INTRODUCTION 1

BHP Billiton Olympic Dam Corporation Pty Ltd (hereafter referred to as BHP Billiton) is proposing to expand its existing mining and minerals processing operation at Olympic Dam, located in South Australia about 575 km by road north-north-west of Adelaide (see Figure 1.1). BHP Billiton commissioned Arup Pty Ltd who, with ENSR Australia Pty Ltd, prepared the Draft Environmental Impact Statement (Draft EIS) for the proposed expansion.

The Draft EIS presents the findings of environmental, social, cultural and economic assessments undertaken to determine the potential impacts of, and benefits from, the proposed expansion. It is the primary source of information for public comment and the Australian, South Australian and Northern Territory governments' decision on whether the proposed expansion can proceed.

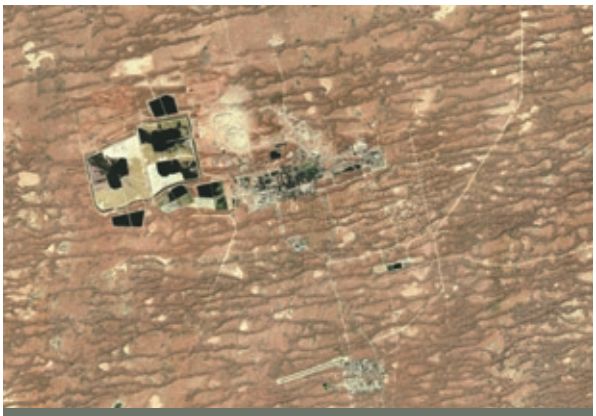
This chapter provides an introduction to the project proponent (BHP Billiton), and the group of companies of which it forms a part (hereafter referred to as the BHP Billiton Group). It also outlines the process of preparing the Draft EIS, provides an overview of the existing Olympic Dam operation, the proposed expansion, the EIS assessment process for all three relevant governments, and the stakeholder consultation and engagement program.

The Draft EIS addresses the requirements of the Australian, South Australian and Northern Territory governments' EIS Guidelines (see Appendix A). Section 1.6.4 provides a high-level summary of the requirements of the EIS Guidelines and where they have been addressed in the Draft EIS.

1.1 BACKGROUND TO OLYMPIC DAM AND THE PROPOSED EXPANSION

Western Mining Corporation Limited (hereafter referred to as WMC) discovered the Olympic Dam mineral deposit in 1975. WMC formed a joint venture with BP Group in 1979 to develop the project. In April 1993, WMC (Olympic Dam Corporation) Pty Ltd purchased BP Group's share. Following the BHP Billiton Group takeover of WMC Resources Ltd in June 2005, WMC (Olympic Dam Corporation) Pty Ltd became a member of the BHP Billiton Group and changed its name to BHP Billiton Olympic Dam Corporation Pty Ltd.

Underground production mining at Olympic Dam started in 1988 at a rate of 45,000 tonnes per annum (tpa) of copper plus associated products: uranium oxide, gold and silver. Further approvals and optimisation projects in 1992 and 1995 increased production to 66,000 tpa and 85,000 tpa of copper plus associated products respectively. In 1997, production increased to the current 170,000 tpa of copper plus associated products (associated products being around 4,000 tpa of uranium oxide, 80,500 ounces per annum (oz/a) of gold and 780,000 oz/a of silver). Olympic Dam has conditional approval to produce 350,000 tpa of copper plus associated products.



Existing Olympic Dam operation

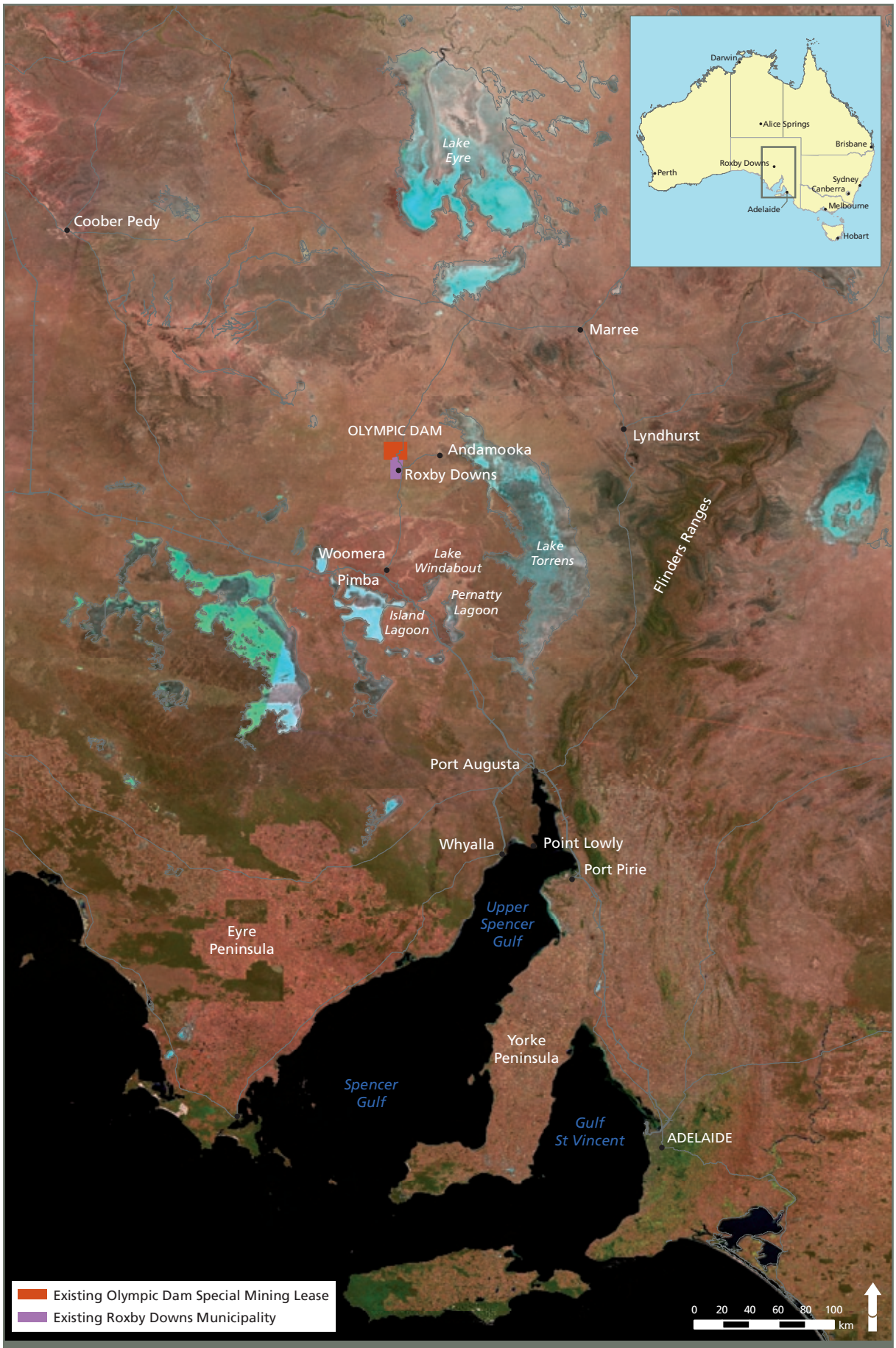


Figure 1.1 Location of Olympic Dam

Exploration drilling to determine the extent of the ore body at Olympic Dam has occurred for many years and is continuing. Drilling during the past several years has identified that the mineral resource is significantly larger than previously realised. This, combined with the global demand for metals mined at Olympic Dam, has led to the current proposal to expand the Olympic Dam operation. BHP Billiton has investigated several alternatives to the current proposal, and these are discussed in Chapter 4, Project Alternatives.

BHP Billiton is seeking government approval for the project configuration detailed in Section 1.3.2, including the introduction of a new open pit mine and related infra-structure resulting in increased annual average production to 750,000 tpa of refined copper equivalent plus associated products (19,000 tpa uranium oxide, 800,000 oz/a gold and 2.9 million oz/a silver). The 750,000 tpa of refined copper equivalent would consist of:

- about 350,000 tpa of refined copper processed at Olympic Dam from 800,000 tpa of the copper-rich concentrate. This concentrate would be derived from higher-grade ore
- about 1.6 Mtpa of the copper-rich concentrate to be exported via the Port of Darwin for processing by overseas customers. This concentrate would be derived from the lower-grade ore and is expected to yield about 400,000 tpa of refined copper. The exported concentrate would also have recoverable quantities of uranium oxide, gold and silver (and is hereafter referred to as concentrate). At this stage, the most likely location for further processing is China.

The regulatory regime under which Olympic Dam has exported uranium oxide for the past 20 years would apply similarly for the export of concentrate.

1.2 COMPANY PROFILE AND PROJECT OBJECTIVES

1.2.1 BACKGROUND

BHP Billiton Group (a dual listed company) was formed in June 2001 as a result of the merger of BHP Limited (a publicly listed Australian company) and Billiton Plc (a publicly listed United Kingdom company).

BHP Billiton Group is the world's largest diversified resource company, with more than 39,000 employees working at more than 100 sites in over 25 countries (see Figure 1.2). It is the world's largest producer of export thermal coal, the third-largest of copper, nickel and iron ore and the fourth-largest of uranium. It also has significant interests in stainless steel materials, oil, gas, zinc, diamonds, silver and aluminium.

The global headquarters of BHP Billiton Group are in Melbourne and its other corporate centres are in London, Johannesburg and Houston. BHP Billiton Group is structured around Customer Sector Groups that are focused on customers rather than operations. The groups, which are supported by finance, development, legal and marketing functions, are (see Figure 1.2):

- Aluminium
- Base Metals
- Diamonds and Specialty Products
- Energy Coal
- Iron Ore
- Manganese
- Metallurgical Coal
- Petroleum
- Stainless Steel Materials
- Uranium.

Copper anode casting

Figure 1.2 BHP Billiton Group map of global operations

The Uranium Customer Sector Group was formed because of the size of the Olympic Dam resource and the significance of the proposed expansion to the BHP Billiton Group.

BHP Billiton is advancing the proposed expansion through a dedicated project team of engineers and health, safety, environment and community (HSEC) staff working in Adelaide, South Australia. The expansion team liaises with the Olympic Dam workforce to maximise opportunities for the seamless integration of the existing and proposed operations.

