MT ARTHUR COAL
ANNUAL ENVIRONMENTAL MANAGEMENT REPORT FY15

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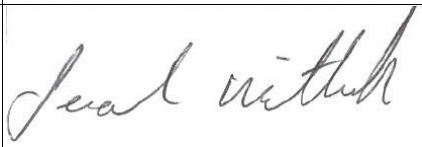
AEMR Completion Date	30 June 2015
Name of Leaseholder	Hunter Valley Energy Coal Pty Ltd
Reporting Officer Name	Sarah Withell
Reporting Officer Title	Head of Health, Safety and Environment
Reporting Officer Signature	
Date	29 September 2015

1 Introduction

Mt Arthur Coal is an open cut coal mine located approximately five kilometres south west of Muswellbrook in the Upper Hunter Valley in New South Wales (NSW). Owned entirely by BHP Billiton, Mt Arthur Coal comprises both mature and new operations that are operated 24-hours, seven days a week.

This Annual Environmental Management Report (AEMR) details Mt Arthur Coal's environmental and community performance for the period from 1 July 2014 to 30 June 2015. This report addresses mining and related operations for the Mt Arthur Coal complex, which includes the Mt Arthur Coal Open Cut Consolidation Project and the Mt Arthur Coal Underground Project. No underground operations are currently taking place. The open cut operational area is shown in Figure 1.

This AEMR fulfils statutory reporting requirements associated with mining leases and the Mt Arthur Coal Mine Open Cut Consolidation Project Approval Modification 1 (09_0062 MOD 1), referred to hereafter as the modification project approval. The AEMR has been prepared in accordance with AEMR guidelines issued by the NSW Division of Resources and Energy (DRE). Table 1 provides a summary of the AEMR requirements.

This report was prepared in consultation with the DRE, NSW Department of Planning and Environment (DP&E), Muswellbrook Shire Council (MSC), NSW Environment Protection Authority (EPA) and NSW Office of Water, and includes all additional reporting requirements requested.

The AEMR is distributed to a range of stakeholders that include government authorities, non-government organisations (NGOs), the Mt Arthur Coal and Drayton Coal Joint Community Consultative Committee (CCC), libraries, local residents, other mines and BHP Billiton employees. The report is also available on the BHP Billiton website at www.bhpbilliton.com.

Table 1: AEMR requirements

Reference	Condition	AEMR section
EDG03 Guidelines	a) The current status of approvals leases and licences. b) A list of mine contacts. c) Actions arising from the previous AEMR review. d) Environmental risk management and control strategies.	Section 1
EDG03 Guidelines	For the previous 12 month period: a) Mining, mine development, and rehabilitation in relation to the Mining Operations Plan; b) Environmental performance in relation to the collective conditions of approvals, leases and licences; and c) Community relations and liaison.	a) Section 2 and 5 b) Section 3 and 1.1 c) Section 4.2
EDG03 Guidelines	It also looks to the next 12 months by: a) Proposing improvements in environmental performance and management systems; and b) Specifying environmental and rehabilitation targets to be achieved.	a) Section 3 b) Section 6
Condition 53d of Schedule 3 of the modification project approval	The Proponent shall: …. c) Report on waste management and minimisation in the Annual Review, to the satisfaction of the Secretary.	Section 3.16

Reference	Condition	AEMR section
Condition 3 of Schedule 5 of the modification project approval	By the end of June each year, the Proponent shall review the environmental performance of the project to the satisfaction of the Secretary. This review must: a) describe the works that were carried out in the past year, and the works that are proposed to be carried out over the next year; b) include a comprehensive review of the monitoring results and complaints records of the project over the past year, which includes a comparison of these results against the • relevant statutory requirements, limits or performance measures/criteria; • monitoring results of previous years; and • relevant predictions in the Environmental Assessment; c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance; d) identify any trends in the monitoring data over the life of the project; e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and f) describe what measures will be implemented over the next year to improve the environmental performance of the project.	Section 3

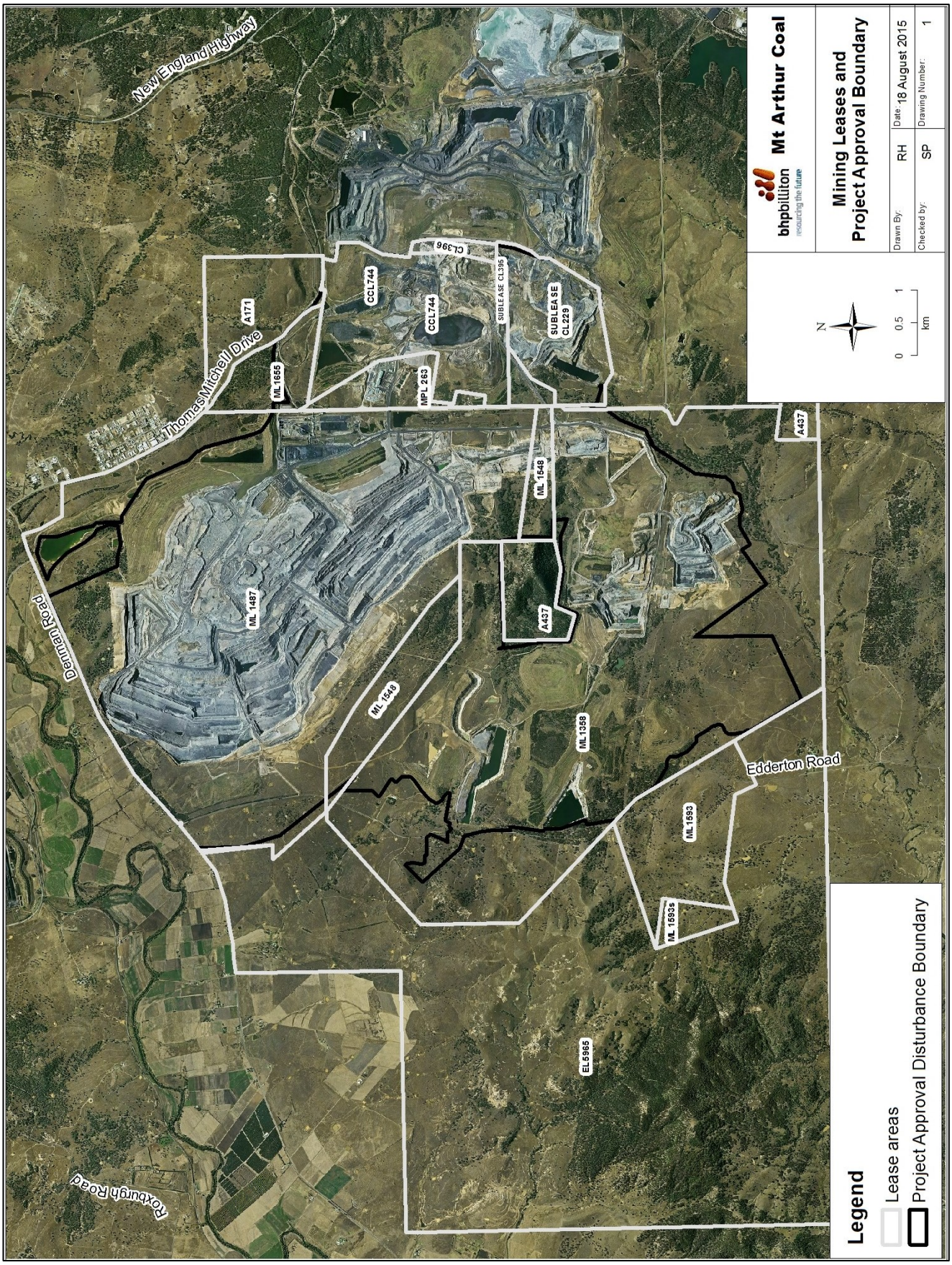


Figure 1: Location of the Mt Arthur Coal disturbance boundary and mining titles

1.1 Approvals, Leases and Licences

Mt Arthur Coal has a large number of statutory approvals, leases and licences that regulate activities on site. Each of these has conditions that are derived from a range of aspects, including the nature and size of the operation, the diversity and sensitivities of local land use and the environment, the existing cumulative level of impact from mining and other industries, the close proximity to large residential areas and the comprehensive regulatory approvals process in NSW and Australia.

1.1.1 Project Approvals

In 2009, Mt Arthur Coal lodged an application under Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) to extend open cut operations and consolidate existing approvals for open cut mining operations and surface infrastructure. The project, as described in the Mt Arthur Coal Consolidation Project Environmental Assessment 2009 (referred to hereafter as the consolidation environmental assessment), was approved by the Minister for Planning on 24 September 2010 (Project Approval 09_0062). The open cut consolidation project approval permitted the extraction of up to 32 mtpa of Run-of-mine (ROM) coal from the open cut. Mt Arthur Coal also maintains the Mt Arthur Coal Underground approval (PA 06_0091) which was granted in 2008 and will expire on 1 October 2016 if not physically commenced.

In February 2013, Mt Arthur Coal lodged an application to modify the open cut consolidation project approval, under section 75W of EP&A Act. Approval for the modification (referred to hereafter as the modification project approval) was granted on 26 September 2014 and provides for a four year increase in consent life to 2026 and associated mine extension areas, changes to overburden emplacements, a new administration building and Coal Handling and Preparation Plant (CHPP) offices, relocation and upgrade of the explosive facility, rail loop duplications and an increase in maximum daily train numbers from 12 to 15. Although the open cut and underground mining operations are approved to rates of 32 million tonnes per annum (mtpa) and 8 mtpa, respectively, the total mine extraction rate is limited to 36 mtpa of ROM coal by the open cut consolidation project approval.

1.1.2 Mining Leases

Mt Arthur Coal holds eight Mining Leases (MLs) including one Mining Purposes Lease (MPL) and two subleases (Drayton subleases Coal Lease (CL)395 and CL229). Each of the leases covers a different area of the active and future mining areas, has a different expiry date and set of conditions. In June 2014, Mt Arthur Coal lodged an application for a MPL over four small parcels of land (46 hectares in total) within the existing disturbance boundary. Tenure over these parcels is required for continued mining operations. This MPL is expected to be granted in the next reporting period.

Mt Arthur Coal currently holds three exploration licences (EL) or authorisations (A) to prospect (EL5965, A171 and A437).

1.1.3 Environment Protection Licence

Mt Arthur Coal currently holds one environment protection licence (EPL 11457), for the following scheduled activities:

- chemical storage five to 100 tonnes generated or stored;
- coal works > 5,000,000 tonnes handled; and
- mining for coal > 5,000,000 tonnes produced.

A resource recovery exemption application was submitted to the EPA on 8 September 2014, to allow the receipt, storage and beneficial use of refined waste oil at Mt Arthur Coal for the purpose of blasting activities. An EPL variation was lodged with the EPA on 24 October 2014 to allow the for the use of waste oil in blasting activities and to align noise and blasting conditions to ensure operational

consistency with the modification project approval. The resource recovery exemption and order were approved on 18 December 2014 and the associated EPL variation was issued on 14 January 2015. The resource recovery exemption and order were issued again on 25 June 2015, valid until 24 December 2015.

The EPA approved and issued variations to EPL 11457 during the reporting period, on 30 October 2014, 14 January 2015, 5 February 2015 and 9 April 2015.

30 October 2014:

- Removal of Pollution Reduction Programs (PRPs) titled: Particulate Matter Control Best Practice Implementation – Wheel Generated Dust and Particulate Matter Control Best Practice Implementation – Disturbing and Handling Overburden under Adverse Weather Conditions due to their successful completion.
- Addition of PRP titled: Coal Mine Wind Erosion of Exposed Land Assessment, requiring assessment of exposed surface area and comparison to predictions made within the licensee's Environmental Assessment.

14 January 2015:

- Condition L4.1 was altered to allow for the use of refined waste oil in blasting activities.
- Condition L5.1 Noise Limits and Condition L6.1 Blasting were both altered to ensure operational consistency with the modification project approval. The blasting limit conditions wording was also updated.
- Conditions L4.4, M10.4 and R4.5 were altered to include additional monitoring and reporting requirements in relation to waste oil.

5 February 2015:

- The addition of Condition P1.4, which includes blast monitoring points 7, 8, 9 and 10.
- Reference to affected residences and noise sensitive locations was removed from Conditions L6.2, L6.3, L6.4 and L6.5, and replaced with monitoring points 7, 8, 9 and 10.
- Reference to affected residences and noise sensitive locations was removed from Condition M9.1 and replaced with a table specifying the parameters, units of measure, frequency and sampling method for monitoring blasts.
- Removal of PRP titled: Particulate Matter Control Best Practice Implementation – Trial of Best Practice Measures for Disturbing and Handling Overburden due to the requirement of this condition being met.

  These variations ensured consistency with the modification project approval.

9 April 2015:

- The addition of Condition L6.6, which prohibits the emission of offensive blast fume from the premises.

1.1.4 Environment Protection and Biodiversity Conservation Act Approvals

The *Environment Protection and Biodiversity Conservation* (EPBC) *Act 1999* is federal legislation administered by the Commonwealth Department of the Environment (DoE) that protects nationally significant flora, fauna and ecological communities.

On 30 April 2012, Mt Arthur Coal was granted approval EPBC 2011/5866 with conditions to undertake the development of five new open cut extension areas, as a controlled action, within the designated areas. The controlled action commenced on 21 May 2012. A variation to conditions attached to Approval EPBC 2011/5866 was granted on 14 November 2014 by the DoE, to vary the delivery date of Condition 3 to 30 June 2015.

In October 2014 a referral was lodged for the modification project approval areas. The modification project was determined to be a controlled action in March 2015 and will be assessed by preliminary documentation in the next reporting period.

Table 2: Mt Arthur Coal's existing statutory approvals as at 30 June 2015

Description	Issue date	Expiry date
Project approvals issued by the DP&E		
Mt Arthur Coal Mine Open Cut Consolidation Project Modification 1 (09_0062 MOD 1)	26/09/2014	30/06/2026
Mt Arthur Coal Mine Underground Project (06_0091)	02/12/08	31/12/2030 (01/10/2016 if not physically commenced)
Mining leases and exploration licences issued by the DRE		
CCL 744	03/07/1989	21/01/2028
CL 396	03/05/2003	03/02/2024
ML 1358	21/09/1994	21/09/2036
ML 1487	13/06/2001	12/06/2022
ML 1548	31/05/2004	31/05/2025
ML 1593	30/04/2007	29/04/2028
ML 1655	03/03/2011	03/03/2032
MPL 263	17/10/1990	17/10/2032
MLA 476	Lodged May 2014	Pending approval
A 171	27/10/2004	25/11/2015
A 437	04/03/1991	04/03/2020
EL 5965	14/07/2007	14/07/2017
Drayton sublease CL 395	13/04/2006 (registered 14/06/2013)	21/01/2029
Drayton sublease CL 229	13/04/2006 (registered 14/06/2013)	02/02/2024
EPL issued by the EPA		
EPL 11457	09/10/2001 (last updated on 09/04/2015)	Not specified
EPBC approval issued by the DoE		
EPBC 2011/5866	30/04/12 (varied on 14/11/2014)	30/06/2022

1.1.5 Mining Operations Plans

Mt Arthur Coal's approved mining operations plan (MOP) covers the period 1 January 2014 to 31 December 2015. The MOP was revised and submitted to DRE for approval on 19 May 2015 to allow continued mining operations at Mt Arthur Coal, following the changes to the project approval associated with the granting of approval for the modification project. The revised MOP covering the five-year period 1 July 2015 to 30 June 2020 (FY16-FY20), will supersede the approved MOP and provides information pertaining to operating philosophy, mining method, rehabilitation strategies, water management and environmental management associated with current operations with approval anticipated in July 2015.

The MOP has been prepared in accordance with the NSW Department of Trade and Investment, Regional Infrastructure and Services – DRE, ESG3: Mining Operations Plan Guidelines, September 2013. It also serves as Mt Arthur Coal's rehabilitation management plan for the modification project approval.

1.2 Mine Contacts

Mt Arthur Coal functions with two operational areas – Open Cut Operations and CHPP and Infrastructure. Open Cut Operations is responsible for all mining, planning, earth moving and equipment maintenance processes up to and including the delivery of coal to the run-of-mine facility. CHPP and Infrastructure is responsible for all coal processing, marketing interface and transportation of coal, including maintenance for the CHPP and all fixed and non-process infrastructure.

Xavier Wagner remained the General Manager of Mt Arthur Coal Open Cut Operations in the reporting period. Adam Lancey was appointed to Acting General Manager of Mt Arthur Coal CHPP and Infrastructure in February 2015 due to the appointment of Mark van den Heuvel to acting Asset President New South Wales (NSW) Energy Coal. Mark van den Heuvel is expected to return to the General Manager of Mt Arthur Coal CHPP and Infrastructure position in the next reporting period.

Mt Arthur Coal has a Health, Safety and Environment (HSE) team which is supported by the NSW Energy Coal HSE team. Contact details for personnel associated with environmental management at Mt Arthur Coal can be found in Table 3.

Table 3: Mt Arthur Coal management contact details

Name and role	Phone contact details
Xavier Wagner, General Manager, Mt Arthur Coal Open Cut Operations	(02) 6544 5800
Adam Lancey, Acting General Manager, Mt Arthur Coal CHPP and Infrastructure	(02) 6544 5800
Sarah Withell, Head of HSE, NSW Energy Coal	(02) 6544 5800
Donna McLaughlin , Superintendent Environment Execution, Mt Arthur Coal	(02) 6544 5800
Michael Gale, Superintendent Environment Analysis and Improvement, NSW Energy Coal	(02) 6544 5800

1.3 Actions Required at Previous AEMR Review

A review of compliance against legal requirements is required on an annual basis during the preparation of the AEMR. During the reporting period Mt Arthur Coal achieved a high level of compliance against approval conditions and legislation applicable to the operation. Mt Arthur Coal maintains regular communication with government agencies to ensure that appropriate levels of effective assessment and reporting continue.

The DRE and DP&E conducted a review of the FY14 AEMR, including attending a site meeting and inspection at Mt Arthur Coal on 21 and 22 October 2014. The DRE noted that the report generally satisfied the requirements of the mining lease conditions. The DRE also identified several issues during the site inspection. These issues and the actions taken to address them are listed in Table 4.

The DP&E also considered that the FY14 AEMR generally satisfied the requirements for Annual Reviews in Condition 3, Schedule 5 of the consolidation project approval. The DP&E also made several comments for consideration, which are listed in Table 4, along with actions taken to address them.

Table 4: Actions Required at Previous AEMR Review

No.	Issue or observation	Action required by Mt Arthur Coal	Due	Completed	Comments
DRE-1	Tracking progression of the rehabilitation areas against rehabilitation obligations and performance criteria	Undertake an audit of the rehabilitated areas. The scope of the audit will be to the satisfaction of DRE and must include as a minimum: 1. Identify the areas where rehabilitation has been undertaken by year; 2. Assess the quality and quantity of the identified rehabilitation areas against rehabilitation performance criteria/final land use; 3. Identify the rehabilitation phase for each rehabilitation area (e.g. decommissioning, landform establishment, growth medium development, ecosystem and land use establishment etc.); and 4. Develop a scope of works to be undertaken to progress the rehabilitation to the next phase (e.g. from growth medium development to ecosystem and land use establishment etc.).	4 March 2015	N/A	1. Maps of rehabilitated areas identified by year were provided to DRE on 4 March 2015. 2. In consultation with DRE this item has been rescheduled to allow the rehabilitation completion criteria to be updated prior to completion. 3. In consultation with DRE this item has been rescheduled to allow the rehabilitation completion criteria to be updated prior to completion. 4. In consultation with DRE this item has been rescheduled to allow the rehabilitation completion criteria to be updated prior to completion.
DRE-2	Failure of tree plantings on visual dump 1	Define the extent of tree planting rectification works associated with visual dump 1. Provide a schedule for the completion of the rectification works.	4 March 2015	4 March 2015	A program for tubestock planting on VD1 was developed and approved by DRE. Planting will occur over a six year period.
DRE-3	Management of pasture/grazing areas	Identify areas which could be used for grazing. Develop a sustainable pasture management plan (SPMP) for the pasture/grazing areas. The SPMP is to identify as a minimum: 1. Stocking rates for each area; 2. A rotational grazing plan; 3. Trigger levels which will be used as indicators for the commencement and cessation of grazing; 4. Infrastructure plan (e.g. fences, shelter/trees, watering points, holding yards, gates etc.); 5. Buffer zone (riparian areas, drainage lines/depressions); 6. A drought management plan; 7. Monitoring program; and 8. A schedule for when grazing ofthese areas will commence.	4 March 2015	19 May 2015	The sustainable pasture management plan for rehabilitated areas was included in Section 8.1 of the MOP FY16-FY20 submitted to DRE.
DRE-4	Quality of vegetation on the Denman Road bund	Include this area in the audit identified in action number DRE-1.	4 March 2015	N/A	In consultation with DRE this item has been rescheduled to allow the rehabilitation completion criteria to be updated prior to completion.

No.	Issue or observation	Action required by Mt Arthur Coal	Due	Completed	Comments
DRE-5	Decanting of water within the tailings storage facility	Investigate the decanting options associated with the tailings storage facility. Provide a schedule for the implementation of the preferred decanting option.	FY15 AEMR	FY15 AEMR	Plans for decanting of the tailings storage facility are described in Section 2.5.
DP&E-1	Monitoring for the alluvial cut off wall	Adequate monitoring needs to be undertaken and recorded to ensure the cut off wall performs to a standard outlined in the Project EA.	FY15 AEMR	FY15 AEMR	The ground water monitoring program and management measures for the alluvial cut off wall are discussed in Section3.4.1. Performance of the alluvial cut off wall is discussed in Section 3.4.2.
DP&E-2	Water return from the tailings storage facility	Within the current reporting period (2014-2015) investigate different methodologies to harvest water from the tailings dam and return it to the CHPP, and outline a preferred option.	FY15 AEMR	FY15 AEMR	Plans for decanting of the tailings storage facility are described in Section 2.5
DP&E-3	The application of the C-A noise assessment	Advice needs to be sought on the application of this modification factor when there are multiple mine noise sources.	FY15 AEMR	FY15 AEMR	An external noise consultant advised that the application of the C-A noise modification factor does not accurately assess low frequency noise from a source when there are other audible low frequency noise sources in the area. Low frequency noise results are presented in Section 3.9.2.
DP&E-4	Noise level performance compared to previous years	Provide noise level performance compared to previous years in the next AEMR and a short report provided to the Singleton Compliance office for the 2013-2014 results by 1st December 2014.	FY15 AEMR	FY15 AEMR	Noise level performance for FY14 compared against previous years and modelled predictions from the modification project environmental assessment were provided to the DP&E on 1 December 2014. Noise level performance for FY15 is discussed in Section 3.9.2.
DP&E-5	Weather station performance	The mine's consent (Condition 25, Schedule 3) requires an operating weather station. Between the existing and the new weather station, continuous and real time results need to be available at all times.	FY15 AEMR	FY15 AEMR	A summary of meteorological data recorded at WS09 and WS10 during the reporting period is provided in Section 3.18.2 and Appendix 6.

No.	Issue or observation	Action required by Mt Arthur Coal	Due	Completed	Comments
DP&E-6	Waste management	Provide a scope of works for an audit to be undertaken by an independent consultant. The scope of the audit will be to the satisfaction of DP&E and DP&E and must include as a minimum: 1. An assessment of the segregation of workshop waste streams, staff training and directions against industry best practice. Provide suggestions for improvements in training and management for waste segregation. 2. An assessment of the hydrocarbon product storage areas in and around the workshop. Identify any shortcomings and provide suggestions for improved management. 3. Thoroughly review the oil/water drainage management in and around the workshop area, including the oil/water separation unit. Determine why it was not operating on the day of our inspection and how processes can be changed to improve the reliability of oil/water management with the aim of improving the retention of oil within the workshop area water drainage system. 4. Assess the purpose and condition of the 3 dams downstream of the workshop area. Determine if the dams are functioning as intended and if any changes are required to improve their performance to ensure water in these dams is of the best quality for mining purposes. 5. Assess the hydrocarbon contaminated waste storage area for its fitness for purpose. Provide advice on the preferred methods for the handling and disposal of hydrocarbon contaminated material including sediment from dams containing hydrocarbon products.	1 December 2014	1 December 2014	An audit scope was provided to DP&E on 1 December 2014. Following minor amendments the scope was approved by DP&E on 2 December 2014. The audit was undertaken by an independent consultant on 11 and 12 February 2015. A summary of the audit findings is presented in Section 1.5.3
DP&E-7		Identify all areas of spontaneous combustion, and where access can be gained by conventional mining equipment without constructing large cut and fill access tracks, ensure the areas are covered in sufficient inert material to extinguish the heating ground.	30 June 2015	N/A	An extension to 31 July 2015 was granted by DP&E due to significant rainfall events impacting planned works. A summary of capping works is described in Section 3.13.2.

No.	Issue or observation	Action required by Mt Arthur Coal	Due	Completed	Comments
DP&E-8	Denman Road visual bund	Condition 49 Schedule 3 of the Mt Arthur Approval requires a revision of the Visual Impacts Management Report by the end of December 2014 to the satisfaction of the Secretary. Include the planned treatment of the visual bund with methodologies and timing of works and anticipated outcomes. The vegetation species and planting methodologies will require the concurrence of DRE and evidence of this concurrence provided in the revised report.	31 December 2014	18 December 2014	In consultation with DP&E it was agreed that the Denman Road visual bund design was outside of the scope for the Visual Impacts Management Report. A letter was provided to DP&E on 18 December 2014 detailing the progress of the design work being undertaken. Mt Arthur Coal will engage with DRE and DP&E for feedback in the next reporting period following completion of the final designs.

1.4 Mt Arthur Coal Environmental Management System

Mt Arthur Coal has implemented a comprehensive environmental management system (EMS) that provides a framework to manage compliance with relevant legislation and statutory approvals and conforms to organisational objectives and community expectations.

Mt Arthur Coal's EMS is based on a 'plan, do, check and act' cycle that encourages continual improvements in performance. It uses a suite of procedures for key activities that have the potential to generate environmental and social impacts. These procedures are continually reviewed, communicated to employees and audited for compliance.

1.5 Legal Compliance and Other Requirements Review

Mt Arthur Coal has a system to identify, manage, assess and report legal compliance against requirements. This system includes EMS procedures, checklists, inspections and audits. Legal compliance is monitored on a continual basis from analysis of monitoring and other data, maintenance of compliance checklists and a system of regular audits and inspections. As part of this system, areas of non-compliance are promptly identified and actioned.

Inspections may also be conducted on an ad hoc basis by government authorities to assess, among other matters, performance against legal and other requirements. Scheduled and non-scheduled inspections of Mt Arthur Coal's operations have been undertaken by government regulators throughout the reporting period.

Consistent with EMS procedures, any changes to legal requirements such as new approvals or changes to legislation are monitored. These changes may be identified from research, industry contact and correspondence from NGOs, government notifications, subscriptions, media reports and legal advice. Mt Arthur Coal's EMS framework and procedural and training documentation is also reviewed on an ongoing basis and is updated as required to reflect changes in legal requirements. During the reporting period, required changes were made to the EMS documentation to ensure consistency with the changing legislative and approval requirements.

1.5.1 Independent Environmental Audit

An independent environmental audit was undertaken at Mt Arthur Coal in June 2014, covering the audit period between 1 January 2012 and 30 June 2014. The audit was undertaken by an audit team led by Peter Horn from SMEC Australia, approved by the DP&E. The audit assessed the environmental

performance of the project and compliance with the conditions of the project approval, EPL and mining leases including associated assessments, plans or programs. It also reviewed the adequacy of strategies, plans or programs required under these approvals.

A following summary of the audit results was provided in the audit report (SMEC, September 2014):

> *A total of 1023 conditions and commitments were assessed as part of this audit. 18 issues resulted in 28 non-compliances. Six of the issues were administrative (that is, the issue was caused by not submitting a document or keeping a document on file, not by the omission of an action or measurement). Many of the non-compliances noted in this audit relate to the same issue which, due to the duplication of commitments between consent documents and management plans, raise the same non-compliance several times.*
>
> *At the time of the audit, Mt Arthur Coal had a high level of resources devoted to environmental matters through competent environmental planning and operations teams.*

The audit report together with the response to audit recommendations is available on the BHP Billiton website.

Progress on actions arising from audit recommendations is presented in Table 5.

Table 5: Progress on 2014 Independent Environmental Audit Actions

Action	Status	Progress
Review air quality assessment templates (real-time monitoring) to ensure the downwind angles for meteorological analysis are configured correctly for each monitor.	Completed	Downwind angles for air quality assessment and meteorological analysis were reviewed and calculation templates were updated where required.
Request noise consultant to review weather predictions to enable selection of nights with meteorological conditions (wind speed in particular) suitable for monitoring, independent of Mt Arthur Coal. Additional follow-up monitoring will be conducted as required in an attempt to obtain a measurement under applicable meteorological conditions for inclusion in the attended monitoring report.	Completed	The noise consultant's attended noise monitoring procedure was updated to include the requirement to review weather predictions to enable selection of nights with meteorological conditions suitable for monitoring, independent of Mt Arthur Coal.
Formalise and document routine inspections and post-rainfall (>25mm) inspections of erosion and sediment control structures including key areas that form part of the Erosion and Sediment Control Plan (recently seeded areas, sediment dams, outlets, sediment fences). The inspection should also include checks of Denman Road culverts to ensure there is no blockage.	Completed	Routine and post-rainfall (>25mm) inspections of erosion and sediment control structures are required by the Erosion and Sediment Control Plan. An inspection template has been introduced to formalise the inspection process to ensure inspection findings are documented and appropriately actioned. The template includes inspection of sediment dams that are listed in the Erosion Sediment Control Plan, as well as additional areas, including the culverts under Denman Road. The ground disturbance permit process requires routine field inspections to ensure appropriate sediment control measures, such as sediment fencing or seeding, have been implemented before, during and after land disturbance activities.
Implement actions proposed in the letter to the EPA dated 15 May 2014 in relation to the water discharge that occurred on 28 March 2015.	Completed	Implemented preventative actions included the identification of high risk areas (e.g. catchments that have potential to drain off site) within the land management procedure to ensure a risk assessment is completed and adequate controls are in place prior to any ground disturbance permit being issued. The procedure also provides clear accountabilities for sediment dam design and validation.

Action	Status	Progress
Include a native vegetation seed mix trial in the priorities for rehabilitation research and trials to guide the ongoing refinement of seed mixes, specifically to investigate methods to reduce the dominance of exotic grass species.	Completed	A native vegetation seed mix trial has been included in the MOP FY16-FY20 as one of the rehabilitation research priorities to guide the ongoing refinement of seed mixes.
Review the design of topsoil stockpile configuration with a view to establishing a standard that ensures maximisation of soil surface area exposure to air.	Completed	The Land Management Procedure was updated to include topsoil stockpile height specifications to ensure aeration is maximised.
Develop a register for recording when inspections are due and have been completed in accordance with the Edinglassie and Rous Lench Heritage Management Program.	Completed	The European heritage inspection program has been incorporated within the business work management system to ensure inspections are formally scheduled and verified as being completed.
Formalise and document routine inspections for heritage buildings.	Completed	European heritage inspection guides and checklists have been developed and have been uploaded into the business work management system as part of the European heritage inspection program.
Develop remediation plan for the downstream section of the Whites Creek diversion. The plan will take consideration of the planned diversion realignment works and the resulting reduction in upstream catchment area which constitutes the primary source of sediment.	Planned for FY16	Scheduled for completion during FY16 reporting period
Consult with the appropriate regulatory authority regarding the geomorphological studies required to allow potential reinstatement of creeks through mine overburden.	Planned for FY16	Scheduled for completion during FY16 reporting period
Formalise the post-rehabilitation and annual rapid assessment inspections to ensure results are documented to enable trends and patterns to be identified over time.	Planned for FY16	Scheduled for completion during FY16 reporting period
Adopt the LFA or similar landscape assessment methodology for rehabilitation monitoring.	Planned for FY16	Scheduled for completion during FY16 reporting period
Once sufficient data has been obtained from the Landscape Function Analysis (LFA) monitoring program, review the rehabilitation completion criteria to ensure performance indicators and sufficiently measurable completion criteria is established.	Planned for FY17	Scheduled for completion during FY16 reporting period

1.5.2 Website Audit

An audit to assess compliance with the website requirements of the modification project approval was undertaken in July 2015 to allow FY15 documents to be completed and published on the BHP Billiton website (www.bhpbilliton.com). Results are provided in Table 6. No non-compliances against relevant modification project approval conditions were identified.

Table 6: Results of the Mt Arthur Coal website audit

Modification project approval or other reference	Website requirement	Compliant	Comments
Condition 11 of Schedule 5	A copy of all current statutory approvals for the project	Yes	A copy of the Mt Arthur Coal Mine Open Cut Consolidation Project – Modification 1 Approval 09_0062 MOD 1 and the Mt Arthur Underground Project Approval 06_0091 are available. A copy of Mt Arthur Coal's EPBC 2011/5866 and variations to conditions are also available.
Condition 11 of Schedule 5	A copy of the current environmental management strategy and associated plans and programs	Yes	All management plans, programs and strategies required by the modification project approval that are approved by the DP&E are available. Biodiversity and offset management plans approved by the Federal Department of Environment are available. The PRP approved under the operation's EPL is also available, as well as the Pollution Incident Response Management Plan (PIRMP).
Conditions 8 and 11 of Schedule 5	The Proponent shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval, and to the satisfaction of the Director-General. A summary of the monitoring results of the project, which have been reported in accordance with the various plans and programs approved under the conditions of this approval	Yes	Mt Arthur Coal environmental monitoring data since April 2012 is available in a format specific to EPL 11457 and in accordance with the EPA's *Requirements for publishing pollution monitoring data* (March 2012). A summary of monitoring results since 2008 is also in the AEMRs available.
Condition 11 of Schedule 5	A complaints register, which is to be updated on a monthly basis	Yes	Monthly reports of community complaints since July 2013 are available. Complaint details are also available in each AEMR.
Condition 11 of Schedule 5	A copy of the minutes of CCC meetings	Yes	Mt Arthur Coal CCC meeting minutes are available, dating back to April 2013. Minutes from the June 2015 CCC meeting will be made available when they are finalised by the chair and approved by the CCC.
Condition 11 of Schedule 5	A copy of any Annual Reviews (over the last five years)	Yes	AEMRs dating back to calendar year 2008 are available.
Condition 11 of Schedule 5	A copy of any Independent Environmental Audit, and the Proponent's response to the recommendations in any audit	Yes	The Mt Arthur Coal Independent Environmental Audits and Mt Arthur Coal's Response to Independent Environmental Audit Recommendations from 2012 and 2014 are available.
Condition 11 of Schedule 5	Any other matter required by the Secretary	N/A	N/A
Condition 16 (d) of Schedule 3	Operate a suitable system to enable the general public and surrounding landowners and tenants to get up-to-date information on the proposed blasting schedule on site	Yes	The current week's blast schedule is published on the website weekly.
Condition 46 of Schedule 3	The Proponent shall keep records of the: a) Amount of coal transported from the site in each financial year; b) number of coal haulage train	Yes	The Mt Arthur Coal Annual Coal Transport Report FY15 is available.

Modification project approval or other reference	Website requirement	Compliant	Comments
	movements generated by the Mt Arthur Coal mine complex (on a daily basis) ; and c) make these records available on its website at the end of each financial year.		

1.5.3 Waste and Hydrocarbon Management Audit

An external consultant was commissioned to undertake a Waste and Hydrocarbon Management Audit at Mt Arthur Coal in February 2015, as requested by the DP&E following the 2013-14 Annual Review inspection. The audit reviewed the effectiveness of current waste management and waste segregation procedures, hydrocarbon management and hydrocarbon contaminated waste storage on site at Mt Arthur Coal. Criteria were determined from the applicable Australian Standards, the modification project approval and Mt Arthur Coal management plans and procedures. An assessment was also conducted against industry best practice.

It was noted in the audit report that Mt Arthur Coal had committed a significant level of resources into the improvement of waste and hydrocarbon management on site. This included good housekeeping, updates to inspection routines and adequate waste segregation. It was also found that hydrocarbon product storage was predominantly good and that the oil/water separator system was in good working order with improvements to maintenance in place. Improvements were also noted for the hydrocarbon contaminated waste storage area.

Limited recommendations that arose from the audit and are being considered for implementation by Mt Arthur Coal include minor modifications to encourage correct waste segregation, improvements to the service and maintenance system for the oil/water separators, a review of drainage for hydrocarbon storage areas and an investigation into the potential for small-scale land farming.

2 Operations during the Reporting Period

2.1 Exploration

Exploration activities are conducted in accordance with Mt Arthur Coal's EMS, exploration procedure and regulatory approval conditions. During the reporting period Mt Arthur Coal conducted exploration drilling activities in ML1358 and 1487 and EL5965 to further define coal seam geology and geotechnical parameters of the resource. During the reporting period 17 boreholes were drilled totalling 5,955 metres. Environmental assessments were conducted for each drill site prior to drilling to minimise impacts.

The rehabilitation and sealing of boreholes was completed, with rehabilitated sites monitored in accordance with Mt Arthur Coal's procedures. Boreholes that are yet to be grouted or that require additional testing have been secured with borehole caps.

During the reporting period there were no variations from the MOP related to exploration activities.

2.2 Land Preparation

Clearing of vegetation is undertaken in accordance with Mt Arthur Coal's Biodiversity Management Plan (BMP), Biodiversity and Rehabilitation Management Plan (BRMP) and Land Management Procedure.

Prior to clearing vegetation and felling trees, pre-clearance surveys were undertaken to identify potential habitat features and determine the presence of fauna. Consistent with the Land Management Procedure, felling of habitat trees is delayed for a minimum of 24 hours to encourage the natural movement of fauna from these areas to surrounding undisturbed vegetation. Felling is also conducted outside of breeding seasons where possible.

Identified habitat trees are felled in a controlled manner (soft-felled) to minimise the likelihood of injury or death to fauna that could possibly be inhabiting trees. Any fauna found is inspected and relocated by Mt Arthur Coal personnel or local wildlife carers.

During the reporting period 36,500 cubic metres of topsoil was stripped ahead of advancing mining areas in the northern pits towards Denman Road. Topsoil was recovered using excavators, dozers and trucks and placed directly onto reshaped areas to be rehabilitated. No topsoil was stockpiled during the reporting period. Soil quality varies across site, but generally soils on site are of duplex texture profile, weakly structured and low in nutrients and organic material. Shallow gravelly soils were also prevalent on hill crests. Between 200 to 450 millimetres of topsoil was recovered during stripping.

The volumes of topsoil stripped during the reporting period and the forecast for the next reporting period vary from predictions in the MOP. Less topsoil was stripped during the reporting period than predicted and less topsoil stripping is currently planned for the next reporting period than predicted in the MOP. The reduction in topsoil stripping is a result of operational cost reduction measures which include concentrating mining activities into a smaller area. This will result in lower strip ratio, reduced haulage costs and is being achieved by slowing the advance of the mine into undisturbed areas. This is a temporary delay to topsoil stripping.

2.3 Construction

In line with securing the sustainability of the operation, construction of both mining and infrastructure to support the open cut mine development continued during the reporting period. The following major projects were commenced, progressed or completed during the reporting period:

- Modifications to the site water network, primarily in the form of upgrades to transfer pump stations, pipelines and associated control systems that link a number of on-site water storage facilities together, were completed. This project has delivered an integrated water management network that provides maximum practical capacity and water security to the site.

- Upgrade of the capacity of the tailings disposal system from the CHPP to the tailings storage facility was completed. This will support the continued processing of the wide variety of coal types mined at Mt Arthur Coal at the throughput rates required.

- Construction of a new heavy earthmoving equipment build pad in the vicinity of Edderton Road was completed. Although final works will be completed in the next reporting period, the facility is now in use. This has facilitated the decommissioning of the original equivalent heavy earthmoving equipment build pad to permit the planned advancement of the mine.

- One existing in-pit water fill stand was relocated and recommissioned and two new in-pit water fill stands were constructed and commissioned. Together, these projects improve the efficiency of water cart operations to maximise the effectiveness of dust suppression activities.

During the reporting period there were no variations from the current MOP related to construction works on site.

2.4 Mining

Mining occurs in distinct stages that are described below and illustrated in Figure 2. Holes are drilled into overburden and safely loaded with explosives. The overburden is then blasted to fracture the rock and enable more efficient removal of this material. Many controls are applied during blast design, drilling and firing to reduce the potential for impacts on the environment, buildings, power lines and the community.

Hydraulic excavators and electric rope shovels remove and load blasted overburden into large haul trucks of nominal 350-tonne and 206-tonne capacities. These trucks transport the material to emplacement areas generally within the mine void.

After removing the overburden above the coal seams, the coal is mined using hydraulic excavators and loaders with the assistance of dozers. Haul trucks of nominal 157-tonne capacity then transport the coal to Mt Arthur Coal's CHPP for processing.

During the reporting period mining continued within the Ayredale, Calool, Huon, Macleans, Roxburgh and Windmill Pits. Coal was mined from the Arrowfield, Bengalla, Bayswater, Broonie, Bowfield, Clanricard, Edinglassie, Edderton, Mt Arthur, Piercefield, Ramrod Creek, Transition, Unnamed, Vaux, Wynn and Warkworth coal seams as well as Base of Weathering. Approximately 25.2 million tonnes of run-of-mine coal was mined from the combined open cut operations, which is similar to the 25.7 million tonnes of run-of-mine coal that was mined during the previous reporting period.

The current MOP includes a forecast of 24 million tonnes of run-of-mine coal and 19 million tonnes of total saleable product coal for the reporting period. Mt Arthur Coal's mine performance figures for FY15, as summarised in Table 7, are in line with the forecast in the current MOP. Overall mining rates are also in compliance with the 32 million tonnes of maximum extraction allowed from the open cut mining operations in the modification project approval.

During the reporting period there were no variations from the MOP related to mining activities.

Table 7: Mine performance figures for FY15

Category	Unit	This reporting period (July 2014 to June 2015)	Estimated for next reporting period (July 2015 to June 2016)
Topsoil stripped	bcm	36,500	155,000
Topsoil used/spread	bcm	136,515	75,000
Overburden (including rehandle)	bcm	106,191,334	115,700,000
Run-of-mine coal mined	tonnes	25,184,055	25,400,000
Product (saleable) coal	tonnes	19,697,856	19,700,000
Washery reject (coarse and tailings)	tonnes	5,805,472	5,400,000

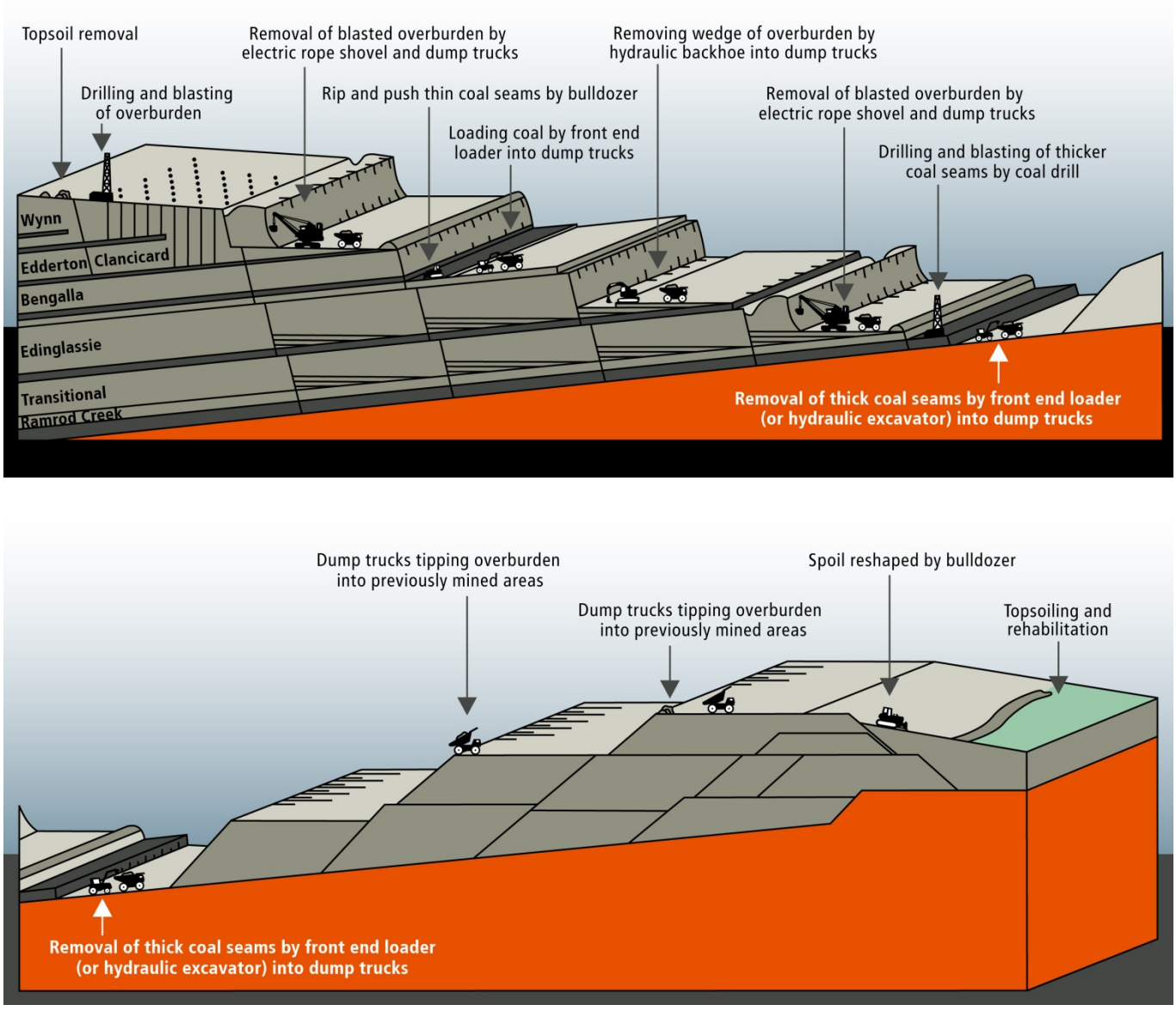


Figure 2: Mining sequence from topsoil removal to rehabilitation

2.5 Mineral Processing

After crushing to size and processing to remove impurities, coal is stockpiled prior to transport from site. During the reporting period approximately 19.7 million tonnes of total saleable product coal was produced by Mt Arthur Coal, which is in line with the forecast in the current MOP, as discussed in Section 2.4.

Approximately 18.7 million tonnes of export product coal was transported by rail to the Port of Newcastle and approximately 1.2 million tonnes by conveyor to the Bayswater Power Station. Consistent with the consolidation project approval, no product coal was transported from site by public road and all train movements were recorded.

Approximately 5.8 million tonnes of washery reject was produced from the CHPP during the reporting period, comprised of 66 per cent coarse reject material (3.85 million tonnes) and 34 per cent coal fines, known as tailings (1.95 million tonnes). Due to an error in the forecasting calculation this is higher than forecast in the current MOP. Coarse reject material continued to be co-disposed within overburden

emplacement areas and utilised in the construction of stockpile pads, road or other infrastructure, while tailings continued to be pumped from the CHPP to the tailings storage facility.

In the FY14 AEMR it was noted that the first of four stages for the tailing storage facility expansion project had been completed with the pumping of tailings into the East Pit following the construction of the embankment to reduced level (RL) 235m. During the reporting period, tailings continued to be pumped into the East Pit. Mt Arthur Coal also developed an operations and maintenance manual for the tailings storage facility. The manual outlines procedures to be implemented to ensure that the tailings storage facility is operated and maintained in accordance with the design objectives and regulatory requirements. The manual only outlines the requirements for stage one as the document will be updated as subsequent stages are initiated.

The expansion of the tailings storage facility went through a strategy development phase in the reporting period. The tailings storage facility expansion project involves the construction of two cross-valley embankments and a series of rim embankments which will be completed in four stages. The early phases of project development for the second stage of the project, is scheduled to commence in the next reporting period, with work planned to be carried out in FY17 and FY18.

As per the tailings storage facility operations and maintenance manual, the recovery of decant water from the tailings storage facility is expected to be quite challenging during the filling of stage one in the East Pit. At this stage it is uncertain as to whether a decant pond will develop or if the decant water will permeate through the perimeter of the pit to the Drayton Void water storage. Based on a planned tailings production rate, it is anticipated that the filling of stage one in the East Pit will be completed during FY17 and at this time a decant pond will develop in the north east corner of the East Pit. In order to enable the pumping of water back into the mine water system a ramp will be installed to access this area. Mt Arthur Coal has commenced preliminary investigations to determine the amount of water from the tailings storage facility lost to seepage that is being recovered at the Drayton Void. This work is expected to continue into the next reporting period.

During the reporting period there were no variations from the MOP related to coal processing activities.

2.6 Overburden Management

As previously mentioned, overburden is transported to emplacement areas generally within the mine void, performing a secondary function of reforming all previously mined areas prior to shaping and final rehabilitation. During the reporting period 106.2 million bank cubic meters of overburden was mined and handled (including rehandle), which is in line with the 113 million bank cubic meters forecast for FY15 in the MOP. Overburden emplacement areas that were utilised during the reporting period include visual dump 1 (VD1) and contingency dumps 1 to 5 (CD1 to CD5). Heights of these emplacement areas at the end of June 2015 are shown in Table 8.

Table 8. Heights of overburden emplacement areas at the end of the reporting period

Emplacement area	Current minimum height (RL)	Current maximum height (RL)	Approved maximum height (RL)
VD1	260	310	360*
CD1 to CD5	30	310	360*

* Additional crests on the overburden emplacement areas have been incorporated to a maximum height of RL 375 in two locations in order to improve visual amenity and result in a less engineered appearance of the final landform.

During the reporting period there were no variations from the MOP related to overburden management activities.

In the next reporting period priority will be given to increasing the height of the visual bund early in the year. This is expected to reduce the visual impact of the mine from the east and provide wind protection for a number of emplacement areas during the drier and windier months of the year to enable planned production to be achieved.

2.7 Coal Stockpiles

Run-of-mine coal extracted by the approved open cut operations is delivered by truck to either the hopper bins that feed into the CHPP or to the raw coal stockpiles. At the end of the reporting period the closing run-of-mine stockpile inventory was 333,707 tonnes, the closing circular stockpile inventory was 56,000 tonnes and the total saleable coal stockpile inventory at Mt Arthur Coal was 729,638 tonnes.

During the reporting period there were no variations from the MOP related to coal stockpiling activities.

2.8 Water Management

Mt Arthur Coal's water management system includes monitoring surface and ground water sites according to an approved monitoring program. Surface water monitoring sites include creeks, mostly ephemeral, and dams that surround the mining area, while ground waters are representative of the aquifers found below the natural surface.

In addition to water quality monitoring, Mt Arthur Coal also regularly monitors the water balance for the operation to assist forecasting and modelling for different climatic and site scenarios. A series of flow meters and surveyed volumes are utilised to monitor the use and transfer of water between key water storages. A schematic overview of the site's water management system can be found in Appendix 1.

Mt Arthur Coal uses a forecasting quantitative water model to predict the mine water balance in advance of the mining operation and provide a snapshot of available water at a given point in time based on a number of variables. Model predictions are then used to assist in operational planning and determination of future water quantity requirements. This model is in accordance with the Minerals Council of Australia Water Accounting Framework.

An overview of key inputs and outputs for Mt Arthur Coal's water balance for the reporting period is provided in Table 9. A breakdown of Mt Arthur Coal's water usage for tasks within the system is also provided in Figure 3.

In line with predictions in the consolidation environmental assessment and the modification project environmental assessment the majority of the operation's water supply during the reporting period was sourced from catchment runoff, as shown in Table 9. The second largest water input to site was pumping from the Hunter River utilising water access licences. Water sourced from the Hunter River decreased in comparison to the previous reporting period (2,961 megalitres (ML) in FY14). Mt Arthur Coal also continued to source water from the MSC treated effluent scheme to reduce the demand from other external sources. Based on water inputs and outputs for the reporting period the site water balance was positive 589 ML. Table 10 provides a surface water inventory for the reporting period, which shows a reduction in total volume of water stored on site during the reporting period by 329 ML. The difference between the change in water stored and the site water balance is less than 5 per cent of the total flows through the site and within the 10 per cent tolerance of the water accounting framework model.

Mt Arthur Coal did not discharge any water to the Hunter River from its licensed discharge point under the Hunter River Salinity Trading Scheme (HRSTS) during the reporting period.

During the reporting period Mt Arthur Coal used approximately 7,381 ML of water for coal handling and processing, dust suppression, potable consumption and use in the industrial area, most of which is recycled back into the water management system. This is an increase in water usage compared to FY14

(6,969 ML). Very similar to results in previous years, the CHPP was the main consumer of water at Mt Arthur Coal. This is shown in Figure 3. Water consumption at the CHPP increased in comparison to the previous reporting period despite a decrease in CHPP washery feed (17.8 million tonnes of CHPP washery feed in FY15 compared with 18.7 million tonnes in FY14). This was partially due to high rainfall in April 2015 that resulted in the dam that supplies the CHPP requiring to be decanted through the CHPP to the tailing storage facility in order to maintain acceptable water levels. Another contributor to the higher water usage was an issue with a water valve at the CHPP that resulted in intermittent overflowing of a tank. This issue has now been resolved. Subsequently, water use at the CHPP is expected to decrease in the next reporting period.

During the reporting period Mt Arthur Coal implemented a number of initiatives relating to site water management including:

- continuing the decommissioning of the main dam to remove the risk of dam wall failure;
- continuing to upgrade the integrated reticulation network to enable efficient management of water resources across the site for maximum practical capacity and water security;
- continuing the Site Water Management Committee, focused on water security and water efficiency across the mine site;
- continued use of a mechanical seal at the CHPP to reduce leakage and wastage of water. Two more mechanical seals were replaced as a part of this project during the reporting period;
- an investigation into the volume of water decanting via seepage into the Drayton Void water storage; and
- continuation of a CHPP thickener optimisation project to decrease water usage at the CHPP by reducing the need to manually flush the system with water.

During the reporting period there were no variations from the current MOP related to water management activities.

