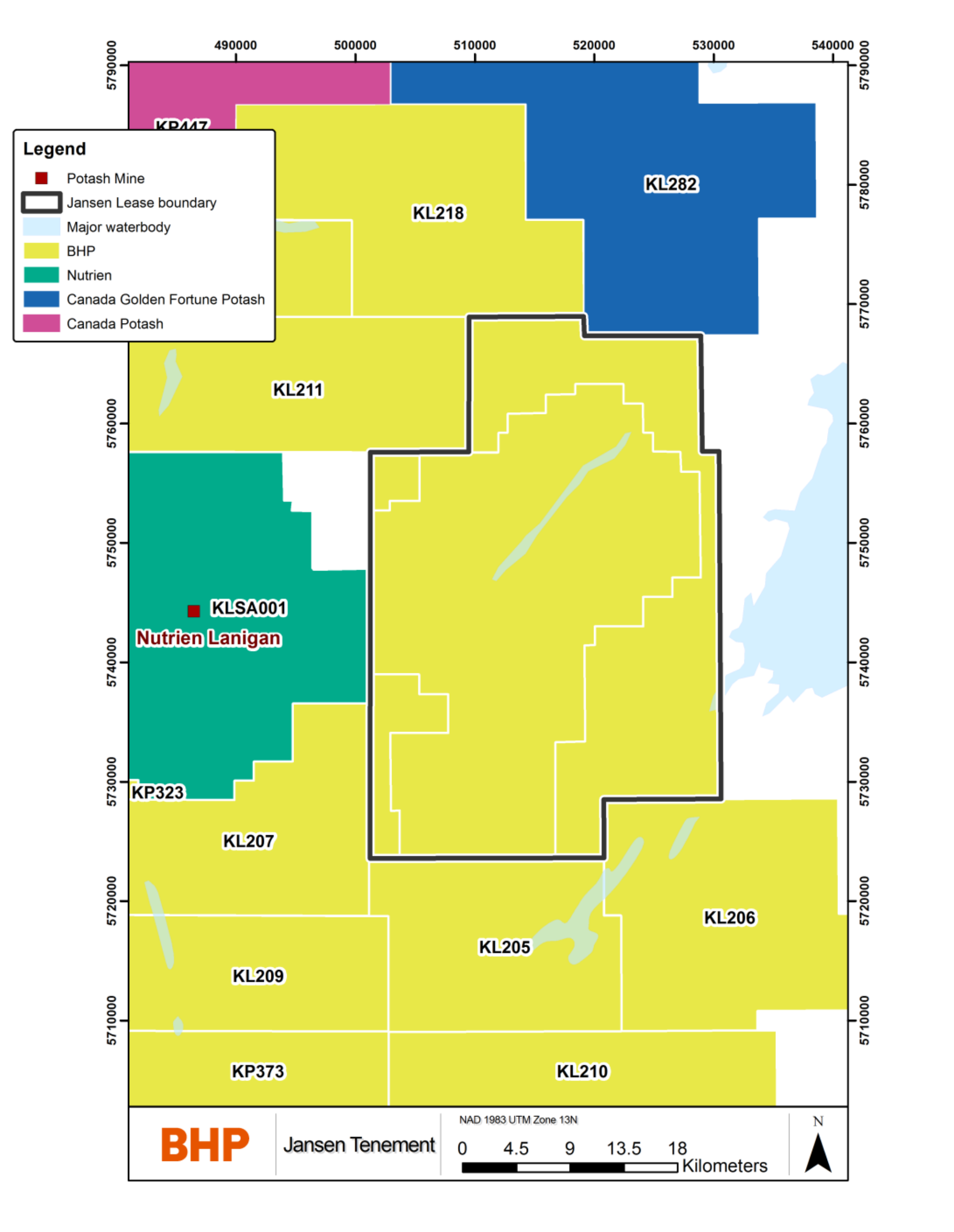

Figure 20-1: Jansen lease and neighbouring potash dispositions and properties.

21 Other Relevant Data and Information

Annual Risk Reviews are conducted jointly by Assets and the BHP Resource Centre of Excellence to ensure significant and material risks to Tenure, Mineral Resources and Mineral Reserves are adequately managed. The Risk Review process identifies key reporting changes regarding the annual declaration of Mineral Resources and Mineral Reserves and agreed actions requiring completion prior to BHP's annual reporting. Issues and opportunities identified during the Risk Reviews inform the Annual Assurance Plan and scopes for potential Controls Effectiveness Collaborative Assessment reviews and identify good practice that can be shared across BHP.