1.2.2 OVERVIEW OF BHP BILLITON'S ENVIRONMENTAL MANAGEMENT

BHP Billiton Group operates under a series of corporate standards, including a Charter, Sustainable Development Policy, Health Safety Environment and Community Management Standards and a Code to Business Conduct. These standards promote a mutually beneficial relationship between the company and the environment and communities in which it operates, including Indigenous communities. The main principles of the standards are:

- an overriding commitment to health, safety, environmental responsibility and sustainable development
- the development, implementation and maintenance of management systems that drive sustainable development and continual improvement
- consideration of the entire asset's lifecycle, from exploration and planning to design, construction, operation and closure
- a requirement that all employees are accountable for behaving in accordance with the corporate policies and standards.

The BHP Billiton Group standards are implemented at the existing Olympic Dam operation through many systems, including a comprehensive environmental management system described in Chapter 2, Existing Operation. Environmental management strategies and performance targets and outcomes are also described in the annual reports for the operation. Annual public reporting of the environmental performance of Olympic Dam started in February 1988.

In addition to implementing internal standards and practices, BHP Billiton is a signatory to the Minerals Council of Australia's 'Enduring Value', which sets out industry guidelines for sustainable development at the operational level and obligations for environmental management, consultation, auditing and annual reporting.

1.2.3 ENVIRONMENTAL RECORD AT OLYMPIC DAM

The Olympic Dam operation has government approval following two previous EIS assessments (Kinhill-Stearns Roger 1982; Kinhill 1997). The environmental performance of the existing operation is published in the annual reports and is reviewed regularly by the Australian and South Australian governments.

Environmental performance at Olympic Dam includes:

- certification to AS/NZS ISO 14001:2004 *Environmental management systems*
- management of radiation exposures to the public and Olympic Dam employees, which has remained well below legislative limits throughout the 20 years of operation
- compliance with Environment Protection (Air Quality) Policy 1994, demonstrated through monitoring point emission sources at the metallurgical plant
- the establishment of a water efficiency projects group to identify and implement improvement initiatives
- the creation and continued support of the environmental initiative, Arid Recovery
- funding of several hundred thousand dollars a year towards environmental projects, which has resulted in more than 200 research programs and 84 published research papers since the year 2000.

There has been no successful litigation against BHP Billiton on environment related issues under Commonwealth, State or Territory law. Over the life-of-mine operation, minor operational notices have been issued by the South Australian Government and addressed.

In 1995 a parliamentary inquiry investigated seepage of water from the tailings retention system to the groundwater. It found that:

- there were several deficiencies in the design of the initial tailings retention system, primarily that there was no provision for decanting excess liquor from the tailings cells
- changes to the system undertaken by the Olympic Dam operators in response to the seepage (which included the construction of decant liquor evaporation ponds) was appropriate and would minimise the likelihood of future problems
- on the basis of available evidence, there had been no harmful effects to employees, the local community or the environment, and that it was highly unlikely that any such effects would emerge in the future (Parliamentary Committee 1996).

1.2.4 PROJECT OBJECTIVES

BHP Billiton has developed objectives for the health, safety, environment, community and economic components of the proposed expansion. These are being addressed in the environmental assessment process and would continue to be met in the planning, construction and operation phases, and on closure. The objectives are to:

- enhance the safety and environmental performance of the Olympic Dam operation
- maximise the value of the deposit for the benefit of the BHP Billiton Group shareholders, the nation and the community
- maintain a major source of employment in South Australia
- enhance the current opportunities, lifestyle and amenities for the local and regional communities

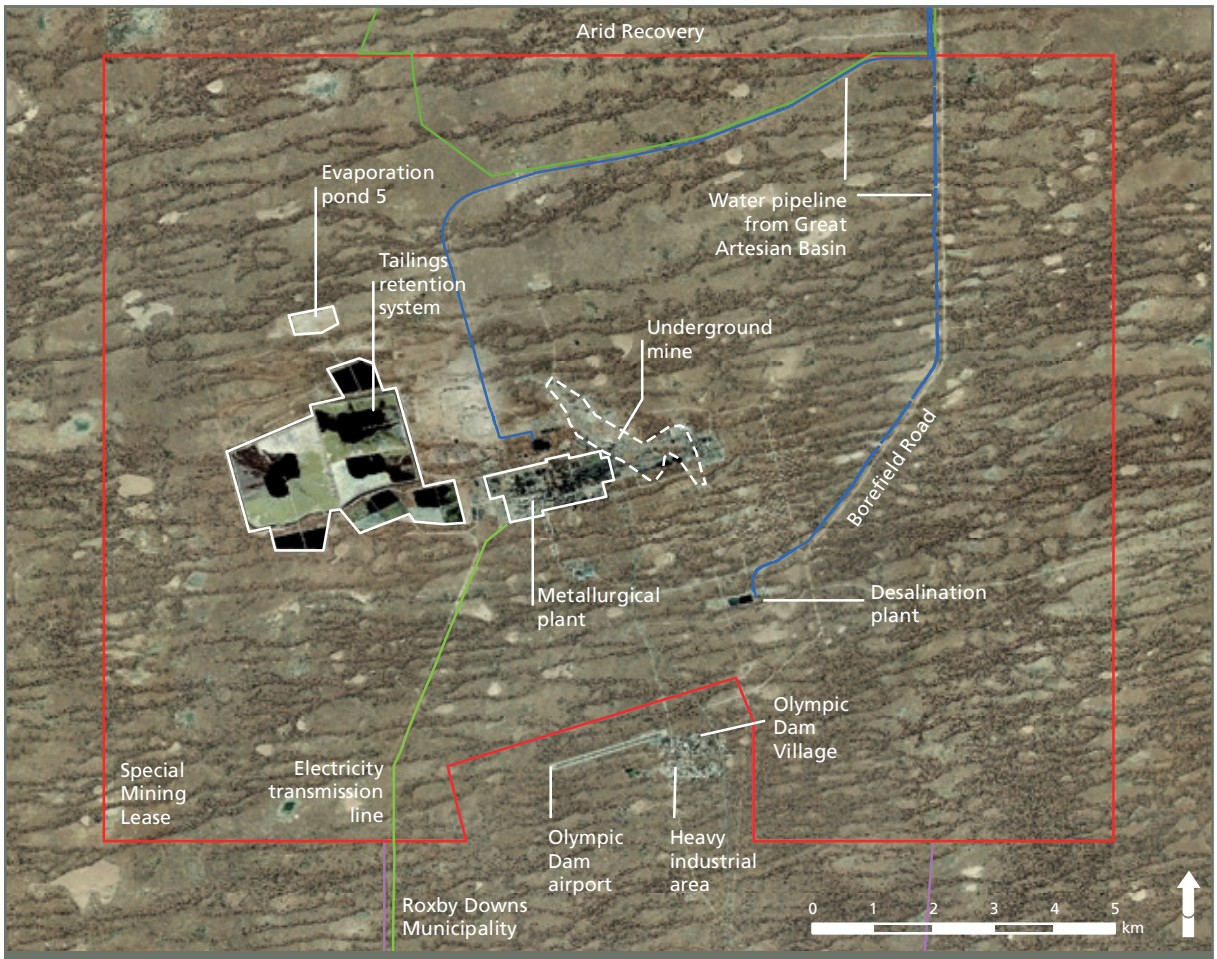


Figure 1.3 Existing Olympic Dam operation

- enhance the relationship and communication with traditional land claimant groups
- design, construct, operate and decommission an expanded operation that minimises the impact on, and maximises the benefits to, the environment and community.

1.3 OVERVIEW OF THE EXISTING AND PROPOSED OLYMPIC DAM OPERATION

1.3.1 EXISTING OPERATION

Figure 1.3 presents an aerial view of the current operation including an outline of the underground mining operation and the existing infrastructure at Olympic Dam (see Chapter 2, Existing Operation, for details). The existing operation extracts and processes an average 9 Mtpa of ore, and a study is currently being undertaken to investigate an increase to 12 Mtpa within the scope of existing laws and approvals.

Olympic Dam is one of the world's largest polymetallic (i.e. multiple metals) ore bodies and contains one of the largest copper resources, the largest uranium resource and a significant gold and silver resource (see Figure 1.4).

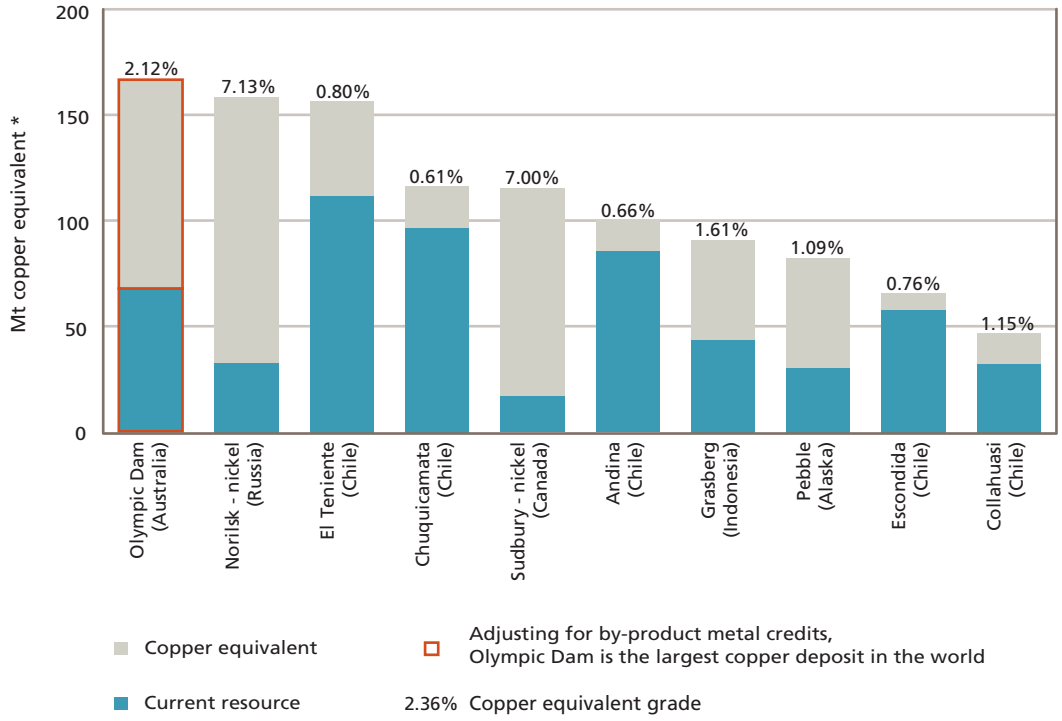
Table 1.1 shows the Olympic Dam mineral resource and ore reserve. The resource may be defined as material of such a grade or quality that it has reasonable prospects for economic extraction, and the reserve may be defined as that part of the mineral resource that is presently considered to be mineable.