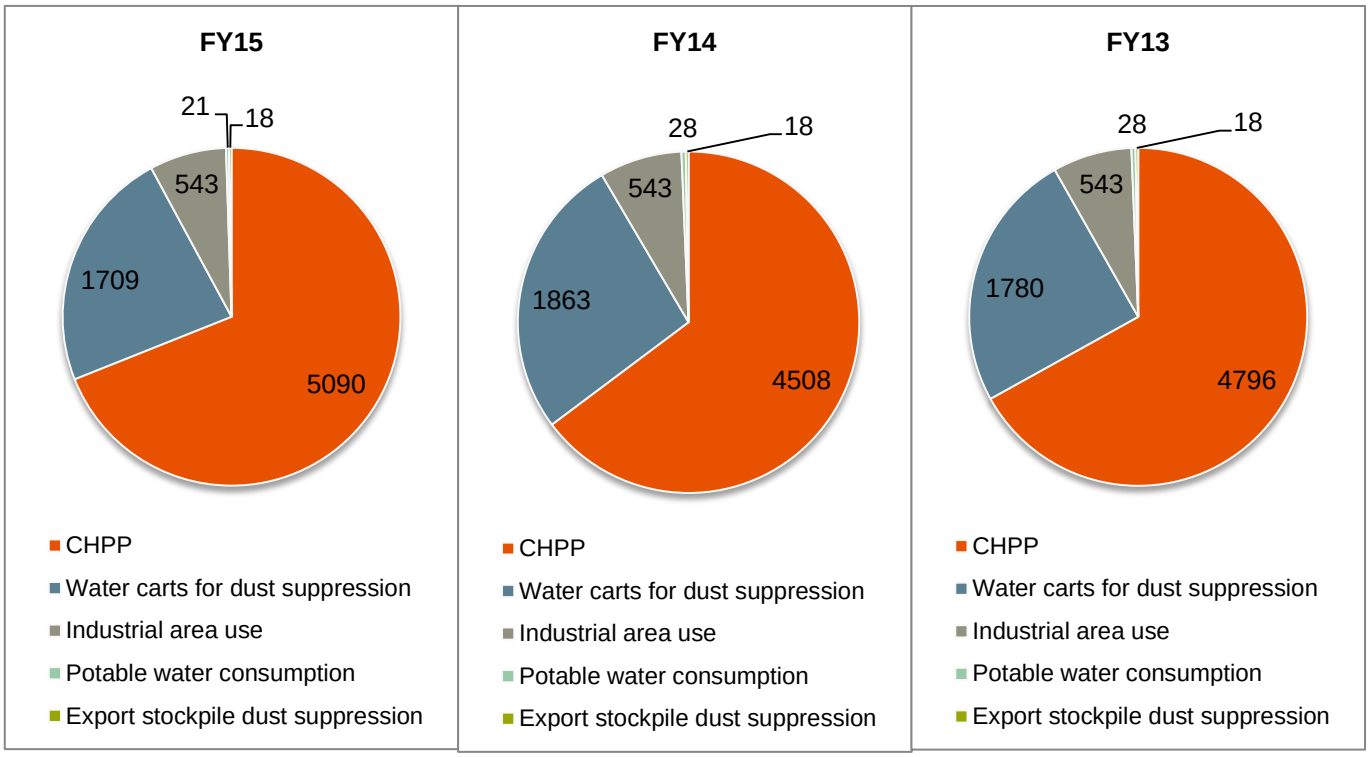


Figure 3: Composition and volumes in megalitres of Mt Arthur Coal site water usage

Table 9: Mt Arthur Coal's site water balance for the reporting period

Input-output	Element	Sub-element	Volume of water in quality category			Sub-element total ML
			One ML	Two ML	Three ML	
Inputs	Surface water	Precipitation and runoff^	615	3,601	0	4,216
		Rivers and creeks (pumped from Hunter River)	2,167	0	0	2,167
	Ground Water	Aquifer interception (inflow to the open cut areas)	0	649		649
		Ore entrainment	0	2,027	0	2,027
	Third party water	Contract/municipal (potable water)	21	0	0	21
		Waste water (treated effluent from Council)	0	0	708	708
	Total inputs		2,803	6,277	708	9,788
Outputs	Surface water	Discharge (to Hunter River under HRSTS)	0	0	0	0
	Other	Evaporation	3,046	0	0	3,046
		Entrainment	0	0	4,513	4,513
		Other (define)*	0	54	1,586	1,586
	Total outputs		3,046	54	6,099	9,199
					Balance	589

^ Precipitation is assumed to be water quality category 1, while runoff is assumed to be water quality category 2.
* Includes losses from the Industrial Area as well as seepage from tailings storage to Drayton Void.

Table 10: Mt Arthur Coal surface water inventory – operational storages

Mine water storage	Volume held at the start of the reporting period ML	Volume held at the end of the reporting period ML	Full storage capacity ML
Environmental dam	521	687	1,296
Main dam	560	279	1,075
CHPP dirty water dam	353	339	500
Drayton void*	2,053	1,989	2,276
Belmont void	1,077	1,043	2,281
McDonalds void	2,468	2,366	4,040
Total	7,032	6,703	11,468

* 1,000 ML of existing water stored to be kept in reserve for Drayton Coal Mine.
Note: dead storage areas i.e. maximum 5ML are not included in the inventory

2.9 Hazardous Material Management

Mt Arthur Coal has an existing hazardous materials management procedure to ensure all risks associated with the use of hazardous materials are managed in accordance with occupational, health and safety procedures, relevant standards and legislation.

All hazardous substances and dangerous goods stored and used at Mt Arthur Coal are maintained in a register (ChemAlert) with their associated material safety data sheets. To maintain the integrity of the hazardous materials management system, all work areas are inspected by supervisors on an ongoing basis as part of their general area inspections and safety observations. Handling, transportation and disposal of hazardous materials are undertaken in accordance with relevant standards and approvals.

During the reporting period there were no variations from the MOP related to hazardous materials management activities.

2.10 Other Infrastructure Management

As noted in Section 2.8, the decommissioning of the main dam continued in the reporting period. Modifications to the site water network in the reporting period, primarily in the form of upgrades to transfer pump stations, pipelines and associated control systems that link a number of on-site water storage facilities, have enabled the main dam to be removed as a focal point for on-site water storage and distribution. Water levels in the main dam have, as a consequence, been reduced significantly. The complete removal of water storage functionality for the main dam is expected to be completed in FY17.

Decommissioning of the disused Bayswater No. 2 infrastructure area is continuing. A Phase 2 Contamination Assessment was completed and a Remedial Action Plan for the area was developed and approved by DP&E in May 2014. Project planning is currently underway for the dismantling and removal of structures which is expected to commence either late in the next reporting period or in FY17.

A train load out automation project commenced in the reporting period. This project aims to improve the productivity and efficiency of Mt Arthur Coal's train load out facility as compared with the current manual operation. Site works for the project commenced in June 2015 with commissioning expected in September 2015.

During the reporting period there were no variations from the current MOP related to infrastructure management activities.

2.11 Employment Details

Mt Arthur Coal monitors the residential location of existing employees to compare against predictions made in the consolidation environmental assessment. Predictions are not made against the modification project environmental assessment as no deviation from the original project is expected at this stage. Approximately 78 per cent of Mt Arthur Coal's employees resided in the local government areas (LGAs) of Muswellbrook, Upper Hunter and Singleton as at 30 June 2015. This is consistent with predictions in the consolidation environmental assessment and the previous reporting period (77 per cent as at 30 June 2014).

As at 30 June 2015 Mt Arthur Coal employed 1,315 permanent and fixed-term contract employees and approximately 264 contractors on a full-time equivalent basis. This was a 16 per cent reduction in the number of permanent and fixed-term employees and a 55 per cent reduction in the number of contractors when compared to 30 June 2014 (1,559 and 591, respectively). Declining employee and contractor numbers for Mt Arthur Coal is consistent with the economic conditions in the local region and is reflective of the economic climate of the broader mining industry. Figure 4 illustrates the trend of Mt Arthur Coal employee numbers since 2009.

The ongoing economic climate for the industry and the difficult market circumstances resulted in a continued decline in the number of vacancies at Mt Arthur Coal. However, recruitment opportunities were provided to local residents during the reporting period and will continue to be provided during the next reporting period as and when possible. Local residency is one of the factors considered when recruiting new employees and contractors. This approach ensures that local communities benefit from Mt Arthur Coal's operations.

During the reporting period approximately 73 per cent of Mt Arthur Coal's new employees were recruited from the local area, defined as the Muswellbrook, Upper Hunter and Singleton LGAs. This is an increase on previous reporting years. Included in this figure is the hiring of eight apprentices from the local area

for the 2015 Apprenticeship Program. Mt Arthur Coal plans to recruit a further eight local apprentices through the 2016 Apprenticeship Program.

Although the economic climate remains challenging and recruitment opportunities are likely to be reduced during the next reporting period, Mt Arthur Coal will continue to promote recruitment from the local area.

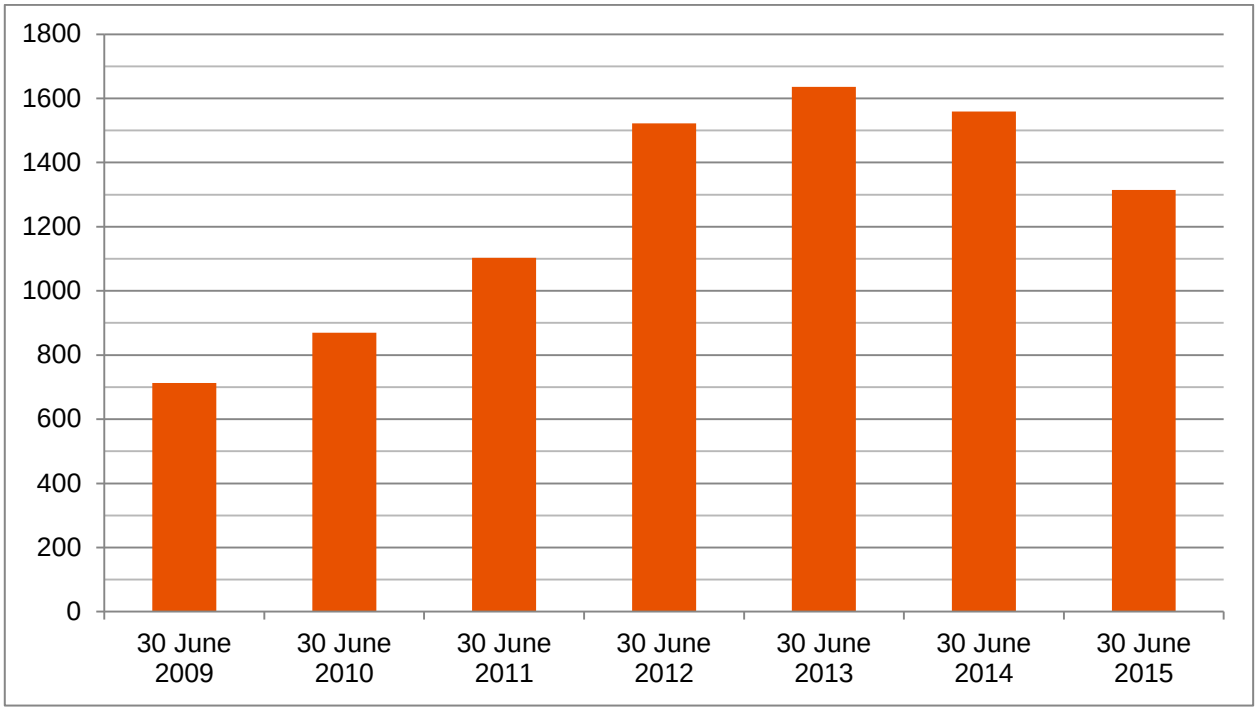


Figure 4: Mt Arthur Coal employee numbers from 30 June 2009 to 30 June 2015

3 Environmental Management and Performance

Mt Arthur Coal is committed to delivering the highest standards of environmental performance to meet or exceed legal and other requirements. This commitment extends to using leading practice initiatives to minimise the impact of our operations on the environment and community.

The implementation and effectiveness of the control strategies for risks identified in the MOPs, previous AEMRs and management plans are outlined in the following format:

- Environmental management:
  - the adequacy of the proposed control strategies to manage risks associated with operations during the reporting period;
  - variations from proposed control strategies implemented during the reporting period and the reasons for them; and
  - the works carried out during the reporting period and proposed to be carried out over the next reporting period.

- Environmental performance:
  - monitoring results and complaints records during the reporting period, including a comparison of these results against the:
    - relevant statutory requirements, limits or performance measures/criteria;
    - monitoring results of previous years;
    - relevant predictions in the consolidation and modification project environmental assessments;
  - performance outcomes;
  - long-term trends in monitoring data; and
  - discrepancies between the predicted and actual impacts of the operation and analysis of the potential cause of any significant discrepancies.

- Reportable incidents:
  - incident reporting as required by conditions of lease, licence or risk management and monitoring strategies;
  - incidents which led to non-compliance with conditions of a mining lease, project approval or other licence over the reporting period and description of what actions were or are being taken to ensure compliance; and
  - reference to incident report documents previously provided to the DP&E or another agency.

- Further improvements:
  - initiatives proposed for the next reporting period to improve or further assure acceptable performance.

3.1 Air Quality

3.1.1 Environmental Management

Air quality at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-MTP-040 Air Quality and Greenhouse Gas Management Plan;
- MAC-ENC-PRO-057 Air Quality Monitoring Program; and
- MAC-PRD-PRO-122 Dust Management Procedure.

Air quality is managed through an extensive monitoring network and a series of alarm systems based on real-time monitoring data. The dust monitoring network consists of depositional dust gauges, fine particulate monitors that operate on a set schedule and real-time fine particulate monitors that operate continuously. The coupling of operational procedures and monitoring allows Mt Arthur Coal to take a proactive approach to dust management.

Dust deposition gauges record dust fallout, which can be derived from mining or non-mining activities, and provide a useful measure of changing air quality. Compliance with air quality criteria is demonstrated through depositional dust monitoring by investigating the spatial representation of wind and operational activities for the monitoring period. Depositional dust monitoring is carried out in accordance with Australian Standard 3580.10.1:2003 *Determination of particulates – Deposited matter – Gravimetric method* and analysed for insoluble solids and ash residue. Depositional dust samples are collected on a 30 day (plus or minus two days) basis from six statutory depositional dust gauges, as well as a number of dust gauges surrounding Mt Arthur Coal that are used for internal management purposes, to contribute to the assessment of long-term regional air quality trends. The locations of all depositional dust monitoring sites at Mt Arthur Coal are shown in Figure 5.

Fine dust particles (i.e. less than 10 microns in size and referred to as PM_{10}) are monitored using high volume air samplers (HVAS) fitted with a size selective inlet. These monitors operate for 24-hours every six days in accordance with Australian Standard 3580.9.6:2003 *Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM_{10} high volume sampler with size-selective inlet – Gravimetric method*. Mt Arthur Coal operates three statutory HVAS units surrounding the mine site as shown in Figure 6.

Mt Arthur Coal also operates six statutory real-time dust monitors, referred to as tapered element oscillating microbalance samplers (TEOMs), which record PM_{10} levels on a continuous basis. The locations of all PM_{10} monitoring sites at Mt Arthur Coal are shown in Figure 6. In addition, Mt Arthur Coal operates one TEOM and one Electronic Beta Attenuation Monitor (E-BAM) that also records PM_{10} levels on a continuous basis. These supplementary monitors are used for internal management purposes only as they are on Mt Arthur Coal land and not representative of nearby receivers. All real-time monitors are incorporated into a real-time SMS alarm system that provides notifications to enable operational activities to be adjusted in response to air quality criteria.

During the reporting period many controls were applied to reduce the potential for the generation and movement of dust from Mt Arthur Coal's operational areas as a part of a holistic dust management program. This program aims to reduce the generation of dust while allowing for planned mine production. The program incorporates initiatives and activities at the design and planning stage and during daily operations. It also has controls in place to ensure these initiatives are effective.

During the planning phase of operations in-pit or low level dumps, that are protected from winds, are identified and set aside as part of the haulage schedule and dump design to enable dumping operations to be relocated to dumps that are less exposed during adverse weather conditions.

An advanced predictive dust model, implemented in September 2014, integrates dust dispersion modelling with meteorological forecast data to predict maximum one hour PM_{10} concentration averages at various receptors surrounding the mine site up to 72 hours in advance. The model is used for operational preparation and contingency planning to appropriately manage dust during forecast adverse weather conditions and alerts mining supervisors as to when adverse weather conditions are predicted to arrive. This system complements the existing real-time dust management system based on real-time weather and dust measurement data inputs.

Dust plans are developed every shift based on the information provided in the predictive model and taking into consideration information such as water cart availability, priority mining and dumping options, and any preparatory actions that need to be completed prior to the shift such as communication to the

workforce on controls to be implemented. These plans allow the operation to be changed quickly in response to a dust event or adverse weather conditions.

A key dust management tool utilised throughout operations is the dust TARP developed by Mt Arthur Coal. The dust TARP is triggered when guideline monitoring conditions are exceeded. SMS alarms are sent to operational supervisors, who follow progressive steps to alter or cease operations to reduce and maintain dust at acceptable levels. During the reporting period Mt Arthur Coal created a new supervisor role to assist with the dust TARP response, off site environmental inspections and the investigation and coordination of operational response to dust complaints.

Further controls that are utilised to minimise impacts on air quality during operations include:

- deploying up to 10 Mt Arthur Coal owned water carts and one hire water cart across site;
- utilising dedicated water carts for contractor projects;
- using dust suppressants on haul roads;
- maintaining a short message service (SMS) alarm system for strong winds and high dust levels;
- avoiding tipping into strong headwinds where possible;
- restricting blasting to suitable weather conditions;
- maintaining auto-start for stockpile sprays in windy conditions;
- progressively rehabilitating mine surfaces;
- seeding topsoil stockpiles where applicable;
- maintaining enclosed coal loading and transfer areas and associated sprays;
- aerial seeding exposed overburden where practicable; and
- the commencement of a hydromulch trial to stabilise suitable overburden emplacement areas.

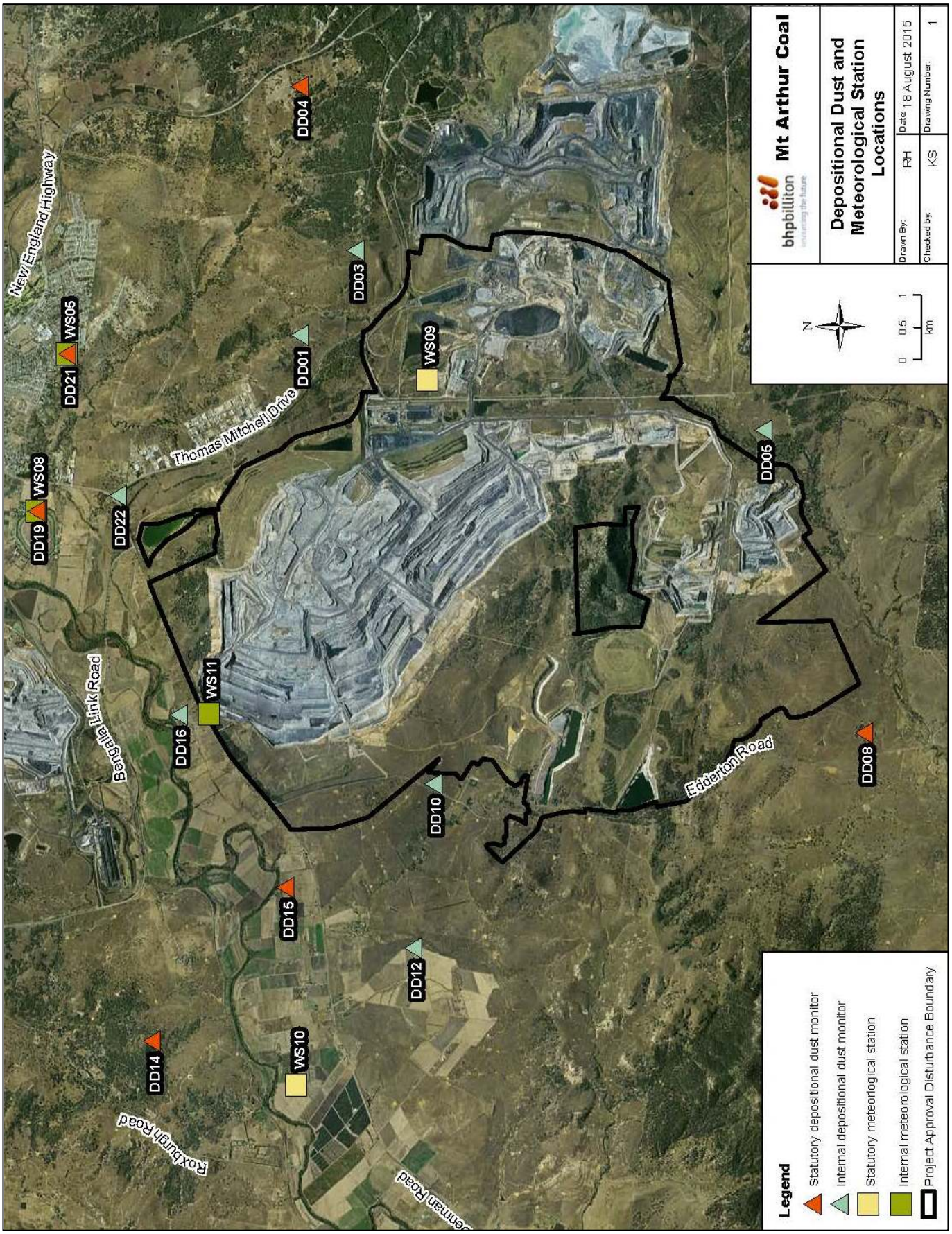


Figure 5: Mt Arthur Coal's depositional dust and meteorological monitoring locations

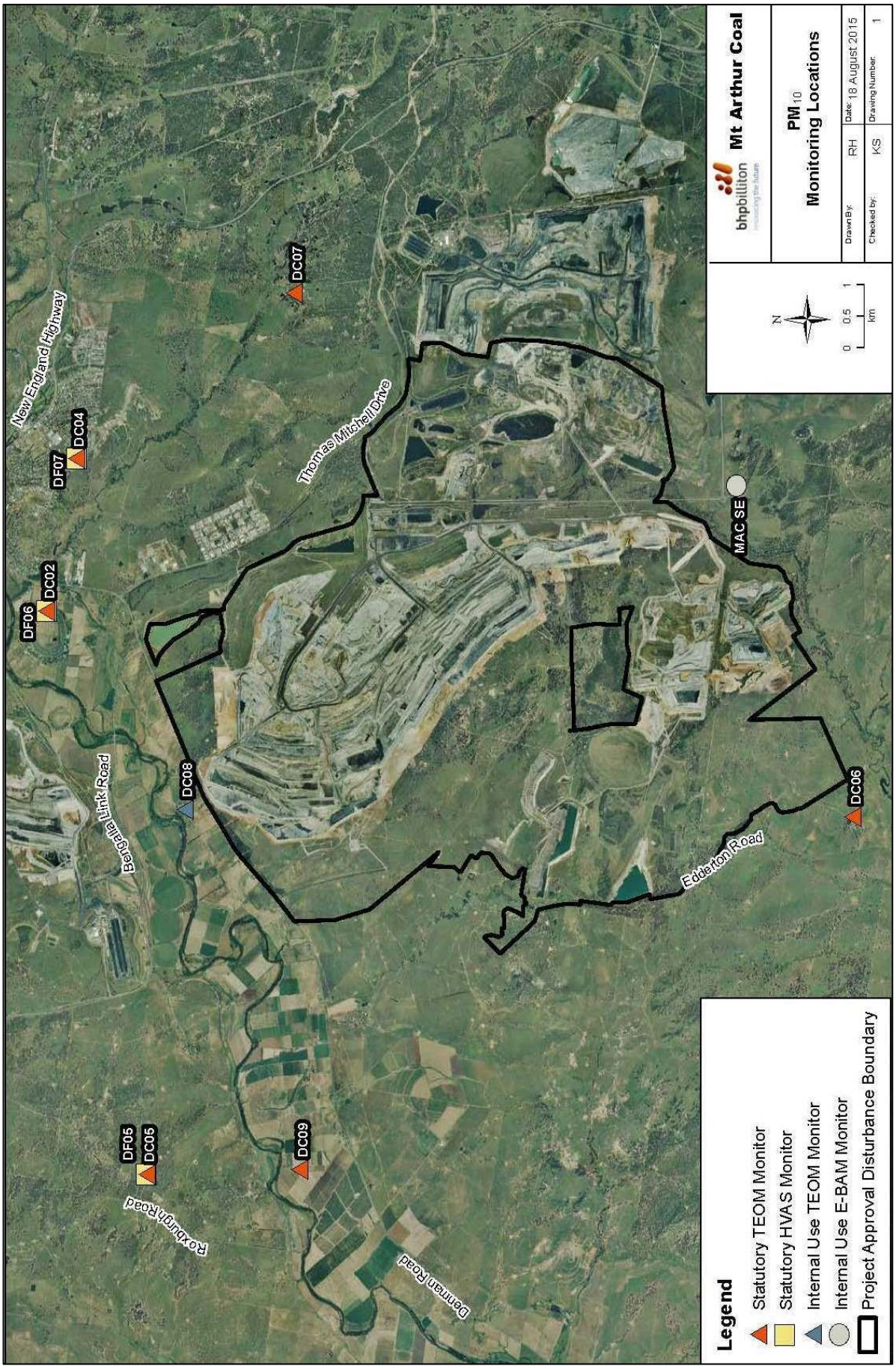


Figure 6: Mt Arthur Coal's HVAS and TEOM monitoring locations

During the reporting period Mt Arthur Coal aerial seeded approximately 210 hectares of exposed overburden not yet ready for final rehabilitation. This was completed in the absence of topsoil without the need for cultivation or irrigation with a season appropriate seed mix. This is an increase in area aerial seeded, compared to previous years, with 100 hectares seeded in FY14 and 55 hectares seeded in FY13.

An external specialist was enlisted to review the aerial seeding program in August 2014. Recommendations made as a result of the review were implemented including adjustments to seasonal seed mixes and the development of a monitoring program to measure the performance of aerial seeding against success criteria.

Germination rates appeared to vastly improve in areas seeded in comparison to FY14. This is likely to be primarily due to rainfall and the modification of the seed mix. The newly developed monitoring program is anticipated to provide further information on contributors to the success of the program in the next reporting period.

A trial of hydromulch containing a dye product on exposed overburden commenced during the reporting period over an area of approximately 20 hectares. This product is being trialled in an effort to improve visual amenity from offsite and reduce dust from areas of exposed overburden dumps that are accessible by light vehicle for the hydromulch product to be applied. While the application of hydromulch to large areas of exposed overburden is not feasible, it is expected that hydromulch will provide instant stabilisation of areas of overburden dumps due to the application of seed with a binding agent. It is also expected to be more suitable than aerial seeding during periods of low rainfall. Initial trials indicate that germination rates from both hydromulch and aerial seeding areas are similar. However, a more objective comparison utilising the monitoring program developed for aerial seeding will commence, as a part of the trial, in the next reporting period.

Mt Arthur Coal continued the use of dust suppressants on haul roads in the reporting period. This involved the use of a non-hazardous liquid polymer (water extender), which is added to the water cart using an automated dosing system. It is then sprayed onto haul roads to improve water penetration, bind fine dust particles and consolidate haul road surfaces. During the reporting period Mt Arthur Coal also carried out an extensive trial of a stabilised bitumen product which was applied to seven kilometres of haul roads. The product saw improvements in dust from the haul road surface, however, the product application and maintenance process was not effective in managing fugitive dust blown onto the road, or from spillage. The product was also incompatible with other dust suppressants used on site, which raised safety concerns. Mt Arthur Coal is currently investigating other stabilised bitumen products that can be safely used on site. Mt Arthur Coal prepared the report required by the PRP titled Particulate Matter Control Best Practice Implementation – Trial of Best Practice Measures for Disturbing and Handling Overburden and submitted it to the EPA on 30 July 2014. Reports required by PRPs titled: Particulate Matter Control Best Practice Implementation – Wheel Generated Dust and Particulate Matter Control Best Practice Implementation – Disturbing and Handling Overburden under Adverse Weather Conditions were submitted to the EPA on 15 August 2014. These PRPs were removed from EPL 11457 as a result of their successful completion.

Monitoring of representative exposed surface areas was undertaken during the reporting period, in June 2015, to meet the requirements of the PRP titled Coal Mine Wind Erosion of Exposed Land Assessment. Several monitoring techniques were employed to determine the susceptibility of operational surfaces to wind-driven particulate emission and whether each surface type is considered to be stabilised. The results and analysis of the sampling campaign, including comparison of exposed surface area to predictions made within the consolidation environmental assessment will be submitted in a report to the EPA during the next reporting period.

During the reporting period, training was undertaken on site with compliance officers from DP&E to improve operational personnel’s knowledge of regulator expectations and licence conditions regarding

air quality management. This was undertaken with all production managers, superintendents and supervisors over five sessions.

During the reporting period Mt Arthur Coal continued to be a signatory to the Upper Hunter Air Quality Monitoring Network, which was established in October 2010 by the NSW Government in partnership with the coal and power industries. The network now continuously measures dust particles in the air at up to 14 sites throughout the region. The collected data is provided to the community and industry through the NSW Office of Environment and Heritage (OEH) website.

Mt Arthur Coal also participated in the Upper Hunter Mining Dialogue Emissions and Health Working Group. The initiative was established by the NSW Minerals Council to provide a forum for collaboration between community, government, consultants and mining companies to focus on air quality across the region.

3.1.2 Environmental Performance

As part of the modification project environmental assessment, air dispersion modelling was completed for representative periods in 2016, 2022 and 2026 calendar years. In this section, data for the reporting period has been evaluated against the 2016 modification project environmental assessment air dispersion modelling predictions, as the assumptions for this model are considered to most closely reflect FY15 operations.

Depositional Dust Gauges

A summary of the results from the statutory depositional dust monitoring sites, together with pictorial representation of the trends in terms of insoluble solids, ash content and annual average criteria are provided in Appendix 2. Depositional dust gauge data capture rates for the reporting period were 100 per cent at all statutory sites.

In accordance with the modification project approval, the criterion for the maximum total deposited dust level is 4 grams per square metre per month (g/m^2/month) over an annual averaging period. The criterion for the maximum increase in deposited dust levels due to Mt Arthur Coal's operations over an annual averaging period at any one dust gauge is 2 g/m^2/month.

For the duration of the reporting period, all depositional dust gauges remained below impact assessment criterion. Annual average depositional dust results remained relatively consistent with FY14, only showing slight differences. Results for the reporting period were slightly higher than the FY14 annual average at DD04, and lower or equal to the FY14 average at all other monitors as shown in Table 11. Roadworks were undertaken in the vicinity of the DD04 monitor for a large portion of the reporting period which would have likely contributed to this result.

Table 11: Comparison of annual average deposited dust results

Site name	Site reference	FY15 annual average g/m^2/month	FY14 annual average g/m^2/month	FY13 annual average g/m^2/month	FY12 annual average g/m^2/month
Antiene	DD04	2.7	2.2	1.9	1.7
Edderton Homestead	DD08	1.1	1.6	2.0	1.3
Roxburgh Road	DD14	2.1	2.1	1.9	1.5
Denman Road West	DD15	2.9	3.1	3.6	2.7
Sheppard Avenue	DD19	3.3	3.7	3.4	2.8
South Muswellbrook	DD21	2.2	2.0	2.2	1.7

The modification project environmental assessment predicted that one exceedance of the annual average dust deposition above 4 g/m^2/month would occur for the 2016 modelled scenario. Monitoring results for the reporting period did not show any exceedances. This is likely due to the reduced production profile previously discussed and the effective implementation of controls.

Figure 7 uses dust isopleths from Mt Arthur Coal's monitoring sites to illustrate the depositional dust profile surrounding the mine based on the averages of the reporting period. It is important to note that this figure only uses Mt Arthur Coal data and not data from other dust monitoring sources. The impact assessment criteria for dust deposition (4 g/m^2/month) relates to an annual average.

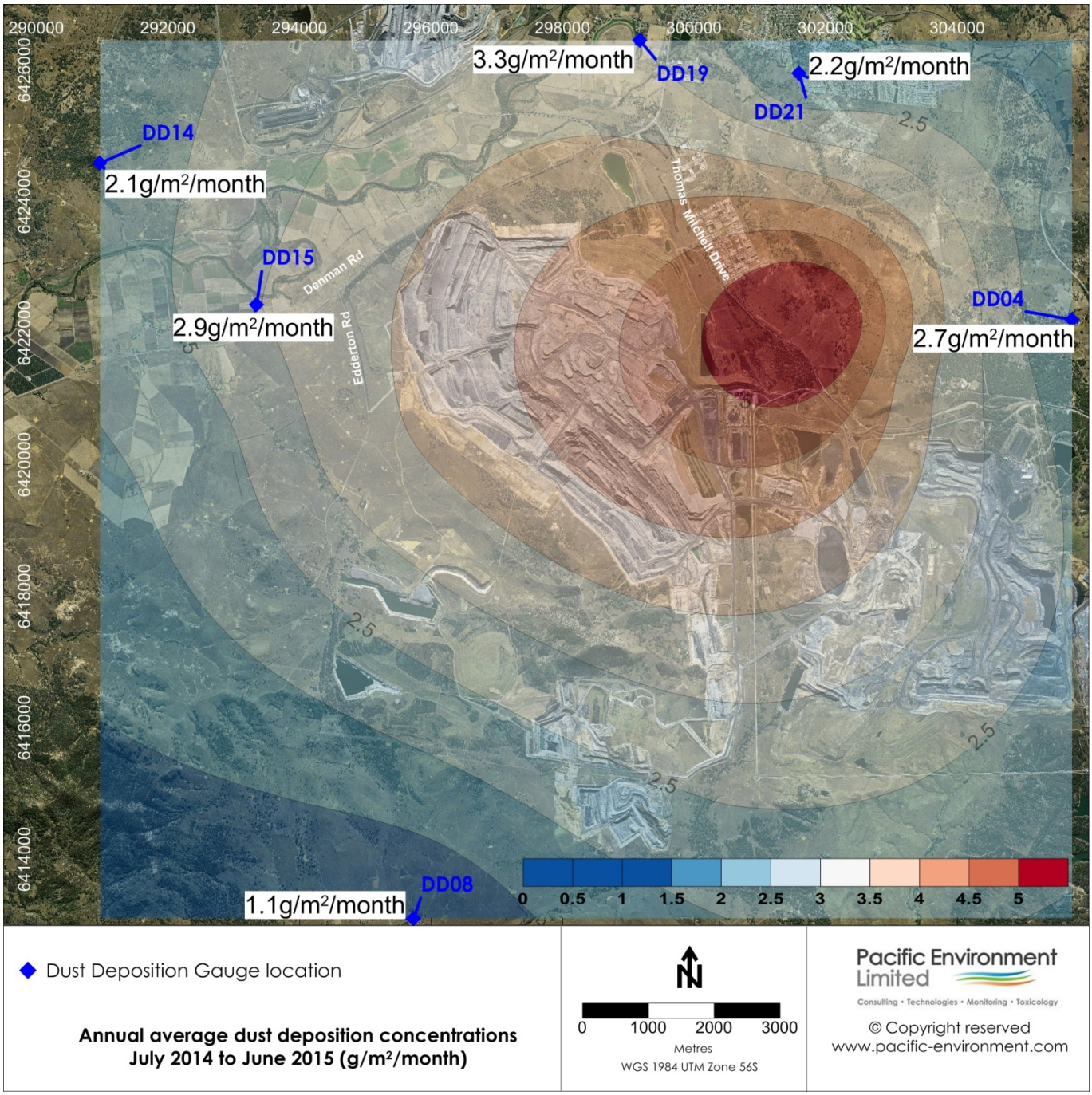


Figure 7: Annual depositional dust concentration

High Volume Air Samplers

A summary of results from the statutory HVAS PM_{10} monitoring sites for the reporting period is provided in Table 12 and plots are provided in Appendix 2. HVAS data capture rates for the reporting period were 100 per cent at all statutory sites. In accordance with the modification project approval, the PM_{10} short term 24-hour impact assessment criteria is 50 micrograms per cubic metre (µg/m^3) and the long-term annual impact assessment criteria is 30 µg/m^3 over an annual averaging period.

The short term 24-hour impact assessment criteria of 50 µg/m^3 was exceeded nine times on six different days at statutory HVAS monitoring sites during the reporting period, including air emissions from all sources. An investigation into each of these events was undertaken to determine Mt Arthur Coal's contribution. Calculated on 15 minute wind direction data, 1.04 per cent of the overall result is assigned to Mt Arthur Coal for each 15 minute occasion when the monitor is downwind of the operation. Table 13 shows the wind directions used for each monitor to calculate Mt Arthur Coal's contribution to HVAS results. Regional air quality trends at the time and localised influences or events were also considered during the investigations. On all occasions, results of the investigation showed that Mt Arthur Coal's contribution was less than 50 µg/m^3. The investigation findings for each of the elevated PM_{10} results during the reporting period are shown in Table 14.

During the reporting period Mt Arthur Coal's HVAS monitors DF05 and DF07 remained below the long-term annual impact assessment criteria. However, monitor DF06 exceeded the long-term annual impact assessment criteria from October 2014 to January 2015 and in March 2015 when air emissions from all sources were considered, as detailed in Table 15. Annual averages for each monitor remained stable compared to the previous reporting period, with the exception of DF05 which increased slightly.

Air dispersion modelling predictions based on the 2016 model have been evaluated against data for the reporting period and previous financial years, as summarised in Table 15. The 2016 predicted annual average PM_{10} contours compared with the annual average concentration measured at each HVAS monitor are shown in Figure 2A in Appendix 2. The monitored data is below the predicted cumulative annual average PM_{10} concentrations at all sites. With the exception of DF06, the measured concentrations of monitoring results at all locations in FY14 were between 36 and 66 per cent lower than the predicted cumulative results from the 2016 model.

Table 12: Summary of HVAS PM_{10} results

Site name	Site reference	Minimum 24-hour result µg/m^3	Maximum 24-hour result µg/m^3	Reporting period annual average µg/m^3
Roxburgh Road	DF05	1	89*	22
Sheppard Avenue	DF06	3	128*	29
South Muswellbrook	DF07	4	63*	22

* These results, which include air emissions from all sources, were all investigated as they exceeded the short term 24-hour impact assessment criteria of 50 µg/m^3. Investigations found that Mt Arthur Coal's contribution to these results was less than 50 µg/m^3 on all occasions.

Table 13: Wind directions used to calculate Mt Arthur Coal's contribution to 24 hour HVAS results

Site name	Site reference	Wind direction minimum (degrees)	Wind direction maximum (degrees)
Roxburgh Road	DF05	96	143
Sheppard Avenue	DF06	153	230
South Muswellbrook	DF07	170	250

Table 14: Elevated HVAS PM_{10} results

Date of event	Site name	Site reference	Direction from operation	Recorded 24 hour result ($\mu g/m^3$)	Mt Arthur Coal's contribution ($\mu g/m^3$)	Explanation of results
21/07/2014	Sheppard Avenue	DF06	North north east	53	9	Wind direction was predominantly from the south-east to east-south-east on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately 17 per cent of the day.
1/10/2014	Sheppard Avenue	DF06	North north east	64	10	Wind direction was predominantly from the north west until approximately 11:00, then south east for the remainder of the day. This monitor was located downwind of Mt Arthur Coal's operations for approximately 16 per cent of the day.
7/10/2014	Sheppard Avenue	DF06	North north east	87	9	Wind direction was predominantly from the north west until approximately 6:30pm, then south west for the remainder of the day. This monitor was located downwind of Mt Arthur Coal's operations for approximately ten per cent of the day.
13/10/2014	Sheppard Avenue	DF06	North north east	92	6	Wind direction was predominantly from the north north west on this day This monitor was located downwind of Mt Arthur Coal's operations for approximately six per cent of the day.
31/10/2014	Roxburgh Road	DF05	North west	91	4	Wind direction was predominantly from the north north west on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately four per cent of the day.
31/10/2014	Sheppard Avenue	DF06	North north east	112	0	Wind direction was predominantly from the north on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately zero per cent of the day.
31/10/2014	South Muswell-brook	DF07	North east	70	0	Wind direction was predominantly from the north north west on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately zero per cent of the day.
12/11/2014	Roxburgh Road	DF05	North west	51	34	Wind direction was predominantly from the south east on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately 67 per cent of the day.
12/11/2014	Sheppard Avenue	DF06	North north east	56	3	Wind direction was predominantly from the south east on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately three per cent of the day.
Oct-14	Sheppard Avenue	DF06	North north east	Annual Average: 32	Annual Average: 21	This monitor recorded elevated annual average PM_{10} results over 30 $\mu g/m^3$ from 7 October 2014. Further investigation revealed that if Mt Arthur Coal's calculated contribution is used on the occasions when the 24-hour result recorded at DF06 exceeded the 24-hour limit of 50 $\mu g/m^3$, then the annual average is calculated to be less than the impact assessment criteria of 30 $\mu g/m^3$.

Date of event	Site name	Site reference	Direction from operation	Recorded 24 hour result (µg/m^3)	Mt Arthur Coal's contribution (µg/m^3)	Explanation of results
Nov-14	Sheppard Avenue	DF06	North north east	Annual Average: 35	Annual Average: 23	This monitor recorded elevated annual average PM_{10} results over 30 µg/m^3 for November 2014. Further investigation revealed that if Mt Arthur Coal's calculated contribution is used on the occasions when the 24-hour result recorded at DF06 exceeded the 24-hour limit of 50 µg/m^3, then the annual average is calculated to be less than the impact assessment criteria of 30 µg/m^3.
Dec-14	Sheppard Avenue	DF06	North north east	Annual Average: 34	Annual Average: 23	This monitor recorded elevated annual average PM_{10} results over 30 µg/m^3 for December 2014. Further investigation revealed that if Mt Arthur Coal's calculated contribution is used on the occasions when the 24-hour result recorded at DF06 exceeded the 24-hour limit of 50 µg/m^3, then the annual average is calculated to be less than the impact assessment criteria of 30 µg/m^3.
Jan-15	Sheppard Avenue	DF06	North north east	Annual Average: 31	Annual Average: 23	This monitor recorded elevated annual average PM_{10} results over 30 µg/m^3 for January 2015. Further investigation revealed that if Mt Arthur Coal's calculated contribution is used on the occasions when the 24-hour result recorded at DF06 exceeded the 24-hour limit of 50 µg/m^3, then the annual average is calculated to be less than the impact assessment criteria of 30 µg/m^3.
Mar-15	Sheppard Avenue	DF06	North north east	Annual Average: 31	Annual Average: 23	This monitor recorded elevated annual average PM_{10} results over 30 µg/m^3 from 18 March 2015. Further investigation revealed that if Mt Arthur Coal's calculated contribution is used on the occasions when the 24-hour result recorded at DF06 exceeded the 24-hour limit of 50 µg/m^3, then the annual average is calculated to be less than the impact assessment criteria of 30 µg/m^3.

Table 15: Comparison of predicted and actual annual average HVAS PM_{10} results

Site name	Site reference	2016 – predicted cumulative µg/m^3	FY15 actual annual average µg/m^3	FY14 actual annual average µg/m^3	FY13 actual annual average µg/m^3	FY12 actual annual average µg/m^3
Roxburgh Road	DF05	25	22	20	19	16
Sheppard Avenue	DF06	26	29	29*	27	20
South Muswellbrook	DF07	24	22	22	21	17

Tapered Element Oscillating Microbalance Samplers

TEOM data capture rates for the reporting period were below 100 per cent at all statutory sites with the exception of DC07 Antiene, as discussed in Table 16. A summary of the results from the statutory real-

time PM_{10} TEOM monitoring sites for the reporting period is provided in Table 18 and plots are provided in Appendix 2.

Table 16: Data capture rates for TEOM PM_{10} monitors

Site name	Site reference	Data capture rate (per cent)	Reason data not captured
Sheppard Avenue	DC02	99.5	DC02 did not record valid/sufficient data for: • 2 days in February 2015 due to annual calibration.
South Muswellbrook	DC04	97.5	DC04 did not record valid/sufficient data for: • 5 days in October 2014 due to power outage causing malfunction (1 day) and software crash requiring firmware upgrade (4 days); • 1 day in December 2014 due to erratic data caused by moisture following heavy rain; • 1 day in January 2015 due to erratic data; and • 2 days in February 2015 due to annual calibration.
Roxburgh Road	DC05	85.8	DC05 did not record valid/sufficient data for: • Fifty days from 16 July 2014 to 3 September 2014 (temperature/relative humidity sensor failure, unit operating but data invalidated). • 2 days in February 2015 due to annual calibration.
Edderton Homestead	DC06	91.2	DC06 did not record valid/sufficient data for: • 1 day in September 2014 due to power outage; • 1 day in November 2014due to power outage causing software malfunction; • 2 days in February 2015 due to annual calibration; • Twenty eight days in March 2015 due to blockage (16 days) and valve malfunction (12 days).
Antiene	DC07	100	
Wellbrook	DC09	99.2	DC09 did not record valid/sufficient data for: • 1 day in January 2015 due to erratic data; and • 2 days in February 2015 due to annual calibration.

During the reporting period the short term 24-hour impact assessment criteria of 50 µg/m^3 was exceeded 19 times on 10 different days at statutory TEOM monitoring sites, including air emissions from all sources. An investigation into each of these events was undertaken, including using wind directional data to ascertain the operation's contribution, and assessing regional air quality trends and localised influences or events at the time. Table 17 shows the wind directions used for each monitor to calculate Mt Arthur Coal's contribution to TEOM results. On all occasions, except for on the 15 November 2014 at the Roxburgh Road monitor DC05, results of the investigation showed that Mt Arthur Coal's contribution was less than 50 µg/m^3. On this day elevated results were recorded at four of Mt Arthur Coal's TEOMs, suggesting a regional dust event contributed to the 24 hour average recorded at the DC05. The investigation findings for each of the elevated PM_{10} result during the reporting period are shown in Table 19 and reportable incidents are discussed in Section 3.1.3.

During the reporting period Mt Arthur Coal's statutory TEOM monitoring sites remained below the long-term annual impact assessment criteria of 30 µg/m^3. The FY15 annual average was lower than the FY14 and annual average at all monitors except the Wellbrook monitor DC09. Elevated results at DC09 may have been influenced by the increased mining activity in the Windmill and Macleans pits during the reporting period, consistent with the predictions in the modification project approval.

Air dispersion modelling predictions based on the 2016 model have been evaluated against data for the reporting period and previous financial years, as summarised in Table 20. The monitored data is below the predicted cumulative annual average PM_{10} concentrations at all sites. The 2016 predicted annual average PM_{10} contours compared with the annual average concentration measured at each TEOM monitor are shown in Figure 2B in Appendix 2. The measured concentrations of monitoring results at all

locations in FY14 were between 0.5 and 33 per cent lower than the predicted cumulative results from the 2016 model.

Table 17: Wind directions used to calculate Mt Arthur Coal's contribution to TEOM results

Site name	Site reference	Wind direction minimum (degrees)	Wind direction maximum (degrees)
Sheppard Avenue	DC02	153	230
South Muswellbrook	DC04	170	250
Roxburgh Road	DC05	96	143
Edderton Homestead	DC06	354	76
Antiene	DC07	188	287
Wellbrook	DC09	75	135

Table 18: Summary of TEOM PM_{10} results

Site name	Site reference	Minimum 24-hour result µg/m^3	Maximum 24-hour result µg/m^3	Reporting period annual average µg/m^3
Sheppard Avenue	DC02	1	72*	20
South Muswellbrook	DC04	3	77*	16
Roxburgh Road	DC05	0	65*	12
Edderton Homestead	DC06	1	50	15
Antiene	DC07	0	59*	14
Wellbrook	DC09	1	58*	20

* These results, which include air emissions from all sources, were investigated as they exceeded the short term 24-hour impact assessment criteria of 50 µg/m^3. Investigations found that Mt Arthur Coal's contribution to these results was less than 50 µg/m^3 on all occasions.

Table 19: Elevated TEOM PM_{10} results

Date of event	Site name	Site reference	Direction from operation	Recorded result (µg/m)	Mt Arthur Coal's contribution (µg/m^3)	Explanation of results
6/10/2014	Sheppard Avenue	DC02	North north east	62	8	Wind direction was predominately from the north on this day. During approximately nine per cent of the day this monitor was located downwind of Mt Arthur Coal's operations. A race meet was held at Muswellbrook Racecourse on this day.
31/10/2014	Sheppard Avenue	DC02	North north east	56	0	Wind direction was predominately from the north north west on this day. During approximately zero per cent of the day this monitor was located downwind of Mt Arthur Coal's operations.
1/11/2014	Wellbrook	DC09	North west	53	1	Wind direction was predominately from the north west on this day. During approximately four per cent of the day this monitor was located downwind of Mt Arthur Coal's operations.

Date of event	Site name	Site reference	Direction from operation	Recorded result (µg/m)	Mt Arthur Coal's contribution (µg/m^3)	Explanation of results
2/11/2014	Sheppard Avenue	DC02	North north east	53	2	Wind direction was predominately from the west on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately one per cent of the day.
4/11/2014	Sheppard Avenue	DC02	North north east	72	12	Wind direction was predominately from the south east on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately 13 per cent of the day..
4/11/2014	Edderton	DC06	South west	50	5	Wind direction was predominately from the south east on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately eight per cent of the day.
4/11/2014	Wellbrook	DC09	North west	54	20	Wind direction was predominately from the south east on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately 31 per cent of the day.
15/11/2014	Sheppard Avenue	DC02	North north east	60	7	Wind direction was predominately from the south east on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately 11 per cent of the day.
15/11/2014	South Muswellbrook	DC04	North east	54	8	Wind direction was predominately from the south east on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately 11 per cent of the day
15/11/2014	Roxburgh Road	DC05	North west	65	53*	Wind direction was predominately from the south east on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately 67 per cent of the day.
15/11/2014	Wellbrook	DC09	North west	58	20	Wind direction was predominately from the south east on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately 45 per cent of the day.
14/02/2015	Sheppard Avenue	DC02	North north east	62	27	Wind direction was predominately from the south east on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately 44 per cent of the day.
10/03/2015	Sheppard Avenue	DC02	North north east	58	5	Wind direction was predominately from the east south east on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately six per cent of the day.
10/03/2015	South Muswellbrook	DC04	North east	52	0	Wind direction was predominately from the east south east on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately zero per cent of the day.
29/03/2015	Sheppard Avenue	DC02	North north east	67	13	Wind direction was predominately from the north and south east on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately 18 per cent of the day.

Date of event	Site name	Site reference	Direction from operation	Recorded result (µg/m)	Mt Arthur Coal's contribution (µg/m^3)	Explanation of results
6/05/2015	Sheppard Avenue	DC02	North north east	71	0	Wind direction was predominately from the north west on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately zero per cent of the day.
6/05/2015	South Muswellbrook	DC04	North east	77	0	Wind direction was predominately from the north west on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately zero per cent of the day.
6/05/2015	Roxburgh Road	DC05	North west	63	0	Wind direction was predominately from the north west on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately zero per cent of the day.
6/05/2015	Antiene	DC07	East	59	19	Wind direction was predominately from the north west on this day. This monitor was located downwind of Mt Arthur Coal's operations for approximately 27 per cent of the day.

* Investigation determined that the elevated contribution was attributable to a localised source.

Table 20: Comparison of predicted and actual annual average TEOM PM_{10} results

Site name	Site reference	2016 – predicted cumulative (µg/m^3)	FY15 actual annual average (µg/m^3)	FY14 actual annual average (µg/m^3)	FY13 actual annual average (µg/m^3)	FY12 actual annual average (µg/m^3)
Sheppard Avenue	DC02	26	20	23	22	16
South Muswellbrook	DC04	24	16	20	19	13
Roxburgh Road	DC05	25	12	18	19	10
Edderton Homestead	DC06	22	15	16	17	15
Antiene*	DC07	20	14	15	-	-
Wellbrook*	DC09	21	20	17	-	-

* Installed in FY14

Total Suspended Particulates

TEOM PM_{10} monitoring data is used to calculate annual average total suspended particulate (TSP) levels. PM_{10} can account for between 24 and 52 per cent of TSP depending on the source of the particulate, as detailed in the *National Pollutant Inventory Emission Estimation Technique Manual for Mining, Version 3.1* (Commonwealth of Australia, 2012). Based on the relative contribution of dust sources at a surface mine the PM_{10} contribution to TSP is conservatively estimated to be 40 per cent at Mt Arthur Coal, in accordance with the approved air quality monitoring program.

In accordance with the modification project approval, the TSP long-term annual impact assessment criteria is 90 µg/m^3 over an annual averaging period.

TSP results were inferred by multiplying the annual average PM_{10} results by 2.5, in accordance with the approved air quality monitoring program. During the reporting period Mt Arthur Coal remained below the TSP long-term annual impact assessment criteria at all statutory sites, as shown in Table 21. The FY15 annual average was lower than the FY14 average at all monitors.

Table 21: Summary of TSP results

Site name	Site reference	FY15 annual average (µg/m^3)	FY14 annual average (µg/m^3)	FY13 annual average (µg/m^3)	FY12 annual average (µg/m^3)
Sheppard Avenue	DC02	49	59	54	41
South Muswellbrook	DC04	50	51	48	34
Roxburgh Road	DC05	40	44	47	26
Edderton Homestead	DC06	31	41	43	37
Antiene*	DC07	36	38	-	-
Wellbrook*	DC09	36	43	-	-

* Installed in FY14

Dust-related Community Complaints

During the reporting period six per cent of the total complaints received related to dust, as shown in Table 22 along with a comparison to previous financial years. There was a continued reduction in the number of dust complaints received during the reporting period compared with the previous reporting period, which is a positive reflection on Mt Arthur Coal's air quality control measures.

Table 22: Dust complaint statistics at Mt Arthur Coal

Dust complaints	FY15	FY14	FY13	FY12	FY11
Dust complaints received	7	24	44	10	18
Dust complaints received, as a percentage of total complaints	6%	9%	19%	8%	24%

For each of the complaints received, real-time air quality monitoring results at the nearest monitor to the caller were within statutory limits. One complaint was received through a third party regulator. All dust-related complaints in the reporting period were received during spring and summer, from October 2014 to March 2015, which correlates to the warmer, drier and windier months.

3.1.3 Reportable Incidents

All elevated results listed in Table 14 and Table 19 were reported to the DP&E together with the results of the investigations that showed Mt Arthur Coal's contribution was less than the short term 24-hour impact assessment criteria of 50 µg/m^3 with the exception of the exceedance recorded at DC05 Roxburgh Road on 15 November 2015. On this day Mt Arthur Coal's upwind monitors recorded elevated 24 hour average PM_{10} levels suggesting regional dust levels upwind of Mt Arthur Coal were high. This is also supported by data from the Upper Hunter Air Quality Monitoring network which shows elevated 24 hour average PM_{10} results at Muswellbrook, Camberwell and Singleton. Operations were managed in accordance with the Mt Arthur Coal dust TARP, with significant changes made to operations on the day including the shutdown of all excavator units in Windmill and Macleans pits and use of overburden emplacement areas protected from the wind.

3.1.4 Further Improvements

During the next reporting period Mt Arthur Coal will:

- continue to implement its existing dust controls;
- continue to investigate stabilised bitumen product that is compatible with current dust suppressants used on site;
- continue to trial hydromulch products on suitable overburden emplacement areas;
- submit the results and analysis of the Coal Mine Wind Erosion of Exposed Land Assessment PRP to the EPA; and
- update the Air Quality Management Plan to address changes in the updated Project Approval during the next reporting period.

3.2 Erosion and Sediment

3.2.1 Environmental Management

Erosion and sediment at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-PRO-060 Erosion and Sediment Control Plan (ESCP);
- MAC-ENC-PRO-061 Surface Water Monitoring Program; and
- MAC-ENC-PRO-063 Surface and Ground Water Response Plan.

The management system includes a comprehensive set of both proactive and reactive control measures designed to minimise the impact of sediment on water sources. The primary management measure for erosion and sediment is the control of initial ground disturbance and timely land rehabilitation following disturbance. Where disturbance is unavoidable, erosion and sediment control structures are established.

Amendments were made to the Surface and Ground Water Response Plan during the reporting period, which were approved by the DP&E. These amendments ensure that rigorous reporting and investigation requirements are in place for measured results that are statistically different to the baseline water conditions.