22 Interpretation and Conclusions

22.1 Mineral Resources

The Jansen Mineral Resources are based on available historical data and on an extensive exploration program conducted by BHP Canada at the Jansen project. Knowledge gained by exploration in adjacent properties and other areas of the basin, from publicly available historical data, and from publicly available mining history also contributed to the assessment and classification of the Jansen resource. The limited number of drill hole intersections, core sample sizes, horizontal and vertical resolution of the seismic data are factors that introduce uncertainty into the Mineral Resources estimates. The impact of these were carefully considered during the estimation process and in the classification of the resource areas. It is the opinion of the Qualified Person, that based on the available data, the known limitations of the data, interpretations, and methodologies the Jansen Mineral Resources estimate is considered fit for purpose in supporting and for forming the basis of a Mineral Reserves estimate.

22.2 Mineral Reserves

Uncertainties that affect the reliability or confidence in the Mineral Reserve estimate include but are not limited to:

- Future macro-economic environment, including product prices and foreign exchange rate;
- Changes to operating cost assumptions, including labour costs;
- Ability to continue sourcing water from the Saskatoon South East Water Supply;
- Ability to preserve ongoing reliable power supply;
- Changes to mining, hydrogeological, geotechnical parameters and assumptions reflected in mining recovery;
- Ability to maintain environmental and social license to operate;
- Integrity of the shaft liner beyond the design life of 70 to 80 years.

Confidence in the Mineral Reserve is reflected in the applied reserve classifications in accordance with the US SEC S-K 1300 with factors influencing classification including but not limited to mining methods, processing methods, economic assessment and other life of asset and closure assessments.

In the opinion of the Qualified Person, the positive project NPV provides confidence in the Mineral Reserve estimate and the supporting mine plan, under the set of assumptions and parameters used in which they were developed. The Probable Mineral Reserve classification considers the Measured classification of the Mineral Resources classification and the uncertainty of the mining factors.

23 Recommendations

The Jansen project is currently in Execution phase. First saleable product is expected in 2027, with construction expected to take six years. There are no current work plan recommendations for the next financial year outside of the planned Jansen Stage 1 project execution.

24 References

The list of the references cited in this report is given below.

BHP (2021) Press Release. BHP approves investment in Jansen Stage 1 potash project. Retrieved 03 March 2022.

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Mackintosh, A. D. and McVittie, G. A. (1983). *Geological anomalies observed at the Cominco Ltd. Saskatchewan potash mine; in McKercher, R.M. (ed.), Potash 83 Potash Technology – Mining, Processing, Maintenance, Transportation, Occupational Health and Safety, Environment, Pergamon Press Toronto, pp.59-64.*

Ministry of Environment (2018). *Saskatchewan Potash Industry Brine Pond Freeboard Guidelines and Reporting Requirement.*

The Oil and Gas Conservation Regulations, (1985)

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https://publications.saskatchewan.ca/api/v1/products/112630/formats/126664/download

25 Reliance on Information Provided by the Registrant

The Qualified Persons have relied on information provided by BHP in preparing its findings and conclusions regarding certain aspects of modifying factors, which are listed in Table 25-1.

Table 25-1: Reliance on Information Provided by the Registrant

Category	Report Item/ Portion	Portion of Technical Report Summary	Disclose Why the Qualified Person Considers it Reasonable to Rely upon the Registrant
Marketing Plans	Section 16.1	Market Information and Market Entry Strategies	Based on industry experience to date, the marketing plans provided by BHP appear to be reasonable for a new market entrant.
Marketing Information	Section 16.1	Information concerning markets	Information maintained by BHP through a specialist Market Analysis and Economics team.
Marketing	Section 16.2	Contracts required to develop the property	Information maintained by a dedicated Supply team within BHP.
Environmental matters	Section 17.1 Section 17.3	Environmental Studies and Impact Assessments Project Permitting Requirements	Matters related to environmental studies and permitting are undertaken by professional teams within BHP.
Environmental matters	Section 17.5	Closure Planning	Matters related to environmental studies are undertaken by professional teams within BHP. The closure cost estimate represents future costs based on current conceptual expectations of site future conditions. Closure management plans are regularly reviewed and updated to ensure relevancy in current context.
Plans for local groups	Section 17.4 Section 17.7	Social Plans and Agreements with Local groups, Local procurement and Hiring	Matters related to social plans, agreements with local groups, local procurement and hiring are managed by dedicated professional teams within BHP.
Macro-economic Assumptions	Section 19	Foreign Exchange rates (FX) and discount rates	Matters related to discount rate, FX rates, and interest rates are maintained by financial professionals within BHP and the accounting practices are externally audited annually. The discount and FX rates appear appropriate and in line with current market conditions.
Governmental factors	Section 19.1	Royalty and taxation	These are external factors that BHP has to comply with and data is maintained by financial professionals within BHP