Table 1.1 Olympic Dam ore resources and reserves[1]

	Tonnes (Mt)	Copper (%)	Uranium[2] (kg/t)	Gold (g/t)	Silver (g/t)
Total resources	8,339	0.88	0.28	0.31	1.50
Total reserves	473	1.86	0.60	0.76	3.95

[1] Sourced from *BHP Billiton Annual Report 2008*. The information contained in this table that relates to the Mineral Resource Estimation for the Olympic Dam Deposit is based on information compiled by Shane O'Connell who is a member of the Australasian Institute of Mining and Metallurgy. Shane O'Connell has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Shane O'Connell consents to the inclusion in the table of the matters based on his information in the form and context in which it appears.

[2] As uranium oxide (U_3O_8).



*Note: Commodity price assumptions (March 2007 US$ numbers) $1.13/lb Cu, $10.26/lb Co, $5.40/lb Ni, $16.39/lb Mo, $683/oz Au, $5.87/oz Ag, $328/oz platinum group element (PGE), $30.00/lb U_3O_8, with adjustments for recoveries and treatment and refining charges.
Source: BHP Billiton unpublished data 2008

Figure 1.4 The ten largest known ore deposits

1.3.2 PROPOSED EXPANSION

To further unlock the potential of the Olympic Dam deposit and capitalise on market opportunities, BHP Billiton is proposing a significant expansion of the existing operation. Government approval is sought for the following project configuration (see Figures 1.5 to 1.8 for locations from north to south).

Mining and processing

- a new open pit mine to operate simultaneously with the existing underground mine to extract a combined annual average of 72 Mt of ore for processing
- a facility in which mine rock would be placed (mine rock being a combination of non-mineralised rock and low-grade or non-economic ore)
- an expansion to all four major components of the existing metallurgical plant (being the concentrator, hydrometallurgical plant, smelter and refinery) to enable an average annual on-site production of 350,000 tonnes of refined copper plus associated products (being uranium oxide, gold and silver)
- a further expansion of the concentrator to produce concentrate for export via the Port of Darwin and a new hydrometallurgical plant to produce additional uranium oxide for export
- an expanded tailings storage facility (TSF).

Grinding mill

Drilling rig

Figure 1.5 Key components of the proposed expansion - Port of Darwin, East Arm

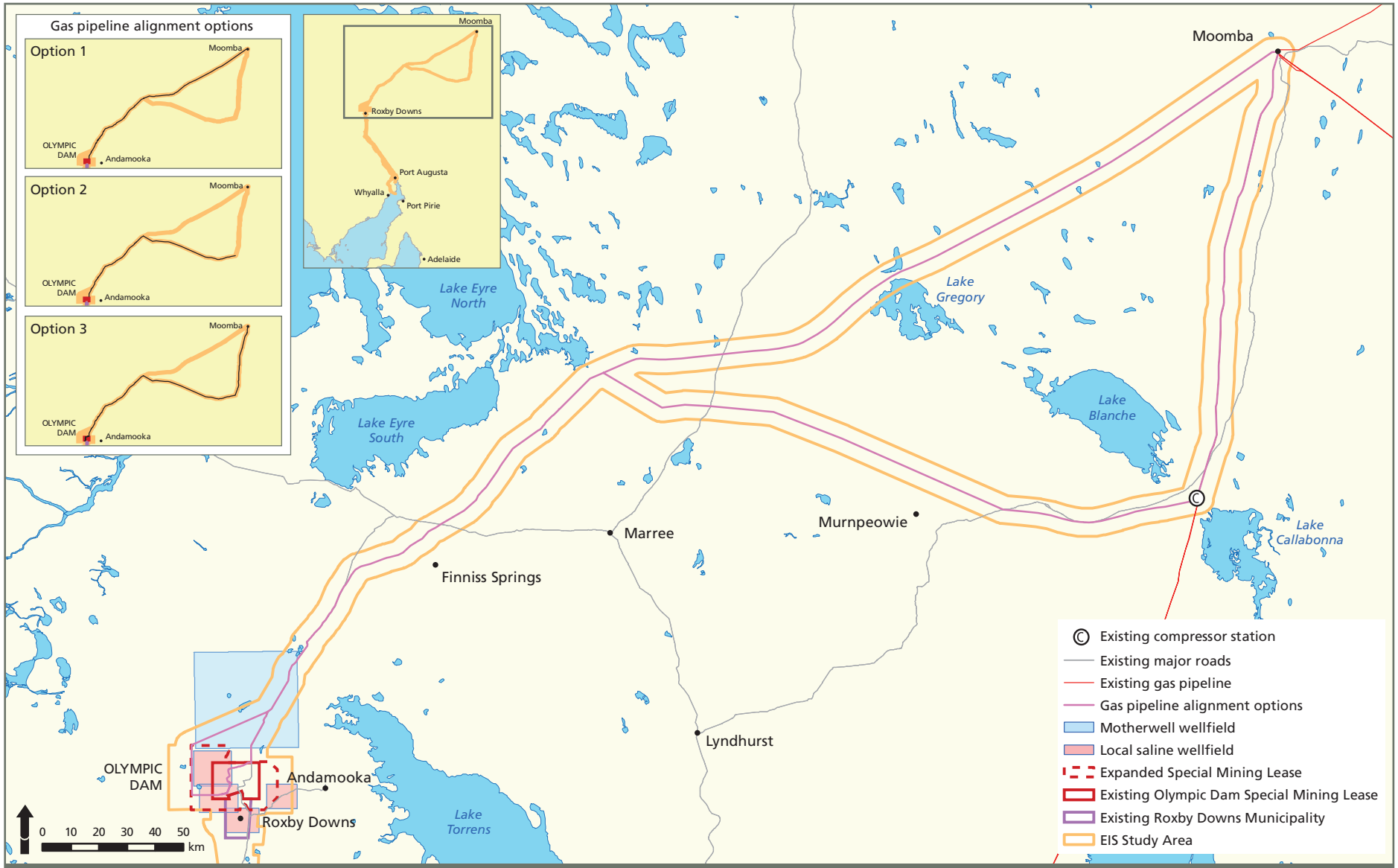


Figure 1.6 Proposed gas pipeline corridor options

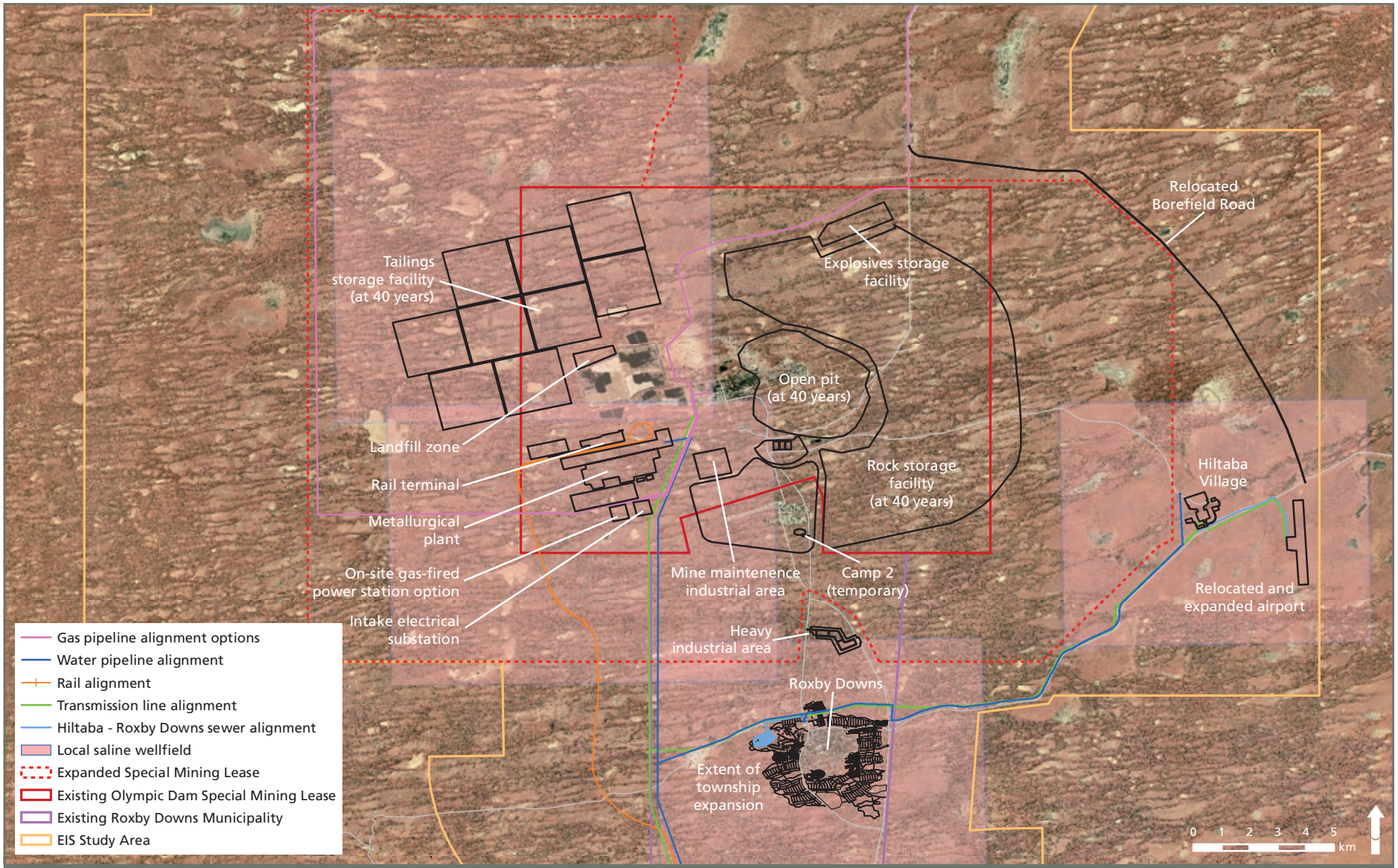


Figure 1.7 Major components of the proposed expansion in the local context

Figure 1.8 Components of the proposed expansion in the southern corridor

Water supply

- a 280 megalitre per day (ML/d) desalination plant at Point Lowly and water supply pipeline to Olympic Dam, comprising 200 ML/d for Olympic Dam and 80 ML/d for the South Australian Government to replace River Murray water pumped to the Eyre Peninsula
- saline wellfields providing up to 50 ML/d of water suitable for dust suppression.