3.2.2 Environmental Performance

In accordance with the erosion and sediment control plan, the impact assessment criteria applicable to Mt Arthur Coal is based on the 90th percentile of baseline total suspended solids (TSS) results for samples collected as part of the surface water monitoring program.

TSS results remained low during the reporting period at all statutory sites, with no reportable exceedances. These recorded results were low compared with results from previous financial years. TSS results are discussed further in Section 3.3.2 and presented in Appendix 3. Water management features were also routinely inspected after significant storm events and maintained to ensure they are performing to design and preventing impacts on downstream waters.

During the reporting period monitoring of riparian vegetation was undertaken on a quarterly basis at specified sampling points on watercourses, in accordance with the Surface Water Monitoring Program. Channel stability was monitored using photographic logging of erosional and depositional features. These photographs showed no evidence of erosion or sedimentation.

3.2.3 Reportable Incidents

Mt Arthur Coal did not have any reportable incidents relating to erosion and sediment controls during the reporting period. Mt Arthur Coal did not receive any government fines or penalties related to erosion and sediment controls during the reporting period.

3.2.4 Further Improvements

Consistent with commitments made in the consolidation and modification project environmental assessments, surface water runoff from all disturbed areas will continue to be collected in drainage structures and sediment dams. This water will either be recycled in the mine water management system or allowed to leave site following settlement of sediment. Sediment dams capturing runoff from areas of pre-strip and rehabilitation will be designed in accordance with the provisions for sediment retention basins in the *Managing Urban Stormwater Guidelines* (Landcom, 2004). A revised Surface Water Monitoring Program will be submitted to the DP&E for approval in early FY16.

3.3 Surface Water

3.3.1 Environmental Management

Surface water at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-MTP-034 Site Water Management Plan;
- MAC-ENC-PRO-061 Surface Water Monitoring Program;
- MAC-ENC-PRO-059 Site Water Balance;
- MAC-ENC-PRO-063 Surface and Ground Water Response Plan; and
- MAC-ENC-PRO-032 Water Management.

The Surface and Ground Water Response Plan was revised in the reporting period to update the surface and ground water exceedance protocol which is based on a two-stage trigger process for water quality parameters, ensuring that rigorous reporting and investigation requirements are in place for measured results that are statistically different to the baseline water conditions.

The Surface Water Monitoring Program was also revised to ensure consistency with the two-stage trigger exceedance protocol outlined in the revised Surface and Ground Water Response Plan. Additional riparian vegetation monitoring requirements have also been included in the Program. The Surface Water Monitoring Program will be submitted to the DP&E for approval in early July 2015.

Water quality downstream of Mt Arthur Coal's operation is currently monitored by an independent consultant at six statutory monitoring sites, plus Mt Arthur Coal's licensed discharge point.

Mt Arthur Coal monitored several additional surface water sites for internal management purposes only. The location of all surface water monitoring sites is shown in Figure 8. Additional non-routine water samples were taken during the reporting period including from the oil water separators, CHPP wash plant, wash bay and clean water areas and to monitor water quality following rainfall events. Analysis of all water samples collected is undertaken by a NATA accredited laboratory.

Mt Arthur Coal's Site Water Management Plan aims to minimise any adverse impacts on receiving waters downstream of Mt Arthur Coal, including Saddlers Creek, Quarry Creek, Ramrod Creek and Whites Creek, all of which drain into the Hunter River. The plan also outlines measures for managing water on site. Mt Arthur Coal's approved Surface Water Monitoring Program has established impact assessment criteria against which monitoring results are compared. Impact assessment criteria can be described as trigger values which, if exceeded, lead to a response such as more intensive monitoring, investigation and if required, remedial action.

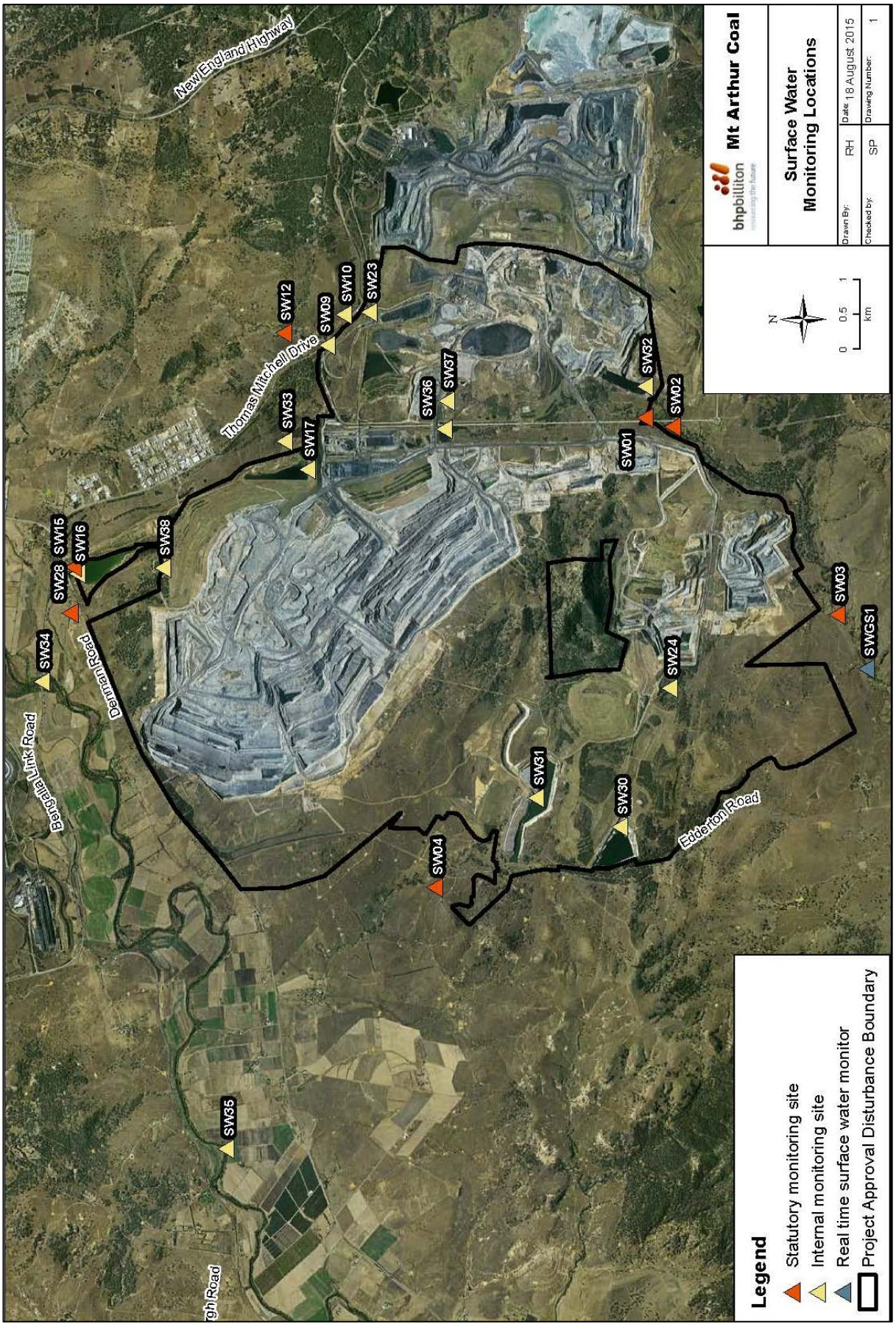


Figure 8: Mt Arthur Coal's surface water monitoring locations

Mt Arthur Coal's surface water monitoring network includes a real-time surface water monitoring station, SWGS1, downstream of the mine in Saddlers Creek. This gauging station monitors flow, electrical conductivity (EC) and turbidity on Saddlers Creek and was commissioned in July 2013. Twenty-four months of flow data is required to establish a baseline on which trigger levels can be developed. Twenty-three months had been collected at the end of FY15.

Mt Arthur Coal also participated in the Upper Hunter Mining Dialogue Water Management Working Group. The initiative was established by the NSW Minerals Council to provide a forum for collaboration between community, government, consultants and mining companies to focus on water management across the region.

3.3.2 Environmental Performance

A summary of the surface water quality data for statutory sites during the reporting period is provided in Table 23, with a comparison against data from previous financial years. Plots of surface water quality data for the statutory sites during the reporting period are provided in Appendix 3.

In accordance with the surface water monitoring program, the trigger value for electrical conductivity (EC) is triggered if the recorded value at a monitoring site is greater than the 90th percentile of baseline data for three consecutive readings. Potential hydrogen (pH) is triggered if the recorded value at a monitoring site is outside the range 6.5 to 9.0 for three consecutive readings.

Table 23: Summary of statutory surface water quality monitoring results

FY15	pH	EC (µS/cm)	TSS (mg/L)
Minimum	7.05	1,569	<5
Maximum	9.14	9,090	108
Average	8.09	5,402	10
FY14	**pH**	**EC (µS/cm)**	**TSS (mg/L)**
Minimum	7.02	1,513	<5*
Maximum	8.98	11,710	57
Average	8.10	5,726	8
FY13	**pH**	**EC (µS/cm)**	**TSS (mg/L)**
Minimum	7.24	1,900	<5*
Maximum	9.05	11,400	172
Average	8.07	7,198	26
FY12	**pH**	**EC (µS/cm)**	**TSS (mg/L)**
Minimum	6.64	213	<5*
Maximum	9.08	9,950	828
Average	8.02	5,436	52

* Minimum TSS values were incorrectly reported as 5, rather than <5 in previous AEMRs. Average statistics for TSS have been recalculated by replacing <LOR values with half the LOR value.

Surface water pH measured at individual statutory sites remained relatively constant during the reporting period and within the impact assessment trigger levels of 6.5-9.0 at all times, with the exception of SW15 where two consecutive readings were recorded above 9.0 in October and November 2014, below the trigger of three consecutive readings. The pH results for FY15 were generally consistent compared with previous financial years.

FY15 surface water EC results were also generally consistent with previous financial years, with a slight decrease in the overall average and maximum values recorded, showing similar results to FY12.

Surface water TSS results were generally low. Overall there is a decreasing trend compared with FY13 and FY12 results. Surface water TSS measured at individual statutory sites remained below impact assessment trigger levels for each site at all times during the reporting period with the exception of one reading at SW01 (an anomalous reading possibly due to sampling being undertaken from shallow water and disturbing bottom sediments) and four non-consecutive readings at SW03 throughout the reporting period.

Water quality parameters in natural watercourses surrounding the mine including Saddlers Creek (SW01, SW02 and SW03), Quarry Creek (SW04), Ramrod Creek (SW12) and Whites Creek (SW15) were subject to normal variations in response to the ephemeral nature of the creeks, local geology and weather conditions.

Table 24 shows the data captures rates for each statutory surface water site during the reporting period. Data capture was 100 per cent at all sites, however, monitoring sites SW01 and SW02 on Saddlers Creek was either dry or too low to sample for most of the reporting period with samples only able to be collected for 25 per cent and 33 percent of the time respectively. Additional non-routine surface water sampling was undertaken along these creeks following heavy rainfall events to monitor stream quality. The monitoring data collected during the reporting period continued to indicate that there are no adverse impacts from mining on surface water quality downstream of the operation.

Table 24: Surface water data capture rates

Watercourses	**Saddlers Creek**			**Quarry Creek**	**Ramrod Creek**	**Whites Creek**	**HRSTS Licensed Discharge Point**
Site reference	**SW01**	**SW02**	**SW03**	**SW04**	**SW12**	**SW15**	**SW28**
Data capture rate	100%	100%	100%	100%	100%	100%	N/A

Note: SW28 is only required during discharge events and none occurred during the reporting period

Surface water monitoring results were also recorded for flow, EC and turbidity at the SWGS1 monitoring station to capture baseline data for flows in Saddlers Creek. As it is an ephemeral creek, Saddlers Creek was mostly dry over the reporting period. Peak flows and corresponding turbidity and EC results were recorded in late August 2014, late January 2015, mid to late-April 2015 and to a minor extent in mid-June 2015, generally coinciding with significant rainfall events that occurred during the reporting period. The accuracy of the monitoring station is significantly lower during low flow due to the configuration of the probes at the gauging station.

Flow and turbidity results for SWGS1 for the reporting period are presented in plots in Appendix 3 and a summary of results for the reporting period is provided in Table 25.

Table 25: Summary of SWGS1 surface water gauging station monitoring results on Saddlers Creek

FY14	**Flow (ML/day)**	**Average Daily EC (µS/cm)**	**Average Daily Turbidity (NTU)**
Minimum	0	0	0
Maximum	268	488	159
Average	2	5	2

3.3.3 Reportable Incidents

At approximately 10:43 am on Tuesday 23 September 2014, Mt Arthur Coal became aware of a burst buried pipeline in the Thomas Mitchell Drive Onsite Offset Area. The pipeline failure resulted in water leaving the site boundary along Thomas Mitchell Drive. Water passed underneath Thomas Mitchell Drive (via a culvert) and into a series of three farm dams located on Mt Arthur Coal-owned land, which forms part of the Thomas Mitchell Drive Offsite Offset Area. The discharged water was contained within the three sequential farm dams and did not impact downstream areas including Ramrod Creek. The pipeline was shut down at approximately 10:59 am.

In accordance with the *Protection of the Environment Operations* (POEO) *Act 1997*, Mt Arthur Coal immediately initiated the site's PIRMP and notified the relevant authorities. Surface water samples were collected from the site boundary, the discharge point from the first dam and downstream of the third dam on the Thomas Mitchell Drive Offsite Offset Area. The pH and TSS levels at all three sites were below concentration limits specified in EPL 11457.

At the time of the failure, the buried pipeline was transferring water from the Environmental Dam (a mixed water storage) to the CHPP as per the site water management system detailed in the Site Water Balance. Investigations revealed that a small section of the ductile iron cement lined pipeline had corroded causing the failure in the line. The failed pipeline was not recommissioned during the reporting period and an alternative pipeline route is being designed to prevent flow offsite in the event of a pipeline failure occurring.

Mt Arthur Coal did not receive any government fines or penalties related to surface water during the reporting period.

3.3.4 Further Improvements

As previously mentioned, a revised Surface Water Monitoring Program that ensures consistency with the two-stage trigger exceedance protocol outlined in the revised Surface and Ground Water Response Plan and additional riparian vegetation monitoring requirements will be submitted to the DP&E for approval in early FY16. The revised program is anticipated to be approved by the DP&E during the next reporting period.

Mt Arthur Coal will continue to use site water collected in both in-pit and out-of-pit storages prior to the use of water from the Hunter River. Where plans indicate that there would be sufficient water stored on site, water allocations for the Hunter River will continue to be offered to leaseholders and near neighbours as a temporary transfer. Mt Arthur Coal will also continue to investigate water saving opportunities as discussed in Section 2.8 to reduce the need to source water from the Hunter River.

3.4 Ground Water

3.4.1 Environmental Management

Ground water at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-MTP-034 Site Water Management Plan;
- MAC-ENC-PRO-062 Ground Water Monitoring Program; and
- MAC-ENC-PRO-063 Surface and Ground Water Response Plan.

Mt Arthur Coal's Site Water Management Plan aims to minimise any adverse impacts on aquifers in proximity to the operation, including the two major aquifer areas, the hard rock coal measures and the shallow alluvial deposits associated with the Hunter River. The plan also outlines measures for managing water at the operation.

The Ground Water Monitoring Program was revised during the reporting period following identification of several opportunities for improvement associated with the ground water monitoring network and sampling methodology. The revised monitoring program describes monitoring requirements for the new ground water monitoring network scheduled for completion by 31 December 2015 as well as specific interim monitoring arrangements that will apply while the monitoring network upgrade works are being implemented and a sufficient reference dataset is being collected for evaluation of the suitability of water quality trigger values. The revised Ground Water Monitoring Program was approved by the DP&E on 28 April 2015.

Prior to implementation of the revised monitoring program, surrounding ground water aquifers were monitored by an independent consultant at 46 statutory monitoring sites. Following implementation of the new program from May 2015, monitoring occurred at 30 statutory sites, as several sites were decommissioned as part of the network upgrade works. Some of these 30 sites are now also only monitored for water level and no longer water quality. Analysis of all water samples is undertaken by a NATA accredited laboratory. The location of the ground water monitoring sites is shown in Figure 9.

Monitoring of ground water quality parameters and/or water level is undertaken on a bi-monthly basis at monitoring bores which generally consist of a small diameter observation well lined with plastic pipe. Chemical speciation is undertaken on all bores twice yearly, and permeability testing is undertaken during installation of new monitoring bores to determine local ground water flow conditions.

Mt Arthur Coal's Ground Water Monitoring Program has established impact assessment criteria. Impact assessment criteria can be described as trigger values which, if exceeded, lead to a response such as more intensive monitoring, investigation and if required, remedial action. As previously mentioned, the Surface and Ground Water Response Plan was revised to update the surface and ground water exceedance protocol which is based on a two-stage trigger process for water quality parameters, ensuring that rigorous reporting and investigation requirements are in place for measured results that are statistically different to the baseline water conditions.

The management measures associated with the alluvial ground water cut-off wall and flood levee constructed parallel to Denman Road along the northern boundary of the site to prevent both surface and subsurface migration from the Hunter River to the active pit, have also been incorporated into the Surface and Ground Water Response Plan. Specifically, the following safeguards associated with the ongoing management of this low permeability barrier wall were implemented during the reporting period to minimise, prevent or offset ground water leakage from the alluvial aquifer:

- Bimonthly visual inspection, utilising survey pins that have been installed in close proximity to the barrier wall to monitor movement;
- Annual structural engineering inspection of the barrier wall;
- Ground water monitoring adjacent to the barrier wall to confirm the effectiveness of the wall and its' performance as a barrier in the long term; and
- Quarterly vegetation maintenance inspections (the first of which will be undertaken during the next reporting period).

Mt Arthur Coal also participated in the Upper Hunter Mining Dialogue Water Management Working Group. The initiative was established by the NSW Minerals Council to provide a forum for collaboration between community, government, consultants and mining companies to focus on water management across the region. Information on projects undertaken by the Working Group is available on the Upper Hunter Mining Dialogue website.

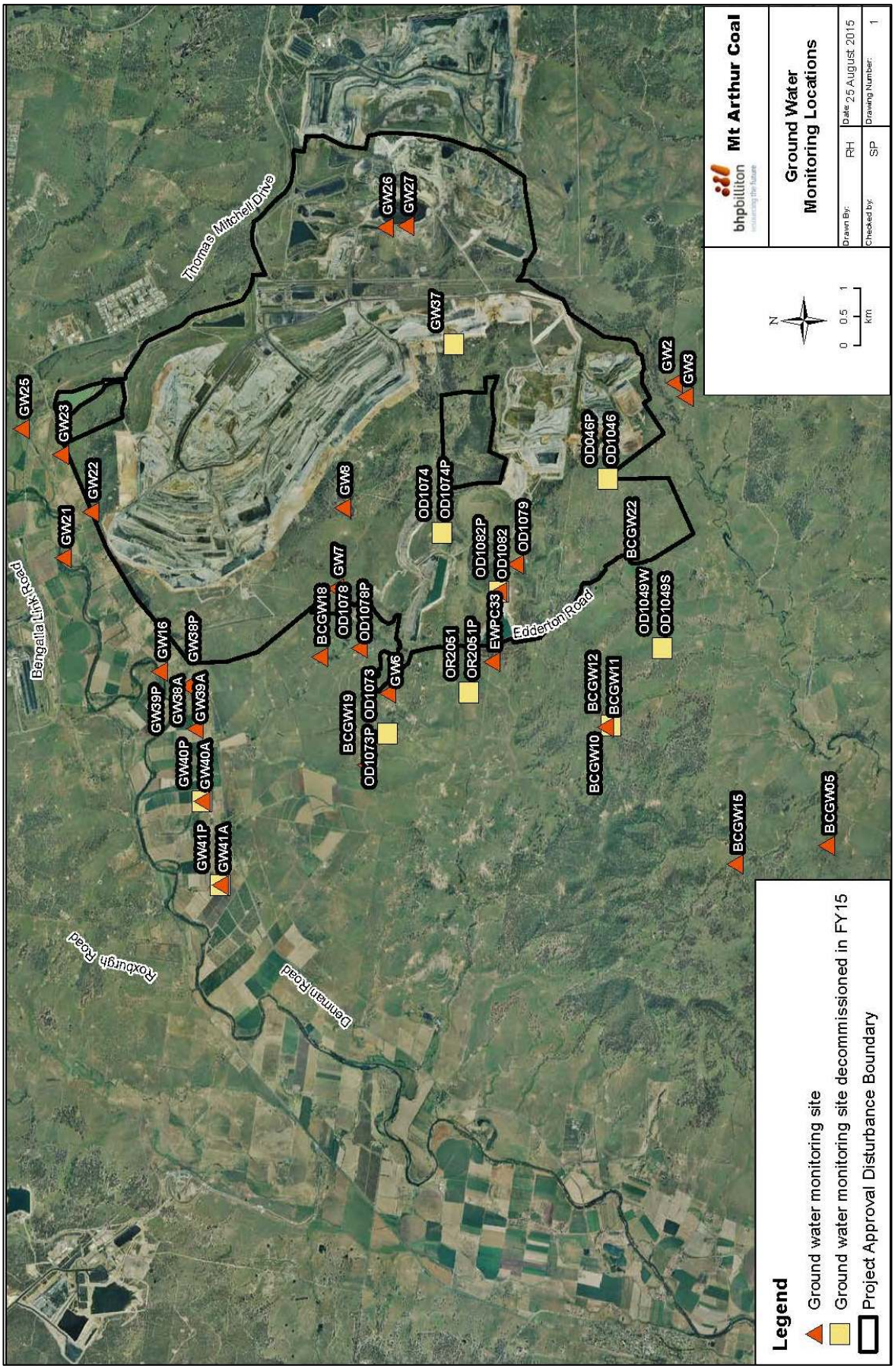


Figure 9. Mt Arthur Coal's ground water monitoring locations

3.4.2 Environmental Performance

A summary of the ground water quality data for each key aquifer during the reporting period is provided in Table 26 with a comparison against data from previous financial years. Plots of ground water quality data during the reporting period for all statutory sites are provided in Appendix 4.

Prior to implementation of the revised monitoring program, the trigger value for EC was triggered if the recorded value at a monitoring site is greater than the 90th percentile of baseline data for three consecutive readings. In accordance with the revised ground water monitoring program, there is now a two stage trigger process for EC. The pH is triggered if the recorded value at a monitoring site is outside the range 6.5 to 9.0 for three consecutive months.

Table 26: Summary of ground water monitoring results by aquifer

Aquifer	Sites	pH			EC (µS/cm)			Depth to water from top of casing (m)		
FY15	**Site references**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**
Saddlers Creek Alluvial	GW2, GW3	7.68	8.69	8.13	3,120	4,240	3,571	6.19	9.35	7.62
Hard Rock Ground Water (north west)	GW6, GW7, GW8	6.82	7.96	7.17	3,820	5,120	4,511	23.25	88.23	46.34
Hunter River Alluvial	GW16, GW21, GW22, GW23, GW25	6.53	8.03	7.33	742	5,430	3,326	9.30	65.20	27.43
West Cut Ground Water	GW26, GW27	6.10	7.05	6.55	4,400	6,370	5,488	42.63	47.19	45.35
FY14	**Site references**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**
Saddlers Creek Alluvial	GW2, GW3	7.71	8.61	8.10	3,030	4,930	3,923	6.28	8.95	7.26
Hard Rock Ground Water (north west)	GW6, GW7, GW8	6.87	7.44	7.09	3,970	5,320	4,690	23.26	74.80	38.23
Hunter River Alluvial	GW16, GW21, GW22, GW23, GW25	6.83	7.80	7.32	819	6,630	3,742	9.28	62.58	27.08
West Cut Ground Water	GW26, GW27	6.28	6.96	6.66	4,860	6,140	5,643	39.45	43.22	41.52
FY13	**Site references**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**
Saddlers Creek Alluvial	GW2, GW3	7.49	8.08	7.79	3,320	4,520	4,027	5.57	8.16	7.15
Hard Rock Ground Water (north west)	GW6, GW7, GW8	6.82	7.24	7.00	4,550	5,590	4,988	23.00	70.80	35.05
Hunter River Alluvial	GW16, GW21, GW22, GW23, GW25	6.56	7.62	7.10	876	6,440	4,013	5.92	51.43	24.77
West Cut Ground Water	GW26, GW27	6.39	6.98	6.59	4,950	7,230	6,071	36.40	38.53	37.45
FY12	**Site references**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**
Saddlers Creek Alluvial	GW2, GW3	7.50	8.23	7.84	3,430	4,390	3,838	5.69	9.06	7.05
Hard Rock Ground Water (north west)	GW6, GW7, GW8	5.99	7.32	6.94	3,720	5,310	4,401	23.24	94.64	48.73
Hunter River Alluvial	GW16, GW21, GW22, GW23, GW25	6.99	7.65	7.27	836	5,980	3,569	8.49	51.49	21.56
West Cut Ground Water	GW26, GW27	5.85	7.08	6.69	2,445	6,540	4,388	36.43	38.76	37.63

Ground water pH results were within the impact assessment criteria of 6.5-9.0 at the majority of sites, with exceptions listed in Table 27. There were also a number of exceedances of the EC trigger value during the reporting period as listed in Table 27.

Table 27: Ground Water quality exceedances

Site references	Elevated months	Parameter	Investigation results
GW2, GW3, GW26, GW38P, GW39A, EWPC33, OD1073*, OD1082-PIEZO*	April, June and August 2014	EC	GW2 and GW3 are within the Woodlands Hill Seam, GW26 is within the West Cut Tailings formation, GW38P is within the Warkworth Seam, GW39A is within the alluvium formation, EWPC33 is within the Blakefield Seam, OD1073 is within the Glen Munro Seam and OD1082-PIEZO is within the Bowfield Seam. Field sheets and recorded rainfall did not suggest a potential influence on ground water monitoring results, with only two large rainfall events recorded in early and mid-April 2014. There were no changes in land use in proximity to the monitoring bores. All elevated EC results were consistent with historic results recorded at these monitoring bores. The recorded results therefore do not indicate any impact from mining activities.
OD1082-PIEZO*	April, June and August 2014	pH	OD1082-PIEZO is within the Bowfield Seam. Field sheets and recorded rainfall did not suggest a potential influence on ground water monitoring results, with only two large rainfall events recorded in early and mid-April 2014. There were no changes in land use in proximity to the bore. pH results are consistent with historic results recorded at this bore. Recorded results therefore do not indicate any impact from mining activities.
GW40A, OD1046-PIEZO*, OD1049-WH*,	June, August and October 2014	EC	GW40A is in the Hunter River alluvium formation, and OD1046-Piezo and OD1049-WH are in the Woodlands Hill Seam. Field sheets and recorded rainfall did not suggest a potential influence on ground water monitoring results and there were no changes in land use in proximity to the monitoring bores. Elevated EC results are relatively consistent with historic results recorded at these monitoring bores. Recorded results therefore do not indicate any impact from mining activities:
OD1049-SURFACE*, OD1078-PIEZO	August, October and December 2014	EC	OD1049-SURFACE is in the Glen Munro Seam and OD1078-PIEZO is in the Bowfield Seam. Field sheets did not suggest a potential influence on ground water monitoring results and there were no changes in land use in proximity to the monitoring bores. Significant total monthly rainfall was recorded at Mt Arthur Coal in December and relatively high total monthly rainfall was also recorded in previous months, which may have influenced the steady reduction in EC evident from August to December at OD1049-SURFACE and OD1078-PIEZO. Elevated EC results are consistent with historic results recorded at these monitoring bores. The recorded results therefore do not indicate any impact from mining activities.
OD1046-PIEZO*, OD1049-WH*, OD1079-PIEZO	August, October and December 2014	pH	OD1046-Piezo and OD1049-WH are in the Woodlands Hill Seam and OD1079-PIEZO is in the Glen Munro Seam. Field sheets did not suggest a potential influence on ground water monitoring results and there were no changes in land use in proximity to the monitoring bores. Significant total monthly rainfall was recorded at Mt Arthur Coal in December and relatively high total monthly rainfall was also recorded in previous months. Elevated pH results are consistent with historic results recorded at these monitoring bores. The recorded results therefore do not indicate any impact from mining activities.

GW26	February, April and June 2015	pH	GW26 targets the West Cut Tailings formation and is adjacent to the West Cut tailings dam. In October 2014 the tailings pipe work was reconfigured to the new tailings storage facility and since this time no tailings have been pumped into the West Cut tailings dam. Field sheets did not suggest a potential influence on ground water monitoring results and there were no changes in land use in proximity to the monitoring bore, other than changes to tailings pumping regimes. Ground Water level at this bore steadily increased between January 2008 and March 2012, then remained relatively static from March 2012 to early 2014, then decreased from early 2014 to a level close to that measured in 2008. This decrease is likely a response to a reduced water head in the West Cut tailings dam. Since 2008 ground water levels have fluctuated (notably at times) outside of this gradual increase and decrease, potentially in response to either rainfall events or changes to head within the West Cut tailings dam. Results at GW26 have varied between 4.5 (October 2009) and 7.1 (June 2010) with spikes correlating with these ground water elevation fluctuations. The average pH from January 2008 to June 2015 is 6.4, which is below the trigger values specified in the monitoring program. GW26 is the only monitoring site that has an average pH below the trigger value. Results from February, April and June 2015 are therefore considered to be within the historic data range. The investigation found that the impact to ground water pH at GW26 is not significant and recommends the Mt Arthur Coal continue to monitor and assess ground water quality at GW26. As part of the current ground water monitoring network upgrade minor upgrade works will be undertaken at GW26, including excavation by hand around the existing bore to a depth of 0.8 m and installation of a 0.5 m thick bentonite seal below ground, finished with a raised concrete pad and a marker post. These minor upgrade works will occur during the next reporting period.

* This site has been decommissioned in the revised monitoring program.

Ground water depth at most bores remained relatively stable, with the average drawdown being 0.65 metres across all the statutory sites and the maximum change in ground water level from start to end of the reporting period being 5.8 metres of drawdown at GW27. Ground water levels at this bore and adjacent bore GW26 (which showed 5.3 metres of drawdown) steadily increased between 2008 and early 2012, and then remained relatively static to early 2014, in response to tailings being deposited in the West Cut Tailings Dam. Mt Arthur Coal slowed the pumping of tailings into this dam around March 2014 and ceased pumping into this dam in October 2014. Ground Water level decreased from early 2014 to a level close to that measured in 2008 by the end of the reporting period, in response to a reduced water head in the West Cut Tailings Dam.

There is insufficient data to prepare a drawdown contour map for the reporting period, however drawdown for the reporting period is included as either yellow data points (in the alluvium) or blue data points (in the Permian) in Figure 4A in Appendix 4.

The interpreted total drawdown contours in the Permian sequence are also shown in Figure 4A in Appendix 4, using all historical ground water data available. Drawdown in the Permian sequence around the main Mt Arthur Coal open cut pit is evident, and extends southward in the vicinity of the historical Bayswater mine area. Drawdown is limited within the alluvium to generally less than one metre, indicating that impacts in this area are minimal.

The modelled head for FY15 was extracted for all model slices from the consolidation project ground water model and compared to measured data in June 2015. Figure 4B in Appendix 4 shows the result, with negative values showing where the model under predicts mine impacts (blue and red markers) and positive values showing where the model over predicts mine impacts (green, orange and yellow markers). The largest difference in modelled versus measured results is 146.6 metres of drawdown being over predicted by the model at OR2051. This is likely to be due to a variation in actual mine progression in this area compared with modelled mine progression. The four bores in the alluvium showing negative values indicating the model may have slightly under predicted impacts in this area; however, future drawdown to the west of the bentonite wall within the alluvium is likely to be minimal.

With regards to the alluvial cut-off wall, visual inspection results and the annual structural engineering inspection of the barrier wall, which was undertaken by an independent consultant in March 2015, indicated no movement had occurred and the wall appeared stable. Ground water monitoring adjacent to the barrier was undertaken during the reporting period utilising vibrating wire piezometer (VWP) data from VWP01, VWP02 and VWP03 (1 and 2) located between the Hunter River and the alluvial cut-off wall. Variable drawdown has been recorded by these VWP monitoring bores since monitoring commenced in September 2011, ranging from 23.3 m in the Edinglassie Seam to 40.2 m in the deeper Ramrod Creek Seam. A 30.8 m drawdown response has been recorded within the F4 Fault. In contrast, nearby Hunter River Alluvial aquifer monitoring bores GW16 and GW21 have remained relatively static, with only a nominal decline in groundwater levels (up to 0.75 m) observed over the same period. This indicates the depressurisation observed in the underlying Permian coal seam does not appear to have propagated upwards into the Hunter River Alluvium in the vicinity of GW16 and GW21. During the next reporting period the new bore GW42 will also be installed in this vicinity to provide additional monitoring of the alluvial cut-off wall in the future.

Data capture rates fell below 100 per cent at 16 of the 46 ground water sites, as discussed in Table 28. No data was captured at seven of these bores during the reporting period, hence these bores are not presented in Appendix 4. Monitoring that was not required in June 2015 due to changes made to the Ground Water Monitoring Program have been excluded from the data capture rate calculations.

Table 28: Ground water data capture rates

Site	Data capture rate	Comments
GW8	73%	Water level was too deep to obtain water quality samples in August and October 2014 and an accurate water level reading could not be made in December 2014. A water quality sample was not required in June 2015 in accordance with the ground water monitoring program approved by DP&E on 28 April 2015.
GW27	45%	Water level and quality were not sampled in October and December 2014 and February 2015 as there were access restrictions to this site. A water quality sample was not required in June 2015 in accordance with the ground water monitoring program approved by DP&E on 28 April 2015.
GW37*	0%	This site had been mined out during the reporting period hence no sampling undertaken.
BCGW05, BCGW10, BCGW11, BCGW12* and BCGW15	0%	There was no access to these background monitoring bores for the duration of the reporting period as the land owner denied access to Mt Arthur Coal. Mt Arthur Coal is currently working on an access agreement with the landholder.
BCGW19, OD1078-PIEZO and OD1079-PIEZO	64%	Water level was not recorded in February and April 2015 as it was incorrectly communicated to the sampling contractor that these sites were to be decommissioned in the transition to the new monitoring program. A water quality sample was not required at these sites in June 2015 in accordance with the ground water monitoring program approved by DP&E on 28 April 2015.
OD1074-PIEZO*	0%	The well at this site was blocked during the reporting period.
OD1079	82%	Water level and quality were not sampled in August 2014 due to an oversight on the inclusion of this site in the groundwater monitoring program. A water quality sample was not required in June 2015 in accordance with the ground water monitoring program approved by DP&E on 28 April 2015.
OD1082*	67%	Water level and quality were not sampled in August 2014 due to an oversight on the inclusion of this site in the groundwater monitoring program. A water quality sample was not required in June 2015 in accordance with the ground water monitoring program approved by DP&E on 28 April 2015.
OD1082-PIEZO*	83%	Water quality was not sampled in October 2014 as the well was blocked. A depth measurement and water quality sample were not required in June 2015 in accordance with the ground water monitoring program approved by DP&E on 28 April 2015.
OR2051-PIEZO*	67%	Water level and quality were not sampled in August 2014 as an obstruction prevented the pump from being lowered down the bore hole. A depth measurement and water quality sample were not required in June 2015 in accordance with the ground water monitoring program approved by DP&E on 28 April 2015.

* This site has been decommissioned in the revised monitoring program.

3.4.3 Reportable Incidents

Mt Arthur Coal reported a number of exceedances of pH and EC trigger values during the reporting period to the DP&E. In accordance with the Surface and Ground Water Response Plan internal investigations were undertaken, which included a review of historic water quality results at nearby locations, monthly monitoring field sheets, on-site meteorological data and changes in land use.

The exceedances and investigation findings are summarised in Table 27. In all instances investigation findings concluded that the data did not indicate that ground water had been impacted by mining. EC trigger levels at all sites that remained within the revised ground water network were reviewed as part of the comprehensive review of all ground water monitoring sites and as of May 2015 a two stage EC trigger process was implemented.

Mt Arthur Coal did not receive any government fines or penalties related to ground water during the reporting period.

3.4.4 Further Improvements

During the next reporting period, Mt Arthur Coal will continue to monitor hydro-geomorphological conditions and evidence of any ground water ingress as operations progress towards the Hunter River alluvials, including monitoring of the alluvial cut-off wall.

A review of the ground water monitoring system has identified several opportunities for improvement associated with the ground water monitoring network infrastructure and sampling methodology. A plan to remedy, replace and decommission several bores in the network and improve sampling procedures is currently being implemented.

The Ground Water Monitoring Program has been revised to reflect the improvements to the ground water monitoring system. The revisions include the inclusion of additional monitoring bores that will be constructed, instrumentation for continuous depth to water measurement that will be installed (including the installation of several vibrating wire piezometer apparatus) and removal of bores that will be decommissioned following identification of bore integrity issues. The network upgrade works are scheduled for completion by 31 December 2015.

3.5 Contaminated Land and Hydrocarbon Contamination

3.5.1 Environmental Management

Contaminated land at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-PRO-028 Storage of Fuels and Chemicals;
- MAC-ENC-PRO-029 Spill Response;
- MAC-ENC-PRO-074 Contaminated Land Management; and
- MAC-STE-PRO-013 Hazardous Materials Management Procedure.

Hydrocarbons and other hazardous substances are kept in designated storage compounds designed and managed in accordance with relevant standards and procedures. Monitoring and inspection programs are maintained for these facilities to ensure hazardous materials and wastes are being adequately stored and disposed and that any spills or leaks are promptly reported and managed.

3.5.2 Environmental Performance

Every person employed or contracted by Mt Arthur Coal has a responsibility to take all reasonable steps to prevent harm to the environment occurring from a hazardous substance spill. Should the spill constitute a reportable event under the *Protection of the Environment Operations Act 1997* (POEO Act), Mt Arthur Coal will report the event to the relevant authorities.

During the reporting period, all spills were controlled and contained immediately using emergency spill kits or earthmoving equipment to form a temporary bund.

Any small spills were disposed of offsite by Mt Arthur Coal's waste contractor. Mt Arthur Coal is considering options regarding management of larger scale contaminated soils on site. Material is currently transported to an on-site storage area. Volumes taken to this area are being assessed over time to determine the most appropriate treatment option. When the most appropriate option has been identified Mt Arthur Coal will plan and undertake the management method in accordance with relevant legislative requirements.

The approved remedial action plan (RAP) for the former Bayswater No. 2 infrastructure area indicates identified soil and ground water impacts will be managed through the placement of overburden/tailings material to facilitate a capping layer on top of the impacted media. Therefore, prior to this placement, no further action for identified soil and ground water impacts at the site is deemed to be required. This preferred remedial action for the area was selected based on the findings of the human health and environmental risk assessment conducted for the site, review of available remediation options and the planned development for the site.

An environmental response desktop exercise was undertaken during the reporting period on 23 February 2015 to assess site response against relevant procedures, including the requirements of the PIRMP. The exercise simulated a hydrocarbon spill on the Mt Arthur Coal site, with potential runoff of pollutants into a clean waterway downstream of the operation. The exercise indicated general compliance with the PIRMP.

3.5.3 Reportable Incidents

Mt Arthur Coal did not receive any government fines or penalties related to contaminated land or hydrocarbon contamination during the reporting period and there were no related reportable incidents.

3.5.4 Further Improvements

Mt Arthur Coal will continue to manage contaminated land and hydrocarbon contamination in accordance with project approval and legislative requirements.

3.6 Flora and Fauna

3.6.1 Environmental Management

Flora and fauna at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-MTP-044 Biodiversity and Rehabilitation Management Plan (BRMP);
- MAC-ENC-MTP-047 Rehabilitation Strategy;
- MAC-ENC-PRO-012 Land Management;
- MAC-ENC-MTP-050 Biodiversity Management Plan (BMP);
- MAC-ENC-PRG-007 Onsite and Near Offsite Offset Management Program;
- MAC-ENC-PRG-008 Offset Management Program – Middle Deep Creek Offset Area; and
- MAC-ENC-PRO-080 Rehabilitation and Ecological Monitoring Procedure.

Mt Arthur Coal has a management strategy in place to limit impacts on native flora and fauna. The BRMP and BMP together with the Offset Management Programs (OMPs) effectively manage habitat areas within and in the vicinity of the mine and associated conservation and biodiversity offset areas, reducing potential impacts and improving general habitat quality.

The biodiversity offset areas managed by Mt Arthur Coal, including expansions and additions in the reporting period, are:

- Mount Arthur Conservation Area (105 hectares);

- Saddlers Creek Conservation Area (426 hectares – expanded from 295 hectares);
- Thomas Mitchell Drive Offsite Offset Area (495 hectares);
- Thomas Mitchell Drive Onsite Offset Area (222 hectares);
- Roxburgh Offset Area (110 hectares);
- Middle Deep Creek Offset Area (992 hectares – expanded from 582 hectares); and
- Oakvale Offset Area (253.5 hectares - new).

On 30 June 2014 Mt Arthur Coal submitted the BMP to the DP&E and the DoE for approval, as part of a process to separate biodiversity and rehabilitation aspects into two separate documents. The DoE approved the BMP on 12 August 2014.

DP&E approval was deferred until the BMP was later revised to reflect biodiversity management requirements associated with the modification project approval, including the additional biodiversity offset areas of the expanded Saddlers Creek Conservation Area, the expanded Middle Deep Creek Offset Area and the addition of the Oakvale Offset Area. The associated OMPs, which define in detail the planned biodiversity management measures for offset areas were also developed in the reporting period. The BMP and OMPs were submitted to the DP&E for approval on 23 June 2015.

In accordance with the modification project approval, the additional 254 ha off-site Oakvale Offset Area was identified in consultation with OEH and to the satisfaction of the Secretary of the DP&E. Approval was granted by the DP&E for the Oakvale Offset Area to be incorporated in the Mt Arthur Coal biodiversity offset strategy to meet the requirements of the modification project approval. The Oakvale Offset Area is located approximately 5 kilometres northwest of the rural township of Timor, in the Upper Hunter Valley. The Oakvale Offset Area contains valuable biodiversity assets, including Box Gum Woodland and Derived Native Grasslands listed under the EPBC Act. This offset area is adjacent to the existing Middle Deep Creek Offset Area, providing regional connectivity value and is considered to have good regenerative potential with the removal of grazing pressure.

In accordance with the modification project approval, suitable arrangements to provide appropriate long-term security for the Mt Arthur Coal biodiversity offset areas are to be made. A similar obligation exists under the EPBC approval. In June 2015, conservation agreement applications for the approved Mt Arthur Coal biodiversity offset areas were submitted to the OEH. The assessment of these conservation agreements will progress during the next reporting period.

Mt Arthur Coal undertakes annual flora and fauna monitoring to track progress against the management plan and MOP objectives. The monitoring program tracks the condition of habitat areas over time and ensures that the management plan's established performance indicators and project approval requirements are being met. During the reporting period the monitoring program was revised in consultation with independent ecological specialists to include the conservation and offset areas and better target woodland rehabilitation areas. The revised monitoring program is documented in the Rehabilitation and Ecological Monitoring Procedure.

Previously there were 13 biodiversity monitoring sites across the Mt Arthur Coal operational area which had been in place since the monitoring program began in 2003. Seven of these were located in remnant vegetation and the remaining six were located in pasture and woodland rehabilitation areas. The revised program now includes 24 monitoring sites, located throughout rehabilitation in the woodland corridor and remnant vegetation across the Mt Arthur Coal operational area and the conservation and offset areas. The monitoring sites include remnant vegetation sites for reference as well as active revegetation and natural regeneration areas. These sites are monitored on a rotational schedule as described in the monitoring program, with the sites shown in Figure 10 and Figure 11 monitored during the reporting period.

Pasture rehabilitation areas are now monitored under the Grazing Potential Monitoring Program in the Rehabilitation and Ecological Monitoring Procedure. Under this program a ground and pasture assessment is required across all pasture areas once every five years until the pasture rehabilitation is

independently signed off as suitable for grazing as final land use. Ground and pasture assessments for pasture rehabilitation areas will commence during the next reporting period.

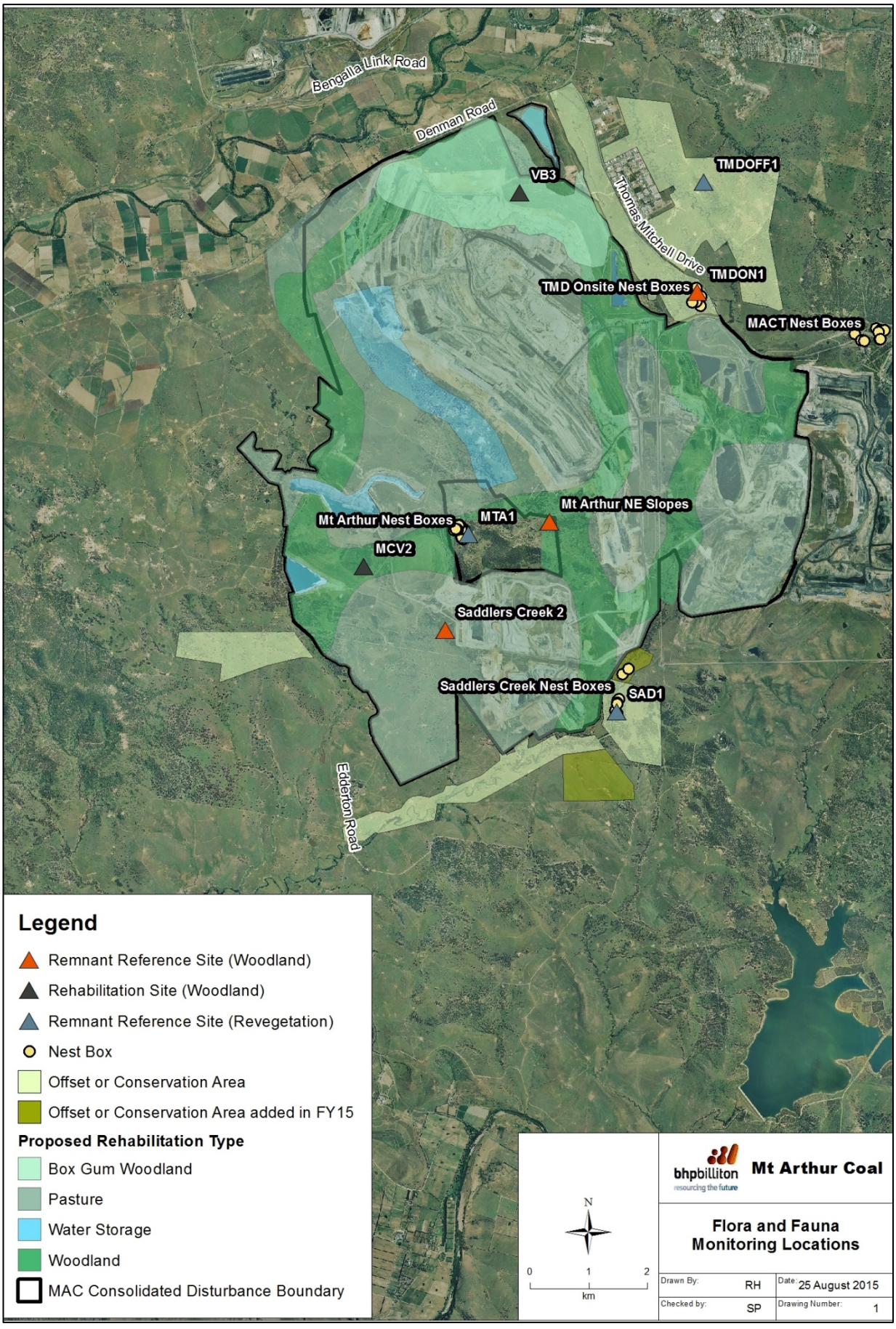


Figure 10: On-site and near-site flora and fauna monitoring locations

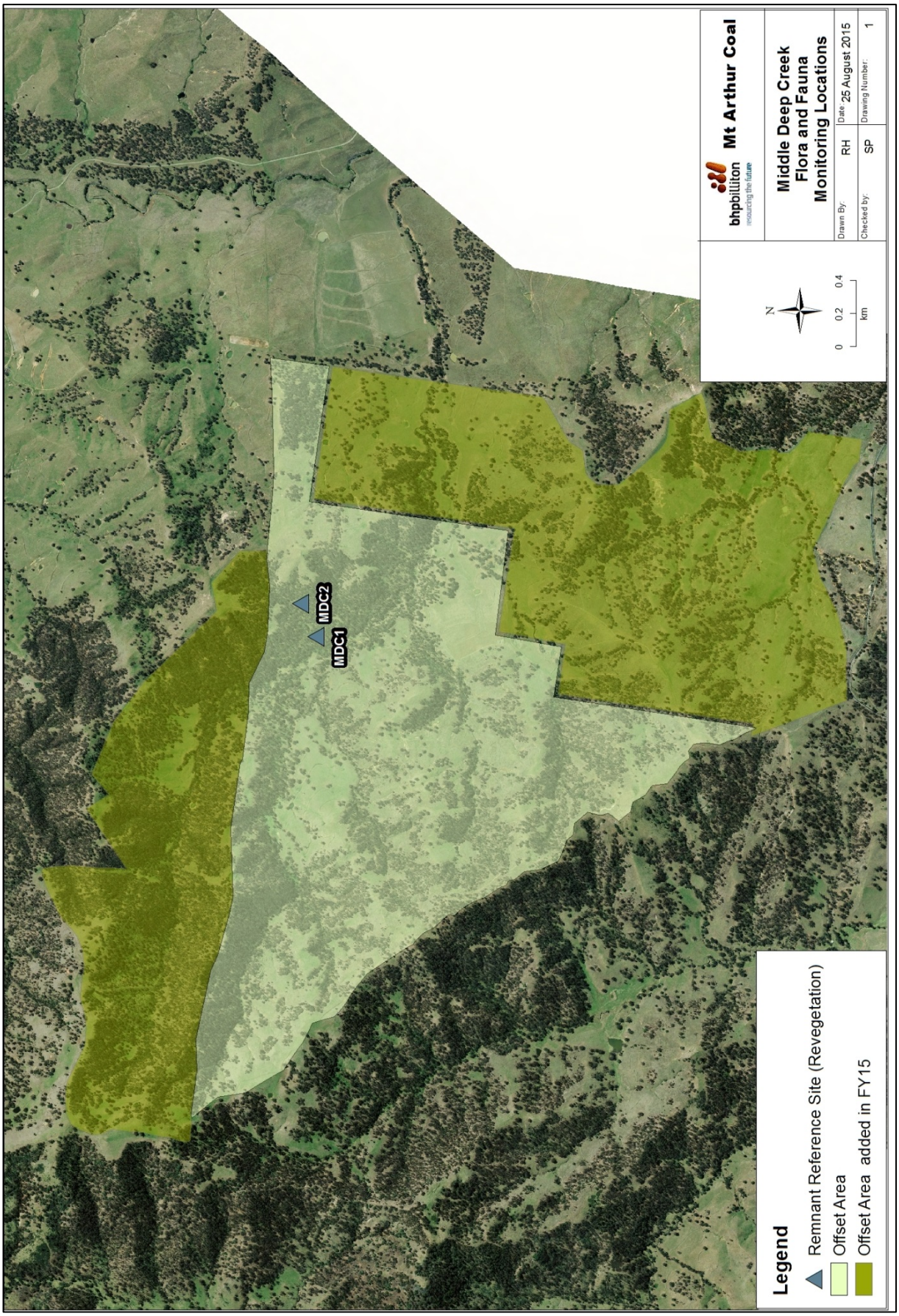


Figure 11: Middle Deep Creek flora and fauna monitoring locations

3.6.2 Environmental Performance

The annual ecological development monitoring program, using vegetation community assessments and fauna surveys, was undertaken over eight days in February and March 2015 by independent consultants. The annual survey assessed diversity and habitat condition across ten sites, as shown in Figure 10 and Figure 11, in accordance with the rotational schedule of the monitoring program:

- Two rehabilitation sites in the woodland corridor;
- Two remnant vegetation sites as reference for the woodland corridor;
- Six remnant revegetation sites in the conservation and offset areas as references for future active revegetation works; and
- Four nest box monitoring locations.

In addition to annual monitoring, a targeted survey of the known Pine Donkey Orchid (*Diuris tricolor*) population in the Thomas Mitchell Drive Onsite Offset Area was also conducted on 2 October 2014. *Diuris tricolor* is listed as an endangered population under the *Threatened Species Conservation Act 1995* (TSC Act). Baseline monitoring of this species was undertaken by independent consultants in 2007 and seasonal monitoring has been undertaken every year since 2008. The 2014 targeted survey represents the seventh season of ongoing monitoring to facilitate the appropriate conservation of this endangered population.

Woodland Corridor Rehabilitation Results

The rehabilitation sites Visual Bund 3 (VB3) and McDonalds Void 2 (MCV2) and the remnant vegetation sites TMDON1, Saddlers Creek 2 and Mt Arthur NE Slopes, as shown in Figure 10, were surveyed in February and March 2015. Sites MCV2 and Saddlers Creek 2 are new monitoring sites, with Saddlers Creek 2 being a suitable reference site for MCV2. TMDON1 is a suitable reference site for VB3. Although Mt Arthur NE Slopes is a reference site for rehabilitation works within the woodland corridor, no complimentary rehabilitation site was monitored in the reporting period.

Rehabilitation at VB3 was undertaken in 2005, however the area was subject to tubestock planting in FY13 in order to introduce shrubs and trees to this area. Rehabilitation at MCV2 was undertaken in 2003 and was seeded with a mixture of trees, shrubs and native grasses. These two rehabilitation sites have substantially different vegetation structures and floristic diversity to one another.

The number of flora and vertebrate fauna species for the woodland corridor rehabilitation sites is provided in Table 29 along with the condition assessment score applied by the ecologists. The score is designed to be indicative of ecological health and is calculated using a simplified scoring system of condition attributes for each site. Condition attributes include canopy dieback, canopy health, erosion, vegetation patch shape, epicormic growth, weed invasion, mid strata density, ground strata density and connectivity.

Table 29: Number of flora and fauna species recorded and condition assessment scores for woodland rehabilitation

Parameter	VB3*	MCV2	TMDON1	Saddlers Creek 2	Mt Arthur NE Slopes
Native flora species (per cent of total)	19 (63%)	26 (63%)	36 (72%)	42 (76%)	49 (89%)
Introduced flora species (per cent of total)	11 (37%)	15 (37%)	14 (28%)	13 (24%)	6 (11%)
Total flora species	*30*	*41*	*50*	*55*	*55*
Total condition assessment score (out of 32)	13 (41%)	29 (91%)	27 (84%)	28 (88%)	31 (97%)
Amphibians	N/A	0	0	4	0

Parameter	VB3*	MCV2	TMDON1	Saddlers Creek 2	Mt Arthur NE Slopes
Reptiles	N/A	1	2	2	3
Birds	N/A	12	16	18	18
Mammals	N/A	7	6	6	4
Total fauna species	*N/A*	*20*	*24*	*30*	*25*
Threatened fauna species	N/A	2	4	3	0
Introduced fauna species	N/A	0	0	1	0

* Fauna surveys are only to be undertaken once vegetation reaches a minimum height of three metres, in accordance with the ecological development monitoring program. Tubestock planted in FY13 at VB3 was not three metres in height, therefore no fauna surveys were undertaken in FY15.