Electricity supply

- the option to build either an electricity transmission line from Port Augusta, or an on-site combined cycle gas turbine (CCGT) power station and gas supply pipeline from Moomba, or to build a combination of these facilities to meet an additional maximum electricity demand of 550 MW.

Transport

- a 105 km rail spur to join Olympic Dam to the national rail network near Pimba
- a rail/road intermodal freight terminal at Pimba to be used as a means of reducing construction-related road traffic prior to the construction and operation of the rail line
- the relocation and expansion of the existing Olympic Dam airport
- a barge landing facility and quarantine area located about 10 km south of Port Augusta, required to offload pre-assembled modules and prefabricated materials for road transport along a private access corridor to a pre-assembly yard on the north-western outskirts of Port Augusta, prior to subsequent road transport of the materials to Olympic Dam via the Stuart Highway and Olympic Way.

Workforce and accommodation

- the expansion of Roxby Downs to support an increase from the current 4,500 people up to an estimated 10,000 people
- the relocation of the existing construction workers' village from 6 km south of Olympic Dam (i.e. Olympic Village) to 17 km east of Roxby Downs on the Andamooka Road, and expanding its capacity from 1,500 people to a peak capacity of up to 10,000 people.

Table 1.2 summarises the production rates and resource requirements for the current operation, the proposed expansion and the combination of the existing and proposed operation (termed the combined operations).

Based on the current technologies and operating efficiencies, the extraction and processing of the additional 60 Mtpa of ore would add an average annual production of about 515,000 tpa of copper, 14,500 tpa of uranium oxide, 700,000 oz/a of gold and 2,100,000 oz/a of silver. These production rates are likely to increase over time as a result of technological advances and improved operating efficiencies. As such, the impact assessment and request for government approval is based on the impacts and benefits of constructing and operating the above-mentioned project configuration, rather than the resulting metal production rates.

The impact assessment has adopted an 'envelope strategy', whereby the assessment is based on maximum project requirements and meeting defined performance outcomes, and therefore is not sensitive to minor project refinements. Further approvals may be required where a project refinement results in activities that cannot be accommodated by approvals obtained for the proposed expansion.

The original estimated capital cost of the project was $5 billion. This estimate remains under review.

1.3.3 PROJECT TIMEFRAME

The expansion project is currently in the selection phase, and therefore will continue to be refined through the definition phase prior to construction and operation. Figure 1.9 illustrates the various project phases and proposed timeframes and how these correspond to engineering design information and environmental documentation.

It would take in the order of five to six years to reach first ore and 11 years for the expanded operation to be at full production capacity.

Full production capacity will be achieved when:

- the existing smelter and refinery is expanded to reach its maximum capacity of producing 350,000 tpa of refined copper plus associated products
- the new open pit mine and expanded metallurgical facilities (i.e. the concentrator and hydrometallurgical sections of the metallurgical plant) produce an additional 1.6 Mtpa of concentrate for export.

While the Draft EIS presents the assessment of an expanded operation over 40 years, the massive ore body at Olympic Dam suggests that continued operation or future expansions beyond the scale and timeframe currently proposed are likely. In the event that a further expansion is proposed, and that it increases the project requirements to a level greater than those accommodated by approvals obtained, BHP Billiton would seek subsequent government approval.

1.4 THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The proposed expansion is subject to Australian, South Australian and Northern Territory governments' regulatory environmental assessment processes (see Chapter 6, Legislative Framework, for details). The Australian Government determined that the proposed expansion was a controlled action under the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The controlling provisions under the EPBC Act are listed threatened species, listed migratory species, wetlands of international importance and protection of the environment from nuclear actions and actions involving Commonwealth land.

Table 1.2 Summary of anticipated production rates and resource requirements

Project component	Current operation (post-optimisation)	Proposed expansion	Combined operations
Total ore mined (Mtpa)	12	60	72
Copper concentrate produced (tpa)	600,000	1,800,000	2,400,000
Nominal production rate (per annum)[1]			
Refined copper (t)	235,000	515,000	750,000
Uranium oxide (t)	4,500	14,500	19,000
Gold (ounces)	100,000	700,000	800,000
Silver (ounces)	800,000	2,100,000	2,900,000
Process and potable water requirement (average ML/d)	37	191	228
Electricity demand and annual consumption (MW:GWh)	125:870	650:4,400	775:5,270
Transport volumes (Mtpa) (in and out per annum)	1	3.8	4.8
Exports	via the ports of Adelaide and Darwin	via the ports of Adelaide and Darwin	via the ports of Adelaide and Darwin
Permanent Olympic Dam workforce (BHP Billiton employees and long-term contractors)	3,000	4,000	7,000
Short-term contractor workforce (peak)	1,000	6,000 (average 4,000)	1,000 (post-construction)
Shutdown maintenance temporary contractors	1,250	between 450 and 1,400	up to 1,400
Associated full-time equivalent state-wide jobs	9,200	13,100	n.a.[2]

[1] Totals indicated for the proposed expansion are equivalents based on the Olympic Dam processing efficiencies, as some of this product would not be produced on-site.
[2] It is not appropriate to add current FTE estimates to the proposed expansion estimates because over time, activities in the current operation would reduce relative to the activity undertaken today, therefore an addition would overestimate the predicted direct and indirect jobs created.

The South Australian Minister for Mineral Resources Development declared that the project would require major development approval under the provisions of the *Development Act 1993* and the *Roxby Downs (Indenture Ratification) Act 1982* (Ratification Act) and the Indenture scheduled to it (Indenture). This declaration only applies to certain land to which relevant provisions of the Indenture apply. A declaration has also been made by the South Australian Minister for Urban Development and Planning (the Minister responsible for the Development Act) for those elements of the project outside of these areas.

The Northern Territory Minister for Natural Resources, Environment and Heritage determined that the proposed use of the Port of Darwin was environmentally significant and would require formal assessment under the provisions of the *Environmental Assessment Act* and the Environmental Assessment Administrative Procedures.

The proposed Olympic Dam expansion requires approval from:

- the Australian Minister for the Environment, Heritage and the Arts under the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- the South Australian Minister for Mineral Resources Development pursuant to the provisions of the *Roxby Downs (Indenture Ratification) Act 1982* (Ratification Act), the Indenture scheduled to that Act (Indenture) and the *Development Act 1993*
- the South Australian Minister for Urban Development and Planning under the *Development Act 1993*
- the Northern Territory Transport and Infrastructure Minister to undertake works at the Port of Darwin under the *Darwin Port Corporation Act*.

The Ministers and their respective departments (the Australian Government Department of the Environment, Water, Heritage and The Arts, South Australia's Department of Planning and Local Government and the Northern Territory's Department of Natural Resources, Environment, The Arts and Sport) determined that one collaborative process of assessment by a single Draft Environmental Impact Statement (EIS) document and the subsequent Supplementary EIS would satisfy the requirements of all governments. Figure 1.10 outlines the stages of the collaborative government assessment process (see Chapter 6, Legislative Framework, for details).