At MVC2 the recorded flora diversity, structural complexity and fauna diversity are broadly comparable to its reference site Saddlers Creek 2, natural recruitment of canopy trees is occurring and evidence of nutrient cycling is strong in the form of insect activity and a dense decomposing leaf litter layer. MVC2 is also considered to provide good quality habitat with high foraging resources and some refuge resources, including logs, woody debris and stag trees. The native flora species diversity of MCV2 is less than that recorded at Saddlers Creek 2, however with comparable levels of introduced species diversity and no noxious weeds. Of the 26 native flora species recorded at MCV2, 13 were recorded in reference site Saddlers Creek 2.

Of the 20 native fauna species recorded at MCV2, 10 were recorded utilising the habitats of reference site Saddlers Creek 2. As such, MCV2 is considered to be progressing towards its target community composition. The lower diversity of fauna species recorded at MCV2 is mainly due to the currently disconnected nature of this stand of woodland and will improve as additional rehabilitation occurs in this area.

The native groundcover diversity at VB3 has markedly increased since commencement of monitoring in 2008. The site still contains a high percentage of introduced flora species, although notably no noxious weeds and the number of introduced species appears to be gradually reducing as native species establish. Structural complexity is virtually absent at this site due to the lack of mature trees and shrubs. Monitoring of tubestock planted in FY13 will continue to determine the success of this planting campaign as the trees become more established.

Reference sites TMDON1 and Mt Arthur NE Slopes, which have been monitored for flora and fauna in previous years, both showed a trending decline in fauna species diversity during the FY15 monitoring event, with a peak in diversity in 2009 at TMDON1 and in 2006 at Mt Arthur NE Slopes. Both sites showed a reduction in the number of bird species present during this monitoring event, however bird species are highly mobile and it is considered likely these reductions are a consequence of daily movement patterns.

The following threatened fauna species, all listed as vulnerable under the TSC Act, were identified during monitoring of the woodland corridor rehabilitation:

- eastern bentwing-bat (*Miniopterus schreibersii oceanensis*) was identified at MCV2, TMDON1 and Saddlers Creek 2;
- grey-headed flying fox (*Pteropus poliocephalus*) was identified at TMDON1 (also listed as vulnerable under the EPBC Act);
- little bentwing-bat (*Miniopterus australis*) was identified at TMDON1 and Saddlers Creek 2;
- little lorikeet (*Glossopsitta pusilla*) was identified at Saddlers Creek 2; and
- speckled warbler (*Chthonicola sagittata*) was identified at MCV2 and TMDON1.

Pasture Rehabilitation Results

Ground and pasture assessments for pasture rehabilitation areas will commence during the next reporting period in accordance with the Grazing Potential Monitoring Program.

Conservation and Offset Areas Results

Mt Arthur Coal has established a variety of biodiversity and conservation areas in order to compensate for impacts on biodiversity values. During the reporting period flora and fauna monitoring was undertaken at the following reference monitoring sites on the conservation and offset areas in February and March 2015 as shown in Figure 10 and Figure 11:

- MTA1 on the Mount Arthur Conservation Area;
- SAD1 on the Saddlers Creek Conservation Area;
- TMDON1 on the Thomas Mitchell Drive Onsite Offset Area;
- TMDOFF1 on the Thomas Mitchell Drive Offsite Offset Area; and
- MDC1 and MDC2 on the Middle Deep Creek Offset Area.

All the above-listed sites are new with the exception of TMDON1, which is an existing monitoring site that was formerly referred to as the A171 site. Monitoring at the Roxburgh Offset Area will commence during the next reporting period, as no active revegetation works are planned at this site. Monitoring at the Edderton Road Revegetation Area will also commence in subsequent reporting periods as active revegetation works are not planned at this site in the near future.

The number of flora and vertebrate fauna species for the conservation and offset area sites is provided in Table 30 along with the condition assessment score applied by the ecologists. The highest diversity of native flora species was recorded at MTA1 and TMDOFF1 had the lowest number of introduced flora species. The highest diversity of fauna species was recorded at TMDOFF1 and MDC1.

Table 30: Number of flora and fauna species recorded and condition assessment scores for conservation and offset areas

Parameter	MTA1	SAD1	TMDON1	TMDOFF1	MDC1	MDC2
Native flora species (per cent of total)	55 (95%)	54 (82%)	36 (72%)	34 (94%)	29 (85%)	38 (88%)
Introduced flora species (per cent of total)	3 (5%)	12 (18%)	14 (28%)	2 (6%)	5 (15%)	5 (12%)
Total flora species	*58*	*66*	*50*	*36*	*34*	*43*
Total condition assessment score (out of 32)	31 (97%)	29 (91%)	27 (84%)	29 (91%)	29 (91%)	31 (97%)
Amphibians	0	2	0	3	0	1
Reptiles	5	1	2	4	3	1
Birds	11	16	16	25	32	22
Mammals	7	7	6	9	6	11
Total fauna species	*23*	*26*	*24*	*41*	*41*	*35*
Threatened fauna species	1	3	4	3	1	3
Introduced fauna species	1	2	0	2	0	2

Based on the meander assessments all the conservation and offset area reference sites, with the exception of TMDOFF1, were considered to provide good quality habitat with high foraging resources and some refuge resources identified, including logs, woody debris, hollow-bearing trees and stags. TMDOFF1 was considered to provide moderate quality habitat with low foraging resources, and only

occasional logs and hollow-bearing trees and stags, however notably this site did contain the highest diversity of fauna species. Natural recruitment of canopy trees was evidenced across the monitored offset and conservation areas.

Introduced species were not considered to be a dominant species in any of the vegetation layers at any of the conservation and offset area reference sites, with the exception of TMDON1, where the groundcover vegetation is considered to comprise approximately 30 per cent introduced species. The noxious weed prickly pear (*Opuntia stricta*) was found within almost all the conservation and offset area sites. The noxious weeds mother of millions (*Bryophyllum delagoense*) and african boxthorn (*Lycium ferocissimum*) were identified at TMDON1 and SAD1, sweet briar (*Rosa rubiginosa*) was identified at MDC1 and MDC2 and St John's wort (*Hypericum perforatum*) was also identified at MDC2.

The following threatened fauna species, all listed as vulnerable under the TSC Act, were identified during monitoring of the conservation and offset areas:

- diamond firetail (*Stagonopleura guttata*) was identified at MDC1;
- eastern bentwing-bat (*Miniopterus schreibersii oceanensis*) was identified at TMDON1, TMDOFF1 and MDC2;
- grey-crowned babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*) was identified at SAD1;
- grey-headed flying fox (*Pteropus poliocephalus*) was identified at SAD1 and TMDON1 (also listed as vulnerable under the EPBC Act);
- little bentwing-bat (*Miniopterus australis*) was identified at TMDON1, TMDOFF1 and MDC2;
- little lorikeet (*Glossopsitta pusilla*) was identified at SAD1;
- speckled warbler (*Chthonicola sagittata*) was identified at TMDON1 and TMDOFF1; and
- squirrel glider (*Petaurus norfolcensis*) was identified at MTA1 and MDC2.

In addition, one threatened flora species was identified at MDC2, tiger orchid (*Cymbidium canaliculatum*), which is listed as an endangered population under the TSC Act.

Monitoring in subsequent years will occur in areas of both active revegetation and natural regeneration on the offset and conservation areas, to monitor the progress of required vegetation communities on these sites and the condition of the conservation and offset areas overall against MOP completion criteria.

Nest Box Monitoring Results

A total of 55 nest boxes were inspected across the four sites (Mt Arthur, Saddlers Creek, Thomas Mitchell Drive Onsite Offset and MACT) in February and March 2015 during the reporting period, as shown in Figure 10.

Overall, the condition of the nest boxes monitored was good, with only a small number showing some degree of disrepair or requiring replacement. Four nest boxes at MACT, three at Thomas Mitchell Drive Onsite Offset, two at Mt Arthur and one at Saddlers Creek require repair, replacement or removal. Two boxes at Thomas Mitchell Drive Onsite Offset could also not be located.

The results of the nest box monitoring during the reporting period revealed relatively low occupancy rates of between zero and 32 per cent in nest boxes at all sites, as shown in Table 31. The reason for the low occupancy rates occurring at Thomas Mitchell Drive Onsite Offset may be the low levels of vegetation connectivity in a north-south direction and the high fence bounding Thomas Mitchell Drive to the east which would present a substantial barrier to native arboreal fauna. Connectivity in this area will increase with time as the rehabilitation to the west of this area progresses.

The low occupancy results at Saddlers Creek are consistent with previous monitoring events of boxes at this location, which were installed in 2012. It is likely that the low rates of occupation at Saddlers Creek

are a result of the nest boxes being relocated in 2012 and installed at low heights, typically less than four metres from the ground. This area additionally has an abundance of naturally occurring hollows for native fauna to utilise.

Table 31: Nest box monitoring results

Nest box monitoring location	Total nest boxes	Number of boxes occupied	Number of boxes showing signs of occupancy, but no occupants present	Number of boxes showing no sign of habitation	Occupancy Rate
Mount Arthur	25	6 (common brushtail possums) 1 (green tree frog) 1 (unidentified micro-chiropteran bat)	1 (leafy nest material of glider species)	16 (one contained bees)	32%
MACT	14	2 (common brushtail possums)	5 (leafy nest material of glider species)	7 (two contained spider webs)	14%
Saddlers Creek	9	0	1 (leafy nest material)	8	0%
Thomas Mitchell Drive Onsite Offset	7*	1 (common brushtail possum)	1 (leafy nest material)	3	20%

* Two of these nest boxes could not be located.

All 25 of the boxes at Mount Arthur were relocated from the Mountt Arthur NE Slopes site in March 2014, so this was the first monitoring event for these boxes at this location. Six of these nest boxes previously contained the threatened species squirrel glider (*Petaurus norfolcensis*) when they were located at the Mount Arthur NE Slopes site. Three of the 25 nest boxes at this site were relocated containing squirrel gliders in an attempt to relocate the colony, although it appears that the squirrel gliders are no longer residing in these boxes. One of these nest boxes is now inhabited by bees and there is potential that the remaining two nest boxes that originally contained squirrel gliders were relocated into an area that already contained a squirrel glider population or the individuals relocated to adjacent tree hollows.

A number of nest boxes across the monitoring locations contained leafy nesting material which is most likely created by a glider species, either squirrel glider (*Petaurus norfolcensis*) or sugar glider (*Petaurus breviceps*). Gliders are known to utilise numerous roost sites within an area, so no assumptions of density can be made from this nesting material.

Diuris Tricolor Survey Results

Mt Arthur Coal undertook a targeted survey for the endangered population of pine donkey orchid (*Diuris tricolor*) on 2 October 2014. The survey identified 82 clumps, 70 of which are clumps that have not been recorded in previous surveys. Despite searches in the vicinity of each previously recorded location, only 12 of the previously identified 58 clumps were re-identified during the survey in FY15. Within the 82 clumps, 431 individual plants were recorded during the FY15 survey, which is significantly higher than in previous years.

The significant increase in the number of *Diuris tricolor* compared with previous years is largely due to the emergence of a high number of individuals in two large areas where clumps have not previously been recorded. One of these is in the centre of the study area where 168 new individuals were identified, and the other is the north-western corner of the study where 140 new individuals were identified. The north-east corner of the study area again contained the highest numbers of individuals within previously recorded clumps and the highest number of previously recorded clumps, indicating it continues to be a stronghold patch within the study area subpopulation of *Diuris tricolor*. The orchids recorded in the October 2014 season were generally in the peak flowering phase, unlike the survey in 2013 at the same time of year in which orchids were past peak flowering.

Table 32 shows that the total number of plants and the total number of clumps recorded in each year has been highly variable. The population appeared to decline from 2007 to 2009, followed by a significant increase in 2010 and 2011 before declining again in 2012 and 2013. Results from 2014 again represent a significant increase.

Table 32: *Diuris tricolor* survey results since 2007

Survey year	Survey date	Number of *Diuris tricolor* clumps recorded	Number of *Diuris tricolor* plants recorded
2014	2 October	82	431
2013	3 October	3	8
2012	26 September	12	20
2011	29 September	33	155
2010	20 September	25	189
2009	9 October	4	11
2008	26 September	19	74
2007	9 October	8	97

Survey results indicate that *Diuris tricolor* individuals do not flower each consecutive year, but may lie dormant until conditions are favourable. Population flux is likely to be influenced by dormancy, seed dispersal and germination, and seasonal variations in temperature and rainfall. Seasonal variations are likely to influence microclimate conditions, including the levels of moisture in the litter or sand component of the soil. Correlation analyses of weather conditions and survey results indicate that fluctuations in clump size and individuals recorded each year are strongly influenced by prevailing weather conditions and rainfall in the months preceding the flowering period (predominately autumn rainfall).

Graphical analysis of 2007 to 2014 on-site weather conditions compared to orchid numbers as shown in Figure 12, indicates that the trends seen in rainfall are similar to the trends seen in recorded orchid numbers. Correlation analyses using Mt Arthur Coal's on site weather station data resulted in significant positive correlations between total orchid numbers and mean rainfall in autumn and winter. A significant positive correlation was also found between total orchid numbers and total rainfall in autumn. Therefore, higher rainfall during autumn is expected to be followed by higher numbers of orchids in spring.

The correlation analyses also indicated a significant positive correlation between orchid numbers in the stronghold patch in the north-east of the study area and total autumn rainfall. The data also showed a significant negative correlation between mean maximum temperature in winter and orchid numbers within the north-east of the study area, which indicates that on a localised scale, higher winter temperatures are likely to result in lower orchid numbers in spring.

The correlation analyses suggests that weather conditions at a local level, particularly autumn rainfall, have an influence on orchid numbers that emerge in spring. Hot and dry conditions during dormancy are likely to result in fewer orchid numbers in spring, whereas wet cool conditions during dormancy are likely to result in more abundant orchid numbers in spring.

Comparisons of weather observations for the last eight years show that 2009, 2012 and 2013 had higher average maximum temperatures than other years of monitoring to date. This could have pushed the flowering event forward and reduced its duration, explaining the low numbers observed for those years. Conversely in 2014, average maximum temperatures were lower again.

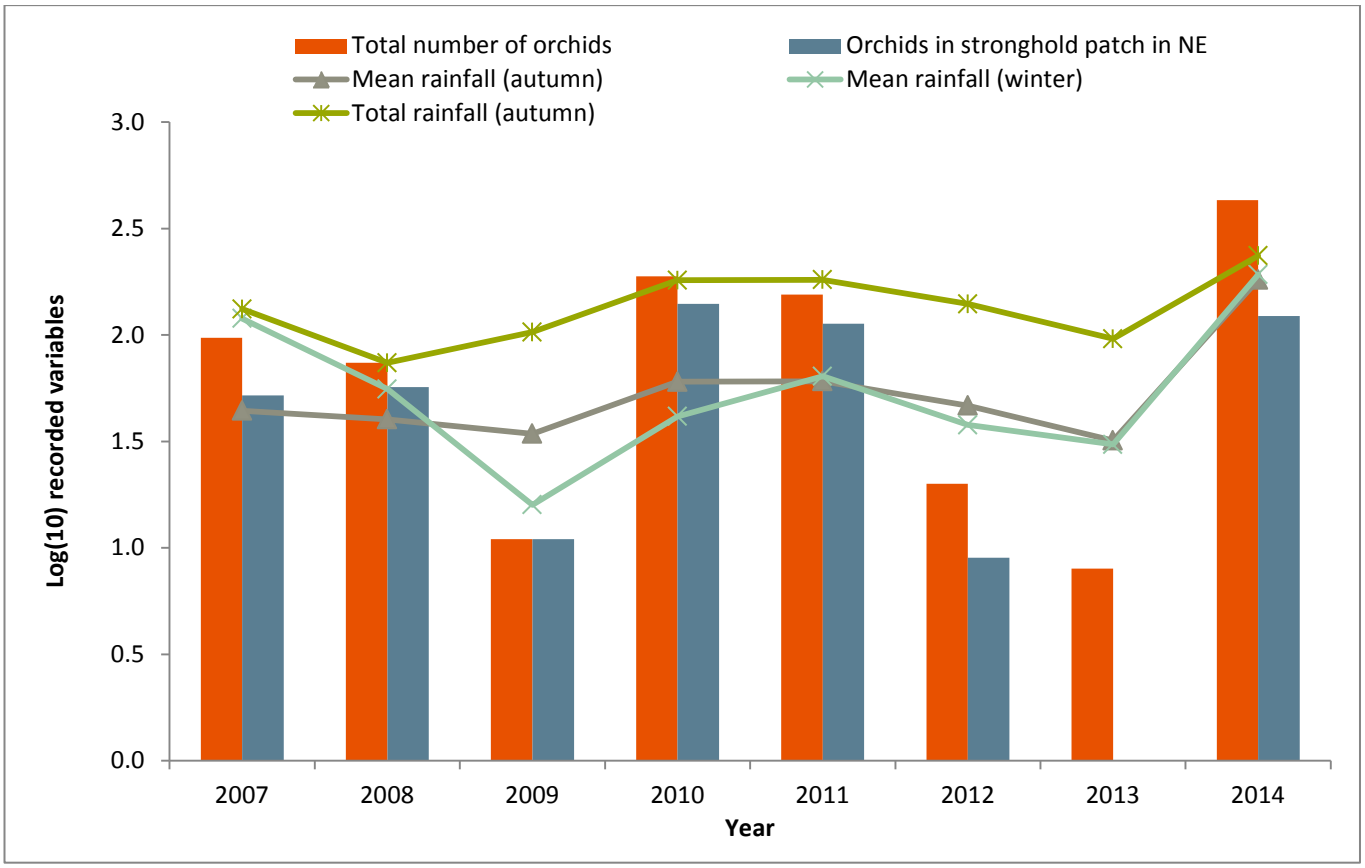


Figure 12: Correlation analysis results for Diuris tricolor and on site weather data

The primary threat to the *Diuris tricolor* population in the Thomas Mitchell Drive Onsite Offset Area continues to be the risk of invasion by weed species, the four main species of concern being coolatai grass (*Hyparrhenia hirta*), mother-of-millions (*Bryophyllum delagoense*), cape daisy (*Osteospermum ecklonis*) and african boxthorn. Mt Arthur Coal will continue to manage weeds including noxious weeds in the offset area in accordance with the management plan.

Additional Activities Undertaken on the Conservation and Offset Areas

Additional signage was installed at the entrances to the conservation and offset areas during the reporting period to further control access to these areas. These signs also indicate that revegetation works are in progress and specify that the collection of firewood is prohibited as it provides necessary habitat in these areas.

Waste and infrastructure inspections were undertaken on all the conservation and offset areas during the reporting period and a waste and infrastructure register developed to assist in prioritising and budgeting for the removal of waste items. All items were recorded with GIS coordinates and photographs. Most waste items are planned for removal unless they are considered to be providing habitat for native species and some infrastructure (i.e. tenanted houses and water tanks) is to remain at this stage.

Fence mapping, including a condition assessment, was also undertaken on all the conservation and offset areas during the reporting period, which identified a number of sections of fence that require maintenance works. Sections of boundary fence that boarder with neighbours running livestock, particularly cattle, were prioritised for maintenance in order to minimise the risk of livestock inadvertently entering the conservation and offset areas.

Sections of fence at the Saddlers Conservation Area, particularly along drainage lines were damaged during high rainfall events during the reporting period. These sections of damaged fence were repaired

promptly to minimise instances of cattle owned and run by Drayton Coal Mine on neighbouring land entering the conservation area. The fence mapping also identified a section of fence at the Thomas Mitchell Drive Offsite Offset Area referred to as 'Wire Lane' that required repairs in the south of the offset. Repairs to this fence were undertaken in May 2015. Substantial lengths of new fencing were erected at the Middle Deep Creek Offset Area during the previous reporting period, so the majority of fencing for this offset area is in excellent condition and is not expected to require substantial repairs for many years.

3.6.3 Reportable Incidents

Mt Arthur Coal did not receive any government fines or penalties related to flora and fauna during the reporting period and there were no related reportable incidents.

3.6.4 Further Improvements

Mt Arthur Coal considers that the FY15 monitoring results of *Diuris tricolor* in conjunction with previous survey results provided a much better understanding of the population dynamics, with significant correlations to weather conditions identified. Mt Arthur Coal will continue monitoring this population in the Thomas Mitchell Drive Onsite Offset Area every two years to continue the population study of this species at this locality.

The revised BMP that Mt Arthur Coal submitted to the DP&E and the DoE for approval is expected to be approved during the next reporting period. This document details the measures Mt Arthur Coal has implemented to protect and enhance biodiversity features and values on site and within offsite offset areas. Revision of the ecological development monitoring program will be required once this revised BMP is approved, as additional offset areas have been added, which may require additional reference and revegetation monitoring sites to monitor progress against completion criteria.

Mt Arthur Coal will continue to implement the Ecological Development Monitoring Program during the next reporting period, as required. Ecological development monitoring will commence at the Roxburgh Road Offset Area during the next reporting period. Ground and pasture assessments for pasture rehabilitation areas will also commence during the next reporting period in accordance with the Grazing Potential Monitoring Program.

Mt Arthur Coal will continue removing waste items and repairing sections of fence that require maintenance in conservation and biodiversity offset areas during the next reporting period. Fencing in the south of the Saddlers Creek Conservation Area will be prioritised.

3.7 Weed and Feral Animal Management

3.7.1 Environmental Management

Weed and feral animal management at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-MTP-044 Biodiversity and Rehabilitation Management Plan;
- MAC-ENC-MTP-047 Rehabilitation Strategy;
- MAC-ENC-PRO-012 Land Management;
- MAC-ENC-MTP-050 Biodiversity Management Plan;
- MAC-ENC-PRG-007 Onsite and Near Offsite Offset Management Program; and
- MAC-ENC-PRG-008 Offset Management Program – Middle Deep Creek Offset Area.

Areas of weed impact are continually monitored through scheduled inspections conducted by Mt Arthur Coal and local land managers. Monitoring of weeds and feral animals is assisted by feedback from mining personnel, contractors and lessees to identify areas of weed infestation and animal sightings. A geographic information system database also assists to record land management data, including

previous weed treatment areas, to monitor and program future remediation works. The weed and feral animal control programs also include all biodiversity offset and conservation areas.

Annual weed assessments were conducted by land management consultants on the Mt Arthur Coal site as well as the biodiversity offset and conservation areas on 29, 30 and 31 October 2014 and the results were used to guide priority of weed treatment for the remainder of the reporting period. Weed control programs at Mt Arthur Coal and the biodiversity offset and conservation areas primarily target weeds that are locally declared under the *Noxious Weeds Act 1993*.

3.7.2 Environmental Performance

Weeds

The FY15 annual weed assessment identified 26 weeds in total across the Mt Arthur Coal site and the biodiversity offset and conservation areas, including seven locally declared noxious weeds as shown in Table 33. No new noxious weed species were recorded in the assessment areas compared to the FY14 annual weed assessment.

Table 33: Weeds identified at Mt Arthur Coal and the biodiversity offset and conservation areas

Assessment Area	Total number of weeds recorded	Number of noxious weeds recorded	Noxious weed species recorded
Mt Arthur Coal Site and Onsite Conservation Areas	16	5	African boxthorn (*Lycium ferocissimum*) Mother-of-millions (*Bryophyllum delagoense*) Prickly pear (*Opuntia stricta*) St John's wort (*Hypericum perforatum*) Tiger pear (*Opuntia aurantiaca*)
Thomas Mitchell Drive Offsite and Roxburgh Offset Areas	12	4	African boxthorn (*Lycium ferocissimum*) Prickly pear (*Opuntia stricta*) St John's wort (*Hypericum perforatum*) Tiger pear (*Opuntia aurantiaca*)
Middle Deep Creek Offset Area	16	5	Blackberry (*Rubus fruticosus*) Golden dodder (*Cuscuta* species) Prickly pear (*Opuntia stricta*) St John's wort (*Hypericum perforatum*) Tiger pear (*Opuntia aurantiaca*)

Mt Arthur Coal targeted over 960 hectares of land for weed treatment during the reporting period. Priority areas for treatment included the mine site boundary, rehabilitation areas (particularly VD1) and the biodiversity offset and conservation areas.

Weed treatment techniques included boom spraying, spot spraying with a quick-spray unit and also manual removal when treating weeds in the vicinity of the known *Diuris tricolor* population in the Thomas Mitchell Drive Onsite Offset Area.

Weed treatment primarily targeted all locally declared noxious weeds, as listed in Table 33. Other weed species were also treated when in the vicinity of noxious weeds, such as Galenia and Coolatai grass. Observations during the weed treatment program and follow up inspections indicate that treatment has largely been effective.

Feral Animals

Wild dog and fox management activities continued on land owned by Mt Arthur Coal during the reporting period. A vertebrate pest management program involved 1080 baiting, targeting wild dogs (*Canis lupus familiaris*) and foxes (*Vulpes vulpes*) was undertaken during May and June 2015. Due to an increase in sightings of feral cats (*Felis catus*), cat management was undertaken as part of the program. Approved cat traps were established around the CHPP and monitored simultaneously whilst the wild dog and fox baiting was carried out. Opportunistic shooting was also carried out on the offsite offset areas during the program, which targeted wild dogs, foxes and feral pigs (*Sus scrota*). The Middle Deep Creek Offset Area was included in the vertebrate pest management program during this reporting period.

Results from the wild dog and fox baiting program were excellent, with a baiting efficiency of 67 per cent across all baited areas, including the Middle Deep Creek Offset Area. The Mt Arthur Coal mine site, onsite conservation and offset areas and nearby offsite offset areas (referred to as the MAC Complex in Table 34) as a whole had a baiting efficiency of 64 per cent with 129 baits taken from a total of 201 laid, while the Middle Deep Creek Offset Area had a baiting efficiency of 73 per cent, with 87 baits taken from the 120 baits laid. The baiting efficiency of this program was high compared with baiting efficiencies of the previous four programs as listed in Table 34, which had a maximum of 42 per cent in February 2013.

Table 34: Baiting results from feral animal control programs

Program date and location	Baiting sites	Baits laid	Baits taken by wild dogs or foxes	Baits taken by non-target feral animals i.e. pigs	Total baits taken	Percentage of baits taken (baiting efficiency)
May/June 2015 Middle Deep Creek Offset Area	40	120	80	7	87	73%
May/June 2015 MAC Complex	67	201	129	0	129	64%
February 2014 MAC Complex	70	210	85	1	86	41%
May/June 2013 MAC Complex	65	195	80	0	80	41%
February 2013 MAC Complex	62	186	79	0	79	42%
May/June 2012 MAC Complex	62	186	57	0	57	31%

Five feral cats were trapped during the cat trapping program at the CHPP and were subsequently taken to a local vet and humanely euthanised and disposed of. Over 10 feral pigs were also shot at the Middle Deep Creek Offset Area during the reporting period. Feral deer were also sighted at the Middle Deep Creek Offset Area during the program, however none were shot.

3.7.3 Reportable Incidents

Mt Arthur Coal did not receive any government fines or penalties related to weed or feral animal management during the reporting period and there were no related reportable incidents.

3.7.4 Further Improvements

During the next reporting period Mt Arthur Coal will conduct an annual weed assessment. Weed management priorities will be revised based on the outcomes of the assessment.

During the next reporting period, Mt Arthur Coal will also run another vertebrate pest management program on site and across all conservation and offset areas.

3.8 Blasting

3.8.1 Environmental Management

Blast management at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-MTP-015 Blast Management Plan;
- MAC-ENC-PRO-055 Blast Monitoring Program; and
- MAC-ENC-MTP-024 Road Closure Management Plan.

The blast management plan details the relevant blast overpressure and vibration impact assessment criteria and compliance procedures and controls related to open cut blasting activities. The blast fume management strategy, included in the Blast Management Plan, aims to minimise visible fume generated from blasting and reduce the potential of any fume leaving the Mt Arthur Coal site. During the year, all statutory blast monitors were calibrated in accordance with relevant Australian Standards.

The modification project approval was granted on 26 September 2014, in the reporting period, which resulted in BP08 (Edinglassie) no longer being required as a statutory monitor from this date, as the blast impact assessment criteria for heritage sites was removed from the project approval and replaced with blast impact assessment criteria for public infrastructure. The Edinglassie blast monitor remained in place and operational for the remainder of the reporting period, as results from the blast monitor were used internally by the operation to validate blast impacts on public infrastructure. The Blast Management Plan was not revised during the reporting period to reflect changes brought in by the modification project approval, however it will be revised during the next reporting period and in the interim project approval requirements supersede any management plan requirements where there is a discrepancy. As such, Mt Arthur Coal had six statutory blast monitors at the start of the reporting period, as listed below and shown in Figure 13 and five statutory blast monitors at the end of the reporting period:

- BP04 (South Muswellbrook);
- BP07 (Sheppard Avenue);
- BP08 (Edinglassie);
- BP09 (Denman Road West);
- BP10 (North Yammanie); and
- BP11 (Balmoral Road).

A predictive fume model was introduced in the reporting period that allows Mt Arthur Coal to model the expected path and dispersion of fume from a blast and provide an indication of nitrogen oxide emissions at the premise boundary. The predictive fume model forms part of the pre-blast environmental assessment to gauge the risk of potential impacts on the surrounding community and the environment. This pre-blast assessment includes a review of wind speed and direction, the strength of temperature inversions, if present, and the location and size of the blast. During the reporting period a number of blasts were delayed at Mt Arthur Coal due to unfavourable weather conditions determined through this process.

During the reporting period, Mt Arthur Coal installed an additional weather station in the northern part of the mine to improve the availability of meteorological data for pre-blast assessments and other operational purposes.

Mt Arthur Coal is committed to reducing the impacts of blasting on the community and its near-neighbours by implementing a range of mitigation measures. Blasts are designed to minimise the effects of airblast overpressure and ground vibration on structures and the neighbouring community. Mitigation measures undertaken during the reporting period to reduce blasting impacts include:

- modelling potential impacts prior to blasting;

- using monitoring data to refine predictive tools that estimate likely overpressure and vibration levels during the design of blasts;
- using appropriate stemming material and adequate stemming lengths in the blast hole;
- controlling blast charges;
- undertaking pre-blast environmental assessments;
- delaying blasts where weather conditions represent an unacceptable risk of offsite impacts;
- implementing the blast fume management strategy, which includes modelling the potential for fume generation and the potential fume travel path;
- the use of explosive product with a lower fume potential for blasts considered to have a higher potential for fume generation;
- notifying other mines and nearest residents of proposed blast times;
- advertising planned blast and road closure times on MSC's blast notices website (www.muswellbrook.nsw.gov.au/index.php/blasting-notices);
- the use of electronic initiation systems in higher risk areas to reduce vibration;
- the use of on-site wind socks to enable wind conditions to be assessed at the time of firing;
- the use of helium filled balloons to assess wind conditions at the time of firing;
- improved planning processes to minimise blast sleep time;
- a post blast checklist to record information to assist the continual improvement of blast design and blast practices, including fume rating, fume characteristics, meteorological information, monitoring results and video recordings;
- modifying blasting methods to ensure compliance with environmental limits; and
- undertaking periodic structural inspections of blast-sensitive structures.

As previously mentioned, the modification project approval granted in September 2014 introduced blast impact assessment criteria for public infrastructure. The modification project approval states a ground vibration limit for public infrastructure of 50 millimetres per second (mm/s), unless Mt Arthur Coal has a written agreement with the relevant owner of the public infrastructure to exceed these criteria and advises the DP&E in writing of the terms of the agreement.

Mt Arthur Coal prepared a Supplementary Blast Monitoring Program – Public Infrastructure to address the new impact assessment criteria. Predictive blast modelling was used to determine worst case blast impacts within each pit on all public infrastructure identified within and surrounding the Mt Arthur Coal complex. This modelling indicated that only Denman Road and the 66 kilovolt transmission lines and fibre optic cables adjacent to Denman Road may experience ground vibrations above the 50 mm/s criteria when blasting in Windmill Pit in FY15. Modelling also indicated that blasting in Roxburgh Pit may result in ground vibrations close to the 50 mm/s limit (approximately 45 mm/s) for the Mount Arthur communications infrastructure and 11 kilovolt transmission lines adjacent to the Mount Arthur access track. Therefore the Supplementary Blast Monitoring Program specified monitoring (utilising BP09 and BP08, respectively) and peak particle velocity calculations when blasting in Roxburgh Pit within 500 metres and when blasting in Windmill Pit within 300 metres of the above-mentioned infrastructure.

In October 2014 Mt Arthur Coal sought approval from the DP&E for an alternative ground vibration limit for public infrastructure affected by blasting at the mine, until agreements could be negotiated with relevant public infrastructure owners. The DP&E approved an interim ground vibration limit of 100 mm/s applicable exclusively to blasting in the Windmill Pit, to address potential blast impacts on Denman Road and the 66 kilovolt transmission lines and fibre optic cables adjacent to Denman Road. This interim limit was effective from 26 September 2014 to 31 December 2015.

On 28 April 2015 Roads and Maritime Services agreed in writing to increase the ground vibration blast impact assessment criteria for Denman Road to 150 mm/s with no allowable exceedances and have requested that Mt Arthur Coal notify RMS for any blasts predicted to exceed 100 mm/s at any point along Denman Road prior to undertaking the blast. Mt Arthur Coal is still in negotiations with Telstra and Ausgrid regarding their infrastructure located adjacent to Denman Road.

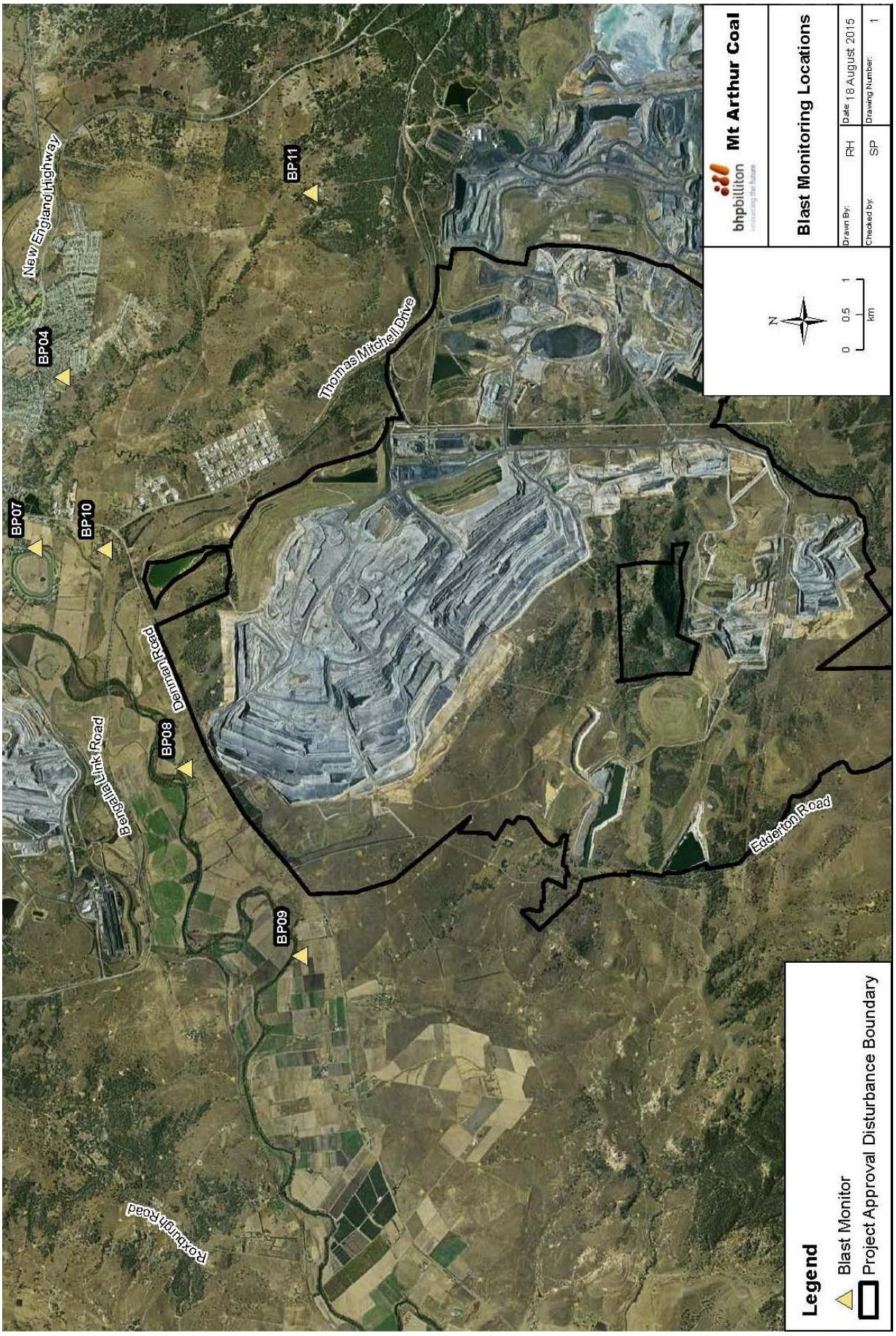


Figure 13: Mt Arthur Coal's blast monitoring locations

3.8.2 Environmental Performance

A summary of the results from the statutory blast monitoring sites for the reporting period is provided in Appendix 5. Blast data capture rates for the reporting period were 100 per cent at all statutory sites, with the exception of BP10, where one blast event on 12 November 2014 was not captured when the blast monitor was taken offline for maintenance due to a miscommunication regarding the blasting schedule. This data capture failure was reported to the DP&E.

The geophone cable at BP08 (Edinglassie) was accidentally cut during lawn mowing activities in late January 2015. Although BP08 was no longer a statutory monitor at this time, results from this monitor are used as part of the process to determine blast impacts on public infrastructure when blasting in Windmill Pit within 300 meters of Denman Road and the 66 kilovolt transmission lines and fibre optic cables adjacent to Denman Road. Due to the cut cable ground vibration results for eight blast events between 30 January and 10 February 2015 were not captured. Ground vibration data for all these blast events was requested from Bengalla's monitor at Edinglassie, which is nearby and considered representative of Mt Arthur Coal's monitor at this location. Bengalla supplied the relevant ground vibration results, allowing Mt Arthur to complete required public infrastructure assessments.

Blast impact assessment criteria as specified in the Project Approval 09_0062 and modification project approval are provided in Table 35, along with their period of enforcement.

Table 35: Blast impact assessment criteria

Project approval	Period criteria applied	Location	Applicable statutory blast monitors	Airblast overpressure (dBL)	Ground vibration (mm/s)	Allowable exceedance
Consolidation	1 July to 25 September 2014	Residence on privately owned land	BP04 BP07 BP09 BP10 BP11	120	10	0%
				115	5	5% of the total number of blasts over a period of 12 months
		Heritage sites, including Edinglassie and Rous Lench	BP08	133	10	0%
Modification	26 September 2014 to 30 June 2015	Residence on privately owned land	BP04 BP07 BP09 BP10 BP11	120	10	0%
				115	5	5% of the total number of blasts in a financial year
		Public infrastructure	N/A	-	100^	0%

^ Interim criteria as approved by the DP&E.

There were 189 blast events during the reporting period. In accordance with the consolidated project approval, blasting activities in the applicable portion of the reporting period were only undertaken between 9 am and 5 pm Monday to Saturday, inclusive. The modification project approval extended the blasting hours to 8 am. No blasts were undertaken outside of approved blasting hours during the reporting period and no blasting was carried out on Sundays or public holidays.

Blast monitoring statistics for the current and previous reporting periods are provided in Table 36. Results generally reflect predictions made in the consolidation environmental assessment and do not show a significant difference in average or maximum results compared to previous financial years. Results will only be compared to the modification project environmental assessment when mining operations move west of the mining area approved under the consolidation project.

Mt Arthur Coal will continue to modify blasting methods to ensure compliance with environmental limits. During the reporting period mining works progressed to the north and northwest of the operation, resulting in blasts occurring closer to Mt Arthur Coal's northern monitors.

Calculated blast monitoring results for blasts in Roxburgh and Windmill Pits that met criteria specified in the Supplementary Blast Monitoring Program are presented in Table 37. No blasts exceeded the public infrastructure ground vibration criteria during the reporting period.

Table 36: Summary of statutory blast monitoring results

Parameter	Statistic	FY15	FY14	FY13	FY12
Ground vibration (mm/s)	Average	0.30	0.46	0.34	0.44
	Maximum valid result	7.06 at BP08 (Edinglassie)	5.99 at BP08 (Edinglassie)	7.42 at BP09 (Denman Road West)	7.40 at BP08 (Edinglassie)
	Valid blasts above 5 mm/s threshold^	1	0	2	0
Airblast overpressure (dBL)	Average	93.9	96.1	94.8	96.8
	Maximum valid result*	124.3 at BP08 (Edinglassie)*	120.2 at BP08 (Edinglassie)*	120.0 at BP04 (South Muswellbrook)	124.1 at BP08 (Edinglassie)*
	Valid blasts above 115 dBL threshold^	1	3	11	7

^ Excluding BP08 (Edinglassie).
* 133 dBL Project Approval impact assessment criteria at Edinglassie

Table 37: Summary of public infrastructure blast monitoring results

Shot code*	Date and time	Monitor	Calculated ground vibration at public infrastructure (mm/s)	Project Approval impact assessment criteria (mm/s)
RXs2772/AF	6/02/2015 13:22	BP09	14.18	50
RXs2770/AF	17/03/2015 10:25	BP09	5.71	50
WMn3222/BOW	2/10/2014 13:15	BP08	16.10	50
WMn2722/BA	16/10/2014 10:58	BP08	18.44	50
WMn2718/BA	5/11/2014 11:16	BP08	23.20	50
WMn2818/VU	16/12/2014 12:34	BP08	40.65	50
WMn2918/RL135	18/03/2015 13:35	BP08	36.14	50
WMn2822/VU	8/05/2015 11:03	BP08	48.97^	50
WMn2819/VU	24/06/2015 11:09	BP08	6.65	50

* RX denotes Roxburgh Pit and WM denotes Windmill Pit
^ Although this shot was not within 300m of the relevant infrastructure, it was included in calculations due to a high ground vibration reading recorded at BP08.

Blasting-related Community Complaints

Complaints regarding blasting impacts, including blast vibration, airblast overpressure, dust and fume, accounted for 30 per cent of the total complaints received during the reporting period, as shown in Table 38, along with a comparison to previous financial years. One blast complaint in FY15 was made through a third party regulator. On four occasions during the reporting period, more than one complaint was received in relation to a single blast event, with the most significant discussed below.

Mt Arthur Coal received five blast vibration and airblast overpressure complaints in relation to a single blast in Windmill pit on 20 May 2015. This blast did record a valid elevated ground vibration result at

BP09 (Denman Road West), representative of the ground vibration complaint that came from a resident along Denman Road. Three complaints originated from the Antiene area and the New England Highway and the investigation found that meteorological effects present at the time of the blast had amplified airblast overpressure effects in this vicinity. Results for this blast are discussed in Section 3.8.3.

During the reporting period, 27 of the complaints recorded related to blast vibration and/or airblast overpressure, four related to blasting fume and 4 related to blasting dust. All blast vibration and airblast overpressure results were within maximum regulatory criteria on dates when complaints were received in relation to these issues.

Table 38: Blasting complaint statistics at Mt Arthur Coal

Blasting complaints	FY15	FY14	FY13	FY12
Blasting complaints received	35	52	37	55
Blasting complaints received, as a percentage of total complaints	30%	20%	16%	42%

3.8.3 Reportable Incidents

No blast ground vibration or airblast overpressure results were recorded at any of the statutory blast monitors above the maximum limits of 10 mm/s or 120 dBL respectively during the reporting period. One valid blast was recorded above the airblast overpressure criteria of 115 dBL (BP09 on 24 July 2014 recorded 116.8 dBL) and one valid blast was recorded above the ground vibration criteria of 5 mm/s (BP09 on 20 May 2015 recorded 5.34 mm/s), as shown in Table 36, however all statutory monitors remained below the five per cent limit criteria for airblast overpressure and ground vibration respectively during the reporting period.

There were no reportable blast fume events during the reporting period, with no blast fume events resulting in fume rating above level 3. Improvements to the blast fume management strategy made in FY14 continued to be used during the reporting period to minimise the risk of blast fume generation. In particular, an explosive product with a lower fume potential was used in Windmill and Macleans Pits, the northernmost pits closest to Denman Road, to minimise the generation of fume from blasts in this area.

3.8.4 Further Improvements

Improvements to the blast fume management strategy will continue to be used during the next reporting period to continue to minimise the risk of blast fume generation. The success of the improvements will be assessed and further refinements made as required.

3.9 Noise

3.9.1 Environmental Management

Noise management at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-MTP-032 Noise Management Plan; and
- MAC-ENC-PRO-056 Noise Monitoring Program.

Mt Arthur Coal has a range of management strategies in place to limit impacts of noise. The operation's noise management plan details the relevant noise impact assessment criteria, compliance procedures and controls relating to mining activities. Prepared to fulfil the requirements of the consolidation project approval and the conditions of EPL 11457, and satisfying the conditions of the modification project approval, the management plan ensures:

- all relevant statutory requirements and BHP Billiton policies and standards are met;
- the impact of noise from mining operations on the community and environment are managed and minimised;
- an effective response mechanism to deal with issues and complaints is maintained; and
- the results of noise monitoring comply with applicable criteria.

Noise management controls include a range of mine planning, operational and engineering measures such as separate day and night dumps, testing the sound power of mobile equipment, considering seasonal influences on noise impacts during mine planning and real-time monitoring and alarming systems. These controls were applied during the reporting period and revised as appropriate.

Mt Arthur Coal uses some of the world's quietest mining equipment fitted with a variety of sound suppression features to reduce noise. Some of this equipment was developed by Mt Arthur Coal in collaboration with equipment manufacturer Liebherr to help reduce the impact of operational noise from the mine site on nearby residents and landowners. Mt Arthur Coal tests the noise emitted from most new mobile plant, and a sample of site mobile plant is tested on a regular basis to ensure it is below the site's sound power noise requirements. Results from sound power level monitoring of the fleet are used in the predictive noise model discussed in this section below.

To adequately sample the noise environment, attended monitoring is undertaken by an acoustic consultant on a monthly basis at eight statutory monitoring locations as shown in Figure 14. Attended monitoring involves an acoustic consultant listening and measuring dominant noise sources at various locations for a period of time. Attended monitoring is conducted at night under worst case conditions when atmospheric conditions can allow noise to travel further from the source.

Received levels from various noise sources are noted during attended monitoring and particular attention is paid to the extent of Mt Arthur Coal's contribution. At each monitoring location, the mine's $L_{Aeq\ (15min)}$, which is the average noise energy over a 15 minute period, and $L_{A1\ (1min)}$, which is the highest noise level generated for 0.6 seconds during one minute, is measured in accordance with the consolidation project approval. When Mt Arthur Coal was measurable and where meteorological conditions resulted in criteria applying, a low frequency assessment was also conducted in accordance with the INP and Broner methods.

The impact assessment includes consideration of mining activity and atmospheric conditions during each measurement. Wind speed and estimated temperature inversion conditions may result in regulatory criteria not being applicable in accordance with the INP. The assessment and investigation process for exceedances undertaken by Mt Arthur Coal is described in the noise monitoring program.

Mt Arthur Coal also has four directional real-time monitors at various locations surrounding the site. These monitors are configured to provide statistical noise data summaries and record audio every 15 minutes. This information is used for internal management purposes only. An additional directional real-time monitor, shared with Anglo American's Drayton Coal, is also installed to the north east of the operation.

During the reporting period Mt Arthur Coal engaged acoustic consultants to update the predictive noise model for Mt Arthur Coal in order to be able to predict the likely change in the acoustic locations around the operation for the proposed mine plan. This predictive model enables Mt Arthur Coal to input locations of mobile plant and haul routes, and uses forecasted weather conditions and results of sound power testing from each unit to predict noise impact at each receptor detailed in the consolidation project approval. Based on these predictions, the mine plan can be adjusted and remodelled accordingly.

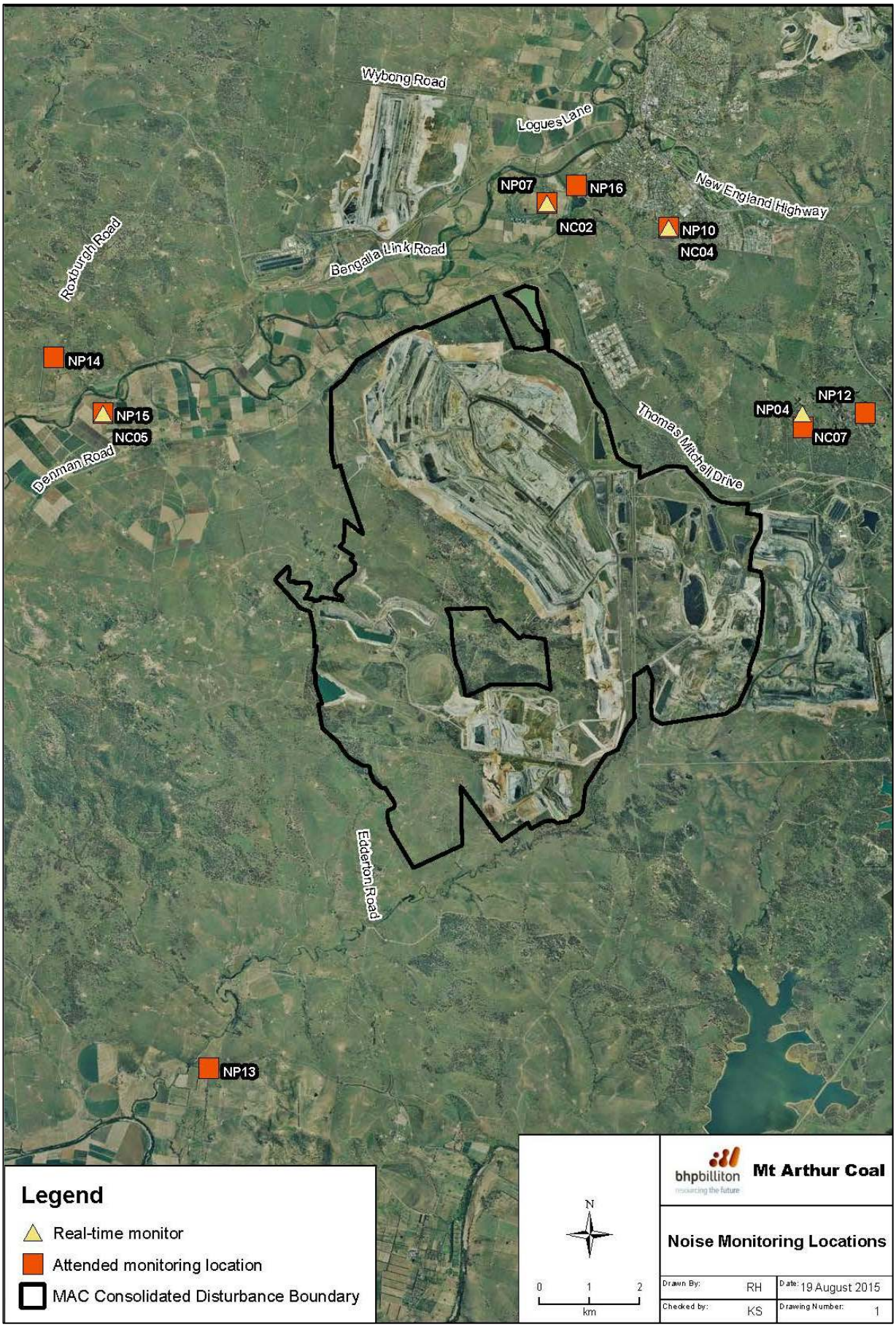


Figure 14: Mt Arthur Coal's noise monitoring locations

3.9.2 Environmental Performance

An analysis of periodic attended noise monitoring results indicates Mt Arthur Coal's operations did not exceed the $L_{Aeq\ (15min)}$ or $L_{A1\ (1min)}$ statutory limit during the reporting period, with the exception of monitoring undertaken in June 2015, as discussed in Section 3.9.3. A summary of results from Mt Arthur Coal's attended noise monitoring in the reporting period is provided in Table 39. Where a remeasure was required on the same night to determine the sustained noise level, only the remeasure result is shown.

A noise impact assessment was completed in 2013 as part of the modification project environmental assessment. Noise modelling was completed for 2016, 2022 and 2026 predicting maximum noise levels under prevailing night conditions for each receiver. The predictions for model year 2016 are considered to be representative for this reporting period and the monitoring results for the period support the predicted results in the modification project environmental assessment. The predicted noise levels at Mt Arthur Coal for model year 2016 are shown in Table 39.

Table 39: $L_{Aeq\ (15min)}$ and $L_{A1\ (1min)}$ attended noise monitoring results in decibels

$L_{Aeq\ (15min)}$	NP04	NP07	NP10	NP12	NP13	NP14	NP15	NP16
Representative residential assessment zone	A	C	E	G	H	D	D & F	B
Project approval noise impact assessment criteria (Intrusive criteria) ($L_{Aeq\ (15min)}$)	38	39	39	39	35	35	35	37
Peak predicted noise level for receiver zone for 2016	41	30	29	48	N/A	42	37	39
16-17 July 2014	35*	IA*	<30*	NM*	IA*	IA*	IA*	NM*
21-22 August 2014	IA*	31	IA	IA	IA*	29*	28*	29
23-24 September 2014	<30*	30*	<30*	<30*	IA*	25*	30*	<30*
22-23 October 2014	33	IA	<30	36	<20	<20	<20	33
26-27 November 2014	IA	34^	<35	NM	IA	25	IA	36
18-19 December 2014	34	<25*	<32	<30*	IA*	IA*	IA	<30
22-23 January 2015	IA	<30*	29*	IA	29*	30*	30*	29*
11-12 February 2015	IA*	33	IA*	IA*	IA	IA*	<25	IA
23-24 March 2015	IA	IA*	<20	IA*	IA*	<20*	<20*	IA*
23-24 April 2015	34	IA	36	34	IA	IA	IA*	IA
19-20, 26 May 2015	IA	33	39	IA	<25	IA	IA	37^
28-29 June 2015	IA*	34*	39*	IA*	IA*	34*	37*	39
30 June 2015 (remeasure)	-	-	-	-	-	-	IA*	32
$L_{A1\ (1min)}$	**NP04**	**NP07**	**NP10**	**NP12**	**NP13**	**NP14**	**NP15**	**NP16**
Representative residential assessment zone	A	C	E	G	H	D	D & F	B
Project approval noise impact assessment criteria ($L_{A1\ (1min)}$)	45	45	45	45	45	45	45	45
16-17 July 2014	41*	IA*	32*	NM*	IA*	IA*	IA*	NM*
21-22 August 2014	IA*	34	IA	IA	IA*	32*	31*	31
23-24 September 2014	32*	38*	30*	43*	IA*	29*	34*	33*
22-23 October 2014	35	IA	<30	38	<20	<25	25	35
26-27 November 2014	IA*	37^*	37*	NM*	IA*	27*	IA*	39*
18-19 December 2014	35	<30*	32	<30*	IA*	IA*	IA	<30

$L_{Aeq\ (15min)}$	NP04	NP07	NP10	NP12	NP13	NP14	NP15	NP16
22-23 January 2015	IA	<30*	33*	IA	33*	33*	37*	32*
11-12 February 2015	IA*	35	IA*	IA*	IA	IA*	25	IA
23-24 March 2015	IA	IA*	<25	IA*	IA*	<25*	<25*	IA*
23-24 April 2015	40	IA	31	38	Nil	Nil	Nil*	Nil
19-20, 26 May 2015	IA	36	44*	IA	25*	IA*	IA*	44^*
28-29 June 2015	IA*	45*	NM*	IA*	IA*	36*	40*	49*
30 June 2015 (remeasure)	-	-	-	-	-	-	IA*	NM

NM – Mt Arthur Coal's operations were audible but not measurable.
IA – Mt Arthur Coal's operations were inaudible.
N/A – Predicted noise levels were not applicable as monitored on land owned by Mt Arthur Coal.
* Noise emission limits do not apply due to winds greater than 3 metres per second (at a height of 10 metres), or temperature inversion conditions greater than or equal to 4 degrees Celsius per 100 metres.
^ Remeasured result

Data capture was 100 per cent at all attended noise monitoring sites, however, on three occasions noise levels from Mt Arthur Coal were audible but too low to measure.

A comparison of FY15 noise monitoring results to previous years is presented in Table 40 and Table 41. A decrease in maximum ($L_{Aeq(15\ min)}$) noise levels can be seen at NP04, NP07 an NP16 in FY15. While NP14 and NP15 show a gradual increase in maximum ($L_{Aeq(15\ min)}$) noise levels. A gradual increase in $L_{A1(1min)}$ noise levels has occurred at NP07, NP13, NP14 and NP15. While other sites have recorded fluctuating levels for . $L_{A1(1min)}$ results.

Table 40: $L_{Aeq\ (15min)}$ attended noise monitoring results in decibels in comparison to previous years

Monitoring Site	FY15 ($L_{Aeq(15\ min)}$)		FY14 ($L_{Aeq(15\ min)}$)		FY13 ($L_{Aeq(15\ min)}$)		FY12 ($L_{Aeq(15\ min)}$)	
	Min	Max	Min	Max	Min	Max	Min	Max
NP04	IA	35	IA	39*	IA	38	IA	36
NP07	IA	34^	<30	38	IA	40	IA	33
NP10	IA	39	IA	39	IA	41	IA	37
NP12	IA	36	IA	37	IA	25	IA	-
NP13	IA	29*	IA	<30	IA	25	IA	-
NP14	IA	34*	IA	27	<30^	<30^	-	-
NP15	IA	37*	IA	31	IA^	IA^	-	-
NP16	IA	37*	NM	39	IA^	IA^	-	-

* Noise emission limits do not apply due to winds greater than 3 metres per second (at a height of 10 metres), or temperature inversion conditions greater than or equal to 4 degrees Celsius per 100 metres.
^ Only one monitoring event in year
NM – Mt Arthur Coal's operations were audible but not measurable.
IA – Mt Arthur Coal's operations were inaudible.
- – Site not included in monitoring program, no data available.

Table 41: $L_{A1\ (1min)}$ attended noise monitoring results in decibels in comparison to previous years

Monitoring Site	FY15 ($L_{Aeq(1\ min)}$)		FY14 ($L_{Aeq(1\ min)}$)		FY13 ($L_{Aeq(1\ min)}$)		FY12 ($L_{Aeq(1\ min)}$)	
	Min	Max	Min	Max	Min	Max	Min	Max
NP04	IA	41*	IA	44	IA	43	IA	37
NP07	IA	45*	34	44	IA	42	IA	37
NP10	IA	44*	IA	45	IA	43	IA	34
NP12	IA	43*	IA	43	IA	40	IA	IA
NP13	IA	33*	IA	31	IA	26	-	-
NP14	IA	36*	IA	33	30^	30^	-	-
NP15	IA	37*	IA	33	IA^	IA^	-	-
NP16	IA	39*	NM	42	IA^	IA^	-	-

* Noise emission limits do not apply due to winds greater than 3 metres per second (at a height of 10 metres), or temperature inversion conditions greater than or equal to 4 degrees Celsius per 100 metres.
^ Only one monitoring event in year
IA – Mt Arthur Coal's operations were inaudible.
- – Site not included in monitoring program, no data available.

Low frequency assessment was carried out in accordance with the NSW Industrial Noise Policy (INP) and Broner methods, as prescribed in the modification project approval. In order to reflect the additional impact of low frequency noise, the INP requires that a 5dB modifying factor be added to the total A-weighted average noise energy level over a 15 minute period ($L_{Aeq\ (15\ min)}$) generated by Mt Arthur Coal when the total C-weighted average noise energy level over a 15 minute period ($L_{Ceq\ (15\ min)}$) minus total $L_{Aeq\ (15\ min)}$ is greater than 15 decibels (dB).

The application of the modifying factor resulted in four exceedances of the modification project approval $L_{Aeq\ (15\ min)}$ Impact Assessment Criteria where Mt Arthur Coal was audible and meteorological conditions were suitable as detailed in the modification project approval. These results are presented in Table 42. They are not considered to be representative of low frequency noise from Mt Arthur Coal as the INP method is intended to address low frequency noise from sources over a short distance. The method also does not accurately assess low frequency noise from a source when there are other audible low frequency noise sources in the area. There were no instances during measurements undertaken that weather conditions were suitable for monitoring, and Mt Arthur Coal was the only low frequency noise source in the area.

Table 42: Low frequency noise monitoring exceedance results in decibels

Monitoring Location	Date	Impact Assessment Criteria	Mt Arthur Coal Only $L_{Aeq\ (15\ min)}$	$L_{Aeq\ (15\ min)}$ with Low Frequency Penalty Applied	Details
NP12	23 October 2014	39	36	41	Other noise sources included road traffic engine noise, other mine continuum and road traffic tyre noise.
NP16	23 October 2014	37	33	38	Other noise sources included engine continuum and track noise from another mine, and dogs.
NP10	24 April 2015	39	36	41	Other audible noise sources included road traffic engine and exhaust noise.
NP16	26 May 2015	37	38	43	Other audible noise sources included noise from sewage treatment plant, continuum from another mine, train noise and road traffic tyre noise. Mine noise from another mine was also audible.

Noise-related Community Complaints

During the reporting period, 38 per cent of the total complaints received related to noise, as shown in Table 43, along with a comparison to previous financial years. Of the noise complaints received in FY15 40 (89 per cent) were related to machinery and low frequency noise at a single location, in comparison to 125 (86 per cent) in FY14 and 118 (84 per cent) in FY13. Two of the noise complaints received in the reporting period related to train noise. One noise complaint was made through a third party regulator.

Real-time noise monitoring at the time each complaint was received in FY15 showed that noise levels from Mt Arthur Coal operations at the nearest monitor to the caller were within internal benchmark monitoring levels.

Table 43: Noise complaint statistics at Mt Arthur Coal

Noise complaints	FY15	FY14	FY13	FY12
Noise complaints received	45	145*	141*	43
Noise complaints received, as a percentage of total complaints	38%	57%	60%	33%

* In FY14 125 (86%) and in FY13 118 (84%) of these noise complaints were from a single location.

3.9.3 Reportable Incidents

Mt Arthur Coal reported an attended monitoring exceedance at NP15 Wellbrook and two exceedances at NP16 Skellatar North in June 2015. On 28 June 2015 attended noise monitoring at NP15 recorded a $L_{Aeq\ (15min)}$ of 37 dB. and NP16 recorded a $L_{Aeq\ (15min)}$ of 39 dB + 5 dB low frequency adjustment, and $L_{A1\ (1min)}$ of 49 dB. As part of the investigation, the noise data was reviewed for noise source and checked against site meteorological data. In accordance with Appendix 10 of modification project approval, noise impact assessment criteria does not apply where there are temperature inversion conditions greater than 3ºC/100m, or alternatively stability class F and G. As per MAC-ENC-PRO-056 Noise Monitoring Program temperature inversions can be determined by direct measurement of the temperature differential between the WS09 (Mt Arthur Coal Industrial Area) and WS10 (Wellbrook) which have an elevation differential of approximately 100m. A review of the meteorological data showed a temperature differential greater than 4ºC/100m during the NP15 measurement and greater than 3ºC/100m during the NP16 measurement. Consequently, based on these results the noise impact assessment criteria did not apply during these measurements.

With regards to the measurement taken at NP15, Mt Arthur Coal notes that in accordance with the Industrial Noise Policy (INP), an exceedance of up to 2dB is not considered significant as the INP deems a development to be in non-compliance only when 'the monitored noise level is more than 2dB above the statutory noise limit specified in the project approval or licence condition'. This is based on the fact that 2dB is less than that change in loudness (3dB) where the difference is perceptible to the human ear.

Although the noise impact assessment criteria did not apply during these measurements, a remeasure was requested at NP15 and NP16 to ensure Mt Arthur Coal were compliant with regulatory criteria. A remeasure was undertaken on Tuesday 30 June 2015. The results of the remeasure were below the noise impact assessment criteria.

Mt Arthur Coal did not receive any government fines or penalties related to noise during the reporting period.

3.9.4 Further Improvements

Mt Arthur Coal will continue to manage noise in accordance with the Noise Management Plan and project approval and other licence conditions.

3.10 Visual Amenity and Lighting

3.10.1 Environmental Management

Visual amenity and lighting management at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-PRO-071 Visual Assessment Procedure;
- MAC-PRD-PRO-073 Procedure for Lighting Plant Movement and Setup; and
- MAC-ENC-PRO-077 Light Management Procedure.

Mt Arthur Coal's visual assessment procedure aims to monitor the growth and development of the operation's overburden emplacement areas and maintain compliance against modelled predictions in the consolidation environmental assessment. The procedure involves taking photographs from six locations along public roads surrounding Mt Arthur Coal on a quarterly basis for comparison against modelled predictions in the consolidation environmental assessment. The modification project environmental assessment has not yet been incorporated into this process as visual simulations constructed for this environmental assessment were for the year 2026.

Mt Arthur Coal's light management procedure aims to mitigate, control and reduce the impact of lighting on the surrounding area. The procedure is used in conjunction with the procedure for lighting plant movement and setup, which stipulates where lights can be directed within operational areas to minimise the impact on sensitive locations including South Muswellbrook, Racecourse Road, Roxburgh Road, Thomas Mitchell Drive, Denman Road and Edderton Road. Mt Arthur Coal undertakes nightly inspections of the mine site from offsite locations in order to identify and address any potential offending lights at the start of each shift.

Mt Arthur Coal's mine plan is regularly reviewed by operational supervisors and mining engineers to implement measures to reduce the visibility of the operation off site, including designing overburden dumps to create visual bunds and planning day and night dumps to keep lighting impacts to a minimum. Regular inspections of lighting plants and their setup are conducted to ensure potential off site impacts are minimised. Risk assessments for new or modified mining activities also include a review or modelling of visual amenity where applicable.

In accordance with the modification project approval, the Visual Impacts Management Report was revised and provided to the DP&E as a staged submission in the reporting period. The report was revised to reflect changes to the mine landform associated with the modification project. The final report will be submitted to the DP&E for approval in the next reporting period.

3.10.2 Environmental Performance

Landscaped areas, including earth bunds and tree screens installed along Edderton Road, Denman Road and Thomas Mitchell Drive continue to successfully screen the Mt Arthur Coal operation, although operational areas can be seen from parts of Denman Road, Roxburgh Road and elevated areas around Muswellbrook. These landscaped areas and other visual screens are inspected quarterly in accordance with the visual assessment procedure and corrective actions implemented where necessary.

The results of the quarterly inspections showed that locations to the east of Mt Arthur Coal have large areas of rehabilitated overburden dumps, which show reduced visual contrast with the surrounding region, with only a small visual impact due to active mining activities. From locations to the north and

west of Mt Arthur Coal, a large contrast between mining activity and the surrounding region is visible due to the activity on the low wall overburden dumps. Aerial seeding and hydro-mulching programs undertaken on overburden dumps have slightly reduced this contrast from previous reporting periods. For all locations the shape and size of the overburden dumps are within the predicted model shown in the consolidation environmental assessment for the modelled year 2016.

During the reporting period an assessment of the visual bund along Denman Road was undertaken with a consultant to investigate options to improve visual amenity. The preferred option identified was to undertake additional earthworks along the bund to lower the gradient of the northern slope to enable vegetation to be established more effectively with selective tree planting in designated areas. Mt Arthur Coal will engage with DRE and DP&E for feedback in the next reporting period following completion of the final designs.

Mt Arthur Coal continued to operate fifteen mobile light-emitting diode (LED) lighting plants on site during the reporting period, to reduce lighting impacts on the environment and the community. These lighting systems use high-powered, long-lasting LED lights that reduce the amount of glare and light spillage, effectively minimising the amount of potential light visible off site. The plants are more energy efficient in comparison to the older system, reducing fuel consumption and greenhouse gas emissions by 50 per cent. Mt Arthur Coal ran a trial into the feasibility of fitting additional LED lighting to excavator units, with the intent of removing the requirements for a mobile lighting plant. A trial and feasibility study regarding the conversion of all lighting plants to LED was also undertaken. These trials have not yet been successful in producing an economically viable option. Mt Arthur Coal are continuing to assess the economic feasibility of the lights and options for potential deployment on site.

A trial of hydromulch containing a dye product on exposed overburden commenced during the reporting period over an area of approximately 20 hectares. This product is being trialled in an effort to improve visual amenity from offsite and reduce dust from areas of exposed overburden dumps that are accessible by light vehicle for the hydromulch product to be applied. While the application of hydromulch to large areas of exposed overburden is not feasible, it is expected that hydromulch will provide instant stabilisation of areas of overburden dumps due to the application of seed with a binding agent and immediately improved visual amenity due to the green dye in the product. Initial trials, however, found that the hydromulch dye would fade in a short amount of time, limiting the effectiveness on improving visual amenity. Nonetheless, hydromulch is expected to be more suitable than aerial seeding for the stabilisation of exposed overburden during periods of low rainfall. The initial trials indicate that germination rates from both hydromulch and aerial seeding areas are similar. However, a more objective comparison utilising the monitoring program developed for aerial seeding will commence, as a part of the trial, in the next reporting period.

Lighting-related Community Complaints

Lighting complaints accounted for 21 per cent of the total complaints received during the reporting period, as shown in Table 44, along with a comparison to previous financial years. These lighting complaints were received from residents on Roxburgh Road (16 complaints), Skelletar Stock Route (six complaints) and Denman Road (two complaints). None of the lighting complaints in FY15 were made through third parties such as the EPA and the DP&E.

In cases where complaints were received at night, immediate action was taken to locate the offending light and, where possible, either redirect or relocate it to address the caller’s concern.

During the reporting period there was an increase in the number of lighting complaints compared with previous years. This is likely due to the increase is operations located in the north of the mine site.

Table 44: Lighting complaint statistics at Mt Arthur Coal

Lighting complaints	FY15	FY14	FY13	FY12	FY11
Lighting complaints received	24	30	9	16	2
Lighting complaints received, as a percentage of total complaints	21%	12%	4%	12%	3%

3.10.3 Reportable Incidents

Mt Arthur Coal did not receive any government fines or penalties related to lighting or visual amenity during the reporting period and there were no related reportable incidents.

3.10.4 Further Improvements

In accordance with the requirements of the modification project approval the following will be implemented following DP&E approval of the Visual Impacts Management Report:

- Owners of significantly affected residences or significantly affected areas on privately-owned land subject to tourist and/or general public access (as identified in the report) will be notified of their entitlement to additional mitigation measures to reduce the visibility of the mine from their properties.

- Upon request from significantly affected owners a property specific visual mitigation plan will be prepared in consultation with the owner outlining reasonable and feasible mitigation measures to be implemented.

Improvement works on the Denman Road visual bund as discussed in Section 3.10.2 will be carried out in the next reporting period.

Opportunities for tree screening along sections of the Edderton Road boundary to improve visual amenity will be assessed and planned in the next reporting period. Subsequent works will then be carried out in accordance with this plan.

Trials of hydromulch on exposed overburden emplacement areas will continue in the next reporting period with the aim to improve both dust control and visual amenity.

Lighting from Mt Arthur Coal will also continue to be implemented in accordance with the EMS and managed to minimise impacts on the local community whilst maintaining the minimum level necessary for operational and safety needs. Trials and feasibility studies into improving the lighting system in operational areas will be continued in the next reporting period.

3.11 Aboriginal Cultural Heritage

3.11.1 Environmental Management

Aboriginal cultural heritage at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-MTP-042 Aboriginal Heritage Management Plan.

Mt Arthur Coal operates within an area that is rich in both Aboriginal and European cultural heritage. Through its cultural heritage program Mt Arthur Coal assesses and manages significant heritage features that occur on its land. Mt Arthur Coal has implemented a management plan that provides the framework to identify, assess, monitor, conserve and manage Aboriginal cultural heritage. The management plan assists Mt Arthur Coal to mitigate the impacts of its operations on Aboriginal cultural

heritage, comply with the requirements of the *National Parks and Wildlife Act 1974*, EP&A Act and the modification project approval and continue its active partnership with the Aboriginal community.

3.11.2 Environmental Performance

Mt Arthur Coal operates in accordance with the belief that Aboriginal cultural heritage extends beyond the preservation of artefacts and significant sites to include the continuation of cultural heritage. Examples of the continuation and celebration of Aboriginal cultural heritage at Mt Arthur Coal during the reporting period include key strategies and initiatives such as the Aboriginal Employment and Development Strategy, Reconciliation Action Plan and NSW Energy Coal Diversity Plan. During the reporting period Mt Arthur Coal also funded a Stone Knapping Workshop for the Wanaruah Local Aboriginal Land Council which was open to the Aboriginal community.

Aboriginal archaeological due diligence assessments were undertaken for minor project work in the reporting period. All assessment were undertaken in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects (DECCW 2010) and the NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects (Minerals Council 2010)."

Mt Arthur Coal maintains a database of Aboriginal Heritage Information Management System (AHIMS) registered archaeological sites. In accordance with the Aboriginal Heritage Management Plan a visual inspection was undertaken on the three AHIMS registered grinding groove sites within the Mt Arthur Coal modification project environmental assessment boundary. Results showed that all three grinding groove sites were generally in good condition and showed minimal exfoliation and minor evidence of weathering. There were no archaeological salvage programs undertaken at Mt Arthur Coal during the reporting period.

A temporary Keeping Place was established on site at Mt Arthur Coal during FY14 in consultation representatives of the local Aboriginal community. The Keeping Place stores artefacts that are collected during archaeological salvage programs and access to the collections is available to the Aboriginal community for cultural, educational and research purposes.

3.11.3 Reportable Incidents

Mt Arthur Coal did not receive any government fines or penalties related to Aboriginal cultural heritage during the reporting period and there were no related reportable incidents.

3.11.4 Further Improvements

Mt Arthur Coal will continue to work with the Aboriginal community in the management of cultural heritage including the temporary Keeping Place and interpretative display.

3.12 European Cultural Heritage

3.12.1 Environmental Management

European cultural heritage at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-MTP-046 European Heritage Management Plan;
- MAC-ENC-MTP-048 Edinglassie and Rous Lench Conservation Management Plan - Volume 1;
- MAC-ENC-MTP-049 Edinglassie and Rous Lench Conservation Management Plan - Volume 2; and
- MAC-ENC-PRG-004 Edinglassie and Rous Lench Heritage Management Program.

As previously discussed, Mt Arthur Coal operates within an area that is rich in both Aboriginal and European cultural heritage. Through its cultural heritage program Mt Arthur Coal assesses and manages significant heritage features that occur on its land. Mt Arthur Coal has implemented several management plans that provide the framework to identify, assess, monitor, conserve and manage European cultural heritage. The two State-significant historic heritage items with possible impacts from the Mt Arthur Coal operation are the Edinglassie and Rous Lench homesteads.

The European heritage management plan assists Mt Arthur Coal to coordinate and manage the European heritage items affected or potentially affected by its operations, comply with the requirements of the *Heritage Act 1977* and the consolidation project approval and mitigate impacts of its operations on European cultural heritage.

3.12.2 Environmental Performance

In total Mt Arthur Coal owns and manages five heritage-listed homesteads as follows:

- Edinglassie Homestead (state significance);
- Rous Lench Homestead (state significance);
- Edderton Homestead Complex (local significance);
- Belmont Homestead Complex (local significance); and
- Balmoral Homestead (local significance).

During the reporting period, Mt Arthur Coal inspected all of its historic homesteads and related buildings located on freehold land to ensure properties were maintained to an acceptable standard. Maintenance measures included pest control, wastewater management, lawn and garden maintenance, drainage improvement and minor structural repairs. Three of the five heritage-listed homesteads continue to be tenanted as part of the strategy to preserve their condition and ensure security and ongoing maintenance of these valued structures.

3.12.3 Reportable Incidents

Mt Arthur Coal did not receive any government fines or penalties related to European cultural heritage during the reporting period and there were no related reportable incidents.

3.12.4 Further Improvements

All heritage structures are planned to remain in situ during the next reporting period with no impacts predicted from the current mine plan. Inspections and maintenance measures will continue to be implemented during the next reporting period to conserve all historic homesteads and related buildings owned by Mt Arthur Coal.

3.13 Spontaneous Combustion

3.13.1 Environmental Management

Spontaneous combustion at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-PRG-002 Spontaneous Combustion Control Program.

Mt Arthur Coal has implemented a spontaneous combustion control program to prevent, monitor, control and report outbreaks of spontaneous combustion. Mt Arthur Coal inspects the former Bayswater No. 2 and Drayton sublease areas, as well as any reported spontaneous combustion outbreaks in active mining areas, each month to monitor elements such as surface cracking, visible smoke, odour and the

location of new and existing outbreaks. A monthly summary report is produced with a calculation of the total area affected and a plan showing the areas of spontaneous combustion.

Spontaneous combustion at Mt Arthur Coal is predominantly confined to old mining areas at Bayswater No. 2 and the Drayton sublease area. This is a result of the higher levels of carbon and sulphuric material in the coal seams mined in these Greta measures in comparison to those mined in current active mining areas. During the reporting period mine plans were developed to conduct the treatment required to manage spontaneous combustion outbreaks.

Mt Arthur Coal, in conjunction with Anglo American Drayton Coal mine, organised a joint thermal imagery scan flight over affected areas of the two operations. The flight was scheduled to be undertaken in June 2015, however was delayed during the month due to dense morning fog, cloud cover, strong winds and rainfall that would have impeded the pre-dawn flight and thermal imagery results. The flight is rescheduled for July 2015 and results from the scan flight will be presented in the FY16 AEMR.

3.13.2 Environmental Performance

During the reporting period there was a 13 per cent decrease in the overall amount of area affected by spontaneous combustion. This is an improvement on FY14 when the overall area affected by spontaneous combustion increased by nine per cent. The FY15 decrease occurred primarily due to excavation and loading out of affected material undertaken in November and December 2014 near the red rock quarry area and capping works undertaken in May and June 2015 throughout the former Bayswater No. 2 and Drayton sublease areas. In addition 88 m^2 was considered to be naturally extinguished during the reporting period.

Following the FY14 AEMR review, a spontaneous combustion action plan was prepared by Mt Arthur Coal in January 2015 to address the current areas of spontaneous combustion. This action plan identified all readily accessible areas of spontaneous combustion, availability of suitable capping material and resourcing requirements for the management works. The plan also identified priority areas for management based on the above factors.

In accordance with the action plan, capping of spontaneous combustion outbreaks in the Bayswater No. 2 and Drayton sublease areas was scheduled for completion in May and June 2015. During these months approximately 276 m² of land was treated for spontaneous combustion however the schedule was impacted by significant rainfall events during this time. As a result, the remaining capping works were rescheduled for completion by 31 July 2015 in consultation with the DP&E and will be discussed in the FY16 AEMR. As part of the action plan, Mt Arthur Coal also plans to cease excavating blast hole stemming and road base material used for dust suppression from the red rock quarry area in July 2015. This is expected to reduce the number of new areas of spontaneous combustion outbreaks.

A summary of the spontaneous combustion recorded for the period is presented in Table 45 and Figure 15. A plan showing the location of remaining spontaneous combustion areas at the start of the reporting period is shown in Figure 16. The location of remaining spontaneous combustion areas on site at the end of the reporting period is provided in Figure 17.

Similar to previous reporting periods, monitoring during the period revealed a low spontaneous combustion hazard around the site. All areas affected by spontaneous combustion during the monitoring period were classified as minor intensity and evident in the form of occasional steam or smoke, posing a low risk to both employees and the environment, with the exception of the following two areas:

- An area of 639 m^2 in CCL744, which was detected in June 2014 during the previous reporting period and classified as moderate intensity due to the size of the area affected. Treatment works were unable to be undertaken in this area due to access issues; and
- An area identified in Calool Pit in November 2014 was classified as major intensity due to low open flames being observed in the small outbreak area. Treatment works were unable to be

undertaken due to access issues, however the low flames were no longer evident by January 2015 with only minimal smoke present, so this area was reclassified to low intensity.

Table 45: Summary of spontaneous combustion at Mt Arthur Coal in FY15

Month Year	Area affected at start of month m^2	Area naturally extinguished m^2	Area treated m^2	New or recurring areas m^2	Area affected at end of month m^2
July 2014	2,787	0	55	38	2,770
August 2014	2,770	0	0	185	2,955
September 2014	2,955	0	0	18	2,973
October 2014	2,973	0	0	1	2,974
November 2014	2,974	0	19	17	2,972
December 2014	2,972	88	430	37	2,491
January 2015	2,491	0	0	4	2,495
February 2015	2,495	0	0	45	2,540
March 2015	2,540	0	0	28	2,568
April 2015	2,568	0	0	16	2,584
May 2015	2,584	0	10	91	2,665
June 2015	2,665	0	266	39	2,438
Total	**2,787**	**88**	**780**	**519**	**2,438**

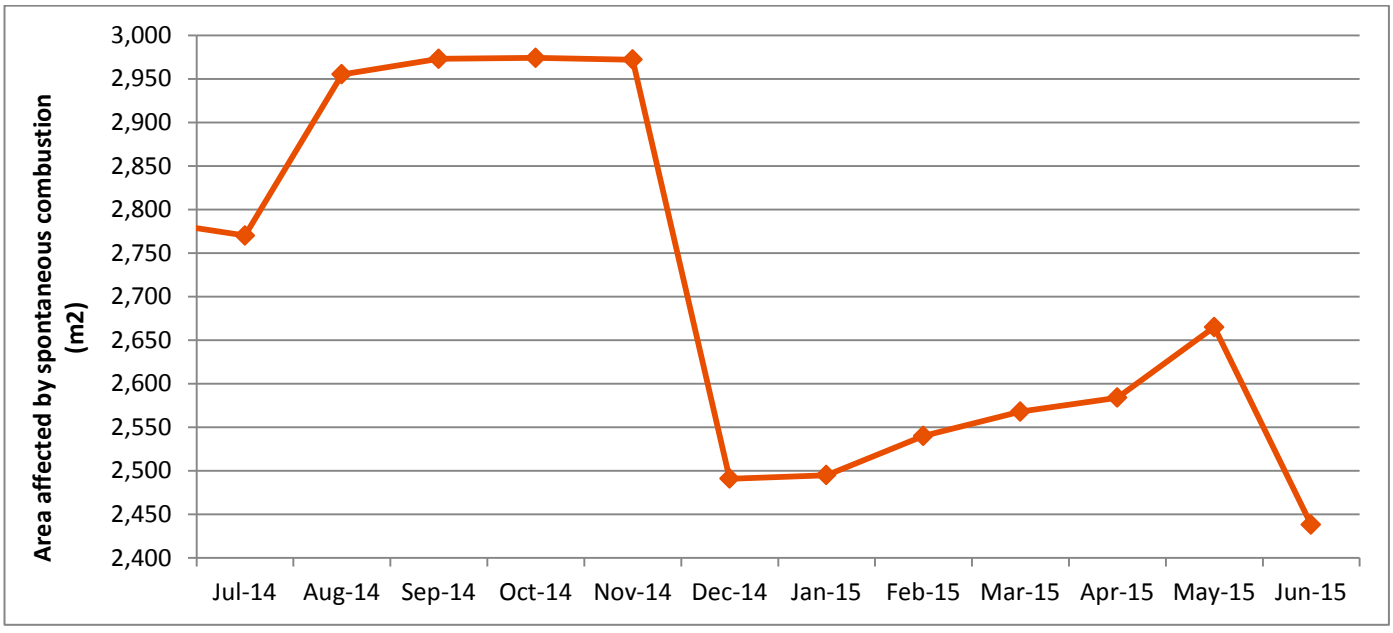


Figure 15: Area affected by spontaneous combustion at Mt Arthur Coal over past 12 months

Spontaneous Combustion-related Community Complaints

During the reporting period Mt Arthur Coal received five complaints regarding odour from spontaneous combustion. These complaints were received on Saturday 4 April (one complaint made directly to Mt Arthur Coal, the other through a third party regulator), Thursday 7 May and Saturday 23 May (one complaint made directly to Mt Arthur Coal, the other through a third party regulator). Four of the five complaints were made by the same caller who is located in Scone.

Complaints regarding odour or smoke from spontaneous combustion accounted for six per cent of the total complaints received during the reporting period, as shown in Table 46. No spontaneous combustion-related complaints were received in FY14 and three were received in FY13, two relating to odour and one to smoke.

Table 46: Spontaneous combustion complaint statistics at Mt Arthur Coal

Spontaneous combustion complaints	FY15	FY14	FY13	FY12	FY11
Spontaneous combustion complaints received	5	0	3	1	0
Spontaneous combustion complaints received, as a percentage of total complaints	4%	0%	1%	1%	0%

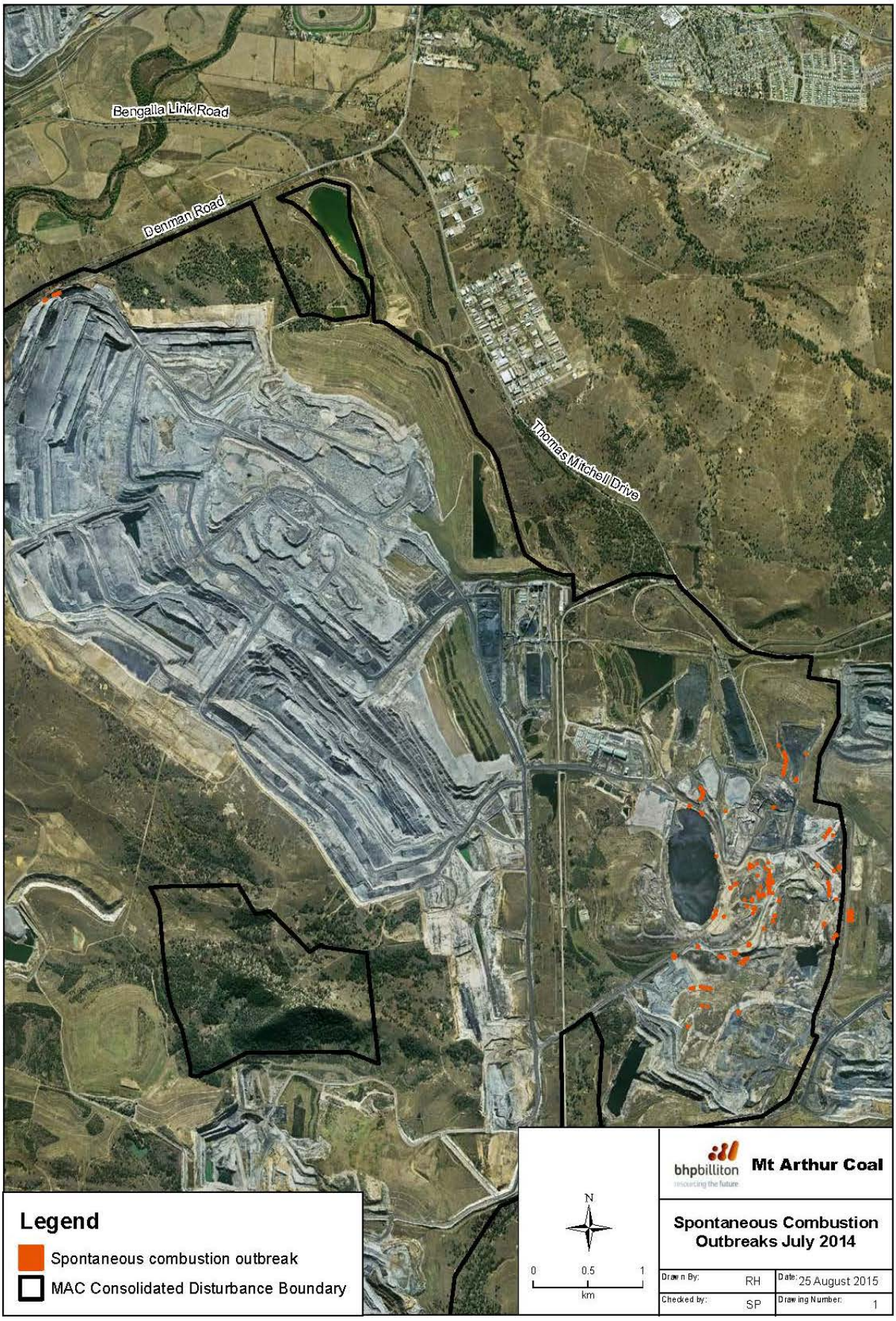


Figure 16: Locations of spontaneous combustion at Mt Arthur Coal at start of reporting period

Figure 17: Locations of spontaneous combustion at Mt Arthur Coal at end of reporting period

3.13.3 Reportable Incidents

On Tuesday 23 June 2015 smoke and odour from naturally occurring spontaneous combustion left the Mt Arthur Coal premise boundary. The spontaneous combustion was located on the Windmill Pit endwall approximately 300 meters from Denman Road. Equipment was mobilised to the site immediately after Mt Arthur Coal became aware of the incident for the purpose of conducting capping work in remediation. Mt Arthur Coal did not classify the incident as a pollution incident under the POEO Act as it was not considered to cause or threaten material harm to the environment. However, in accordance with the POEO Act, Mt Arthur Coal immediately initiated the site's PIRMP and notified several authorities as a courtesy to inform them of the situation. No complaints were received by Mt Arthur Coal in relation to the incident.

Mt Arthur Coal did not receive any government fines or penalties related to spontaneous combustion during the reporting period.

3.13.4 Further Improvements

As committed to the DP&E, Mt Arthur Coal will continue to cap readily accessible areas of spontaneous combustion in the former Bayswater No. 2 and Drayton sublease areas during the next reporting period, with the majority of capping works planned to occur in July 2015.

Mt Arthur Coal will also revise the Spontaneous Combustion Control Program in during the next reporting period to address prioritisation of capping works when spontaneous combustion is located in proximity to the operation's boundary.

In accordance with the approved mine operations plan, overburden material will continue to be emplaced over current emplacement areas at Bayswater No. 2. This will be carried out in alignment with the design of the extension of the existing tailings storage facility, which is planned to encompass most of this area, and will ultimately treat a significant portion of identified spontaneous combustion areas.

3.14 Bushfire

3.14.1 Environmental Management

Bushfire at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-PRO-076 Bushfire Prevention Procedure; and
- MAC-STE-PRO-010 Emergency Procedure – Bushfires.

The above procedures document fire prevention and control measures to reduce the risk of bushfire ignition on Mt Arthur Coal owned land and to protect the operations from bushfire.

3.14.2 Environmental Performance

During the reporting period there were four minor grassfires at Mt Arthur Coal. The first grassfire was approximately 10 hectares and occurred on 31 October 2014 near the MacDonalds fill point, adjacent to older rehabilitation in the southwest of the site. The other three grassfires were minor, less than one hectare in size and occurred on 3 December 2014 closer to the site offices, near the Mt Arthur Coal rail loop and on 15 March 2015 on CD1 rehabilitation. All grassfires were responded to immediately by Mt Arthur Coal's emergency response team. The Edinglassie Rural Fire Brigade attended the larger grassfire on 31 October 2014.

Specific prevention and fire suppression control measures are implemented in order to protect remnant vegetation communities as well as Mt Arthur Coal infrastructure. Preventative measures include fuel load

assessment and reduction programs, the establishment and maintenance of fire breaks and the prevention of ignition sources. Fire suppression and control is achieved through on-site fire-fighting equipment, including a rescue truck and water carts, facilitated by a network of roads and vehicle access trails, which provide access to all areas of Mt Arthur Coal owned land. Mt Arthur Coal also maintained a trained emergency response team on each shift, and fire extinguishers are fitted in vehicles and buildings.

Mt Arthur Coal liaised with the NSW Rural Fire Service regarding bushfire management at the Thomas Mitchell Drive Offsite Offset Area over the summer period. On 23 December 2014 the NSW Rural Fire Service provided Mt Arthur Coal with recommendations to ensure adequate fire protection for neighbouring properties. In accordance with this advice, on 15 January 2015 Mt Arthur Coal implemented a short-term fire hazard reduction program via cattle grazing on a portion of the Thomas Mitchell Drive Offsite Offset Area. Mt Arthur Coal advised the DP&E and the DoE of this program, which was conducted consistent with the principles outlined in the Biodiversity Management Plan.

3.14.3 Reportable Incidents

Mt Arthur Coal did not receive any government fines or penalties related to bushfire during the reporting period and there were no related reportable incidents.

3.14.4 Further Improvements

During the next reporting period Mt Arthur Coal will continue to manage bushfire risk in accordance with relevant procedures.

3.15 Greenhouse Gas and Energy

3.15.1 Environmental Management

Greenhouse gas and energy at Mt Arthur Coal are managed in accordance with the:

- MAC-ENC-MTP-040 Air Quality and Greenhouse Gas Management Plan.

Mt Arthur Coal maintains an active greenhouse gas and energy efficiency management program to effectively measure and minimise greenhouse gas emissions whilst providing a platform to meet future legislative requirements. Mt Arthur Coal undertakes regular reviews and monitoring of greenhouse gas emissions and energy efficiency initiatives to ensure that greenhouse gas emissions per tonne of product coal are kept to the minimum practicable level.

Mt Arthur Coal has been working towards technological solutions to reduce greenhouse gas emissions and increase energy efficiency. Regular monitoring of fuel, electricity consumption and fugitive gas emissions is an important aspect of greenhouse gas and energy abatement and enables progressive assessment and prioritisation of actions to support operational growth and change. During the reporting period Mt Arthur Coal continued greenhouse gas and energy consumption monitoring with the use of a centralised database to assist with monthly tracking and reporting of key emission sources.

A key focus during the reporting period was to ensure the operation complied with the regulations under the *National Greenhouse and Energy Reporting* (NGER) *Act 2007*. The NGER Act provides a single national framework for reporting and disseminating information related to greenhouse gas emissions, greenhouse gas projects, energy consumption and energy production of corporations. Mt Arthur Coal's data capture and reporting strategy assists in ensuring that all Scope 1 and Scope 2 emission sources defined in the regulation are monitored using a consistent approach.

3.15.2 Environmental Performance

During the previous reporting period Mt Arthur Coal undertook substantial work to improve the measurement of open cut coal fugitive emissions reportable under the NGER legislation, using the higher order NGER Method 2. The higher order method was used during this reporting period.

Scope 1 emissions, as defined by NGER legislation, accounted for approximately 83 per cent, while Scope 2 emissions, resulting from the use of electricity purchased from the grid, accounted for the remaining 17 per cent of all greenhouse gas emissions from Mt Arthur Coal, as displayed in Figure 18.

The contribution of open cut coal fugitive emissions to total scope 1 emissions increased from 4.5 per cent in FY14 to 8.5 per cent in FY15. This increase is the result of the pit moving into to a zone that contains higher greenhouse gas content. Subsequently, open cut coal fugitive emissions are expected to remain at a higher level in the next reporting period.

Approximately 90 per cent of Scope 1 emissions resulted from diesel combustion. This is a reduction compared to FY14 where 95 per cent of Scope 1 emissions resulted from diesel combustion. This decrease was achieved despite production levels being maintained in this FY15 primarily due to a reduction in overburden waste mined and improvements in fuel efficiency.

Emissions from combusted petroleum based oils (PBOs) and from the onsite wastewater treatment plant made up the remaining Scope 1 emissions for the reporting period, as displayed in Figure 18. Over all there was a reduction in total volume of emissions largely as a result of lower diesel usage.

During the reporting period approximately 93 per cent of energy consumed at Mt Arthur Coal was attributed to diesel use in mobile and stationary equipment and in explosives, while electricity consumption from the grid accounted for approximately six per cent. Energy consumed from non-combusted PBOs and grease, combusted PBOs and self-generated electricity accounted for the remaining energy consumed for the reporting period, as displayed in Figure 18.

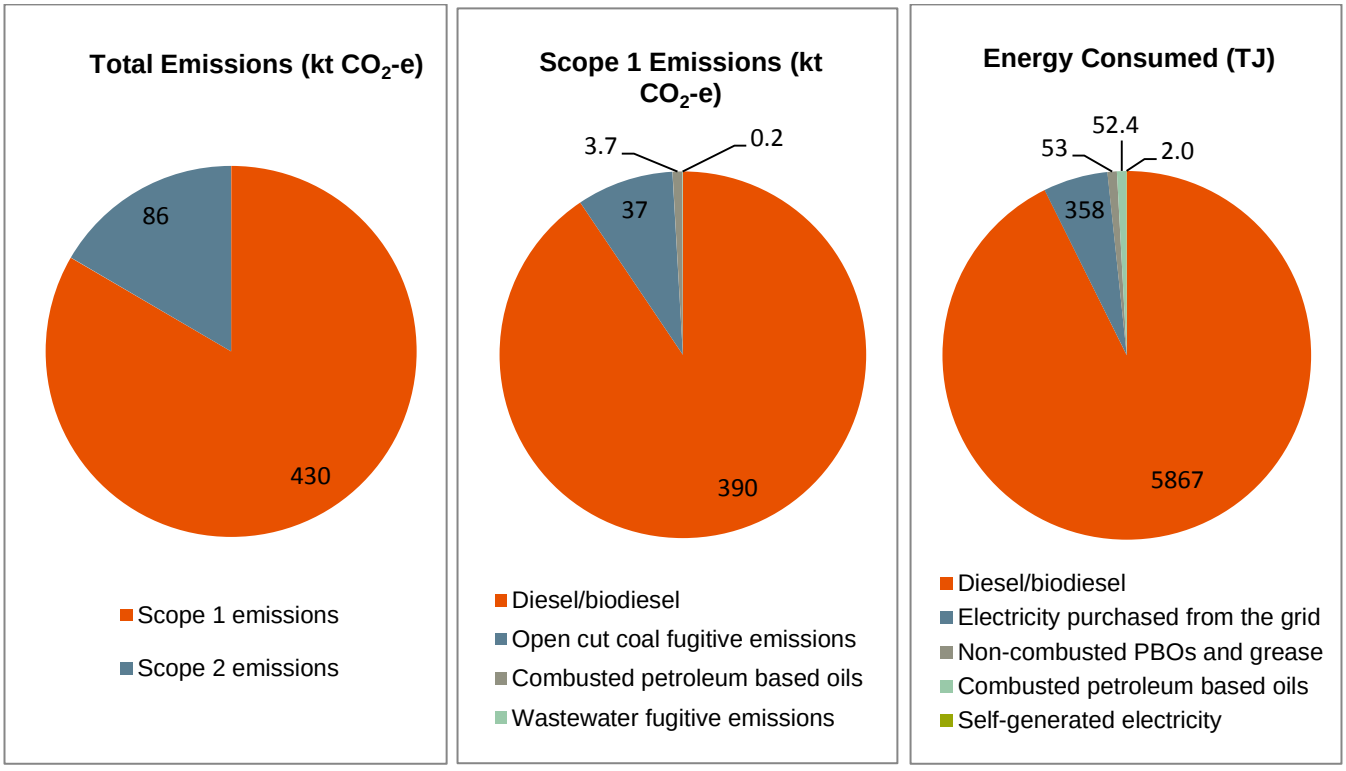


Figure 18: Composition of Mt Arthur Coal emissions and energy consumption during the reporting period

Mt Arthur Coal continued to utilise the 'super bridge' in the active mining area to reduce haulage distances in the pit, which in turn reduced diesel usage. During the reporting period this project contributed approximately 15 kt CO_2-e of greenhouse gas emissions abatement at Mt Arthur Coal's operation. Productivity improvements focused on decreasing diesel usage per tonne of coal produced delivered approximately 12 kt CO_2-e of greenhouse gas emissions abatement.

Other greenhouse gas and energy efficiency projects implemented during the reporting period include the replacement of suitable building lights with more energy efficient alternatives and continued lighting upgrades on fixed and mobile lighting plants.

3.15.3 Reportable Incidents

Mt Arthur Coal did not receive any government fines or penalties related to greenhouse gas or energy during the reporting period and there were no related reportable incidents.

3.15.4 Further Improvements

Mt Arthur Coal will continue to investigate and, where feasible, implement projects to mitigate, substitute, reduce or eliminate energy consumption and greenhouse gas emissions in accordance with BHP Billiton's sustainability commitments.

3.16 Waste Management

3.16.1 Environmental Management

Waste at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-PRO-033 Waste Handling and Disposal.

Mt Arthur Coal's waste management system has been designed to meet both legislative and BHP Billiton requirements that seek to minimise the generation of waste and maximise reuse and recycling. This system consolidates the disposal, tracking and reporting of all waste generated on site.

To ensure the waste management system is working effectively and remains appropriate for the changing needs of the operation, regular inspection and monitoring is conducted. During the reporting period Mt Arthur Coal's waste contractor conducted weekly site inspections of all areas where wastes were being generated and stored.

3.16.2 Environmental Performance

There has been a large improvement to waste management on site during FY15 such as the installation of new bins, rollout of training to site personnel, installation of signage and review of the waste management system to improve bin placement.

During the reporting period Mt Arthur Coal's activities generated approximately 3,831 tonnes of waste sent off site for management, which was approximately a 17 per cent decrease on the previous financial year's result of 4,593 tonnes,. Approximately 75 per cent of the total waste produced and sent off site for management was recycled, as shown in Figure 19. This is a lower recyclable component compared with results from FY14 (78 per cent) and is due to a change in waste management practices on site to first elect for reuse options where available, which is not captured in the waste statistics reported. This also partially accounts for the reduction in total tonnes of waste sent off site for management.

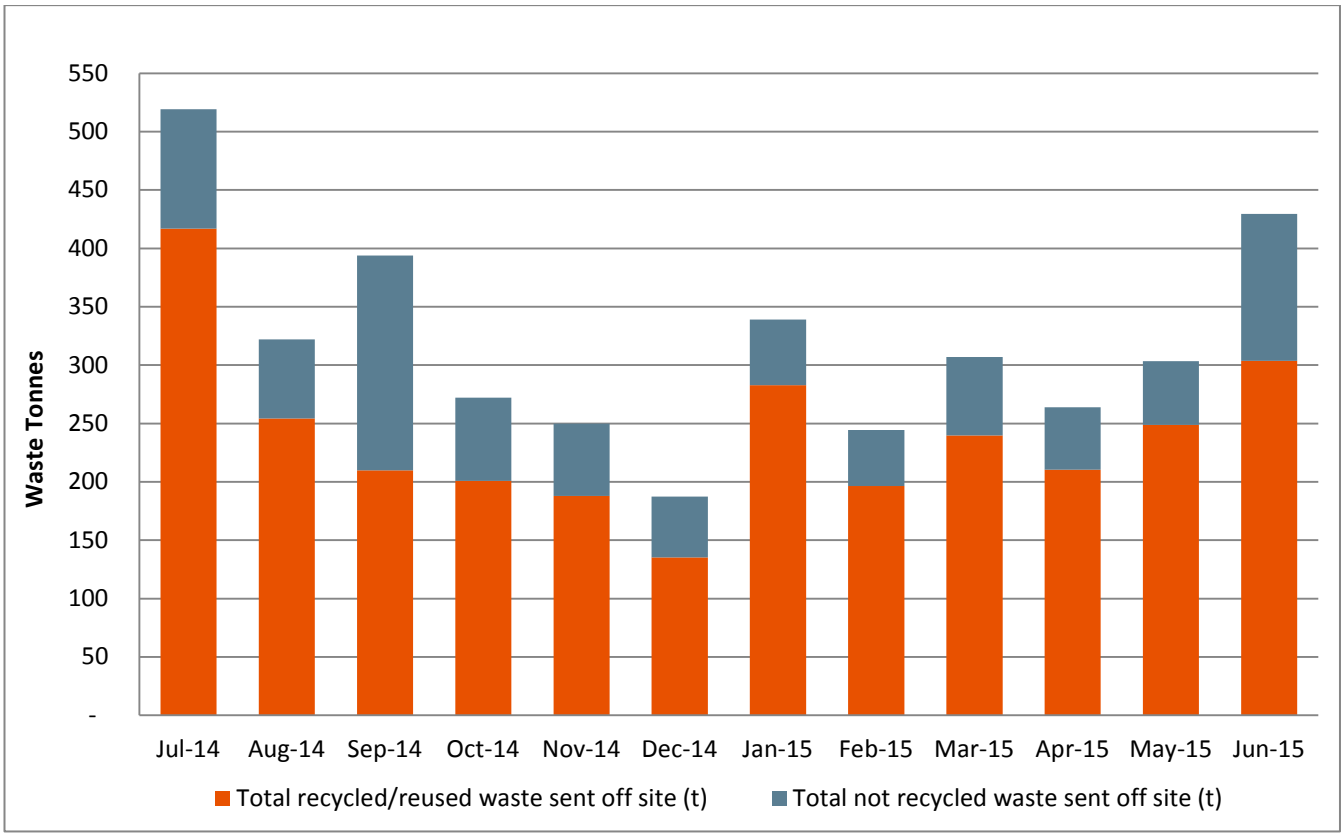


Figure 19: Waste disposal from Mt Arthur Coal

The increased focus on reuse of waste generated on site during the reporting period included the return of intermediate bulk containers to suppliers and the auctioning of items such as cyclones and used conveyor belt. There has also been a large program undertaken to dismantle and auction to recycle decommissioned trucks and excavators on site. While this has impacted on the reported recycling rate, as this reused waste material is not captured in the waste statistics presented, it is an improved environmental outcome.

During this reporting period the majority of effluent (99.6 per cent) continued to be treated onsite, rather than sent off site for treatment, with effluent generally only being sent off site for treatment if there were capacity issues with the onsite effluent treatment plant. This resulted in effluent remaining a low portion (0.4 per cent) of total waste sent off site, which is an improvement when compared to the previous reporting period.

The breakdown and largest four contributors to total waste sent off site for management are shown in Figure 20 for FY15, FY14 and FY13. The largest change has been the reduction in effluent sent off site, which has reduced from 24 per cent in FY13 to 0.4 per cent in FY15 due to the construction of an on-site treatment facility. Waste oil has remained the largest contributor to waste sent off site across all three years.

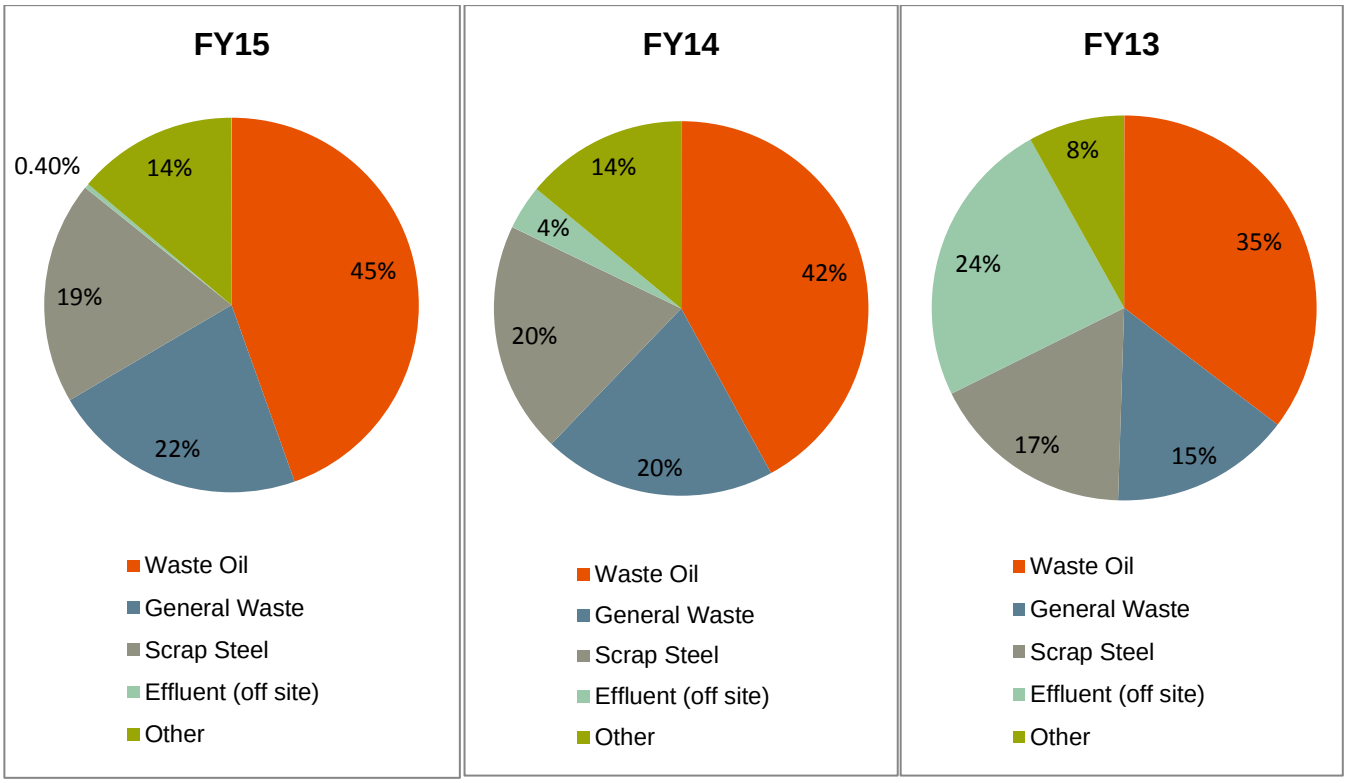


Figure 20: Breakdown of total waste sent off site for management showing largest contributors

3.16.3 Reportable Incidents

Mt Arthur Coal did not receive any government fines or penalties related to waste during the reporting period and there were no related reportable incidents.

3.16.4 Further Improvements

General awareness through toolbox talks and other site communications will continue during the next reporting period to ensure Mt Arthur Coal achieves high levels of compliance in the areas of waste segregation and tracking.

3.17 Public Safety

3.17.1 Environmental Management and Performance

During the reporting period Mt Arthur Coal maintained a security fence around much of the perimeter of its site to ensure no unauthorised access to mining areas. A number of additional boom gates were also commissioned during the reporting period to restrict unauthorised or unintentional access to the active mining and infrastructure areas.

3.17.2 Reportable Incidents

Mt Arthur Coal did not receive any government fines or penalties related to public safety during the reporting period and there were no related reportable incidents.

3.17.3 Further Improvements

Mt Arthur Coal will continue to maintain the perimeter security fence and boom gates at identified entry points to active mining and infrastructure areas during the next reporting period.

3.18 Meteorological Data

3.18.1 Environmental Management

Meteorological monitoring at Mt Arthur Coal is managed in accordance with the:

- MAC-ENC-PRO-057 Air Quality Monitoring Program.