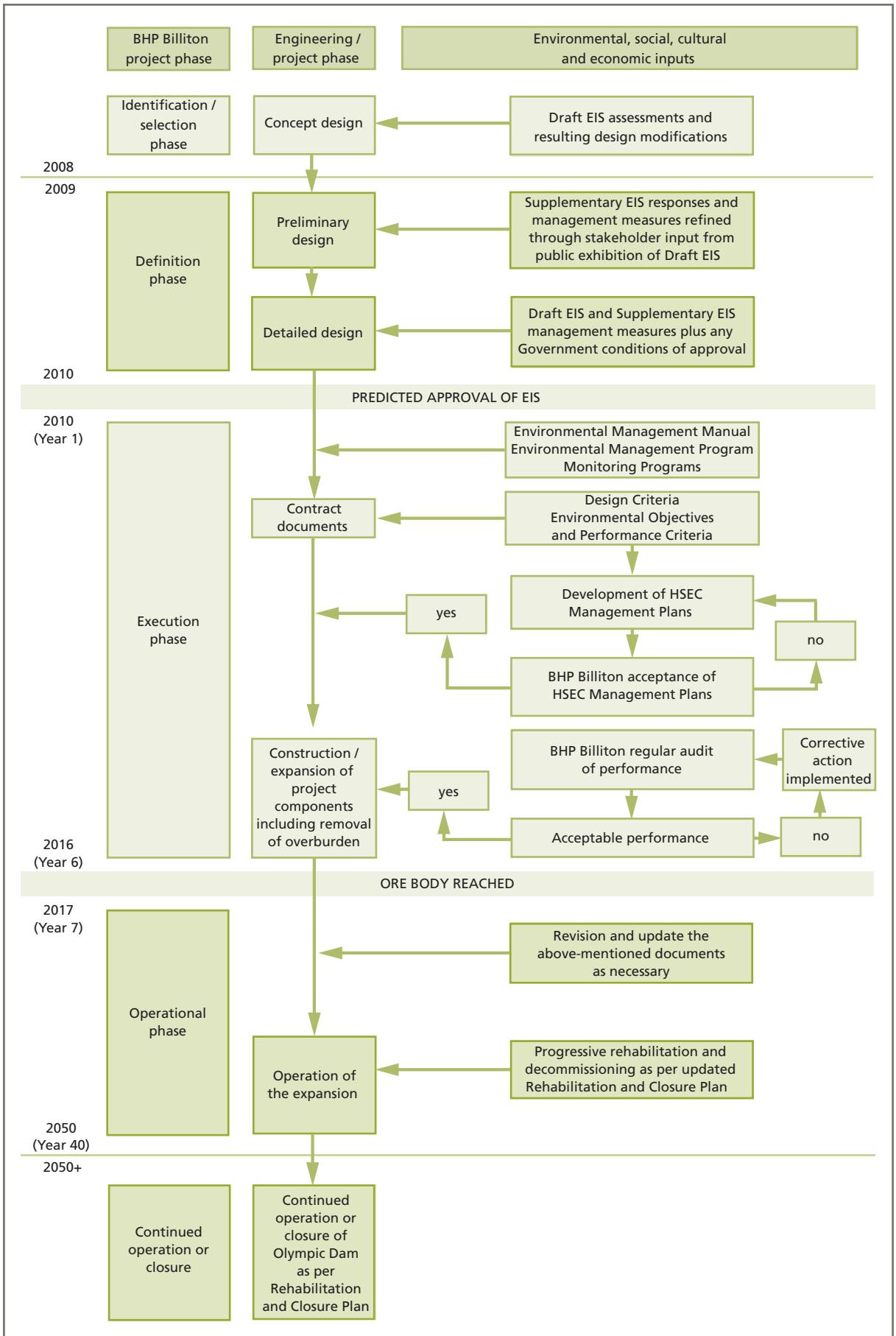


Figure 1.9 Olympic Dam expansion phases and timeframes

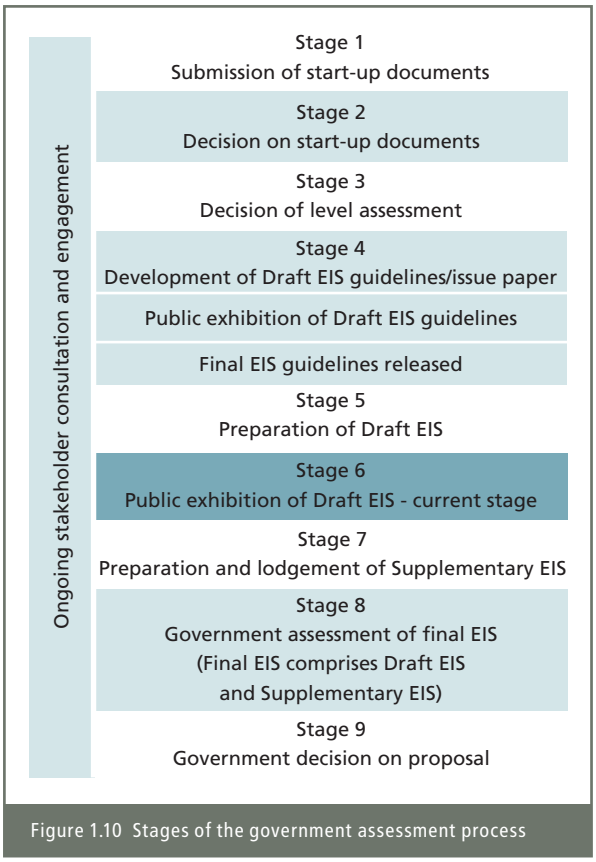


Figure 1.10 Stages of the government assessment process

1.5 THE PUBLIC CONSULTATION PROCESS

Under the joint government statutory process, public consultation for the project is to be consistent with that of an EIS level assessment and is to include an eight-week public exhibition of the Draft EIS, during which at least three public forums seeking community feedback are to be held. The BHP Billiton stakeholder consultation and engagement program has included the following (see Chapter 7, Stakeholder Consultation and Engagement, for details):

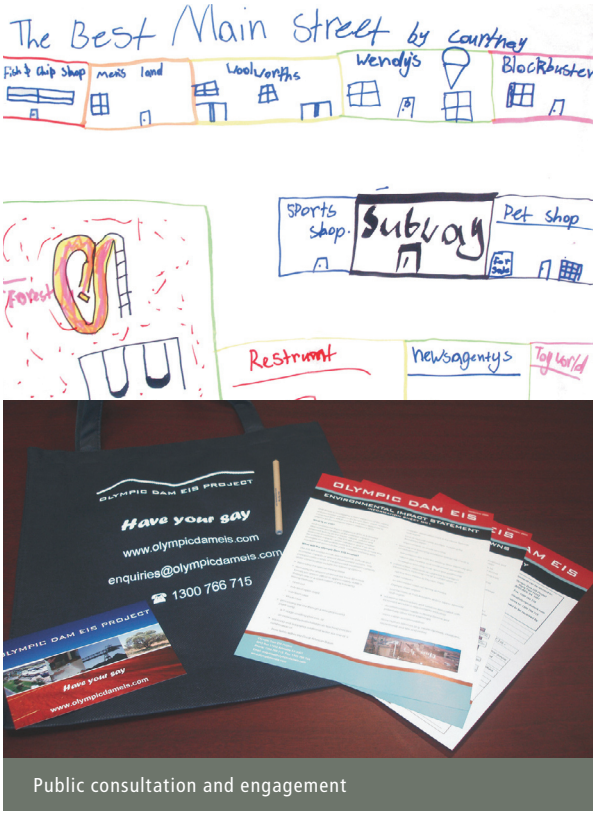
- developing and maintaining a project telephone line and website
- developing and maintaining a database of interested stakeholders (i.e. those stakeholders registering interest through the telephone line, website and at community consultations)
- developing and distributing information sheets to interested stakeholders directly and via the project website
- advertising in Australian and South Australian media
- developing and distributing forms to seek community feedback
- obtaining feedback from residents of metropolitan Adelaide and regional areas via two telephone surveys
- hosting numerous public meetings, briefings and/or workshops in Roxby Downs, Andamooka, Woomera, Port Augusta, Whyalla, Port Lincoln, Marree, William Creek, Port Pirie and Darwin
- hosting an information stall at the Eyre Peninsula Field Days at Cleve and at the Royal Adelaide Show.

The objectives of the stakeholder consultation and engagement program were to:

- listen to those communities in which components of the expansion project would be located
- provide information on the proposed expansion, including its potential impacts and benefits
- encourage community participation and feedback, facilitated by a wide range of consultation tools
- identify community issues for consideration in developing the project configuration and Draft EIS
- deliver effective feedback to consultation participants and the community.

More than 8,300 people, 50 government departments and service providers, 55 non-government organisations and 60 industry groups had participated in the consultation program at the time of printing the Draft EIS.

The stakeholder consultation and engagement program will continue throughout the public exhibition period of the Draft EIS, providing further opportunities for government agencies and members of the public to comment on the proposed expansion project and discuss the findings of the Draft EIS prior to making written submissions to the South Australian Department of Planning and Local Government. BHP Billiton will address the written submissions received by the Department of Planning and Local Government in a subsequent report, the Olympic Dam Expansion Supplementary EIS, which will form part of the approvals assessment documentation for the Australian, South Australian and Northern Territory governments.



Public consultation and engagement

1.6 FORMAT OF THE DRAFT EIS

1.6.1 HOW THE DRAFT EIS HAS BEEN PREPARED

The Draft EIS has been prepared by:

- up to 20 environmental, social, economic and cultural specialists working full-time for more than two years as an Adelaide-based core EIS team (see Appendix B for a list of the EIS study team)
- more than 250 consultants from around Australia working part-time to undertake specialised studies including air quality modelling, desalination plant return water dispersion modelling and economic assessments (see Appendix B for a list of the EIS support team)
- 21 internationally recognised experts conducting peer reviews of the studies undertaken (see Appendix B)
- identifying and satisfying the requirements of the EIS Guidelines through regular discussions with, and the provision of draft chapters to, agencies of the Australian, South Australian and Northern Territory governments
- building on the current understanding of the existing operation, the lessons learnt from previous expansion projects and the global knowledge and experience of the BHP Billiton Group
- encouraging feedback from the public to help identify relevant issues for the proposed expansion and including an assessment of these issues in the Draft EIS
- identifying information and knowledge gaps, and establishing methods and resources to investigate them
- presenting the methods for the studies to the relevant government agencies for review and comment
- desktop, field and modelling studies (including benchmarking studies) over an area large enough to place in context the actual disturbance footprints of the proposed expansion (see Figures 1.5 to 1.8 for the EIS Study Area)
- presenting in the Draft EIS credible ranges of project requirements and consistently assessing the worst-case conditions or maximum requirement, and by doing so, providing confidence that the findings of the Draft EIS will remain valid for future changes within the assessed ranges
- providing a further level of confidence in the Draft EIS findings by undertaking detailed risk assessments of unplanned events and linking these assessments to environmental monitoring programs (see Section 1.6.2 and Appendix C for details)
- assessing the contribution of the proposed expansion against the South Australian Government Strategic Plan (see Chapter 3, Project Justification, and Appendix D for details)
- assessing the proposed expansion against overarching legislative Acts and guiding principles, including the EPBC Act (see Appendix E1), principles of ecologically sustainable development (see Appendix E2) and product stewardship (see Appendix E3)
- providing a separate appendix that addresses the specific requirements of the Northern Territory Government guidelines (see Appendix E4)
- consistently applying the BHP Billiton Group's Charter and Sustainable Development Policy (see Appendix E5)
- liaising with the more than 200 members of the BHP Billiton Olympic Dam expansion team to incorporate environmental, social, economic and cultural factors into project decisions, plans and designs
- progressive development and peer review of the Draft EIS, with the document placing emphasis on the major issues associated with the proposed expansion and adequately addressing matters of lesser concern (as per the requirement of Section 2.5 of the joint Australian and South Australian government EIS Guidelines: see Appendix A1).

An electronic resource presenting information contained in the Draft EIS that further simplifies and clarifies some of the complex studies by using animations and modelling simulations has also been developed (www.bhpbilliton.com/odx).

1.6.2 HOW THE IMPACT AND RISK ASSESSMENT HAS BEEN UNDERTAKEN

The EIS team applied a conceptual framework and iterative process that evolved throughout the project to identify impacts, benefits and risks (see Figure 1.11).

The steps indicated on Figure 1.11, and explained in the following sections, are representative of the process that was followed, with the outcomes presented in the Draft EIS.