Mt Arthur Coal's primary statutory real-time meteorological station located at the mine's industrial area (WS09) is an essential component of the operation's environmental monitoring system. At the station, wind speed, wind direction, temperature, rainfall, solar radiation and humidity data is collected at 15 minute intervals and relayed using radio telemetry.

The data allows employees at Mt Arthur Coal to assess prevailing weather conditions and modify the mine's operation where necessary to minimise impacts on the environment and community. It also plays a vital role in the pre-blast environmental assessment to minimise potential impacts on the community.

A secondary statutory real-time meteorological station, located off site to the north west of the mine at Wellbrook (WS10), also provides representative weather data for the mine site, including prevailing wind conditions, and is used in conjunction with WS09 to determine the presence and strength of temperature inversions in the local atmosphere as part of the pre-blast environmental assessment.

Both statutory meteorological stations comply with the Australian Standard 2923-1987 *Ambient Air – Guide for measurement of horizontal wind for air quality applications* and the NSW INP.

During the reporting period Mt Arthur Coal installed a meteorological station (WS11) between the northern part of the operations and Denman Road which is used for internal management purposes, in particular for blast management in this area. Mt Arthur Coal has several other meteorological stations located on land surrounding the mine site, which are used for internal management purposes only.

The locations of all of Mt Arthur Coal's meteorological monitoring stations are shown in Figure 5.

3.18.2 Environmental Performance

A summary of meteorological data recorded at WS09 and WS10 during the reporting period is provided in Table 47, along with a comparison to monitoring results from previous financial years. Monthly meteorological data from WS09 and WS10 for the reporting period is provided in Appendix 6. Meteorological data capture rates for the reporting period were 100 per cent at WS09 and WS10 with the following exceptions:

- 10 metre temperature and relative humidity data was not recorded at WS09 for a period of 114 days from 1 July to 22 October 2014 due to a broken sensor. The repair works were delayed to allow for road repair works as the access road to the meteorological station was not suitable for the transportation of the equipment required to replace the broken sensor;
- valid relative humidity data at WS10 was not recorded for a period of 42 days from 1 July to 11 August 2014 due to a faulty sensor that was required to be replaced;
- valid rainfall data at WS09 was not recorded for a period of 250 days from 1 July 2014 to 7 March 2015 due to a calculation error caused by system upgrades; and

- there was no data recorded at WS10 for a period of 3 days from 27 July to 29 July 2014 due to a power outage.

Table 47: Summary of meteorological results from WS09 and WS10

Parameter	Units	WS09				WS10	
		FY15	FY14	FY13	FY12	FY15	FY14*
Total rainfall	mm	207.4^	638.2	542.6	783.2	555.8	359.2
Maximum monthly rainfall	mm	154.0 ^ (Apr 2015)	194.0 (Nov 2013)	135.4 (Jan 2013)	162.2 (Nov 2011)	131.6 (Apr 2015)	212.2 (Nov 2013)
Minimum monthly rainfall	mm	14.0 ^ (Jun 2015)	5.0 (Aug 2013)	4.2 (Oct 2012)	10.8 (Jul 2011)	15.2 (Aug 2015)	0.0 (Mar and Apr 2014)
Maximum monthly temp.	°C	37.7 (Oct 2014)	38.2 (Dec 2013)	42.6 (Jan 2013)	34.6 (Jan 2012)	45.7 (Dec 2014)	38.7 (Jan 2014)
Minimum monthly temp.	°C	0.7 (Jun 2015)	1.0 (Jul 2013)	0.0 (Jul 2012)	0.9 (Jul 2011)	-5.5 (Aug 2014)	-2.8 (Aug 2013)

* Commissioned on 22 August 2013, hence full FY14 dataset is not available.
^ Valid rainfall data only available from 8/3/15 to 30/6/15.

Similar to previous years, wind direction at Mt Arthur Coal during the reporting period was predominantly from the south east, with the second most common winds being from the north north-west at WS09 and west north-west at WS10, as shown in Figure 21.

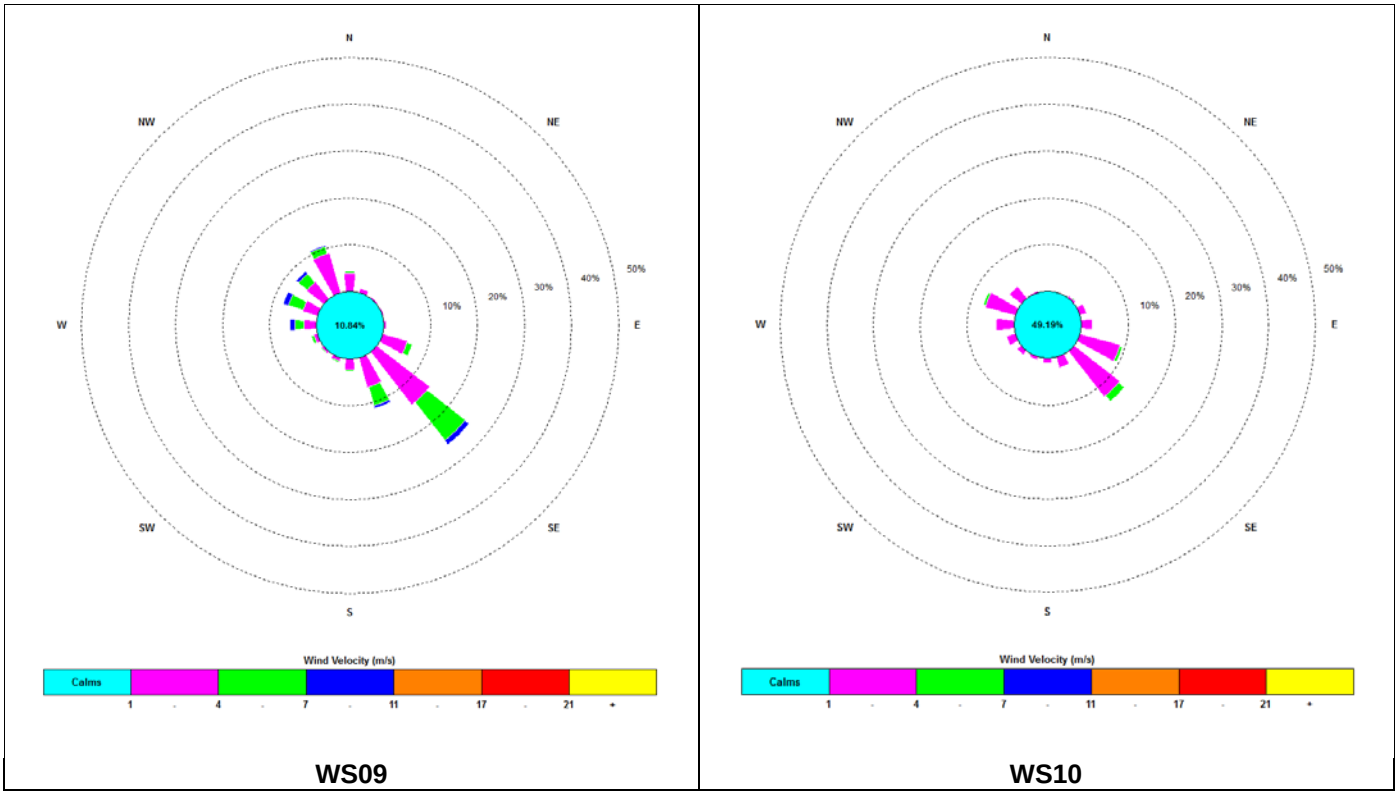


Figure 21: Mt Arthur Coal annual wind rose for FY15 from WS09 and WS10

3.18.3 Reportable Incidents

Mt Arthur Coal did not receive any government fines or penalties related to meteorological data during the reporting period and there were no related reportable incidents.

3.18.4 Further Improvements

Mt Arthur Coal will continue to record and utilise meteorological data from its two statutory monitors during the next reporting period.

4 Community Relations

Mt Arthur Coal is committed to minimising the impacts of its operations and is an active participant and contributor to sustainable development programs that benefit local people. The operation also has comprehensive community engagement and investment programs to identify and respond to evolving local community needs and issues.

As part of its EMS, Mt Arthur Coal has a procedure for receiving, investigating, responding to and reporting complaints received from the community. The operation invites feedback about its activities through a free-call 24-hour Community Response Line (1800 882 044), which is advertised in the local newspapers, in the Community Matters newsletter and at www.bhpbilliton.com.

When a complaint is received, it is investigated immediately and any necessary action is taken to address the issue. When requested, the caller is advised of the investigation outcomes and the action taken. To minimise the potential of the issue reoccurring, observations and learnings from complaint investigations are incorporated into the operation's mine planning and environmental management processes.

Complaint details are recorded in a database that is regularly reviewed by the operation to identify opportunities for further improvements. In accordance with modification project approval requirements, Mt Arthur Coal also posts a monthly complaints summary at www.bhpbilliton.com.

During the reporting period, Mt Arthur Coal received 117 complaints from community members and near neighbours. Five of these complaints were made through third parties such as the EPA and the DP&E. A comparison of complaints received during the reporting period against previous financial years is shown in Figure 22 and a complete register of complaints is presented in Appendix 7.

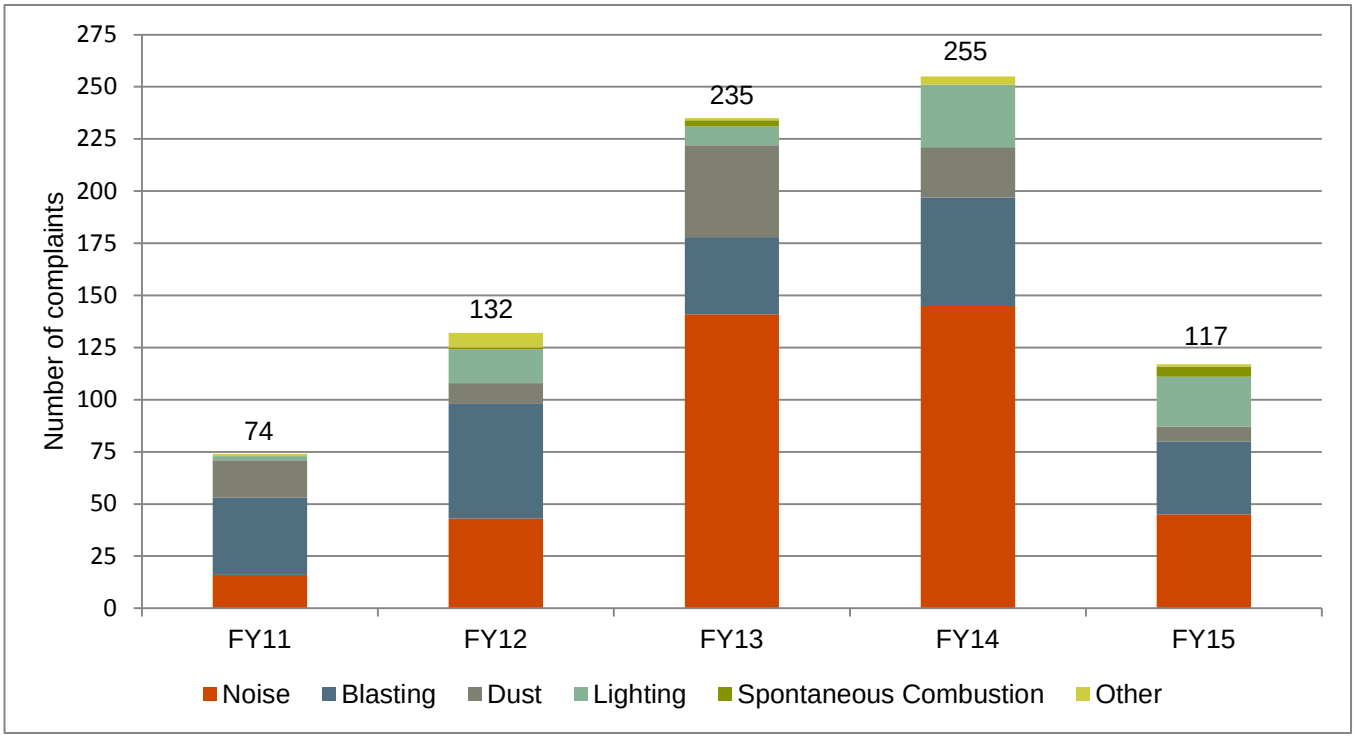


Figure 22: Comparison of complaints received during current and previous financial years

Complaints relating to dust, blasting, noise and lighting have been discussed in each of their respective Sections 3.1.2 (air quality), 3.8.2 (blasting), 3.9.2 (noise) and 3.10.2 (visual amenity and lighting) in this report.

There was one complaint in the 'other' category in FY15. The caller raised concerns about mud being tracked from the Mt Arthur Coal site onto a public road. Mt Arthur Coal had already commenced a clean-up response to the incident at the time.

4.1 Community Liaison

Mt Arthur Coal has a comprehensive community engagement program that utilises multiple engagement strategies and communication tools. The program engages stakeholders across a diverse range of sectors including near-neighbours, local residents, regional industry and mining companies, community groups, NGOs and local, state and federal governments.

Community engagement is the foundation of Mt Arthur Coal's investment planning process and allows all community stakeholders to have a voice in the way community development is understood and initiated.

4.1.1 Website and Media

Mt Arthur Coal provides the community access to information about the operation through the BHP Billiton website at www.bhpbilliton.com. Included on the website are project approval documents, blast schedules, coal transport information, Community Consultative Committee (CCC) meeting minutes and documents, community complaint records, environmental monitoring information, environmental audits, environmental management plans and AEMRs.

To inform the community about its operations, projects and community investment activities, Mt Arthur Coal also distributes regular newsletters to local residents and stakeholders and undertakes a range of media activities.

Mt Arthur Coal's free-call 24-hour Community Response Line (1800 882 044), which is advertised in local newspapers monthly and in the Company's community newsletters, continued to operate during the reporting period to allow the community to contact the operation directly to ask questions or raise concerns about the mine's activities.

4.1.2 Community Consultative Committee

During the reporting period, Mt Arthur Coal coordinated and participated in three CCC meetings as shown in Table 48.

Key items discussed during the year included:

- operational schedules, equipment and infrastructure upgrades, processing, transport and production results;
- environmental monitoring results and management plans;
- community investment and engagement activities;
- community complaints;
- receipt of Project Approval for the Mt Arthur Coal Open Cut Modification Project; and
- work undertaken by the Upper Hunter Mining Dialogue.

On 26 November 2014, Mt Arthur Coal advised CCC members that the next meeting would be deferred until early 2015 for the reasons detailed below.

Mt Arthur Coal advised that its recent modification project approval provided an opportunity for changes to the CCC structure to ensure it was aligned to current industry practice. Among the changes sought was the appointment of an Independent Chair, a process governed by the DP&E. Mt Arthur Coal had previously advised that it would be advertising expressions of interest for community representatives for its CCC, also as a result of the modification project approval.

The first meeting with the new Independent Chairperson, independent minute taker and new community representatives was held on Tuesday 9 June 2015. It was determined by majority vote that meetings would be held on a quarterly basis moving forward.

During the reporting period, Mt Arthur Coal was also involved in two Joint CCC meetings with Anglo American's Drayton Coal. These meetings allow the two operations to discuss issues surrounding rail movements, air quality and noise monitoring results relating to their joint rail spur line. The dates of these meetings are provided in Table 48.

The CCCs were operated in accordance with the former Department of Planning's *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects* and meetings were attended by local residents and representatives from both Mt Arthur Coal and MSC with the exception of the June 2015 meeting, as a result of MSC's resolution to no longer participate in CCC meetings.

All CCC meeting minutes and documents are made available on the BHP Billiton website once approved by the Chair and the committee.

Table 48: Mt Arthur Coal CCC meetings

Mt Arthur Coal CCC
6 August 2014
8 October 2014
9 June 2015 (the first meeting with new membership and Independent Chair)
Mt Arthur Coal and Drayton Coal Joint CCC
6 August 2014 (coordinated by Mt Arthur Coal)
18 June 2015 (coordinated by Drayton Coal) (delayed due to reforming of Mt Arthur Coal CCC membership)

4.1.3 Community Education

Site visits provide an opportunity for Mt Arthur Coal to educate the community and stakeholders about the scale and size of its mining operations and its environmental management. During the reporting period, Mt Arthur Coal conducted site visits by stakeholders including Mt Arthur Coal's CCC (new members and Independent Chair), MSC's Mayor and General Manager, school students, potential candidates for apprenticeships and university students.

4.1.4 Community Investment

Mt Arthur Coal aims to invest in projects that address a range of quality of life areas including:

- community involvement and community life;
- level of social disadvantage;
- population health;
- community perceptions of environmental impact;
- housing affordability;
- homelessness;
- educational attainment;

- wealth distribution;
- employment access; and
- business growth and industry diversification.

During the reporting period Mt Arthur Coal contributed significantly to the local community, both financially and in-kind. Table 49 lists the organisations, projects and events supported by Mt Arthur Coal during the reporting period.

Table 49: Community funding recipients for FY15

Organisation	Project or activity
Graham (Polly) Farmer Foundation*	Muswellbrook Partnerships for Success
Hunter Life Education*	School health education program
Muswellbrook South Public School*	Warrae Wanni Pathways to School Program
Upper Hunter Community Services Inc.*	Community Capacity Building Project
Muswellbrook Shire Council*	Community Capacity Building Project
Muswellbrook Race Club	2014 Gold Sponsors Club member
Aberdeen Highland Games	2014 Aberdeen Highland Games
Upper Hunter Wine and Food Affair	2015 Upper Hunter Wine and Food Affair
Muswellbrook and Upper Hunter Eisteddfod	2014 and 2015 Muswellbrook and Upper Hunter Eisteddfods
Hunter Tennis Academy	Muswellbrook In-School Tennis Program
Muswellbrook Chamber of Commerce and Industry Inc.	2014 business awards
2nd Muswellbrook Scouts	Management of Mt Arthur Coal marquees
Edinglassie Rural Fire Brigade	Funding to purchase technology to enhance firefighting, training and response capabilities
NSW Minerals Council	2014 Suppliers Conference
Muswellbrook Camera Club	Sponsorship of 2014 Muswellbrook Local Photographic Awards
Wanaruah Local Aboriginal Lands Council	Funding of two stone knapping workshops

* Mt Arthur Coal investment more than $50,000.

Central to Mt Arthur Coal's commitment to the local community is its Voluntary Planning Agreement (VPA) with MSC, of which $500,000 is provided annually toward the Mt Arthur Coal Community Fund. Established under the EP&A Act, the VPA contributes to public amenities and services that may be impacted by the growth in mining operations.

During the reporting period, $500,000 was contributed from the Mt Arthur Coal Community Fund towards the redevelopment of Campbell's Corner in Muswellbrook.

4.1.5 Employee Participation

Mt Arthur Coal employees are encouraged to be active members of their community and to support local organisations by volunteering their time at local community events.

Mt Arthur Coal representatives also attended a number of company-sponsored community events during the reporting period, some of which are listed in Table 50.

Table 50: Events supported and attended by Mt Arthur Coal employees in FY15

Event
Clean Up Australia Day
Muswellbrook South Public School Breakfast Club
Muswellbrook PCYC Christmas Appeal
Muswellbrook and Upper Hunter Eisteddfod
Aberdeen Highland Games
Muswellbrook Gifted And Talented Students Program
Upper Hunter Wine and Food Affair
Muswellbrook Cup Day at Muswellbrook Race Club
Muswellbrook Chamber of Commerce Business Awards and monthly breakfast meetings
Picnic in the Park, organised by Upper Hunter Community Services
Stone Knapping Workshop ran by the Wanaruah Local Aboriginal Land Council

BHP Billiton encourages employees who are active citizens in their communities by supporting causes closest to their heart through the Matched Giving Program. Whether through financial donations or giving their time, the Matched Giving Program recognises the contribution of our employees and matches their efforts. Funded by BHP Billiton Sustainable Communities, the program doubles employees' personal donations, making it one of the most generous workplace giving programs. In FY15, Mt Arthur Coal employee contributions benefited more than 47 not-for-profit organisations, such as the Westpac Rescue Helicopter Service and Muswellbrook Police Citizens Youth Club (PCYC), which received approximately $862,238 as part of the program.

5 Rehabilitation

5.1 Buildings

A Phase 2 Contamination Assessment was completed for the disused Bayswater No. 2 infrastructure area and a Remedial Action Plan was developed and approved by DP&E in May 2014. Project planning is currently underway for the dismantling and removal of structures which is expected to commence either late in the next reporting period or in FY17.

5.2 Rehabilitation of Disturbed Lands

Rehabilitation of disturbed areas is an integral and progressive feature of mining. Mt Arthur Coal manages its rehabilitation activities in accordance with good land management practices and regulatory requirements, and ensures rehabilitated areas are compatible with the surrounding landscape and selected future land uses.

Rehabilitation of land is carried out in general accordance with Mt Arthur Coal's MOP, Rehabilitation Strategy, existing BRMP and Land Management Procedure.

Rehabilitation is designed to achieve a stable final landform compatible with the surrounding environment and to meet the landform commitments presented in the MOP. This consists of bulk reshaping of overburden dumps, using large bulldozers (i.e. Caterpillar D11 or equivalent), to slopes that average 10 degrees or less, and incorporating water management infrastructure to minimise the potential for erosion.

This infrastructure consists of contour diversion drains constructed at regular intervals down rehabilitated slopes to capture and divert surface water runoff into protective drop structures. These drains and drop structures report to sediment dams, which allow for the settling of suspended solids. Design and construction of the sediment dams is consistent with the 'Blue Book' (*Managing Urban Stormwater: Soils & Construction*, Volume 1, 4th Edition, 2004 and Volume 2E Mines and Quarries, 2008). Following bulk reshaping and drainage construction, the overburden surface is subject to a final trim and deep ripping in preparation for topsoil placement.

Topsoil stripped ahead of advancing mining (as discussed in Section 2.2) was directly placed onto rehabilitation during the reporting period and as such no stockpiling of topsoil was required during the reporting period. Topsoil management at Mt Arthur Coal focuses on maintaining the quality of the topsoil resource as a rehabilitation growth medium. Activities undertaken during the reporting period included:

- Prioritising direct placement of topsoil;
- Testing topsoil to determine appropriate depths for stripping and recovery and ameliorant requirements; and
- Felling and mulching trees in situ on disturbance areas to increase organic content within the topsoil that was used directly on rehabilitation areas.

Additional measures generally undertaken when topsoil stockpiling include restricting stockpile height to generally three metres or less, consistent with the MOP, to minimise compaction and anaerobic conditions within topsoil stockpiles, locating stockpiles so as to reduce the requirement for re-handling and establishing cover crops and spraying topsoil stockpiles to manage weeds.

Topsoil was placed and spread to an approximate depth of 200 to 300 millimetres on rehabilitation areas. The newly spread topsoil surface was contour cultivated prior to sowing to provide a suitable environment that encourages water infiltration in the soil. Large rocks were removed from the ripped soil surface prior to sowing.

During the reporting period Mt Arthur Coal completed 64 hectares of rehabilitation across four sites as listed in Table 51. This is in accordance with the total rehabilitation proposed in the current MOP for FY15, which was 38 hectares. There were some minor variations in the locational distribution of rehabilitation, compared to what was proposed in the current MOP due to availability of emplacement areas to be reshaped. In addition to this Mt Arthur Coal rehabilitated an additional 26 hectares, to account for rehabilitated areas that were disturbed during the previous reporting period. No previously rehabilitated areas were disturbed during the current reporting period.

On 19 June 2015 Mt Arthur Coal requested an extension from DRE on the delivery of FY15 rehabilitation. Mt Arthur Coal had completed the shaping and contouring of the 64 hectares and topsoil placement and seeding had commenced, however three large rainfall events that occurred in April and May delayed the completion date for topsoil placement and seeding to July 2015. DRE granted Mt Arthur Coal an extension to 31 July 2015. As at 30 June 2015, Mt Arthur Coal had completed (seeded) 15.6 hectares of rehabilitation as follows and the remainder of the 64 hectares was completed (seeded) by 31 July 2015, as part of the FY15 rehabilitation target:

- 7.3 hectares on VD1;
- 3.9 hectares on Saddlers East;
- 3.4 hectares on Saddlers West; and
- 1 hectare on CD1.

Table 51: Mt Arthur Coal rehabilitation claimed for FY15

Location	FY15 MOP commitment (hectares)	FY15 rehabilitated area (hectares)
VD1	32	33
CD1	6	1
Saddlers East	0	12.2
Saddlers West	0	17.8
Total	**38**	**64***

* Includes an additional 26 hectares to account for previously rehabilitated areas that were disturbed during the previous reporting period.

The 64 hectares of rehabilitation indicated in Table 51 includes 33.1 hectares of grazing pasture rehabilitation (land capability class six) and 30.9 hectares of woodland rehabilitation. The methodology for revegetation of rehabilitated areas was selected to support the designated post-mining land use, as presented in the MOP.

All FY15 rehabilitation at Saddlers East and West was to pasture, as was small portions of VD1 (2.7 hectares) and CD1 (0.4 hectares) rehabilitation. The majority of pasture rehabilitation at Saddlers East and West was cultivated and broadcast sown with the pasture seed mix in a single pass using a tractor-mounted seeder box. Wet areas at Saddlers East and West as well as the small portions of pasture areas on VD1 and CD1 were broadcast sown by hand. The pasture seed mix used by Mt Arthur Coal during the reporting period is shown in Table 52. In addition fertiliser at a rate of 100 kilograms per hectare was added to the pasture seed mix used in FY15.

Table 52: Mt Arthur Coal pasture seed mix

Species	Seed mix (kg/ha)
Couch	10
Lucerne	3
Green Panic	3
Seaton Park Sub-clover	3

Species	Seed mix (kg/ha)
Haifa White Clover	3
Kikuyu	3
Wimmera Rye	7
Perennial Rye	7
Phalaris	5
Shirohie Millet (summer) or Oats (winter)	10
Total	**54**

The majority of VD1 and CD1 FY15 rehabilitation was to woodland rehabilitation, including 30.3 hectares at VD1 and 0.6 hectares at CD1. This woodland rehabilitation was broadcast sown by hand with a seed mix targeting the establishment of *Upper Hunter Box-Ironbark Woodland* vegetation community (which is the same community as *Central Hunter Box-Ironbark Woodland*).

The woodland seed mix consists of appropriate native tree, shrub and grass species. The seed mix also includes an exotic sterile cover crop to assist with initial slope stabilisation, as well as weed and dust control, while native vegetation establishes. Due to the wide range of seed size and weight, particularly of the native grass species, the woodland seed mix was generally broadcast sown by hand in two passes. The woodland seed mix used by Mt Arthur Coal during the reporting period for CD1 woodland rehabilitation is shown in Table 53 and is generally in accordance with the MOP. In addition fertiliser at a rate of 100 kilograms per hectare was added to the CD1 woodland seed mix.

Following CD1 FY15 rehabilitation, which was undertaken in early April 2015, the woodland seed mix and rates as specified in the MOP were varied in consultation with an independent specialist. The revised species mix, confirmed as belonging to the Box Gum Woodland vegetation community required, includes additional species to promote a more robust and resilient vegetation community as well as lower seed rates for some species considered to be too high in the MOP given the number of potential germinates for each species. This revised woodland seed mix, as shown in Table 54, was used for VD1 FY15 rehabilitation.

To limit ant predation all VD1 woodland seed was chemically treated prior to dispersal. Seed inoculant was also added to VD1 woodland seed, which comprises up to six species of both ecto and endo mycorrhiza, trichoderma, bacillus and beneficial bacteria to ensure maximum plant growth is achieved in the shortest time possible. These additions also start the soil nutrient cycling process much earlier, leading to a more robust vegetation community over time. In addition no fertiliser was used on VD1 woodland rehabilitation as experience has shown that fertiliser tends to promote invasive species rather than natives.

Table 53: Mt Arthur Coal woodland seed mix used on CD1

Species	Scientific name	Seed mix (kg/ha)
Narrow-leaved ironbark	*Eucalyptus crebra*	1.0
White box	*Eucalyptus albens*	0.8
Spotted gum	*Corymbia maculata*	0.3
River red gum	*Eucalyptus camaldulensis*	0.4
Kurrajong	*Brachychiton populneus*	0.3
Golden wattle	*Acacia pycnantha*	1.0
Barbed wire grass	*Cymbopogon refractus*	0.5
Wallaby grasses	*Austrodanthonia* species	0.5
Rough spear grass	*Austrostipa scabra*	0.5

Species	Scientific name	Seed mix (kg/ha)
Shirohie millet	-	5.0
Total	**-**	**10.3**

Table 54: Mt Arthur Coal woodland seed mix used on VD1

Species	Scientific name	Seed mix (kg/ha)
Narrow-leaved ironbark	*Eucalyptus crebra*	0.2
White box	*Eucalyptus albens*	0.3
Grey box	*Eucalyptus moluccana*	0.3
Blakely's red gum	*Eucalyptus blakelyi*	0.3
Kurrajong	*Brachychiton populneus*	0.2
Western golden wattle	*Acacia decora*	0.3
Kangaroo thorn	*Acacia paradoxa*	0.3
Hickory wattle	*Acacia implexa*	0.2
Sickle wattle	*Acacia falcata*	0.2
Sticky hop bush	*Dodonaea viscosa*	0.3
Black She-oak	*Allocasuarina littoralis*	0.2
Drooping She-oak	*Allocasuarina verticillata*	0.05
Native blackthorn	*Bursaria spinosa*	0.1
Mixed endemic grasses: Wiregrasses Wallaby grasses Rough spear grass Slender bamboo grass Red grass Scented top grass Windmill grass Barbed wire grass Queensland bluegrass Weeping grass Hairy panic Spreading panic Slender rat's tail grass Kangaroo grass	 *Aristida* species (includes *A. ramosa, A. personata, A. vagans*) *Austrodanthonia* species (includes *A. setacea, A. fulva, A. caespitosa*) *Austrostipa scabra* *Austrostipa verticillata* *Bothriochloa macra* *Capillipedium spicigerum* *Chloris truncata* *Cymbopogon refractus* *Dichanthium sericeum* *Microlaena stipoides* *Panicum effusum* *Paspalidium distans* *Sporobolus creber* *Themeda triandra*	2.0
Couch	*Cynodon dactylon*	1.0
Oats	-	5.0
Total	**-**	**10.95**

Within woodland rehabilitation areas drainage infrastructure is sown with the pasture seed mix to promote erosion control.

During the reporting period Mt Arthur Coal collected approximately 24.4 kilograms of seed from remnant native vegetation located on Mt Arthur Coal owned land in the vicinity of the operation from November 2014 to April 2015, including from the onsite and near offsite conservation and offset areas. This includes approximately 13 kilograms of seed collected from suitable tree species identified during the

Macleans stripping project undertaken in March and April 2015. A further 3.2 kilograms of seed was collected from remnant native vegetation at the Middle Deep Creek Offset Area in December 2014, February and May 2015. This seed is used in direct-seeding of rehabilitation and to develop tubestock for planting in rehabilitation and revegetation areas on the conservation and offset areas. Tubestock is the plural of young plants ready for revegetation.

Under the modification project approval, Mt Arthur Coal has committed to rehabilitate 500 hectares of White Box – Yellow Box – Blakely's Red Gum Woodland (referred to as Box Gum Woodland) to provide large areas of habitat adjacent to the conservation and offset areas and enable connectivity for fauna and flora throughout the woodland rehabilitation corridor. As part of this commitment, approximately 4,000 tubestock of Box Gum Woodland shrubs and trees were planted in the northern portion of former VD1 rehabilitation over a ten hectare area in May and June 2015. This tubestock was planted in rehabilitation undertaken in 2004, 2005 and 2006 where a lack of shrubs and trees was occurring, resulting in the rehabilitation not satisfying the definition of Box Gum Woodland. An additional 4,000 tubestock over another ten hectare area will be planted during the next reporting period, to continue to modify and enhance former VD1 rehabilitation.

In addition during the next reporting period approximately 12,000 tubestock will be planted over 30 hectares at Thomas Mitchell Drive Offsite Offset Area, approximately 7,600 tubestock will be planted over 19 hectares at the Middle Deep Creek West Offset Area and approximately 4,400 tubestock will be planted over 11 hectares at the Oakvale Offset Area, in accordance with the revised Biodiversity Management Plan, once approved. Wherever possible these tubestock will be developed using seed collected from the conservation and offset areas.

Prior to vegetation clearing, pre-clearance surveys are undertaken, with support from qualified ecologists when required, to identify potential habitat features. During the reporting period, large surface rocks raked clear of rehabilitated areas were placed in piles as habitat features on and adjacent to areas rehabilitated during the reporting period at Saddlers East and West and also VD1.

The rehabilitation plan in Appendix 8 identifies the areas of rehabilitation completed prior to the reporting period, works undertaken during the reporting period, and the areas proposed for rehabilitation in the next reporting period, which are consistent with the current MOP. Progressive rehabilitation of shaped overburden areas during the next reporting period will continue to be undertaken in accordance with the sequence outlined in the current MOP. Additional information about rehabilitation activities undertaken during the period can be found in Table 55.

Maintenance activities will continue to play a major role in the success of rehabilitation at Mt Arthur Coal. These activities include slashing, fencing, weed spraying, soil management, minor earthworks repairs and feral animal control, as discussed in Section 3.5.1. A summary of these activities can be found in Table 56.

The aerial seeding program at Mt Arthur Coal also continued during the reporting period with approximately 210 hectares of exposed overburden not yet ready for final rehabilitation seeded with a season appropriate seed mix, as discussed in Section 3.1. Germination rates have vastly improved over areas seeded in FY14 due to higher rainfall received, showing good germination rates across aerial seeded areas.

Table 55: Mt Arthur Coal rehabilitation summary

Domain	Area affected or rehabilitated hectares		
	Reporting period (1 July 2014 - 30 June 2015)	**Previous reporting period (1 July 2013 - 30 June 2014)**	**Next reporting period (estimated) (1 July 2014 - 30 June 2015)**
A: MINE LEASE AREA			
A1 Mine lease area	8,475	8,475	8,521
B: DISTURBED AREAS			
B1 Infrastructure area	445	411	445
B2 Active mining areas	1,070	1,195	1,960
B3 Unshaped waste emplacement	1,556	1,483	1,919
B4 Tailings storage facility	103	85	103
B5 Shaped overburden emplacement	61	3	49
Other disturbed land	19^	62^	11
All disturbed areas	3,253	3,238	4,487
C: REHABILITATION PROGRESS			
C1 Total Rehabilitated area – except for maintenance	1,041	977	1,092
D: REHABILITATION ON SLOPES			
D1 10 to 18 degrees	22.9	22.9	22.9
D2 Greater than 18 degrees	0	0	0
E: SURFACE OF REHABILITATED LAND			
E1 Pasture and grasses	445	412	473
E2 Native forests or ecosystems	596	565	619
E3 Plantations and crops	0	0	0
E4 Other	0	0	0

^ These are areas that have had land disturbed but do not fall into the mining footprint, such as topsoil stripping for areas to be drilled and mined, including the visual bund along Denman Road and the erection pad.

Table 56: Maintenance activities on rehabilitated land

Nature of treatment	Area affected or rehabilitated hectares			Comment, control strategies or treatment
	Reporting period (1 July 2014 - 30 June 2015)	Previous reporting period (1 July 2013 - 30 June 2014)	Next reporting period (estimated) (1 July 2014 - 30 June 2015)	
Additional erosion control works	0	0.8	Approximately 1	A drop structure will be constructed on Saddlers East FY15 rehabilitation during the next reporting period.
Re-topsoiling	0	0	0	-
Soil treatment	0	0	0	Topsoiling testing prior to use on FY15 rehabilitation indicated no ameliorants (i.e. gypsum or lime) were required. Fertiliser was added to the pasture seed mix as well as the CD1 woodland seed mix at a rate of 100 kilograms per hectare. The requirement for topsoil to be treated will be determined by chemical testing prior to use for rehabilitation during the next reporting period.
Reseeding and replanting*	10 (undertaken on rehabilitated land)	15 (undertaken on offset areas)	0	4,000 tubestock were planted on VD1 rehabilitation during the reporting period to modify former rehabilitation in this area that did not satisfy the definition of Box Gum Woodland due to a lack of shrub and canopy species. Tubestock planting during the next reporting period will occur on former VD1 rehabilitation as well as Thomas Mitchell Drive Offsite, Middle Deep Creek West and Oakvale Offset Areas based primarily on the requirements of the BMP, once approved.
Weed Control*	920	141.7	To be determined	Over 920 ha of land at the Mt Arthur Coal site, including buffer land and conservation and offset areas was treated for weeds, primarily noxious weeds, during the reporting period, as discussed in Section 3.7. Intensive weed treatment was focused on VD1 rehabilitation in the FY15 and proposed FY16 tubestock planting areas. Works in next reporting period will be determined based on the annual weed survey to be undertaken early in the next reporting period.
Feral animal control*	4,280	3,290	4,280	Wild dog and fox baiting was undertaken across the Mt Arthur Coal site, including buffer land and conservation and offset areas, as discussed in Section 3.7. The Middle Deep Creek East and West Offset Areas (990 ha) were included in the formal baiting program for the first time during the reporting period.

* Areas quoted for these treatments include the conservation and offset areas as well as buffer land around the operation

5.3 Other Infrastructure

During the reporting period, six exploration drill sites were rehabilitated across land owned by Mt Arthur Coal. In addition, nine drill holes were sealed with grout and eight sumps were backfilled as a part of the rehabilitation process. Exploration site rehabilitation consists of backfilling of sumps and allowing for backfill settlement. Following adequate settlement time, the disturbed sections of the exploration site (approximately 50 by 50 metres) are given a final trim, with any protective bunds or recovered topsoil being reinstated. For pasture areas, the disturbed areas of the site are hand-seeded with the pasture rehabilitation mix.

5.4 Rehabilitation Trials and Research

During the reporting period the grazing trial on mine rehabilitated land continued to be progressed, comprising approximately 60 hectares of rehabilitated and analogue sites (non-mined sites). This trial forms part of an industry-wide rehabilitation grazing study being coordinated through the Upper Hunter Mining Dialogue, an initiative of the NSW Minerals Council. The study is supported by a range of community, industry, business groups and government stakeholders.

Cattle were introduced to the grazing trial sites in July 2014, with ten steers randomly allocated to both the rehabilitated and analogue sites. The cattle were Angus steers sourced from the same herd to ensure the identical genetic and management background. Cattle blood tests were also conducted on randomly selected cattle by the Local Land Services vet upon introduction to the grazing trial sites. Samples were tested for deficiency or toxicity of selected elements and all cattle tested were assessed as being within normal range on entry to the grazing trial.

Cattle were weighed at each site approximately every twelve weeks and then rotated to a new paddock. Early results indicate that cattle on the rehabilitated site have consistently gained more weight than the cattle on the native pasture analogue site.

Monitoring pasture characterisation and herbage mass (both dead and green) continued during the reporting period. Early results indicate that rehabilitated mine sites have a greater herbage mass available for grazing which largely explains greater weight gain by cattle in these areas.

The project has been promoted and discussed at a range of community events. Presentations to date have been designed to raise awareness of the project and the issues being investigated with some early results presented to the Mine Rehabilitation conference held in Singleton in March 2015.

Mt Arthur Coal also participated in the Upper Hunter Mining Dialogue land management working group. The initiative was established by the NSW Minerals Council to provide a forum for collaboration between community, government, consultants and mining companies to focus on land management across the region. Information on projects undertaken by the working group is available on the Upper Hunter Mining Dialogue website.

5.5 Further Development of the Final Rehabilitation Plan

The broad rehabilitation outcomes for Mt Arthur Coal are described in the rehabilitation strategy, required under Schedule 3 Condition 42 of the modification project approval. Whilst the rehabilitation strategy provides the overarching concepts for decision making on landscapes and land use for Mt Arthur Coal, the existing BRMP and Land Management Procedure provide specific management actions required to achieve these outcomes. The rehabilitation strategy is currently being revised and will be submitted to the DP&E for approval by 30 September 2015.

During the previous reporting period Mt Arthur Coal initiated the process of separating the rehabilitation and biodiversity aspects of the BRMP into individual documents, submitting a BMP to the DP&E and the

DoE on 30 June 2014 for approval. The DoE approved the BMP on 12 August 2014. Based on the revised offset strategy associated with the modification project and the requirement to update the BMP to reflect new biodiversity management requirements, the DP&E recommended (in consultation with Mt Arthur Coal) that the assessment would be undertaken on the update BMP (which has since been submitted on 22 June 2015).

Mt Arthur Coal continued the process of separating the rehabilitation and biodiversity aspects of the existing BRMP into individual documents during the reporting period. The revised BMP was prepared and submitted to the DP&E for approval on 23 June 2015. The MOP provides detailed information with regard to rehabilitation planning and development to ensure progression towards successful rehabilitation outcomes. Together the BMP and MOP documents detail information relevant to the final rehabilitation plan for Mt Arthur Coal.

A revised rehabilitation monitoring program was implemented during the reporting period and will ensure Mt Arthur Coal is collecting adequate information to prove the stability of post-mining landforms and success of selected post-mining land uses. Completion criteria, performance measures and progress indicators, as they relate to the land management and rehabilitation program, were developed as part of the preparation of the FY16-FY20 MOP, which was submitted to the DRE for approval on 19 May 2015.

6 Activities Proposed for Next AEMR Period

Mt Arthur Coal is committed to delivering a high standard of environmental and social performance into the future and has established targets for the next reporting period. These targets will be closely monitored and an update on the status of each will be reported in the next AEMR.

Table 57 outlines a progress summary of Mt Arthur Coal's performance against targets set for the FY14 period.

Mt Arthur Coal has established the following targets for the next reporting period, FY16:

- investigate and, where feasible, implement projects to mitigate, substitute, reduce or eliminate energy consumption and greenhouse gas emissions;
- investigate and, where feasible, implement projects to reduce water consumption;
- continue the rehabilitation grazing study project;
- employ at least eight first-year apprentices from the local community;
- undertake an audit of rehabilitated areas and the Denman Road visual bund, to the satisfaction of DRE
- continue investigations to determine the amount of water from the tailings storage facility lost to seepage that is being recovered at the Drayton Void;
- complete works for the ground water monitoring network upgrade;
- assess and plan for tree screening along sections of the Edderton Road boundary and implement the plan to schedule;
- revise the Spontaneous Combustion Control Program to address prioritisation of capping works when there is the potential for smoke or odour to leave the premise boundary;
- continue to trial hydromulch with dye product on exposed overburden emplacement areas with the aim to improve dust control and visual amenity;
- revise the air quality management plan and blast management plan to reflect the requirements of the modification project approval
- carry out a joint thermal imagery scan flight with Anglo American Drayton Coal mine over spontaneous combustion affected areas of the two operations.

Table 57: Mt Arthur Coal's performance against targets for FY15

Target	Status	Performance
Complete a trial to assess the suitability of a bitumen product for dust suppression on haul roads.	Complete	A trial to assess the suitability of a bitumen product for dust suppression on haul roads was completed in the reporting period. The bitumen product was found to be effective in reducing dust from haul road surface; however the product and application and maintenance process was not effective in managing fugitive dust blown onto the road, or from spillage. The product was also incompatible with other dust suppressants used on site, which raised safety concerns. Mt Arthur Coal is currently investigating other stabilised bitumen products that can be safely used on site that are compatible with other dust suppressants in use.

Target	Status	Performance
Complete a trial for a predictive dust model that builds upon existing weather prediction components by integrating dust dispersion modelling.	Complete	A predictive dust model was trialled and implemented in September 2015, which integrates dust dispersion modelling with meteorological forecast data to predict maximum one hour PM_{10} concentration averages at various receptors surrounding the mine site up to 72 hours in advance. The model is used for operational preparation and contingency planning to appropriately manage dust during forecast adverse weather conditions and alerts mining supervisors as to when adverse weather conditions are predicted to arrive.
Continue investigating the practicality of a future landscapes design project at Mt Arthur Coal.	On hold	Further environmental and cost investigations were undertaken to determine the feasibility of the future landscapes design project and it has been determined that the implementation of the project would require a modification to consent. Mt Arthur Coal does not propose to modify its project approval at this point in time. Any future modification to consent would consider the inclusion of the future landscapes design project.
Investigate and, where feasible, implement projects to mitigate, substitute, reduce or eliminate energy consumption and greenhouse gas emissions.	Ongoing	Mt Arthur Coal reduced greenhouse gas emissions and energy consumption in the reporting period through productivity improvements and the use of the 'super bridge' to reduce haulage distances. Other greenhouse gas and energy efficiency projects implemented during the reporting period include the replacement of suitable building lights with more energy efficient alternatives and continued lighting upgrades on fixed and mobile lighting plants.
Investigate and, where feasible, implement projects to reduce water consumption.	Ongoing	The Site Water Management Committee continued to focus on water security and water efficiency across the mine site in the reporting period. Projects to reduce water consumption in the reporting period include: • continuing the decommissioning of the main dam as the focal point of Mt Arthur Coal's site water network to provide a flexible water network system that can transfer between most site storages for maximum practical capacity and water security; • continuing to upgrade the integrated reticulation network to enable efficient management of water resources across the site; •.the replacement of two mechanical seals as a part of a project to reduce leakage and wastage of water at the CHPP; • an investigation into the volume of water decanting via seepage into the Drayton Void water storage; and • the continuation of a CHPP thickener optimisation project to decrease water usage at the CHPP by reducing the need to manually flush the system with water.
Update and refine the site water balance model.	Complete	An update to the site water balance model was completed in January 2014 to reflect the existing site water management system.
Implement the BMP, pending DP&E approval.	Ongoing	Due to the approval of the modification project DP&E deferred approval of the BMP submitted in June 2014. The BMP was subsequently revised to reflect biodiversity management requirements associated with the modification project approval and was submitted to the DP&E for approval on 23 June 2015.
Conduct an external specialist review of the aerial seeding program to identify improvement opportunities.	Complete	An external specialist was enlisted to review the aerial seeding program in August 2014. Recommendation made as a result of the review were implemented including adjustments to seasonal seed mixes and a monitoring program to measure the performance of aerial seeding against success criteria.
Finalise the comprehensive review of Mt Arthur Coal's ground water monitoring program.	Complete	A review of the ground water monitoring program was completed and a revised ground water monitoring program was approved by the DP&E on 28 April 2015. The revised monitoring program describes monitoring requirements for the new ground water monitoring network scheduled for completion by 31 December 2015 as well as specific interim monitoring arrangements that will apply while the monitoring network upgrades works are being implemented and a sufficient reference dataset is being collected for evaluation of the suitability of water quality trigger values.
Commence the grazing study project and move cattle onto grazing sites.	Complete	Cattle were introduced to the grazing trial sites in July 2014. Early results of the trial have been positive and are discussed in Section 5.4.

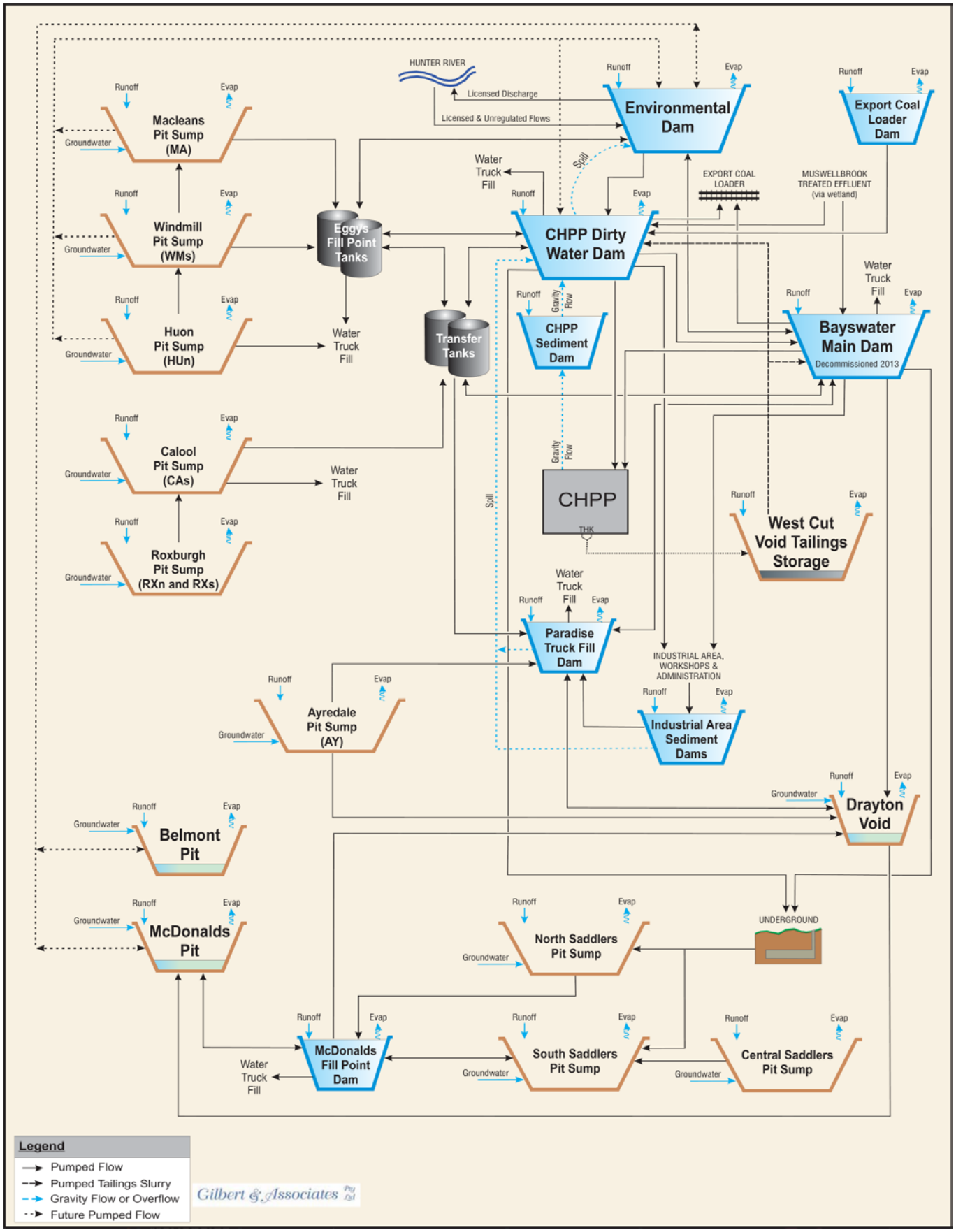
Target	Status	Performance
Employ at least eight first-year apprentices from the local community.	Complete	Mt Arthur Coal welcomed eight new apprentices from the local community to the operation during the reporting period, as part of Mt Arthur Coal's commitment to employing and training local people for local jobs

7 Acronyms

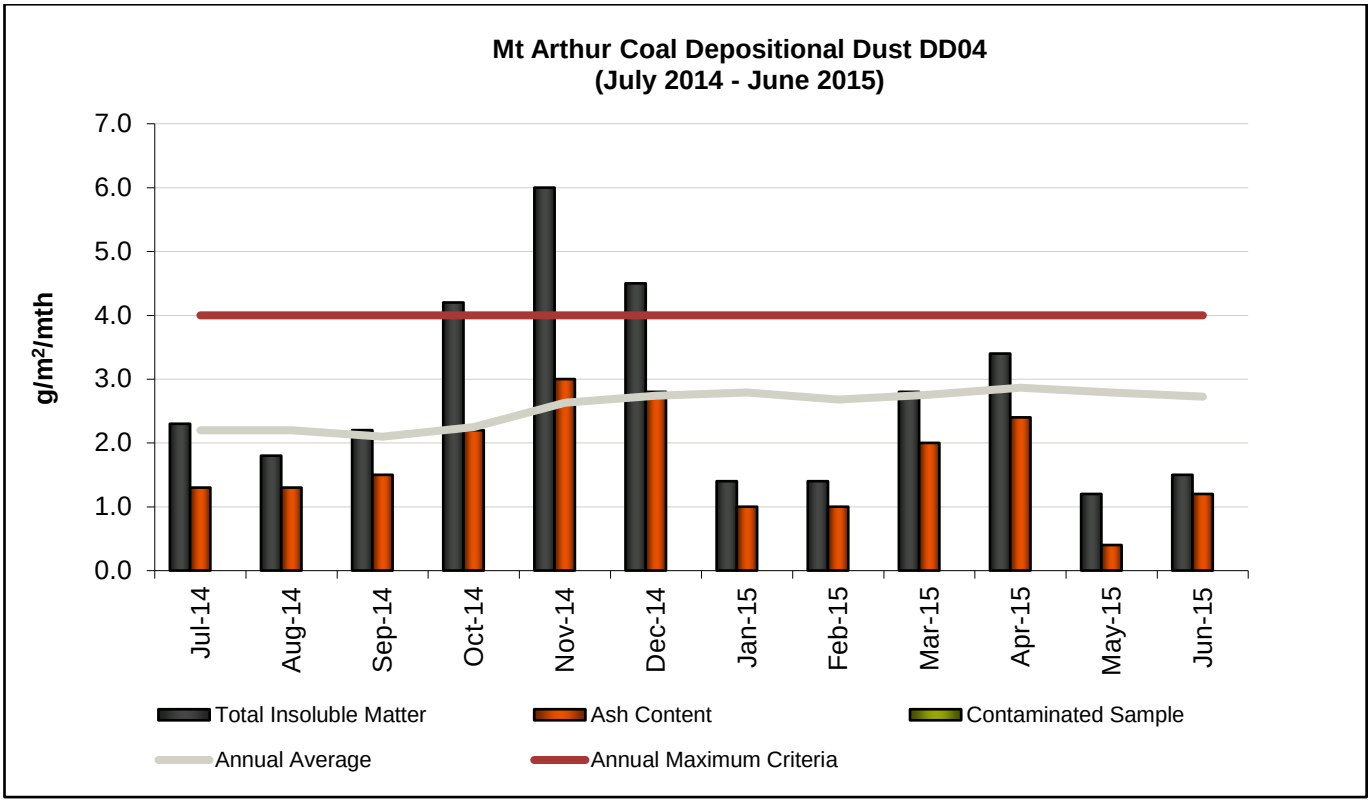
AEMR	Annual environmental management report
AHIMS	Aboriginal Heritage Information Management System
bcm	Bank cubic metres
BMP	Biodiversity management plan
BRMP	Biodiversity and rehabilitation management plan
CCC	Community consultative committee
CCL	Consolidated coal lease
CHPP	Coal handling preparation plant
CL	Coal lease
dB	Decibels
dBL	Decibels linear (for blast overpressure noise)
DoE	Commonwealth Department of the Environment
DP&E	NSW Department of Planning and Environment
DRE	NSW Division of Resources and Energy, within the NSW Department of Trade and Investment, Regional Infrastructure and Services
EA	Environmental assessment
E-BAM	Electronic Beta Attenuation Monitor
EC	Electrical conductivity
EL	Exploration licence
A	Exploration licence authorisation
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environment protection licence
EMS	Environmental management system
ESCP	Erosion and sediment control plan
FY	Financial year
ha	Hectares
HRSTS	Hunter River Salinity Trading Scheme
HVAS	High volume air sampler
INP	Industrial Noise Policy
ISO	International Standards Organisation
LED	Light-emitting diode
LGA	Local government area
$L_{Aeq\ (15min)}$	A-weighted average noise energy over a 15 minute period
$L_{Ceq\ (15min)}$	C-weighted average noise energy over a 15 minute period
$L_{A1\ (1min)}$	The highest A-weighted noise level generated for 0.6 seconds during one minute
m	Metre
MACT	Mt Arthur Coal terminal

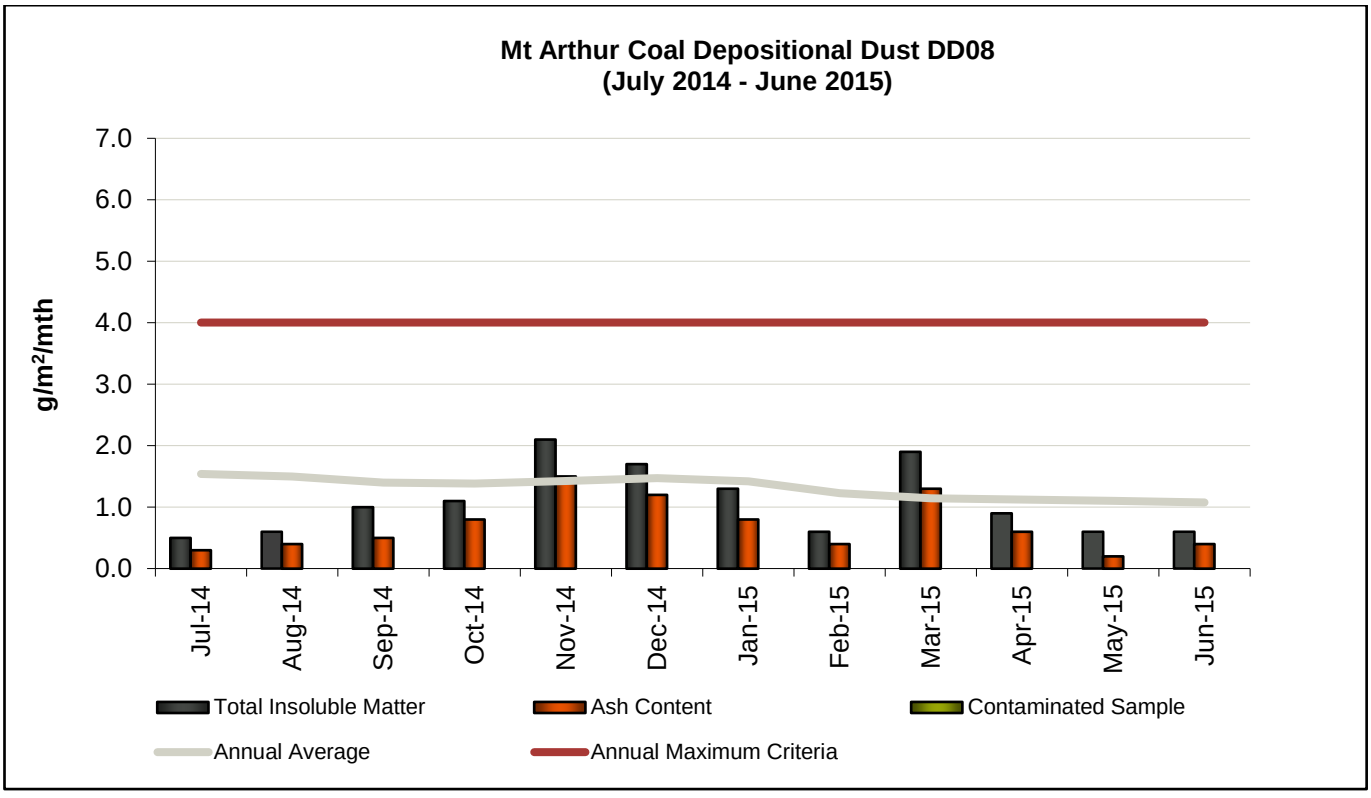
MCV1	McDonalds Void 1
mg/L	Milligrams per litre
m/s	Metres per second
mm	Millimetres
mm/s	Millimetres per second
MOP	Mining operations plan
ML	Megalitre
ML	Mining lease
MPL	Mining purpose lease
MSC	Muswellbrook Shire Council
m^2	Square metres
m^3	Cubic metres
NAIDOC	National Aborigines and Islanders Day Observance Committee
NATA	National Association of Testing Authority
NGER	National Greenhouse and Energy Reporting
NGO	Non-government organisation
NSW	New South Wales
OCE	Open cut examiner
OEH	NSW Office of Environment and Heritage
pH	Potential hydrogen
PIRMP	Pollution incident response management plan
POEO Act	*Protection of the Environment Operations Act 1997*
PM_{10}	Particulate matter less than 10 microns in size
PRP	Pollution reduction program
RAP	Remedial action plan
RL	Reduced Level
TARP	Trigger action response plan
TEOM	Tapered element oscillating microbalance samplers
TSC Act	*Threatened Species Conservation Act 1995*
TSP	Total suspended particulate
TSS	Total suspended solids
SMS	Short message service
VPA	Voluntary planning agreement
W/m^2	Watts per square metre (solar radiation unit of measurement)
µS/cm	Microsiemens per centimetre
$µg/m^3$	Micrograms per cubic metre
^oC	Degrees Celsius

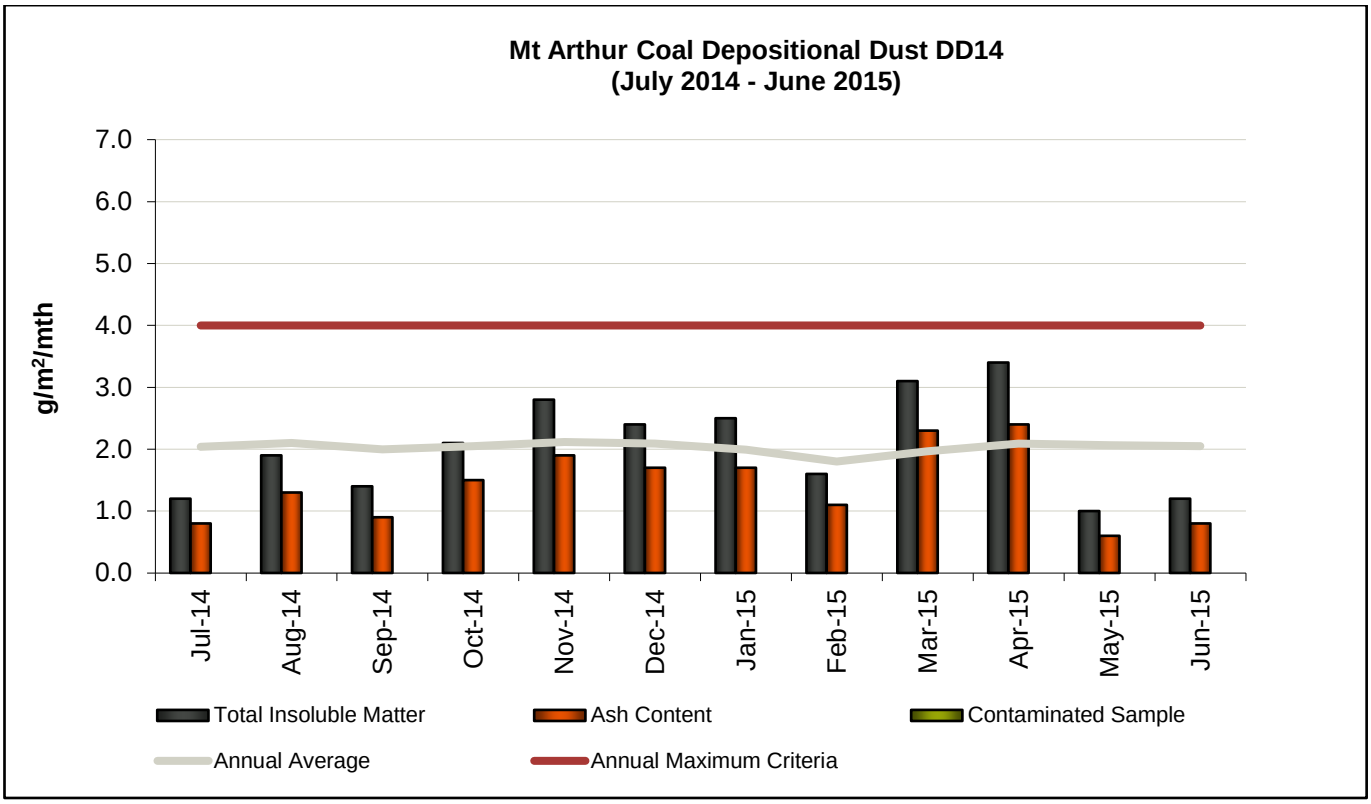
Appendix 1 - Overview of Surface Water Management System

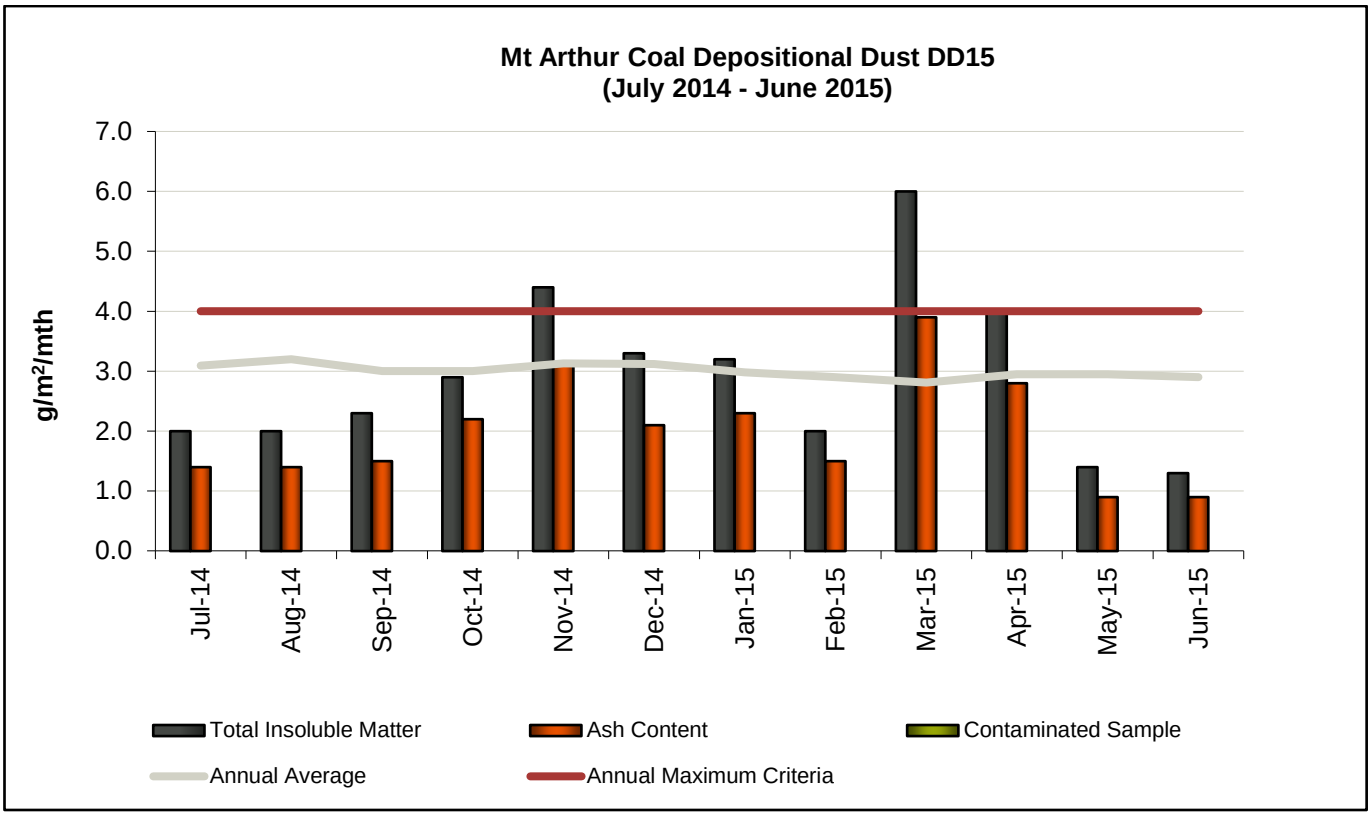


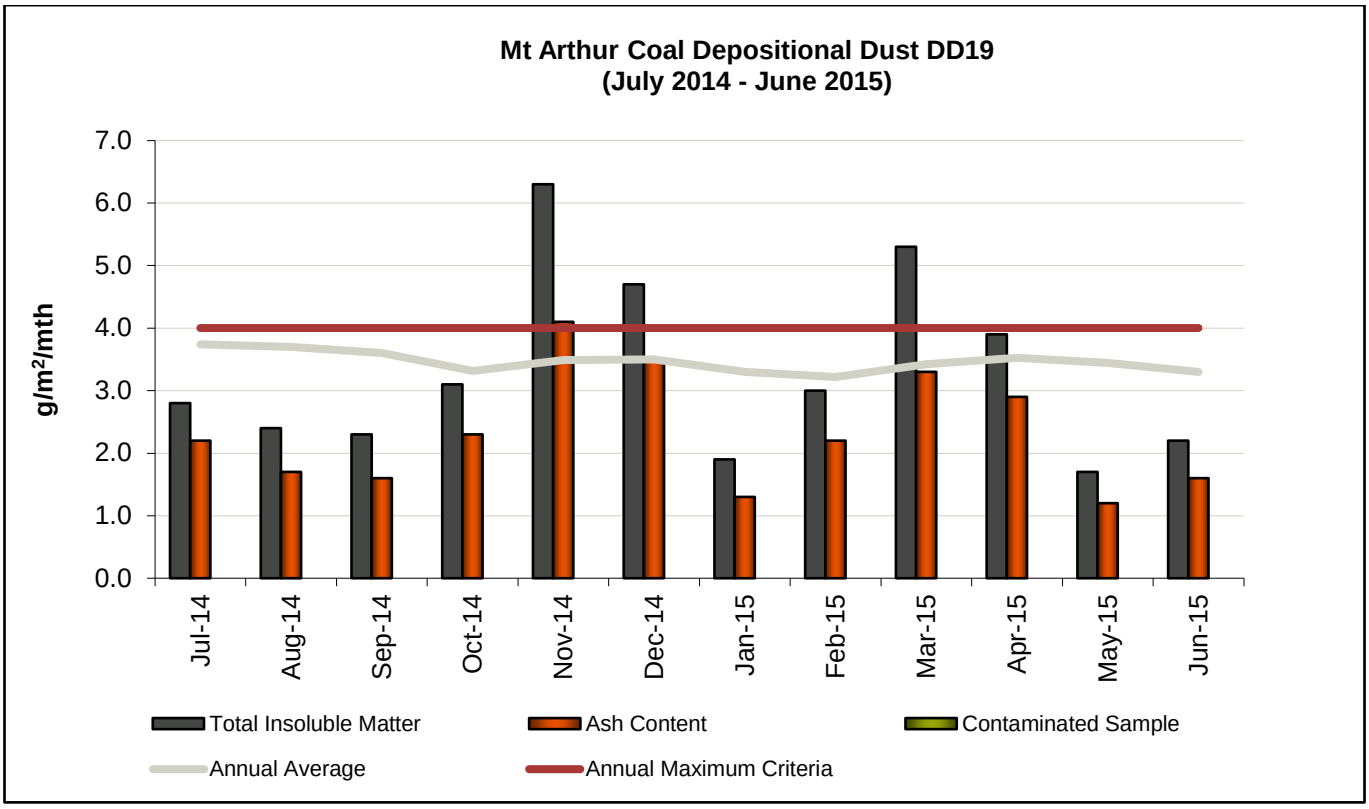
Appendix 2 - Air Quality Monitoring Results

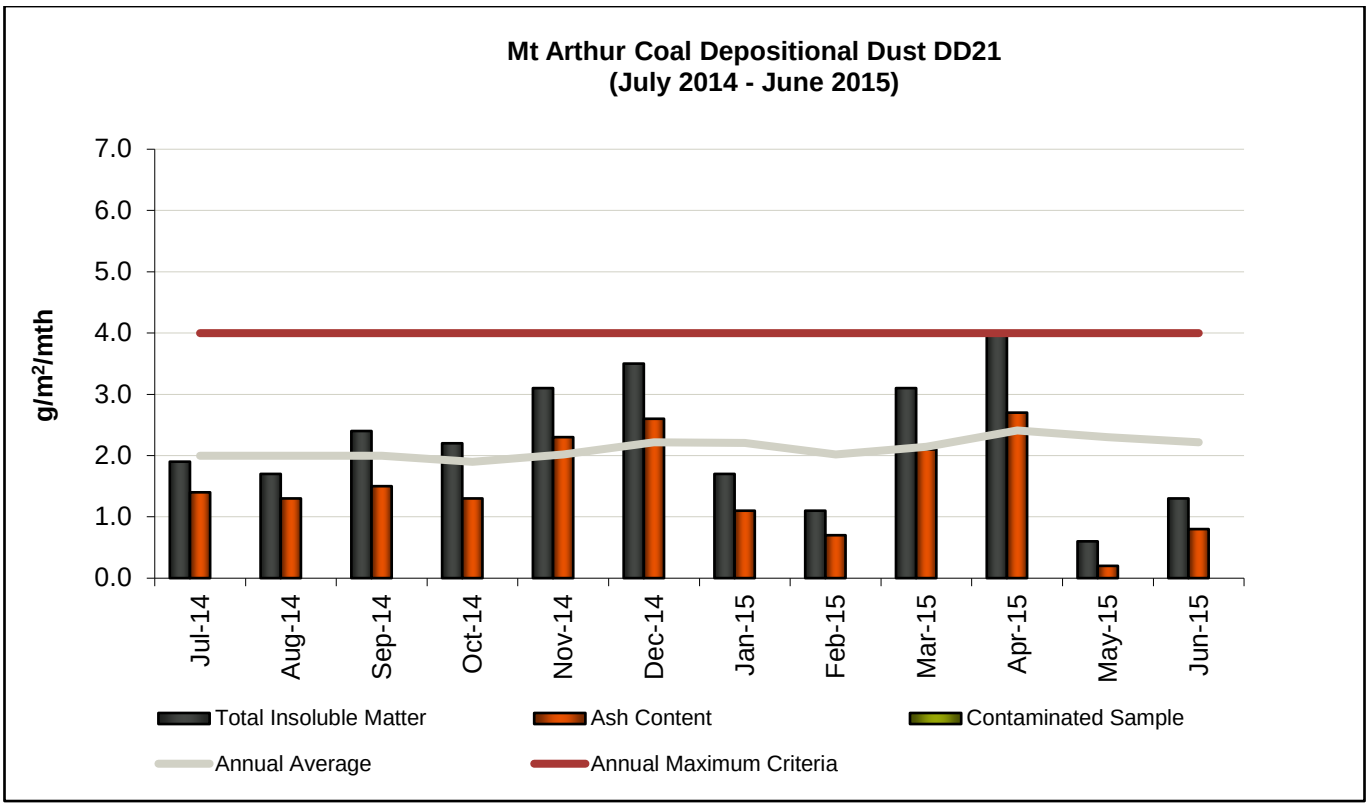


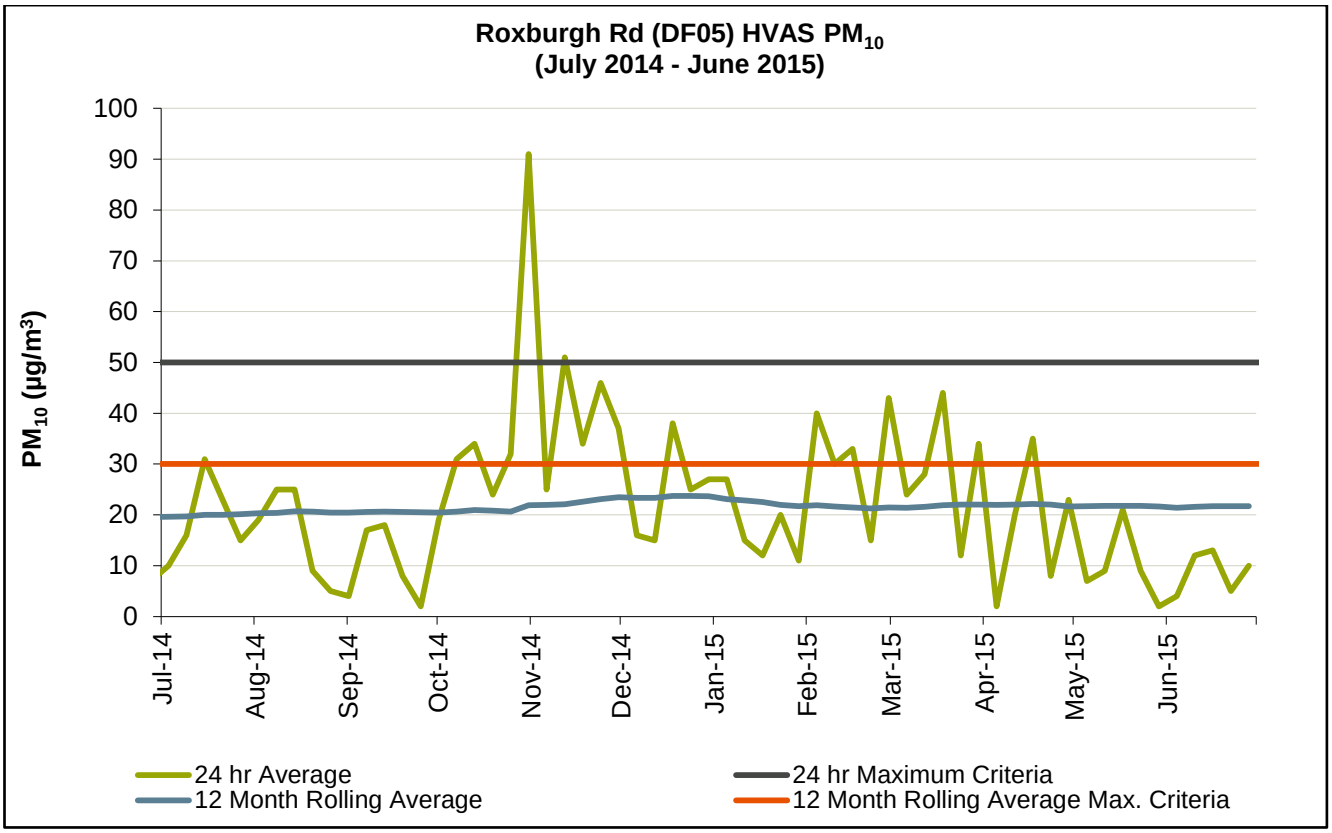


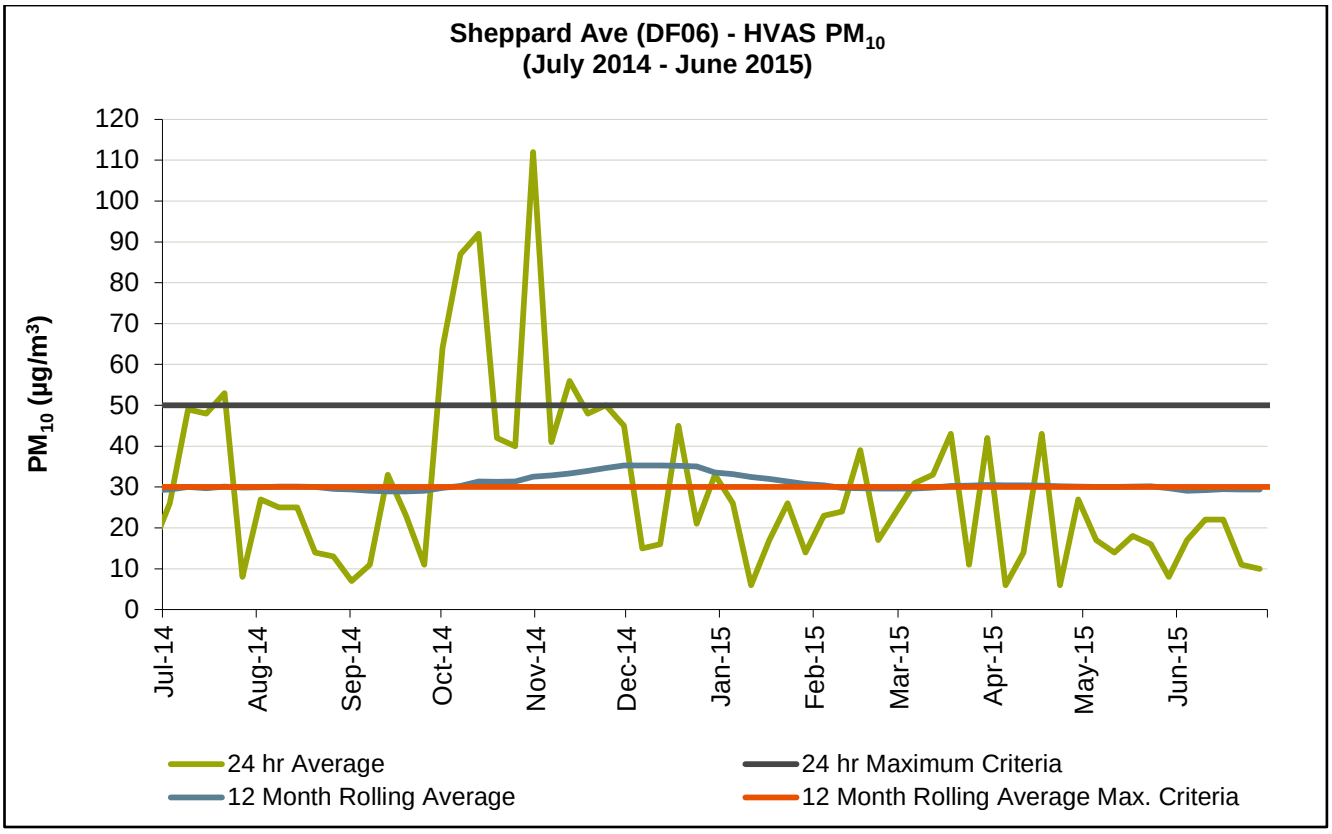

Mt Arthur Coal Depositional Dust DD14
(July 2014 - June 2015)
g/m²/mth
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
Total Insoluble Matter
Ash Content
Contaminated Sample
Annual Average
Annual Maximum Criteria

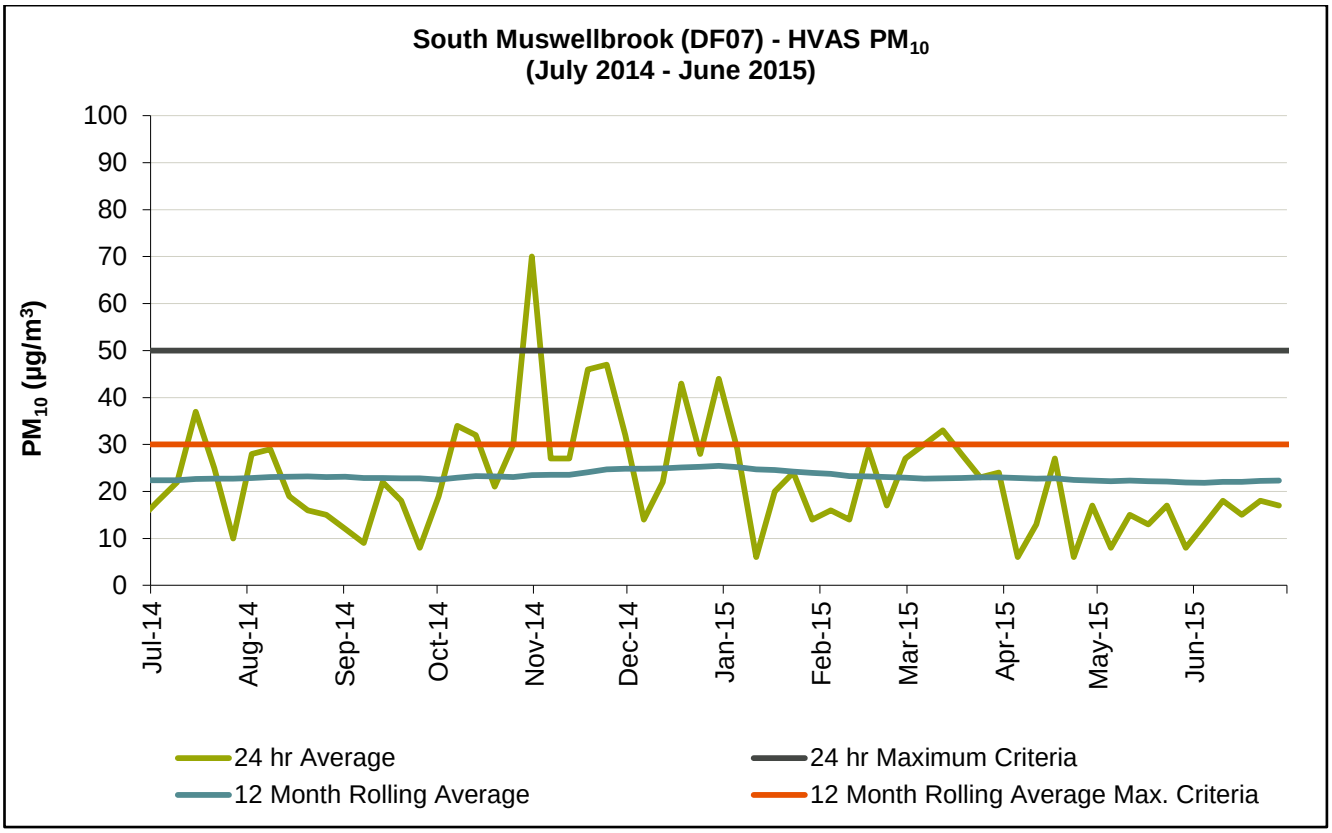

Mt Arthur Coal Depositional Dust DD15
(July 2014 - June 2015)
g/m²/mth
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
Total Insoluble Matter
Ash Content
Contaminated Sample
Annual Average
Annual Maximum Criteria


Mt Arthur Coal Depositional Dust DD19
(July 2014 - June 2015)
g/m²/mth
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
Total Insoluble Matter
Ash Content
Contaminated Sample
Annual Average
Annual Maximum Criteria


Mt Arthur Coal Depositional Dust DD21
(July 2014 - June 2015)
g/m²/mth
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
Total Insoluble Matter
Ash Content
Contaminated Sample
Annual Average
Annual Maximum Criteria


Roxburgh Rd (DF05) HVAS PM10
(July 2014 - June 2015)
PM10 (µg/m3)
100
90
80
70
60
50
40
30
20
10
0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
24 hr Average
12 Month Rolling Average
24 hr Maximum Criteria
12 Month Rolling Average Max. Criteria


Sheppard Ave (DF06) - HVAS PM10
(July 2014 - June 2015)
PM10 (µg/m3)
120
110
100
90
80
70
60
50
40
30
20
10
0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
24 hr Average
12 Month Rolling Average
24 hr Maximum Criteria
12 Month Rolling Average Max. Criteria


South Muswellbrook (DF07) - HVAS PM10
(July 2014 - June 2015)
PM10 (µg/m3)
100
90
80
70
60
50
40
30
20
10
0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
24 hr Average
24 hr Maximum Criteria
12 Month Rolling Average
12 Month Rolling Average Max. Criteria

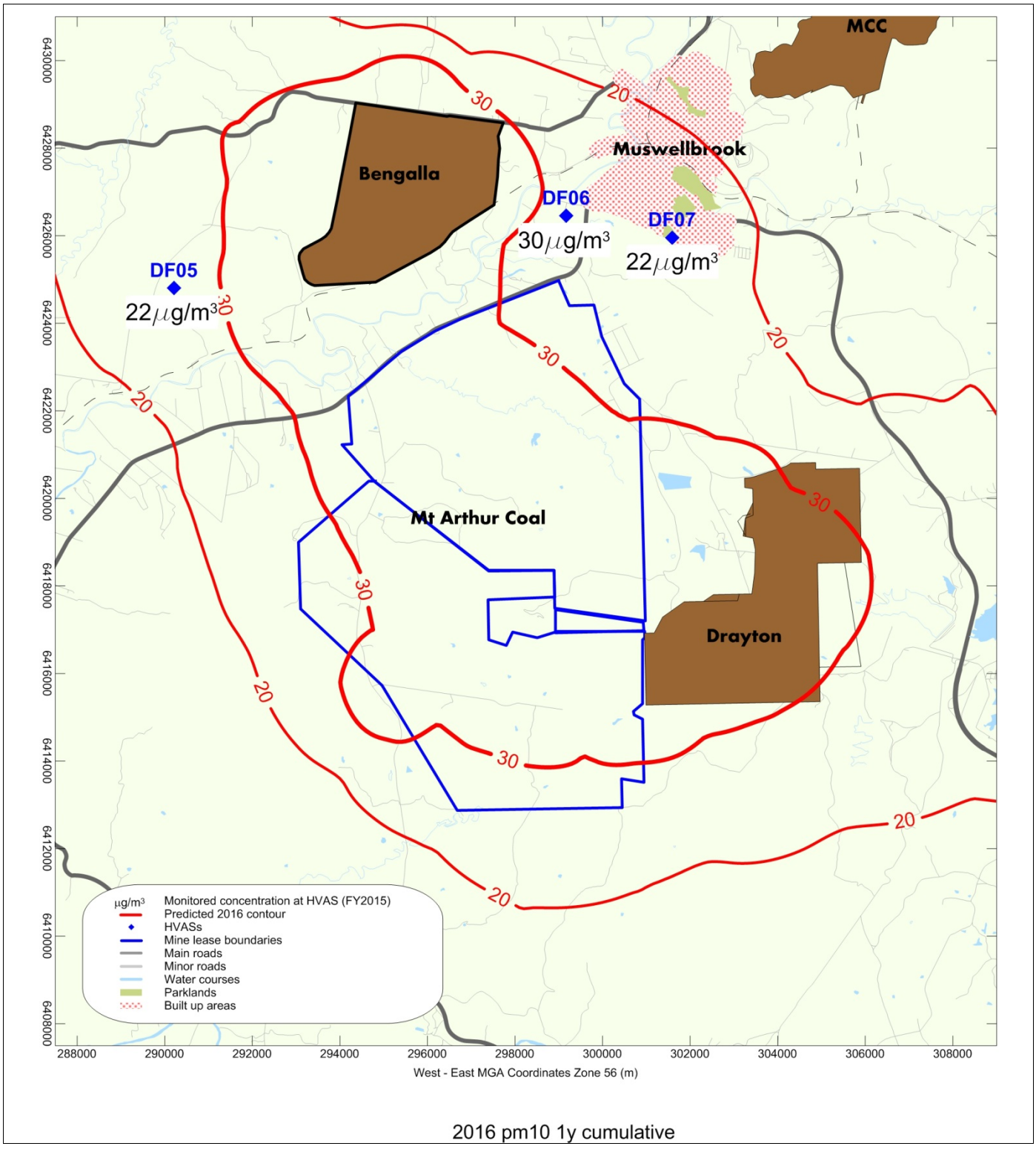
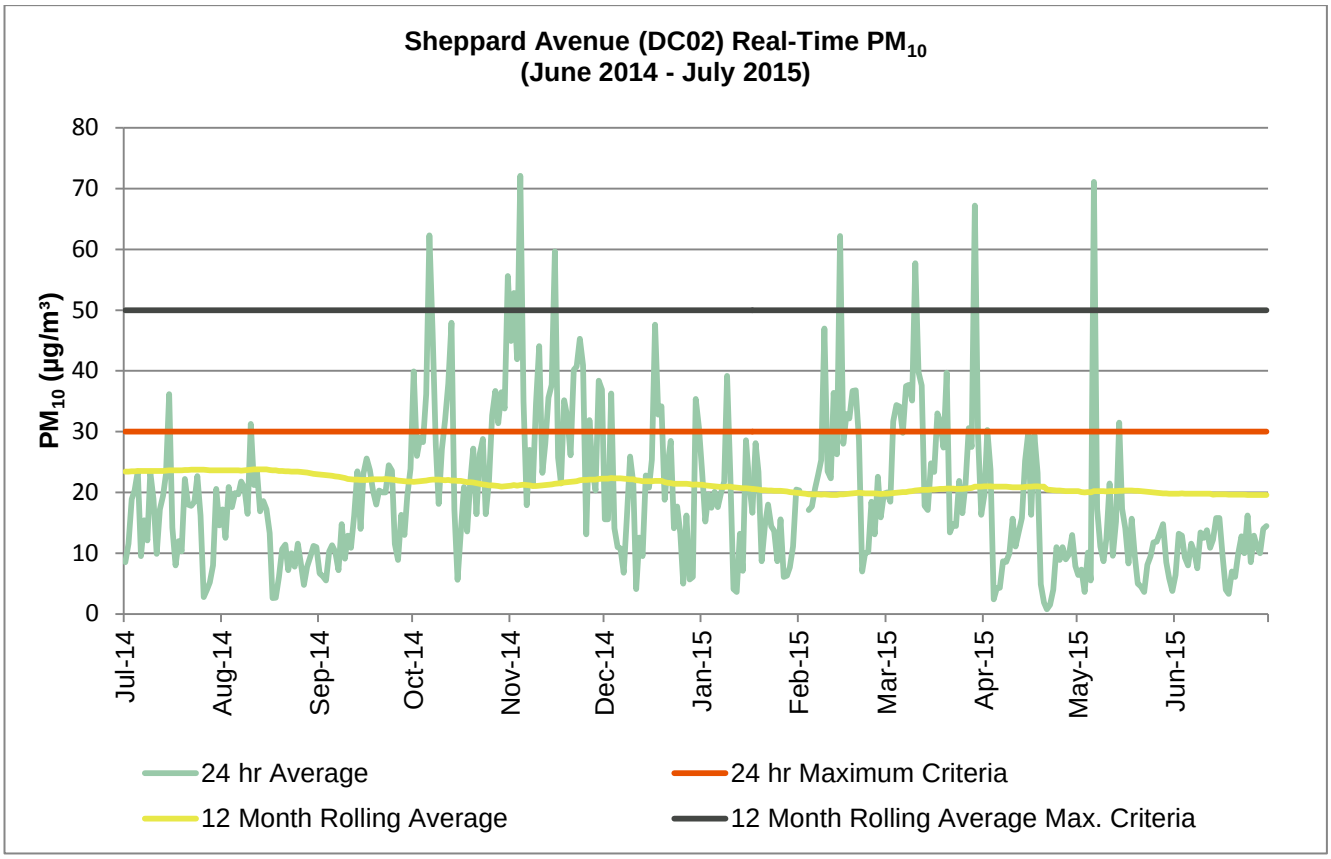
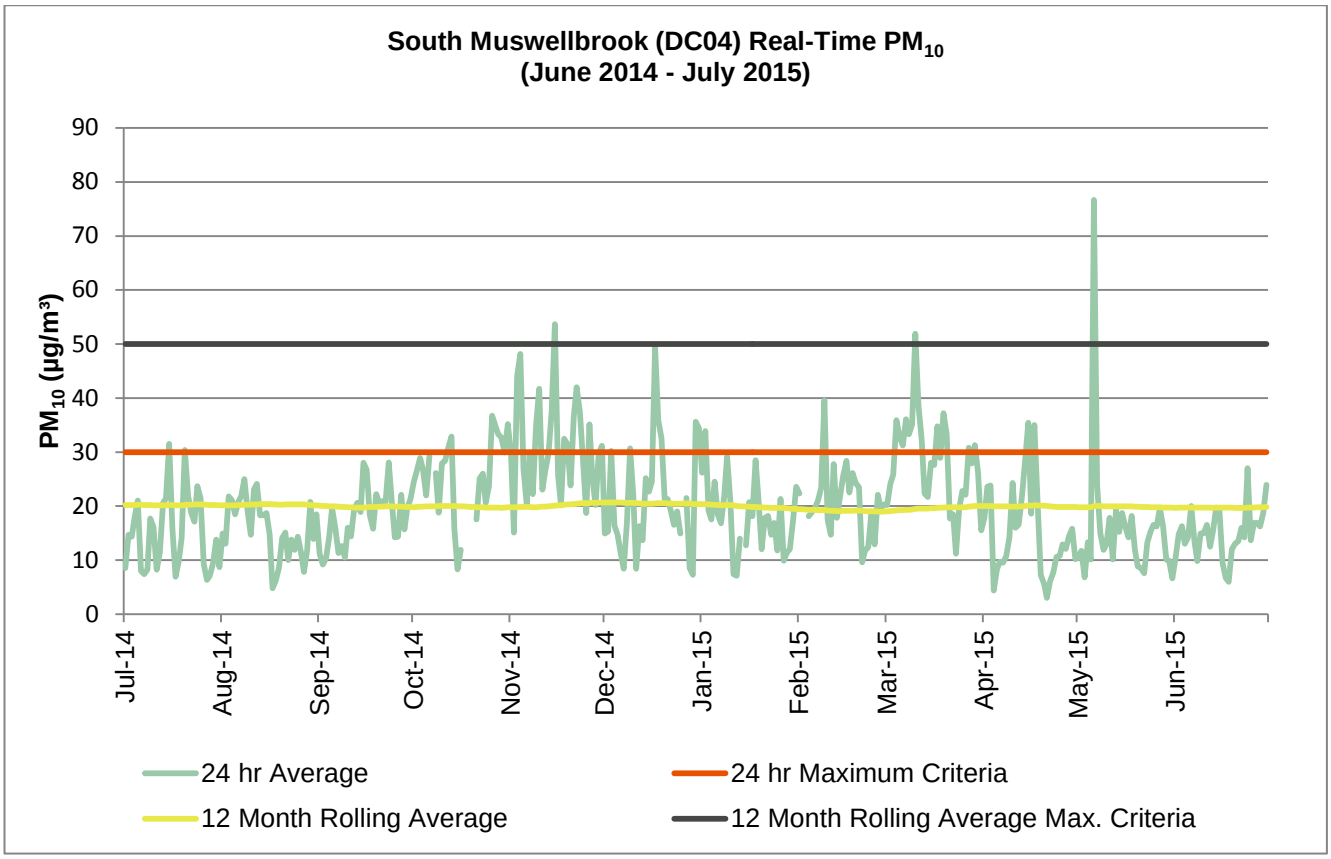
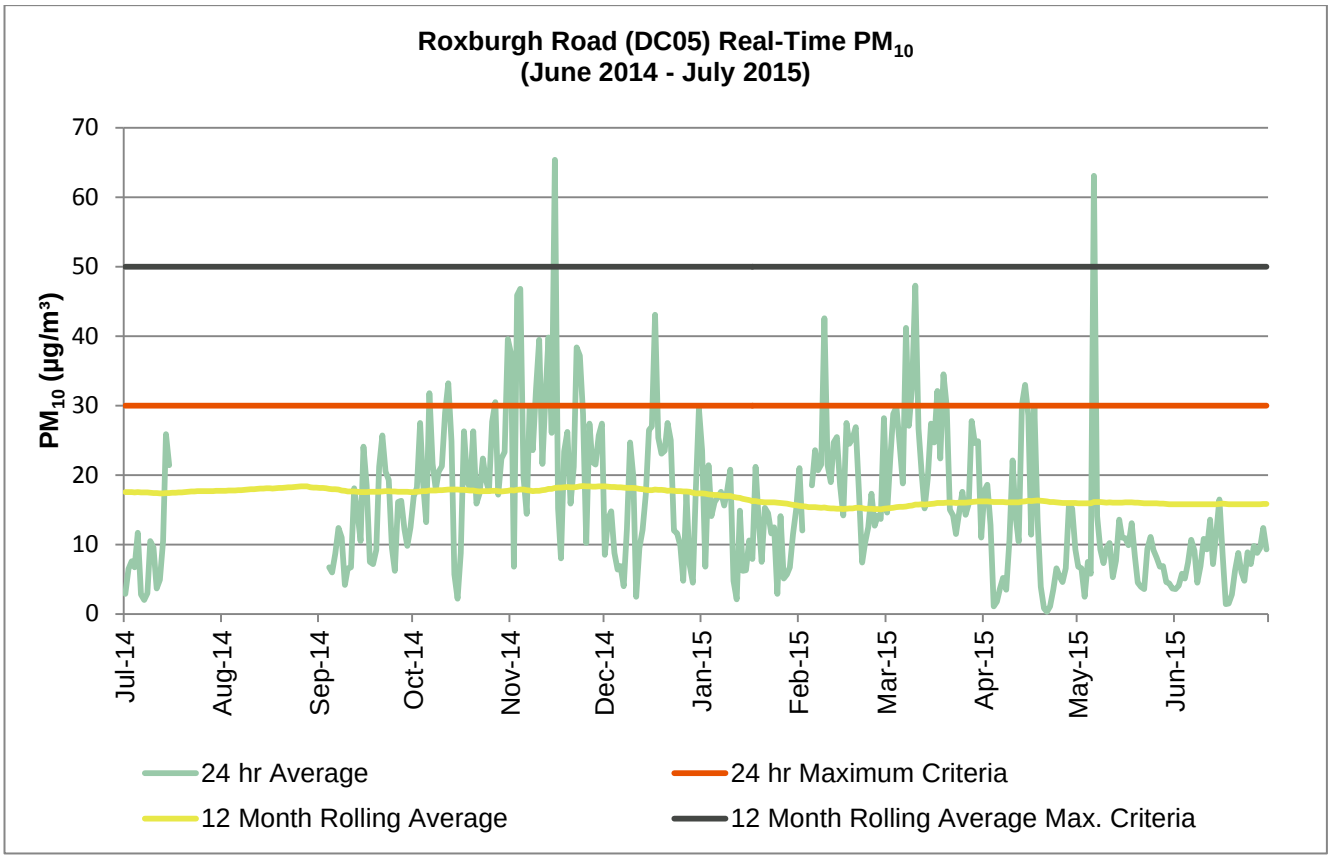
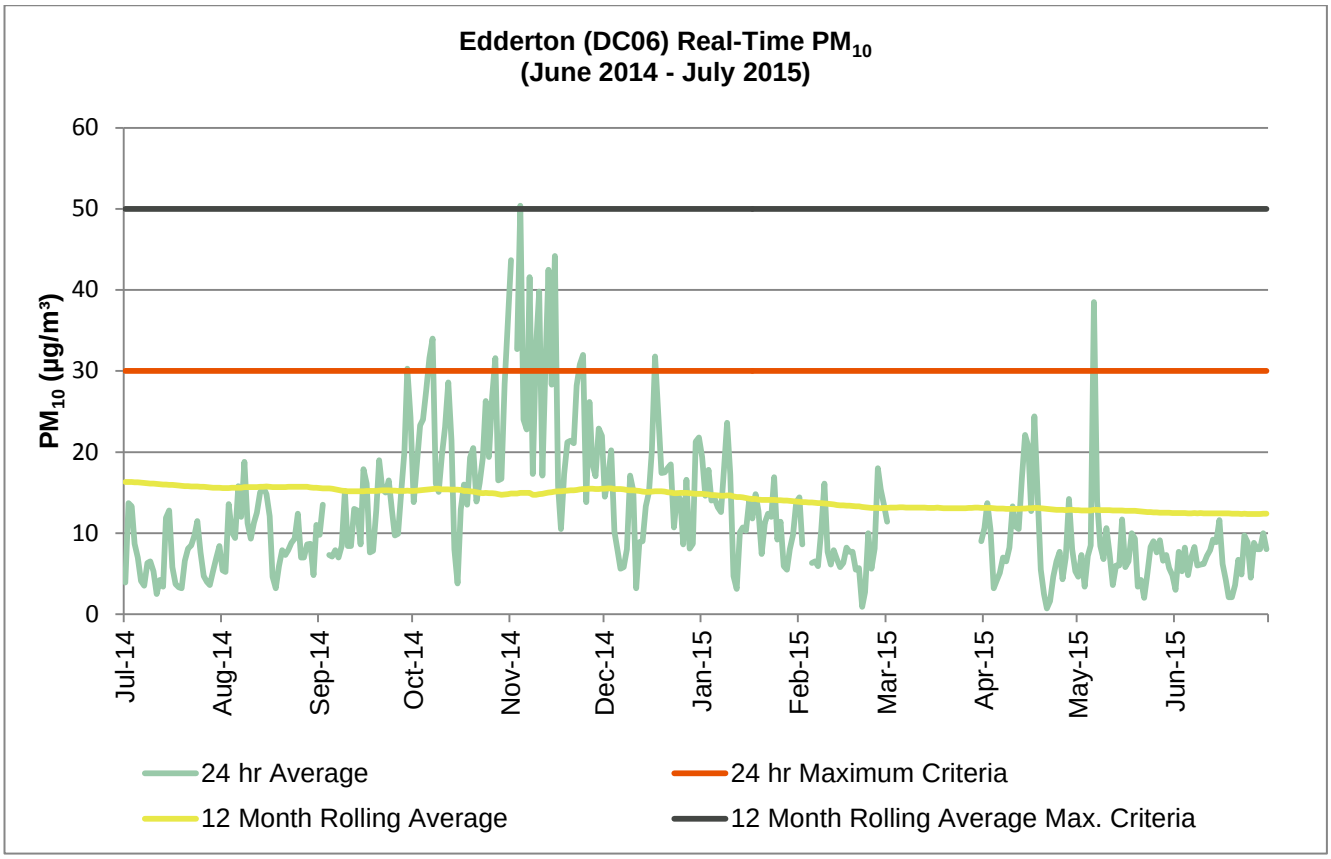


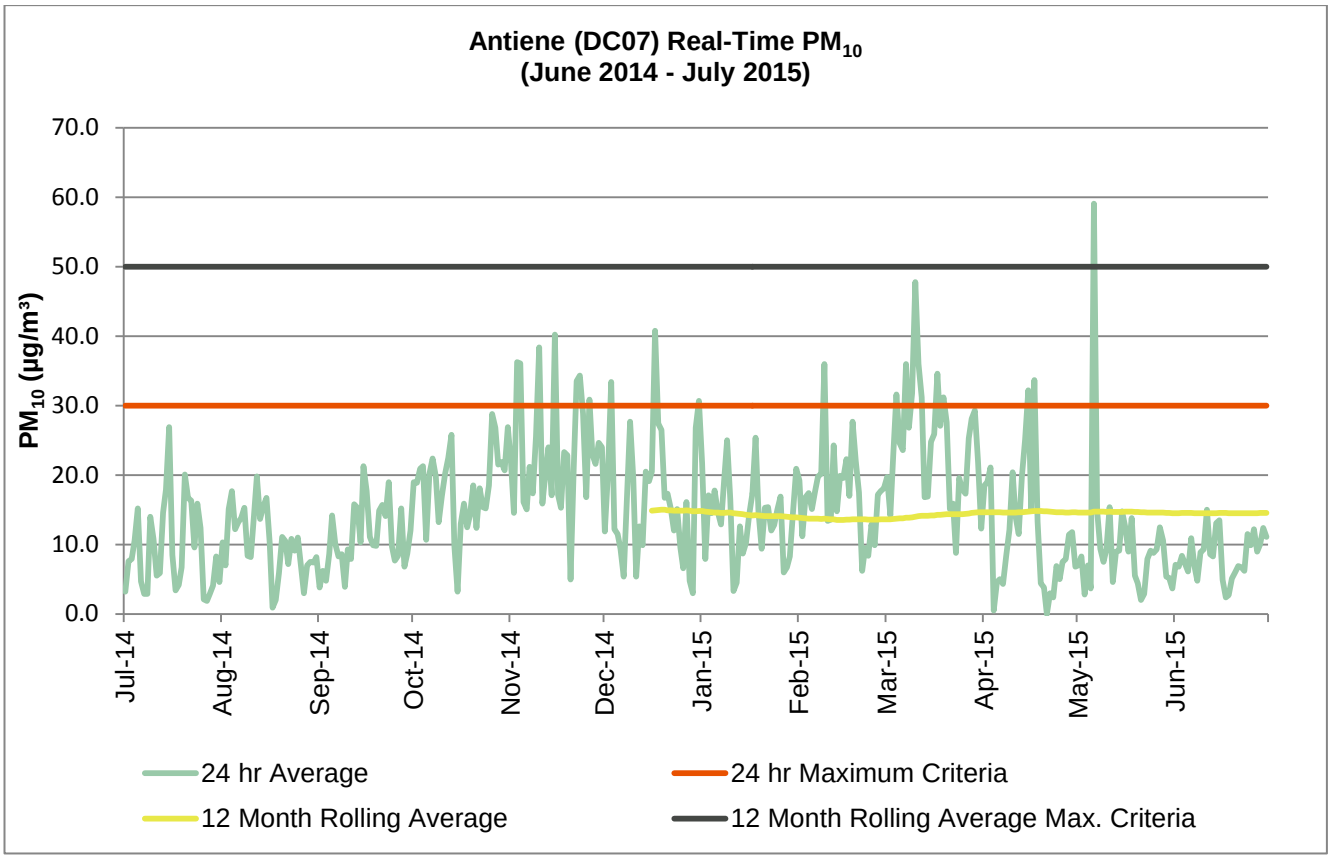
Figure 2A: Predicted annual average PM_{10} concentrations in µg/m^3 due to emissions from the project and other sources in 2016 compared with FY15 measured concentrations – HVAS

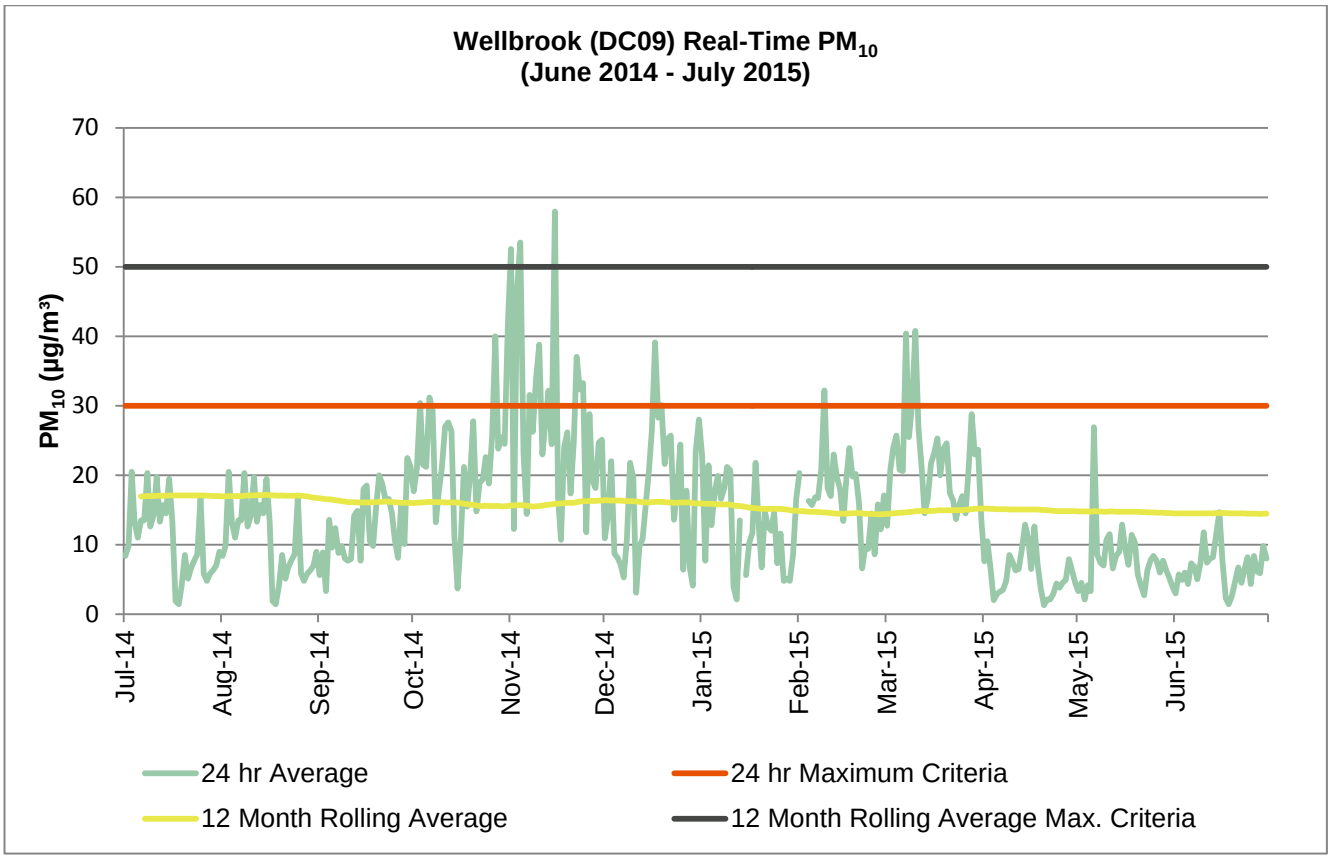

Sheppard Avenue (DC02) Real-Time PM10
(June 2014 - July 2015)
PM10 (µg/m³)
80
70
60
50
40
30
20
10
0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
24 hr Average
24 hr Maximum Criteria
12 Month Rolling Average
12 Month Rolling Average Max. Criteria