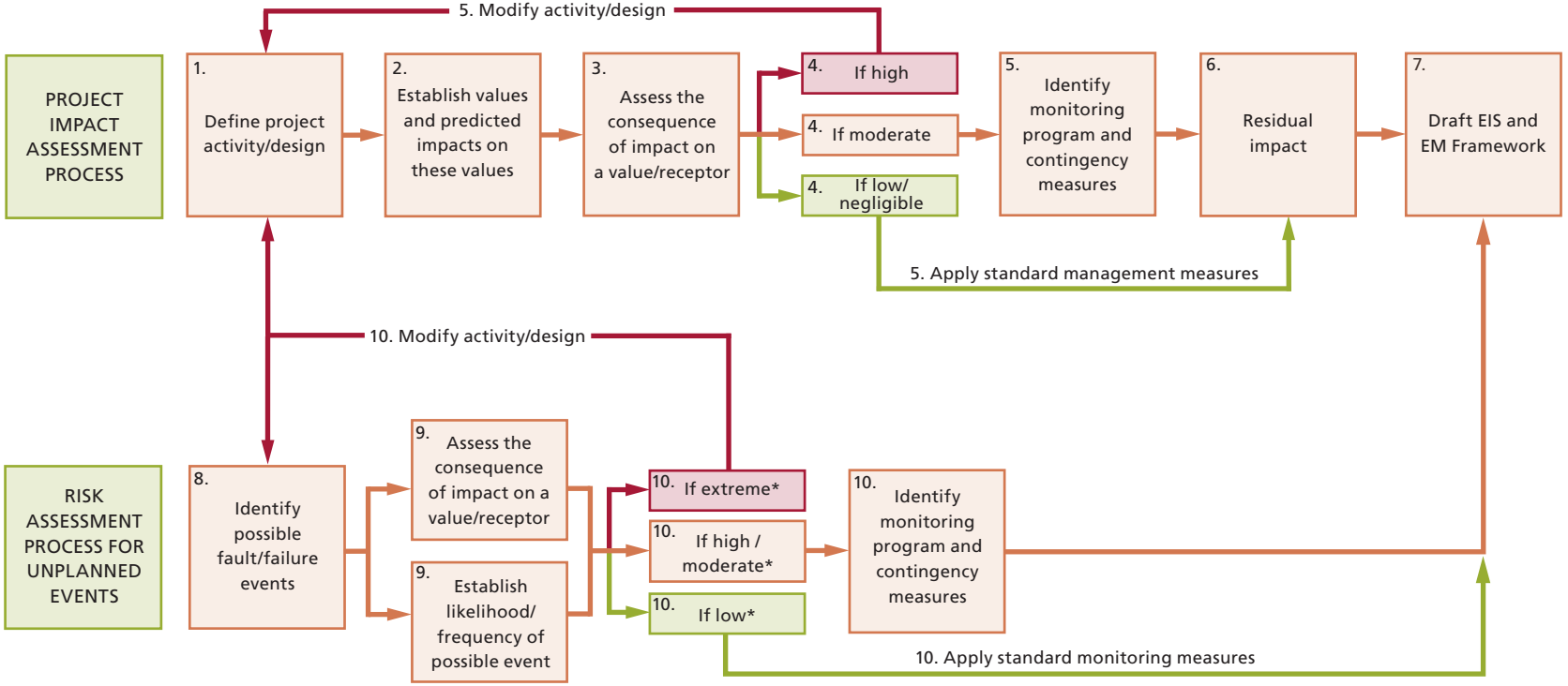
In summary, the assessment of impacts and risks has been undertaken as two separate but related processes. Impacts and benefits are the consequences of a known event. Impacts relating to the project have been described and categorised as high, moderate, low or negligible as discussed further below.

Measures to manage impacts have been set out in context throughout the Draft EIS and are drawn together in Chapter 24, Environmental Management Framework, and Chapter 27, Commitments.

Risk assessments describe and categorise the likelihood and consequence of an unplanned event. These are presented in Chapter 26, Hazard and Risk.

Assessment of project impacts and benefits

In preparing the Draft EIS, the EIS team considered project impacts and benefits to be consequences of known events or activities, and therefore certain to occur. For example, the transportation of ore and mine rock from the open pit will create dust. The impact assessment focused on the consequence of the activity and the management measures that would reduce its impact (or, where relevant, maximise its benefit).



* Categories as per AS4360
EIS - Environmental Impact Statement
EM Framework - Environmental Management Framework
Numbers in boxes as per description in Section 1.6.2

Figure 1.11 Conceptual framework for the Draft EIS assessment

The EIS team worked closely with the BHP Billiton management and design teams in an iterative process where designs were modified and management measures were added to minimise residual impacts and maximise residual benefits ('residual' being the impacts or benefits remaining after modifications and management measures). In some cases, assessments were undertaken on several occasions, with design modifications or management measures applied each time, to establish a cost-effective and environmentally, socially and culturally acceptable outcome. The Draft EIS describes the residual impacts and benefits, and categorises these into high, moderate, low and negligible to provide direction for future management attention as described below.

The process involved (see Figure 1.11 for corresponding numbers):

1. defining the project activity (e.g. trucks transporting ore and mine rock)
2. identifying the predicted impact (e.g. field data of dust generation rates from trucks moving along unsealed haul roads were incorporated into air quality models to determine the amount of dust this activity would generate)
3. assessing the consequence of this activity on a known value or the nearest sensitive receptor (e.g. the air quality model predicted the ground level concentration of dust particles at sensitive receivers such as at Roxby Downs and Hiltaba Village)
4. establishing the potential impact or benefit (e.g. the effect of dust generated by the activity is within legislative limits so the level of potential impact is low and the appropriate management is to apply standard control measures)
5. depending on the level of potential impact: modifying the activity or the design of the project component (for a high potential impact), applying mitigation measures (for a moderate impact) or applying standard controls (for a low-level impact) (e.g. dust generation during transport of mine rock is compliant with applicable legislation, categorised as a low impact and so standard management measures such as dust suppression watering of the haul road would be applied)
6. documenting the residual impact or benefit in the relevant chapter of the Draft EIS and categorising the residual impact as per the criteria in Table 1.3 to direct future management attention
7. documenting all residual impacts and benefits in the Draft EIS, ensuring the key design modifications and management measures are collated in Chapter 27, Commitments, and all of the measures that describe how the activity would be monitored and managed into the future are captured in the Environmental Management Program (see Chapter 24, Environmental Management Framework).

The same framework was used to assess the cumulative effect of activities. For example, continuing the dust scenario, all potential dust-generating activities for the proposed expansion and those of the existing operation were modelled collectively to determine the potential impact, appropriate controls and the residual impact across the expanded operation.

Risk assessment of unplanned events

Faults and failures can occur irrespective of the effort taken to develop and implement leading practice designs, protocols, management strategies and the like. These unplanned events lend themselves to the traditional risk management approach of assessing probability (or likelihood) and consequence. The Draft EIS adapted its risk assessment approach from several sources, including the:

- Australian Standard Risk Management Guideline (AS 4360:2004, HB 436)
- Australian Standard Environmental Risk Management – Principles and Process (AS 4360:2004, HB 203)
- Australian Standard Guideline to Managing Risk in Outsourcing (AS/NZS 4360:2004, HB 436:2004)
- National Minerals Industry Safety and Health Risk Assessment Guideline
- the BHP Billiton Group proprietary risk management standard.

The following steps, starting at number 8 to correspond with the numbered text boxes in Figure 1.11, were undertaken to determine the level of risk for unplanned events and the management required to reduce the risk (see Appendix C for details of the risk assessment method):

8. twenty-two workshops on the major components of the expansion project were undertaken to identify the possible fault/failure events (e.g. the workshop on mining identified that in the future larger and faster haul trucks may be used, which would generate more dust than predicted in the current air quality modelling)
9. a level of risk was assigned to each event as per Table 1.4, based on the consequence (Table 1.5) and likelihood (Table 1.6) of the event occurring (e.g. the risk level assigned to the larger truck use was 'moderate', based on a likelihood of 'possible' and a consequence of 'minor')
10. depending on the level of risk, the activity or the design of the project component was modified (for an extreme risk), contingency measures identified (for a high or moderate risk) or the potential risk would be monitored through standard programs (for a low-level risk) (e.g. the risk level is moderate for a change in trucks, so contingency measures such as additional watering would be implemented if necessary).

The outcomes of the risk assessment are presented in Chapter 26, Hazard and Risk. The monitoring programs and contingency measures resulting from the risk assessment are presented where relevant in Chapter 24, Environmental Management Framework.

Table 1.3 Criteria used to categorise residual impacts and residual benefits

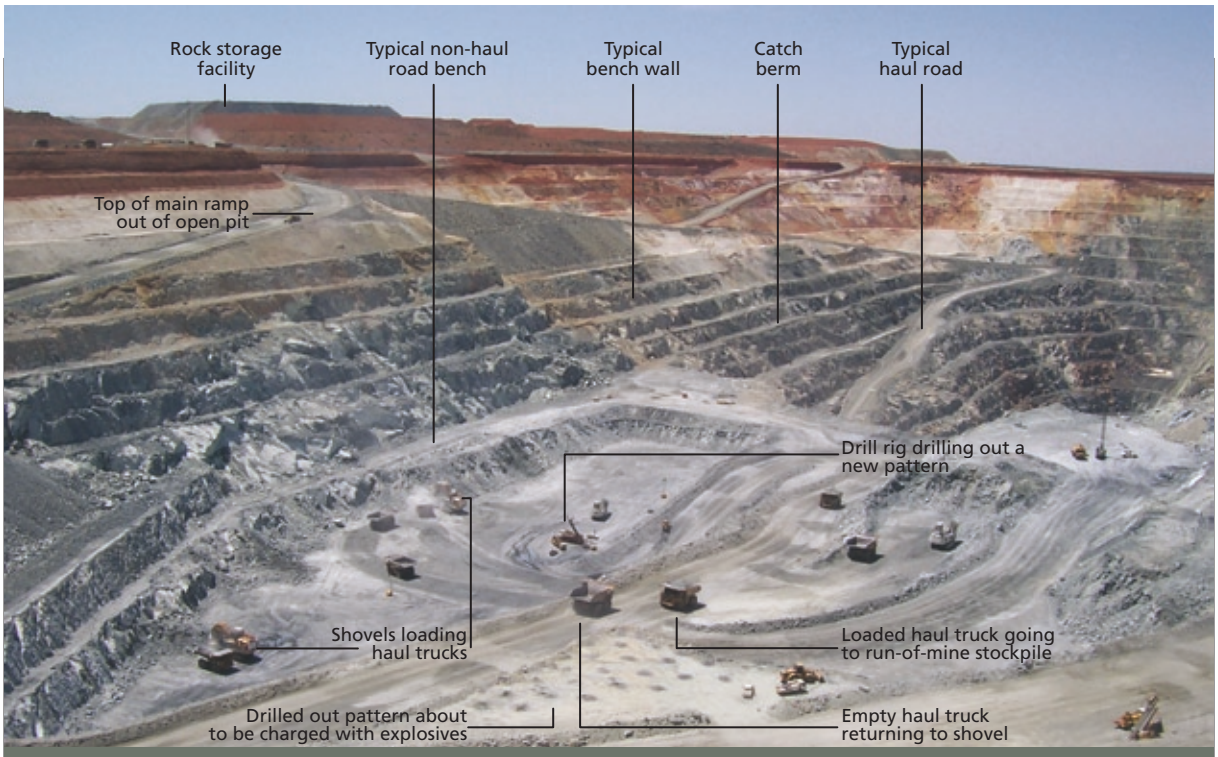
Category	Residual impact		Residual benefit
	Where legislated criteria exist[1]	Where legislated criteria do not exist	Where legislated criteria do not exist
None/negligible	A change below detectable limits	No detectable impact	No detectable benefit
Low	An effect but within compliance limits/standards	Short-term impact[2] to a common or local receiver[3]	Short-term local benefit
Moderate	A short-term non-compliance[4]	a) Short-term impact to a sensitive or state-wide receiver[5] b) Long-term[6] impact to a common or local receiver	a) Short-term state-wide benefit b) Long-term local benefit
High	A regular or consistent non-compliance	Long-term impact to a sensitive or state-wide receiver	Long-term state-wide benefit

[1] Includes listed flora and fauna species (including listed migratory birds).
[2] Short-term impact/benefit is a period of <3 years, corresponding with the maximum time to construct off-site infrastructure.
[3] A common receiver is defined for the purpose of the Draft EIS as one that is not afforded additional protection under legislative Acts or Regulations and a local receiver is defined as one within the EIS Study Area.
[4] Short-term non-compliance of a daily limit for air and noise and a period of <3 years for listed species.
[5] A sensitive receiver is defined for the purpose of the Draft EIS as one that is afforded additional protection under a legislative Act or Regulation or a critical population group.
[6] Long-term impact/benefit is a period of >3 years.

Table 1.4 Risk matrix

			Consequences					
			1	2	3	4	5	6
			Minimal	Minor	Moderate	Serious	Major	Catastrophic
Frequency	A	10/yr	H	E	E	E	E	E
	B	1/yr	H	H	E	E	E	E
	C	1/10yrs	M	H	E	E	E	E
	D	1/100yrs	L	M	H	E	E	E
	E	1/1000yrs	L	L	M	H	E	E
	F	>1/1000yrs	L	L	L	M	H	E

E = extreme; H = high; M = moderate; L = low



Typical open pit mine

Category	Health and safety		Social/cultural heritage	Flora and fauna				Soil and land			Water quality	Air quality
				Listed flora and fauna		General flora and fauna						
	Injury and/or fatality	Radiation exposure		Effect on fauna behaviour	Effect on listed species viability	Effect on fauna behaviour	Effect on community	Contamination	Recharge	Habitat	Groundwater, surface water and marine water	
Minimal	No injury to the public Minor operator injuries requiring on-site treatment with immediate release		No impact or minor medium-term social impacts on local population Mostly reparable	Insignificant effect	Insignificant effect	Local short-term behavioural effect	Local short-term decrease in abundance of some species without reduction in local community viability	Insignificant effect	Insignificant effect	Insignificant effect	Minimal contamination or change with no significant loss of quality	Insignificant effect
Minor	Moderate level of injuries to the public requiring off-site (doctor) medical treatment Injuries to one or more operators requiring off-site medical attention including moderate reversible disability	Radiation worker >10 mSv / year but <20 mSv in 5 year period	Ongoing social issues Damage to items of cultural significance	Local short-term behavioural effect	Local short-term decrease in abundance with no lasting effects on local population	Local long-term behavioural effect that does not unduly affect the ecology of the species	Local long-term decrease in abundance of some species resulting in little or no change to community structure	Local contamination that can be immediately remediated	Local minor change in recharge patterns within sub-catchments	Disturbance of well-represented landform habitats	Local minor short-term reduction or change in water quality Local contamination or change that can be immediately remediated	Local short-term and minor exceedance of air quality standard
Moderate	Significant level of injuries to the public requiring hospitalisation Moderate irreversible disability or moderate impairment to one or more operators	Public / other >1 mSv / year but <5 mSv in 5 year period Radiation worker >20 mSv / year but <100 mSv in 5 year period	On going serious social issues Significant damage to structures / items of cultural significance	Local long-term behavioural effect that does not unduly affect the ecology of the species	Local long-term decrease in abundance without reduction in local population viability	Local long-term behavioural effect that significantly affects the ecology of the species	Regional long-term decrease in abundance of some species and/or local loss of some species diversity resulting in some change to the community structure	Local contamination that can be remediated in the long term	Local major change in recharge patterns within sub-catchments	Local loss of well represented landform habitats	Local minor long-term or widespread minor short-term, or local major short-term reduction or change in water quality Local contamination or change that can be remediated in the long term	Local minor long-term or widespread minor short-term, or local major short-term exceedance of air quality standard
Serious	Irreversible disability or impairment or serious injuries requiring long-term hospitalisation to one or more members of public Single operator fatality or multiple serious injuries	Public / other >5 mSv in 5 year period Radiation worker >100 mSv in 5 year period	Very serious widespread social impacts Irreparable damage to highly valued items	Local long-term behavioural effect that significantly affects the ecology of the species	Regional long-term decrease in abundance and/or local loss resulting in some reduction in regional population viability		Regional long-term decrease in abundance of numerous species and/or some loss of species diversity resulting in significant changes to community structure	Local contamination that cannot be remediated in the long term	Widespread major changes in recharge patterns within sub-catchments	Local loss of a unique landform habitat	Widespread (regional) major short-term reduction or change in water quality Local contamination or change that cannot be remediated in the long term	Widespread (regional) major short-term exceedance of air quality standard
Major	Single fatality of a member of public Several operator fatalities		Breakdown of social order Irreparable damage to highly valued items of cultural significance		Regional long-term decrease in abundance and/or local loss resulting in significant reduction in regional viability of the species		Regional long-term loss of numerous species resulting in the dominance of only a few species	Widespread contamination that can be remediated in the long term	Regional minor changes in recharge patterns		Regional long-term reduction or change in water quality Widespread contamination or change that can be remediated in the long term	Regional long-term exceedance of air quality standard
Catastrophic	Several fatalities of members of public Multiple operator fatalities		Complete breakdown of social order Irreparable damage to highly valued items of great cultural significance		Regional extinction of the species			Widespread contamination that cannot be immediately remediated	Regional major changes in recharge patterns		Widespread contamination or change that cannot be immediately remediated	

Table 1.5 Consequences look-up table

1.6.3 DRAFT EIS STRUCTURE

As required by the EIS Guidelines, the Draft EIS discusses the environmental, social, cultural and economic disciplines in separate chapters, and addresses the project infrastructure components within each discipline. This structure enables readers to obtain the required information about an environmental, social, cultural or economic issue for this diverse project in a consolidated chapter, reducing the need to cross-reference between chapters. The Draft EIS describes the assessment and findings of an aspect of the project under the value that may be affected. For example, waste management for the storage of tailings is addressed in Chapter 12, Groundwater, because groundwater is the main environmental value that may be affected by storing tailings (and the seepage from the stored tailings).

The Draft EIS consists of 29 chapters grouped as follows:

- Chapters 1 to 4 provide an overview of the Draft EIS, the existing mining and metallurgical operation at Olympic Dam, the need for the project and the project alternatives investigated
- Chapter 5 details each of the components of the proposed expansion, including their location, context in terms of scale against other mining and infrastructure projects, and how they would be constructed and operated
- Chapters 6 to 9 establish the platform for the EIS assessment. These chapters identify the project's legal framework and the issues raised by the community through the stakeholder consultation and engagement process, and establish the climatic conditions and land use of the study area
- Chapters 10 to 22 describe the existing biological, physical, social, cultural and economic environment, predicted residual impacts and benefits as a result of the proposed expansion, and the measures proposed to minimise impacts and maximise benefits
- Chapter 23 identifies the objectives and key components of the progressive rehabilitation, decommissioning and future closure plan for Olympic Dam and associated infrastructure
- Chapters 24 and 25 collate the environmental management and ongoing monitoring measures for each of the disciplines studied, summarise the residual impacts and benefits from each discipline, and assess the expansion project's cumulative effect
- Chapter 26 describes more fully the risk assessment process undertaken and its outcomes
- Chapter 27 presents a consolidated list of BHP Billiton's key commitments for the expansion project
- Chapter 28 lists the reference material used during the preparation of the Draft EIS
- Chapter 29 provides a glossary of terms used in the Draft EIS.

Table 1.6 Frequency look-up table

Descriptor	Level	General description	Chance per annum[1]	Project basis (construction phase)[2]	Frequency[3]	
Expected to happen	A	This event will occur – known to always occur in similar situations – expected to occur several (many) times each year	99.9%	Many times during project	1/month	More than 10 per year
Almost certain	B	This event is expected to occur in most circumstances – expected to occur at least once each year	>90%	At least once during project	1/year	One or more times per year
Likely	C	This event may occur in some circumstances – may occur during any given year	10%	At least once in every 10 projects	1/10 years	Once every 2 to 10 years
Possible	D	This event might occur at some time – not likely to occur in any given year, but is possible	1%	At least once in every 100 projects	1/100 years	Once every 11 to 100 years
Unlikely	E	This event could occur at some time – very unlikely to occur in any given year	0.1%	At least once in every 1,000 projects	1/1,000 years	Once every 101 to 1,000 years
Rare	F	This event may occur in very exceptional circumstances – has occurred historically, but is not anticipated	<0.1%	At least once in every 10,000 projects	<1/1,000 years	Less than once every 1,000 years

[1] Describes the probability of an occurrence in any given year during the construction or operation phases.
[2] The frequency of an occurrence during the construction phase.
[3] The frequency of an occurrence (or return period in the case of natural events) during the construction or operation phases.

1.6.4 CONSISTENCY WITH REQUIREMENTS OF THE EIS GUIDELINES

Table 1.7 summarises the major requirements of the government EIS Guidelines and identifies the section of the Draft EIS where the requirement is addressed. The governments' guidelines are provided in full in Appendix A.

Table 1.7 Consistency with government EIS Guidelines

Guidelines section number	Guidelines section title	Requirement – summarised from the EIS Guidelines	Relevant section of Draft EIS
Australian and South Australian EIS Guidelines			
5.1	Executive summary	Stand-alone document	Stand-alone document
5.2	Glossary of terms	Glossary of technical terms	Chapter 29
5.3	Introduction	The purpose of the EIS, why it has been prepared and what it sets out to achieve	Chapter 1, preamble
		Define the audience to whom the EIS is directed	Preamble
		Background to proposed expansion	1.1
		Third-party actions within the project area	Chapter 25
		Proponent company profile	1.2
		The environmental impact assessment process	1.4
		Outline of relevant legislation and policies	1.4 and Chapter 6
		Outline of public consultation process	1.5 and Chapter 7
		Introduction to existing operation and proposed expansion	1.3
		Outline of EIS preparation and the structure of the document	1.6
5.4	Existing operation	Location of the existing operation and associated infrastructure	2.1
		The geology of the deposit, the mining process, the metallurgical process, tailings management and the major infrastructure	2.2 to 2.10
		The existing environmental management practices for the mining operation	2.11
		A description of Arid Recovery	9.3.2 and 15.3.10
5.5	Project justification	The justification for the project in an international, national, state, regional and local context	3.2 to 3.5
		Reference to economic, environmental, social and cultural impacts	3.2 to 3.5
		Consequences of not proceeding	3.5
		Project timeframe	1.3.3 and 5.3
		Outline of project objectives	1.2.4
5.6	Description of the expanded project	Detailed description throughout planning, construction, operation and decommissioning	Chapter 5
		Alternatives investigated in the context of conceptual, technological and locality alternatives	Chapter 4
		Reference to mining, tailings, water supply, hydrometallurgical processes, smelting, refining, waste management, road, rail, airport, landform, land rehabilitation, energy supply, accommodation and finished product transport	Chapter 5
		Existing and proposed land use and tenure, and anticipated planning and zoning requirements	Chapters 6 and 9
5.7	The approvals process/ legislative obligations	The impact assessment process	6.2
		Legislative requirements	6.3 to 6.5
		Consistency with existing policy frameworks, standards and codes of practice	6.3 to 6.5
5.8	Public consultation	List individuals and groups consulted	7.2
		Public consultation opportunities, participation and education	Chapter 7
		Identification of affected parties and their views	7.2 and 7.3
		Collation and presentation of responses	7.3

Table 1.7 Consistency with government EIS Guidelines (cont'd)

Guidelines section number	Guidelines section title	Requirement – summarised from the EIS Guidelines	Relevant section of Draft EIS
Australian and South Australian EIS Guidelines (cont'd)			
5.9	Hazard and risk	Risk assessments	1.6.2, Chapter 22 and Chapter 26
		Description of hazards and risks for the workforce and potentially affected communities	Chapter 22 and 26.3
		Review of management practices	Chapter 22
5.10	Land use and planning	Existing land use and land tenure	9.3 to 9.5
		Location and status of native title claims	17.3.1
		Potential for construction and operation to have an impact on existing land uses	9.7
		Post-operation land use	23.7
		Compliance with current planning instruments, standards and policies	6.3 to 6.7
		Proposed expansion of accommodation	5.10, 9.7.6 and 19.5
		Size, make-up and location of workforce	5.10 and 19.5
5.11	Meteorological environment and climate	Meteorological environment	8.3
		Climate extremes and natural hazards	8.4
		Potential for climate change	8.5 and 8.6
5.12	Air quality	Existing air quality environment	13.3.3
		Origins, quantities and composition of airborne emissions from the project during construction, operation and decommissioning	13.3.5
		Predicted greenhouse gas emissions, reduction measures and alternative technologies	13.2
		Consideration of relevant national and international protocols, agreements, strategies and programs	13.2
		Comparison of emissions with relevant guidelines, reporting thresholds and environmental values	13.3
		Objectives and practical measures for protecting environmental values for air quality	13.3.2, 13.3.4 and 13.3.5
5.13	Topography, geology and soils	Topographic plans	10.3.1
		Description of the ore reserve	2.2
		Assessment of acid sulfate soils	10.2.2
		Physical, chemical and geological properties	10.3 and 12.3
		Soil mapping and soil descriptions	10.3 and 10.5
		Effects of erosion	10.3.3 and 10.5.1
		Soil contamination	10.5.4
		Potential for and management of fossil finds	10.3.4 and 10.5.5
5.14	Flora	Existing terrestrial and aquatic vegetation communities	15.3 and 16.3
		Lists of threatened species and ecological communities that may be affected	15.5.3, 15.5.4 and 16.6.6
		Weed species and weed control strategies	15.3.5 and 15.5.11
		Assessment of potential impacts and mitigation measures	15.5 and 16.6
5.15	Fauna	Existing terrestrial and aquatic faunal communities	15.3 and 16.3
		Lists of threatened species and ecological communities that may be affected	15.5.5, 16.3.5 and 16.6.6
		Pest species and pest control strategies	15.3.8, 15.5.11 and 16.3
		Assessment of potential impacts and mitigation measures	15.5 and 16.6

Table 1.7 Consistency with government EIS Guidelines (cont'd)

Guidelines section number	Guidelines section title	Requirement – summarised from the EIS Guidelines	Relevant section of Draft EIS
Australian and South Australian EIS Guidelines (cont'd)			
5.16	Groundwater	Aquifer description	12.3
		Description of Great Artesian Basin springs and their connection to groundwater	12.3
		Groundwater requirements	5.7.6 to 5.7.7 and 12.4
		Groundwater extraction	12.6.1
		Potential groundwater contamination	12.6.2
		Potential impact on groundwater users	12.6.3
		Post-mining recovery	12.6 and Chapter 23
		Water reuse potential	12.7
5.17	Surface water	Surface water features	11.3
		Flooding	11.3.3
		Potential surface water contamination	11.5
		Post-mining recovery	11.5 and Chapter 23
5.18	Noise and vibration	Baseline and background noise and vibration levels	14.3
		Sensitive receptors	14.2.1
		Noise and vibration associated with the expansion	14.4 and 14.5
		Mitigation measures and management strategies	14.4 to 14.6
5.19	Cultural heritage	Aboriginal and non-Aboriginal cultural heritage	Chapters 17 and 18
		Location and significance of cultural heritage sites and values that may be affected	17.3 and 18.3
		Process for the management of cultural heritage sites	17.5 and 18.5
		Information about liaison with relevant communities	17.2.2, 17.5.2 and 18.2
		A list and summary of existing cultural heritage reports and assessments relevant to the project area	17.2.3 and 18.2
5.20	Social impact assessment	Existing social environment	19.3
		Potential beneficial and adverse social impacts at the state, regional and local level	19.5
		Potential impacts on existing pastoral land use	9.8
		Mitigation measures	19.5
5.21	Visual amenity	Description of the existing landscape character	20.3
		Visual impact of the project	20.5
		Management measures to minimise adverse effects	20.4 and 20.5
5.22	Waste materials management	Characterisation of wastes, including types and amounts of solid and liquid wastes, proposed treatment, management and disposal processes	5.4.5 to 5.4.7, 5.5.5 to 5.5.7 and 5.6 12.2.3 and 12.6.2 Chapters 15, 16, 22 and 23
		Waste sources	Chapter 5
		Potential impacts of waste materials	12.6.2, 15.5.7, 16.6 and 22.6
		Waste management, monitoring and reporting	Chapters 6 and 24
		Waste minimisation	4.16, 5.6 and 12.5
5.23	Economic assessment	Discussion of the existing economic environment in the national, state, regional and local context	21.3
		Objectives and practical measures for protecting or enhancing economic values	21.4
		Effect on state, regional and local labour markets	21.4
		Direct and indirect impact on economy	21.4

Table 1.7 Consistency with government EIS Guidelines (cont'd)

Guidelines section number	Guidelines section title	Requirement – summarised from the EIS Guidelines	Relevant section of Draft EIS
Australian and South Australian EIS Guidelines (cont'd)			
5.24	Rehabilitation and decommissioning	Development of appropriate decommissioning and rehabilitation strategies for all aspects of the existing mine and the proposed mine expansion	Chapter 23
		Proposed methods and timing for decommissioning and rehabilitation	23.1, 23.7 and 23.8
		Assessment of residual impacts after closure	23.10
		Post mine drainage and seepage management	12.5, 23.7, 23.11 and Chapter 24
		Development of a decommissioning and closure plan	23.6 and 23.7
5.25	Draft Environmental Management Plan	Proponent's commitments to acceptable levels of environmental performance, including environmental objectives	Chapters 24 and 27
		Control strategies and estimated costs to implement the commitments	Chapters 24 and 27
		Agencies responsible for endorsing or approving mitigation measures or monitoring programs	Chapter 24
5.26	References and appendices	References	Chapter 28
		Appendices including EIS Guidelines, key personnel, stakeholders consulted, site plans and technical reports	Draft EIS Appendices
Northern Territory Government EIS Guidelines (a summary of additional requirements to those above)			
3	General information	Legislative background for the proposal, including the relevant NT legislation that applies to the project	6.5 and 6.7 and Appendix E4.4
4	Description of the proposal	A description of the proposal's location indicating distance from Alice Springs, and the proposal in relation to the Stuart Highway and the Adelaide to Darwin Railway	5.9.2, Figure E4.12 and Appendix E4.6.2
		The proximity of nearby residential areas and communities, pastoral leases and any major watercourses that may be impacted must be indicated	19.5.6, Appendix E4.6.2 and E4.6.6
		Land requirements, land tenure, acquisition requirements (permits, rezoning and Native Title), and the tenures under which the proposal would be held including details of relevant legislative processes required to grant proposed tenure	9.7.5 and 17.3.1, Appendix E4.4 and E4.6.2
5	Alternatives	The reasons for preferring certain options and rejecting others	Chapter 4 and Appendix E4.3
6	Risk assessment	The EIS should include an assessment of the risks to people and nearby facilities associated with the construction, operation and maintenance of the various components of the NT Transport Option, and the storage and transport of materials within the NT	Chapter 26 and Appendix E4.8
7	Key risks of the NT Transport Option	Describe the existing environment that may be affected by the proposal	Chapters 10 to 22 and Appendix E4.6 and E4.7
		Include an outline of the stormwater and wash-down water management system designs associated with the likely storage facility location scenarios	5.9.5 and Appendix E4.2.3
		Discuss the air filtration and ventilation system in the storage facility and how any particulate emissions will meet the National Environment Protection Measure for ambient air quality at the site boundary	5.9.5, 13.3.4 to 13.3.5 and Appendix E4.2.3
		Details of product containment, and how risks of spillage, fugitive product losses and other risks associated with the product in transit will be managed	5.4.3 and 13.3.5 and Appendix E4.2.3 and E4.8
		A summary of the perceptions expressed by individuals and groups within the community	Chapter 7 and Appendix E4.5