South Muswellbrook (DC04) Real-Time PM10
(June 2014 - July 2015)
PM10 (µg/m³)
90
80
70
60
50
40
30
20
10
0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
24 hr Average
24 hr Maximum Criteria
12 Month Rolling Average
12 Month Rolling Average Max. Criteria


Roxburgh Road (DC05) Real-Time PM10
(June 2014 - July 2015)
PM10 (µg/m³)
70
60
50
40
30
20
10
0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
24 hr Average
24 hr Maximum Criteria
12 Month Rolling Average
12 Month Rolling Average Max. Criteria


Edderton (DC06) Real-Time PM10
(June 2014 - July 2015)
PM10 (µg/m³)
60
50
40
30
20
10
0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
24 hr Average
24 hr Maximum Criteria
12 Month Rolling Average
12 Month Rolling Average Max. Criteria


Antiene (DC07) Real-Time PM10
(June 2014 - July 2015)
PM10 (µg/m³)
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
24 hr Average
24 hr Maximum Criteria
12 Month Rolling Average
12 Month Rolling Average Max. Criteria


Wellbrook (DC09) Real-Time PM10
(June 2014 - July 2015)
PM10 (µg/m³)
70
60
50
40
30
20
10
0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
24 hr Average
24 hr Maximum Criteria
12 Month Rolling Average
12 Month Rolling Average Max. Criteria

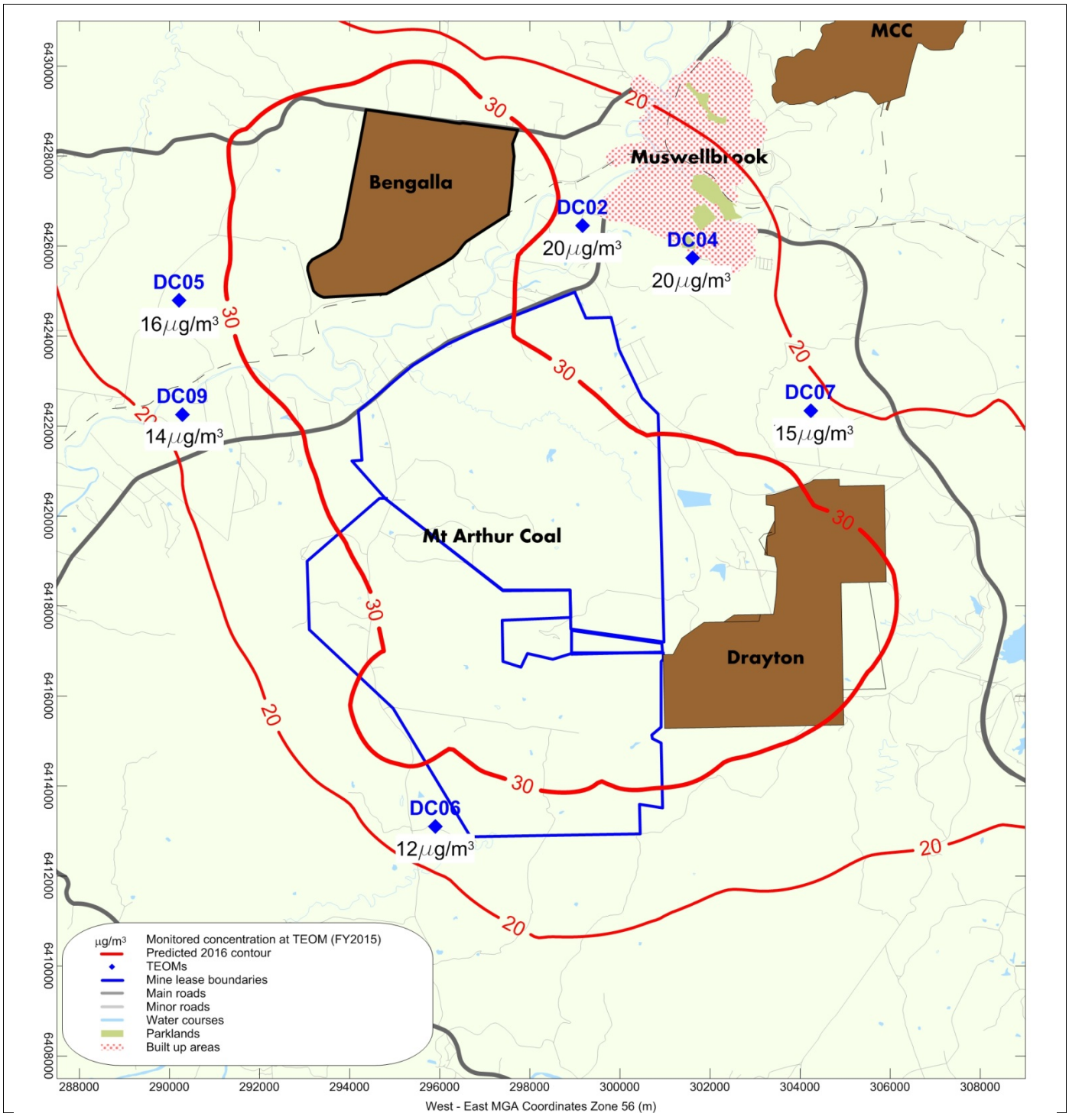
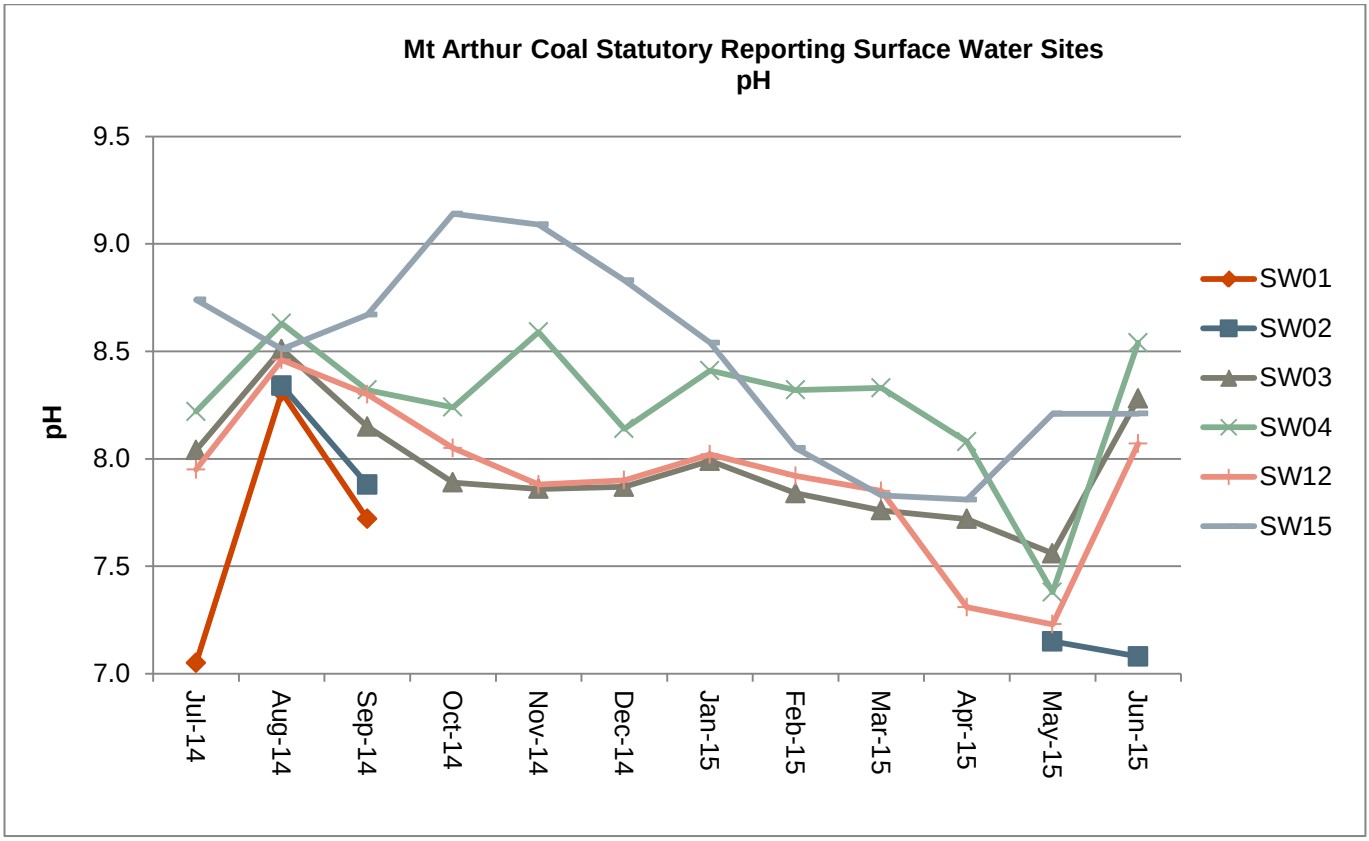
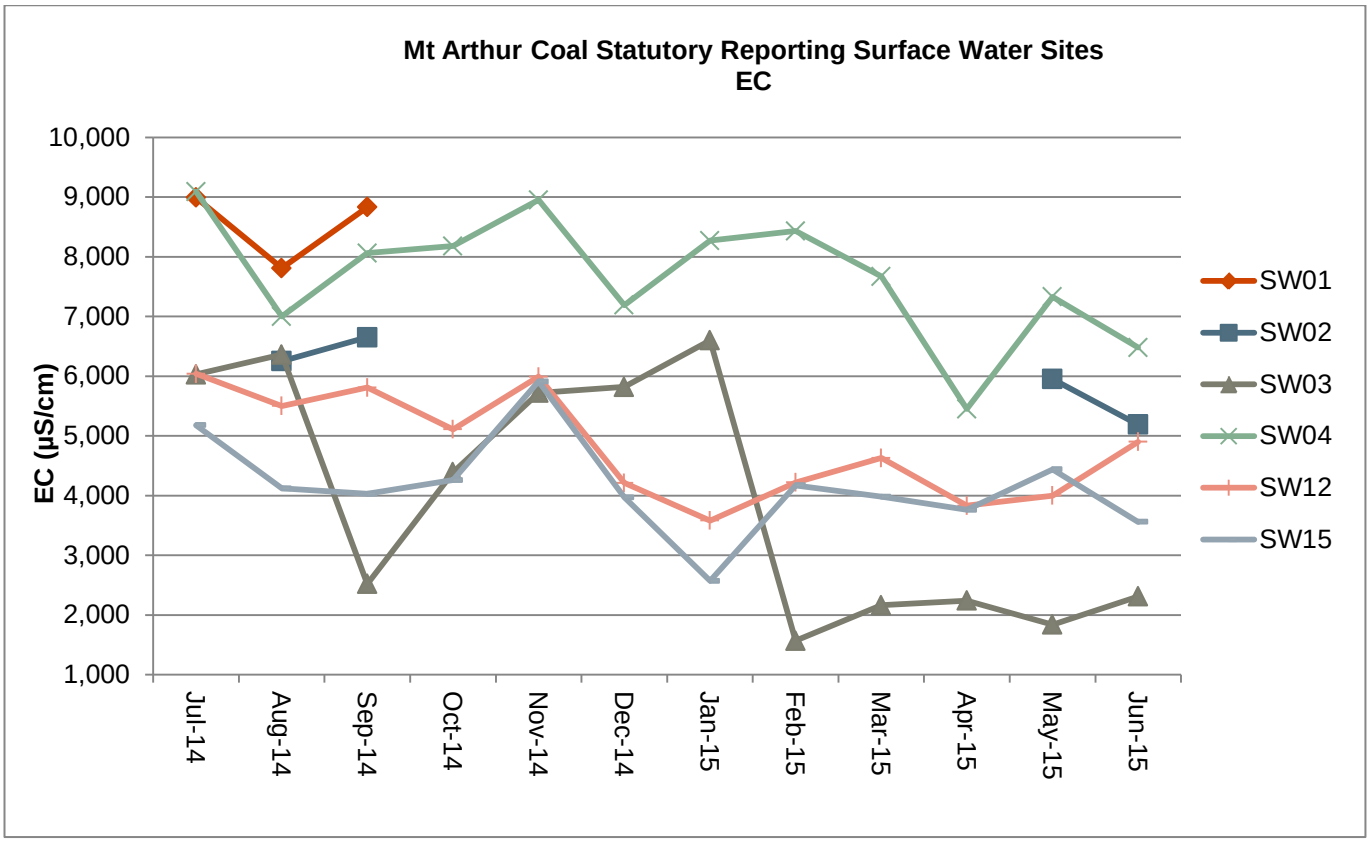
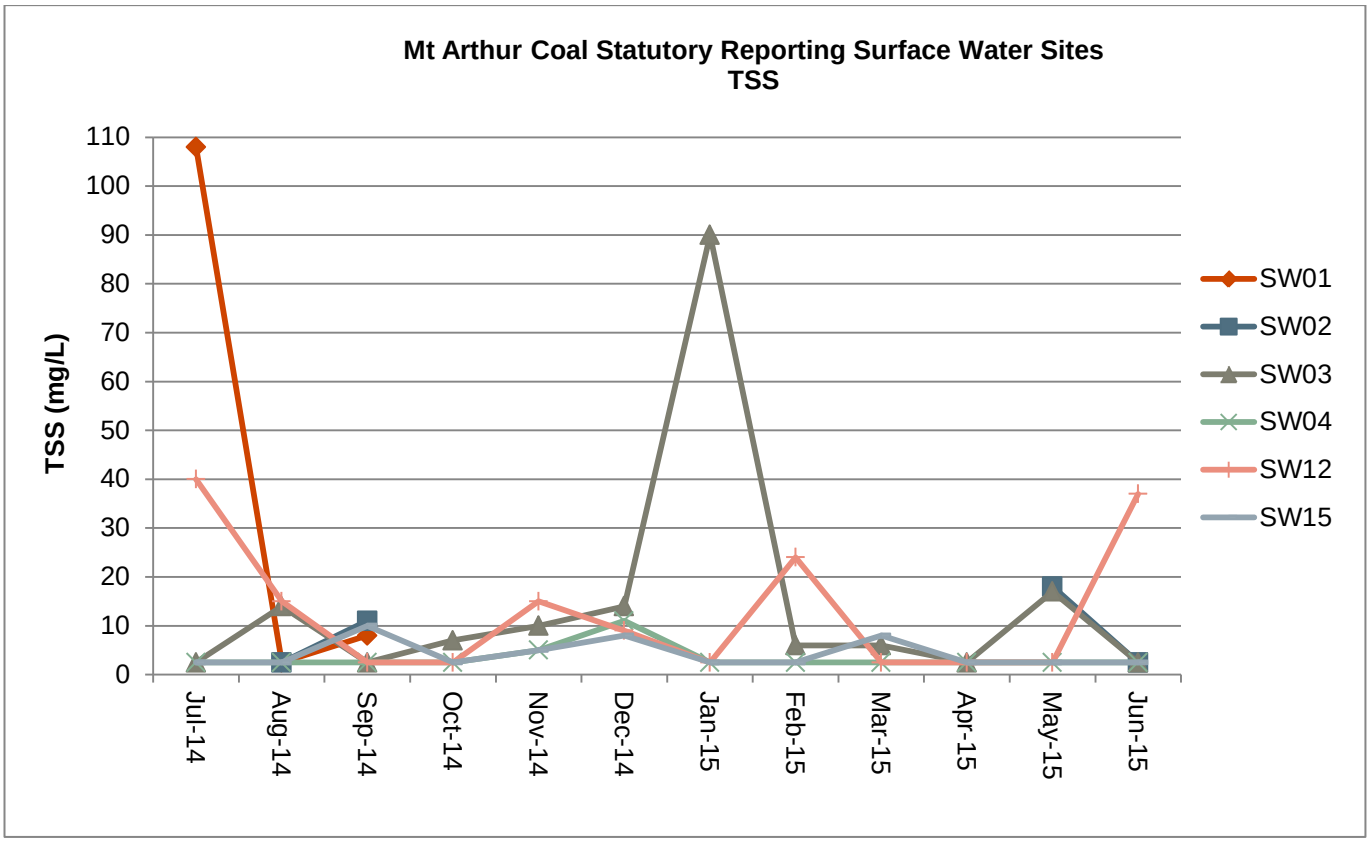


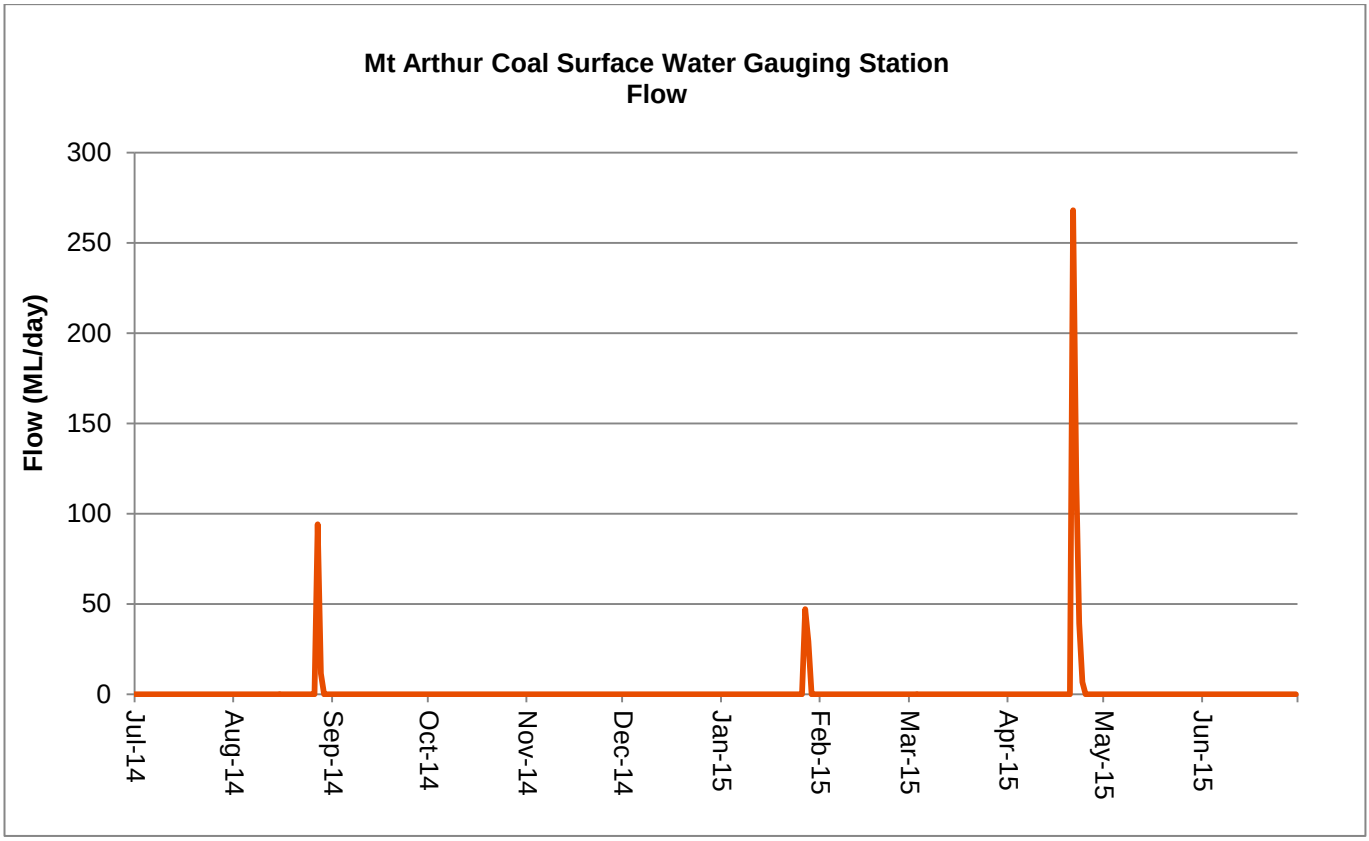
Figure 2B: Predicted annual average PM_{10} concentrations in µg/m³ due to emissions from the project and other sources in 2016 compared with FY15 measured concentrations – TEOMs

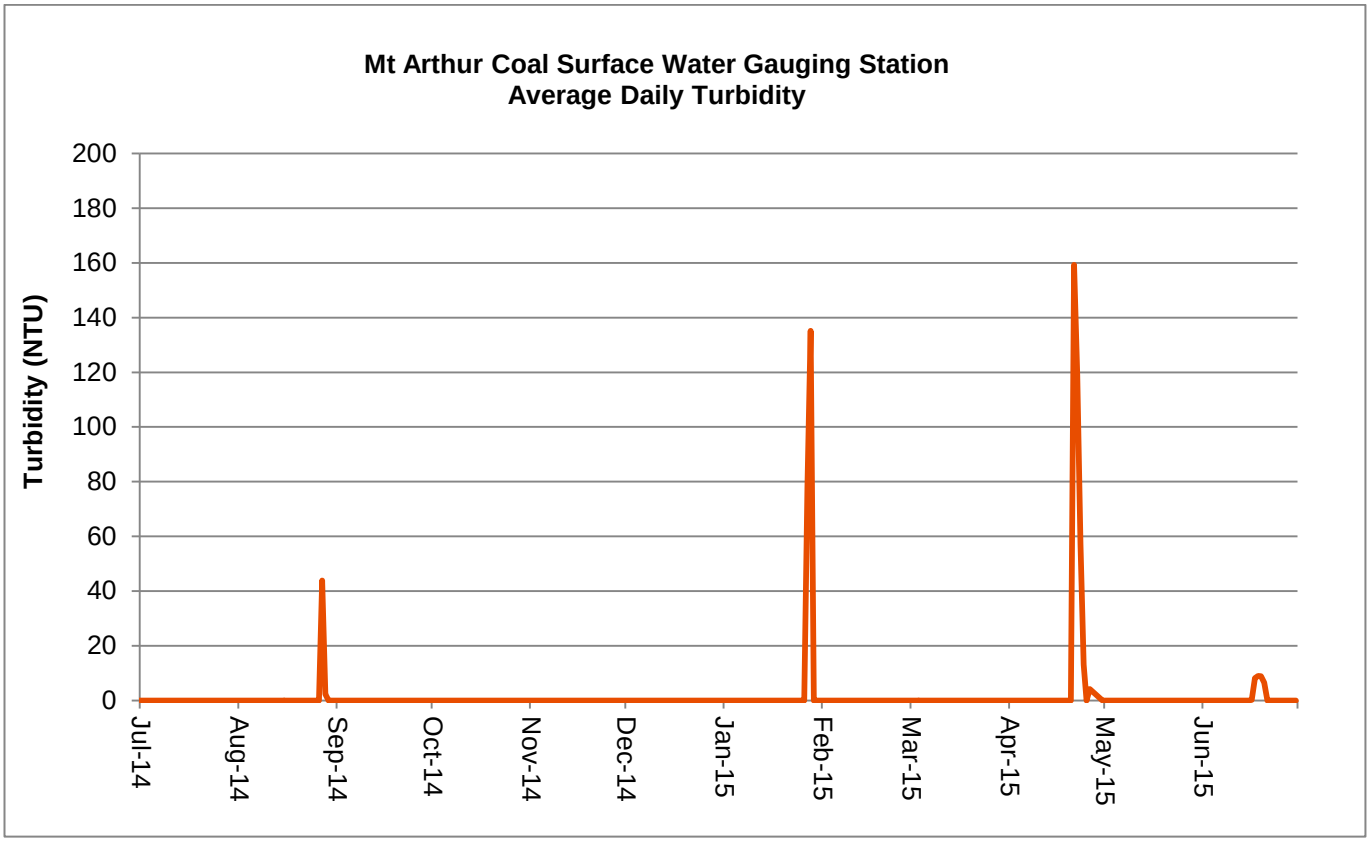
Appendix 3 - Surface Water Quality Monitoring Results

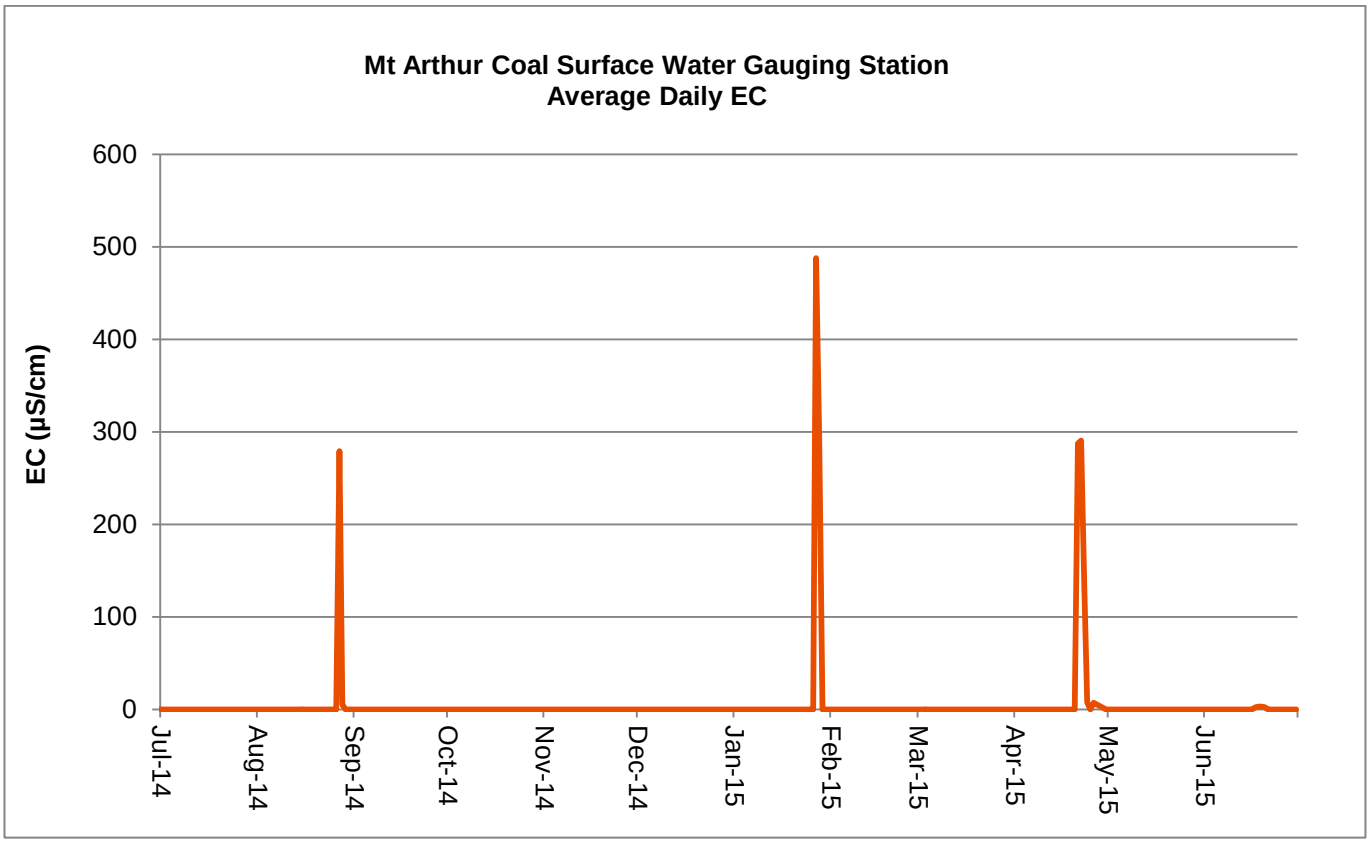




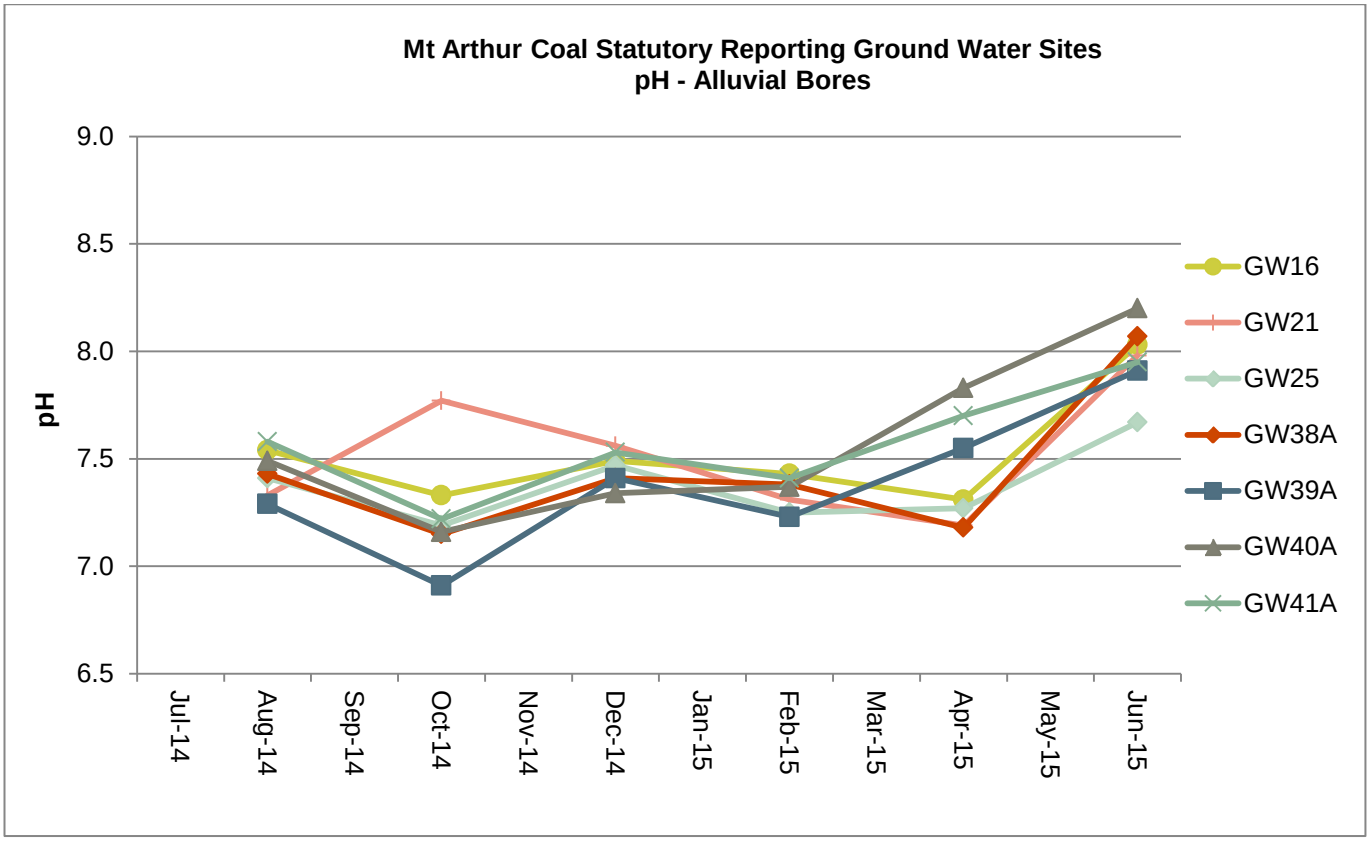

Mt Arthur Coal Statutory Reporting Surface Water Sites
TSS
TSS (mg/L)
110
100
90
80
70
60
50
40
30
20
10
0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
SW01
SW02
SW03
SW04
SW12
SW15

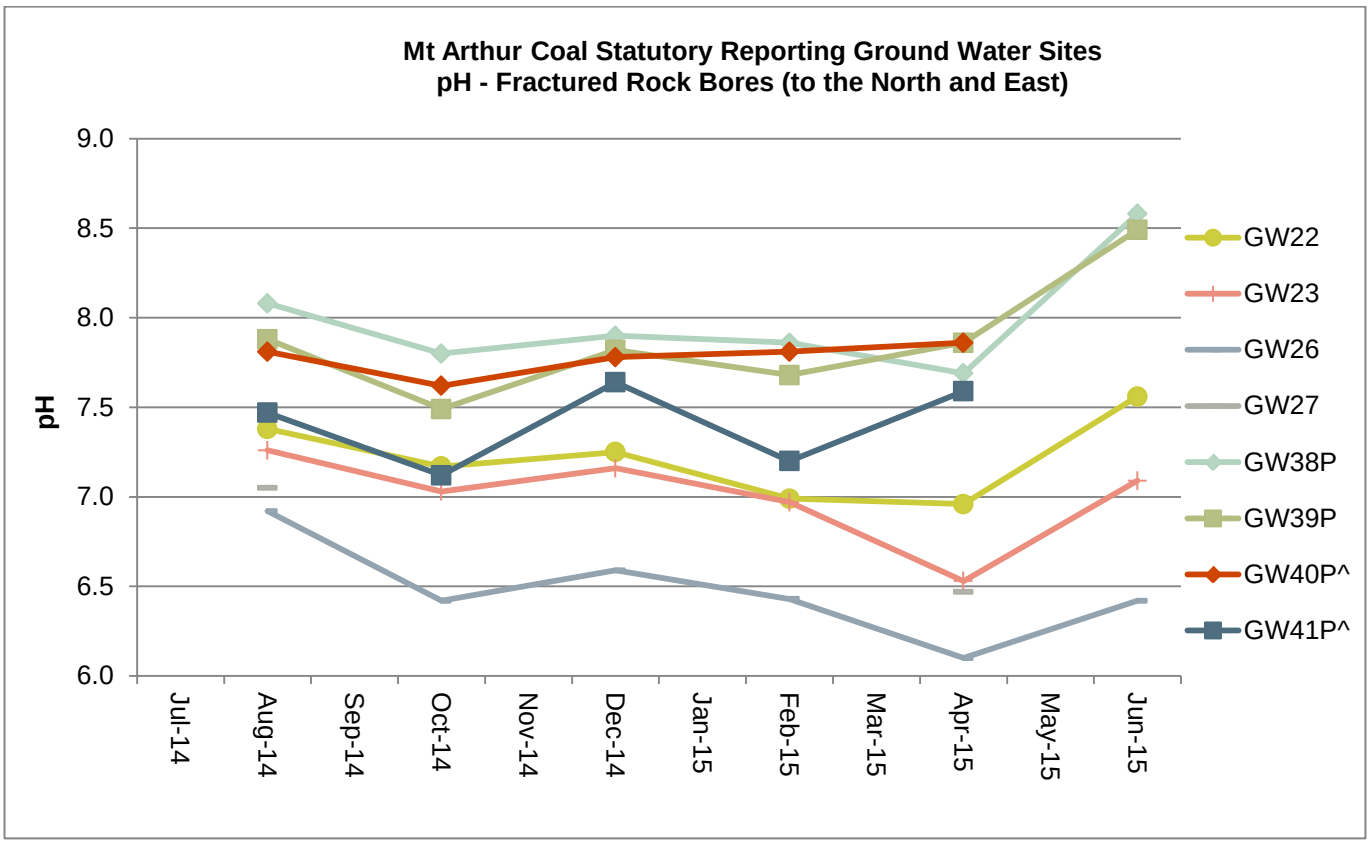

Mt Arthur Coal Surface Water Gauging Station
Flow
Flow (ML/day)
300
250
200
150
100
50
0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15


Mt Arthur Coal Surface Water Gauging Station
Average Daily Turbidity
Turbidity (NTU)
200
180
160
140
120
100
80
60
40
20
0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15

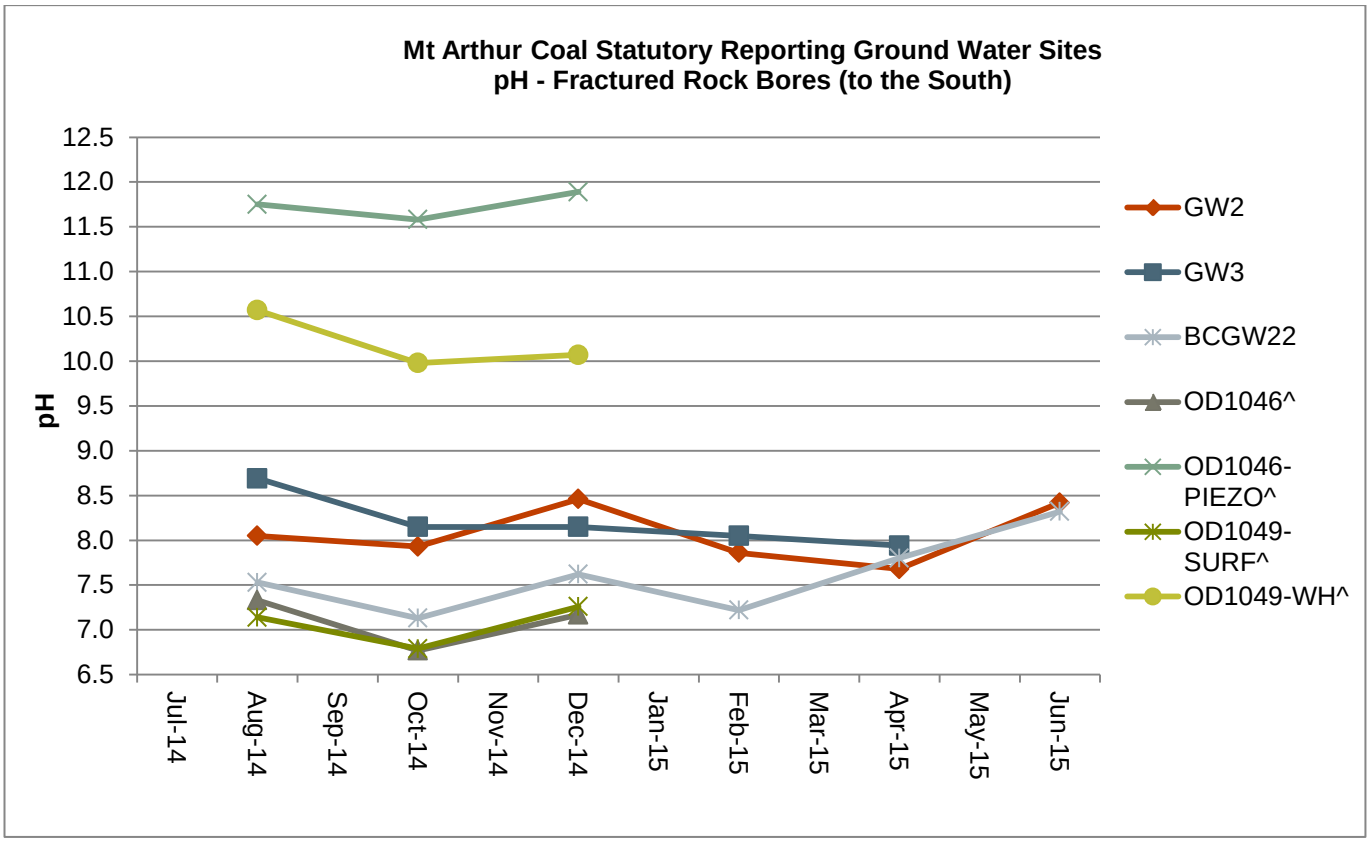

Mt Arthur Coal Surface Water Gauging Station
Average Daily EC
EC (µS/cm)
600
500
400
300
200
100
0
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15

Appendix 4 - Ground Water Quality Monitoring Results

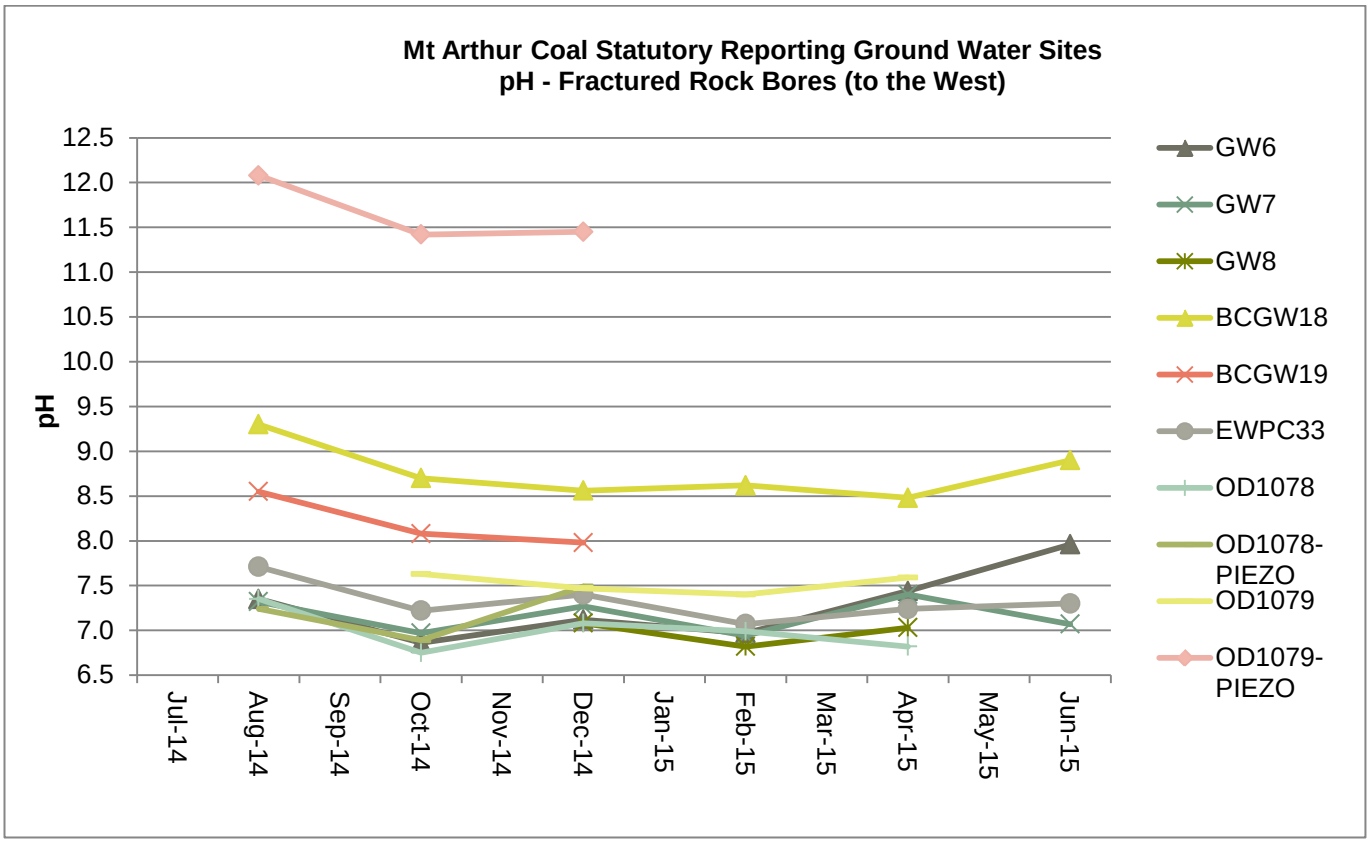


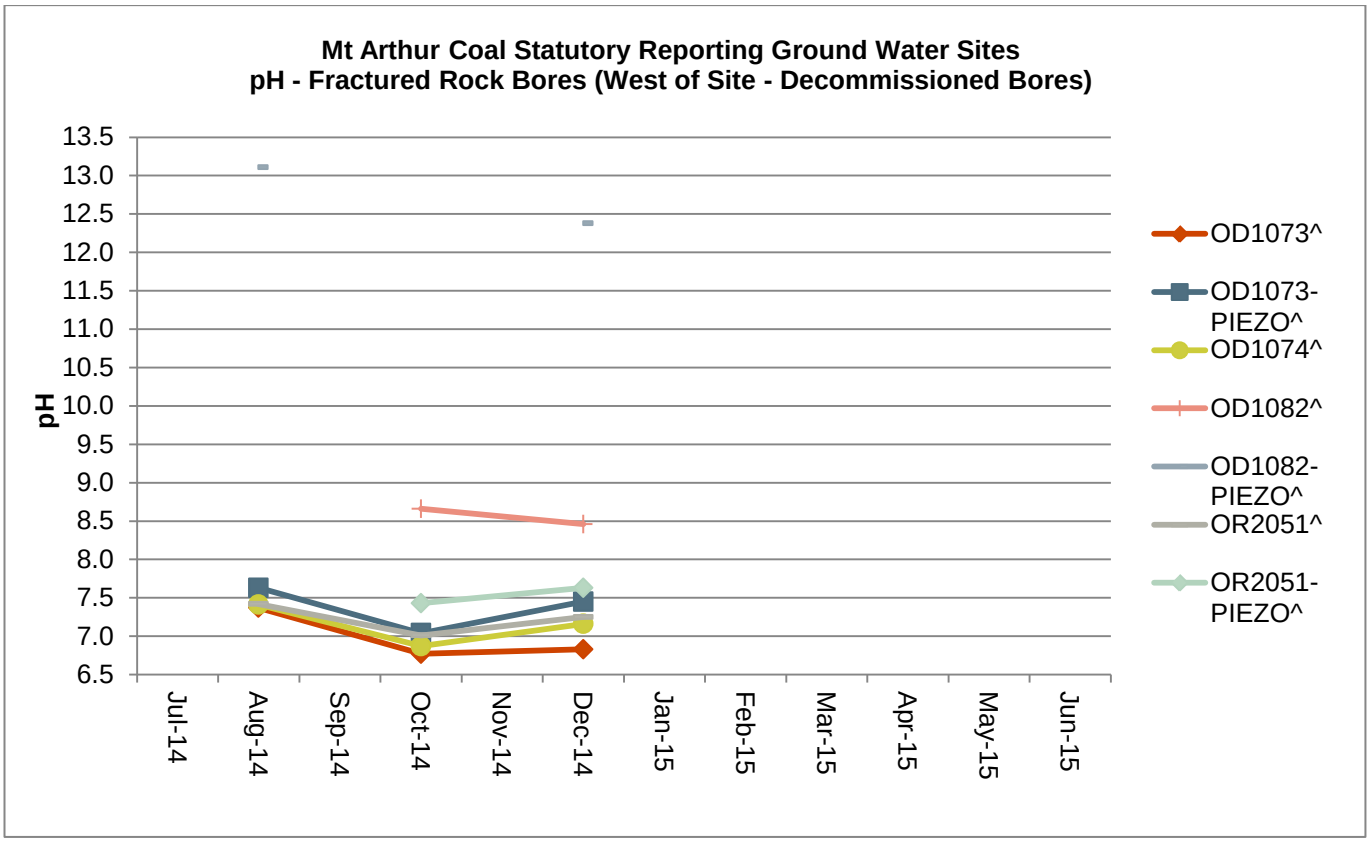


^ Indicates this bore was decommissioned as part of the network review

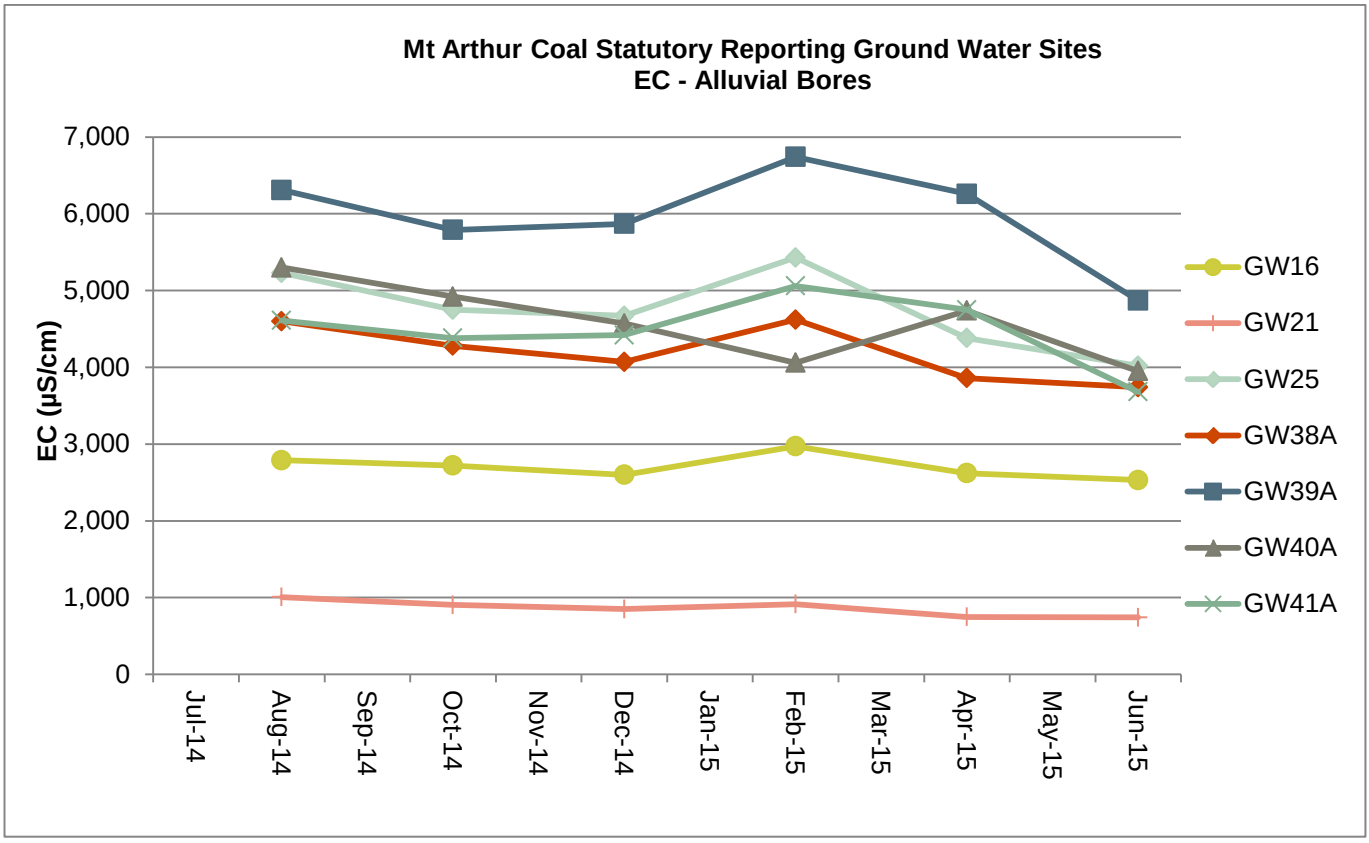


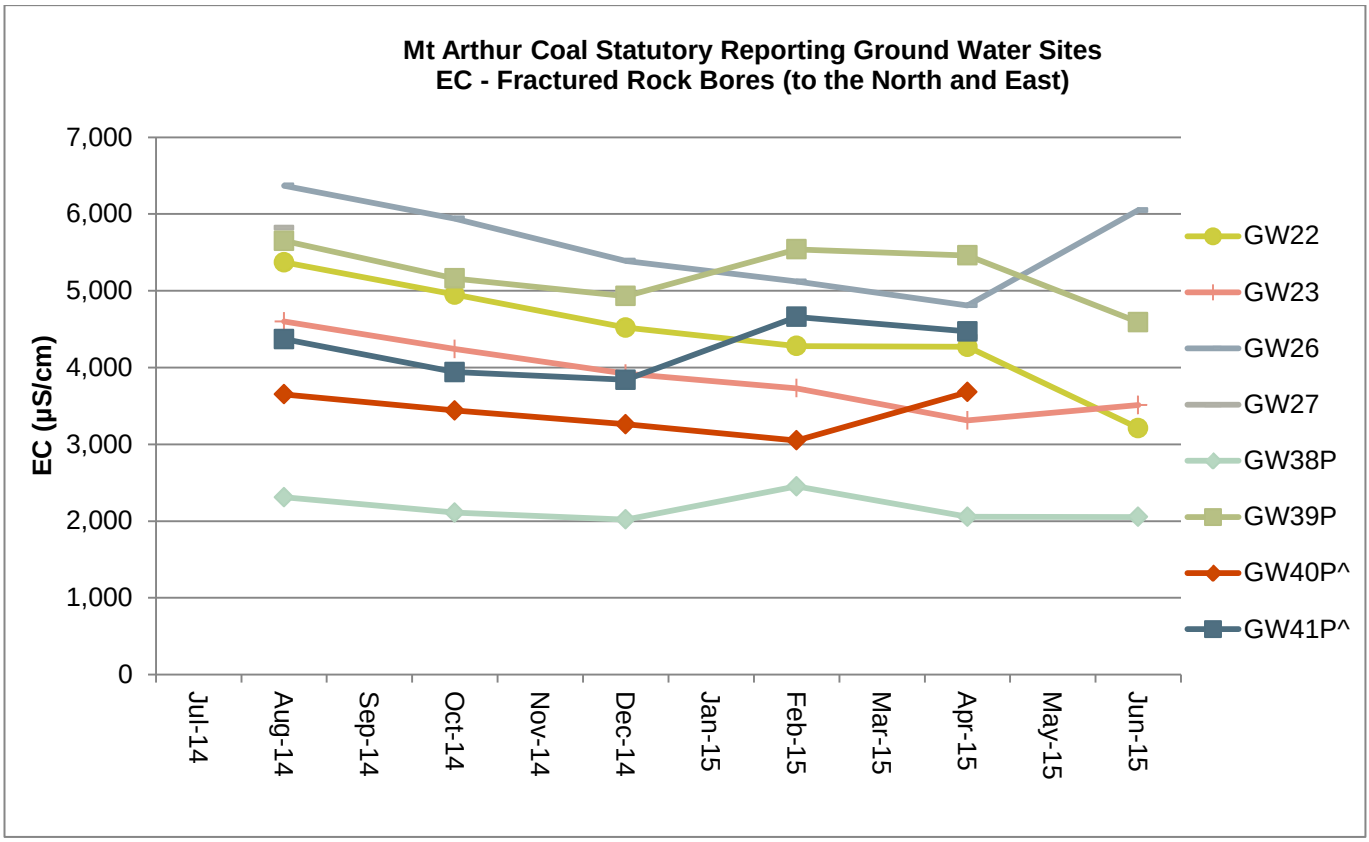
^ Indicates this bore was decommissioned as part of the network review



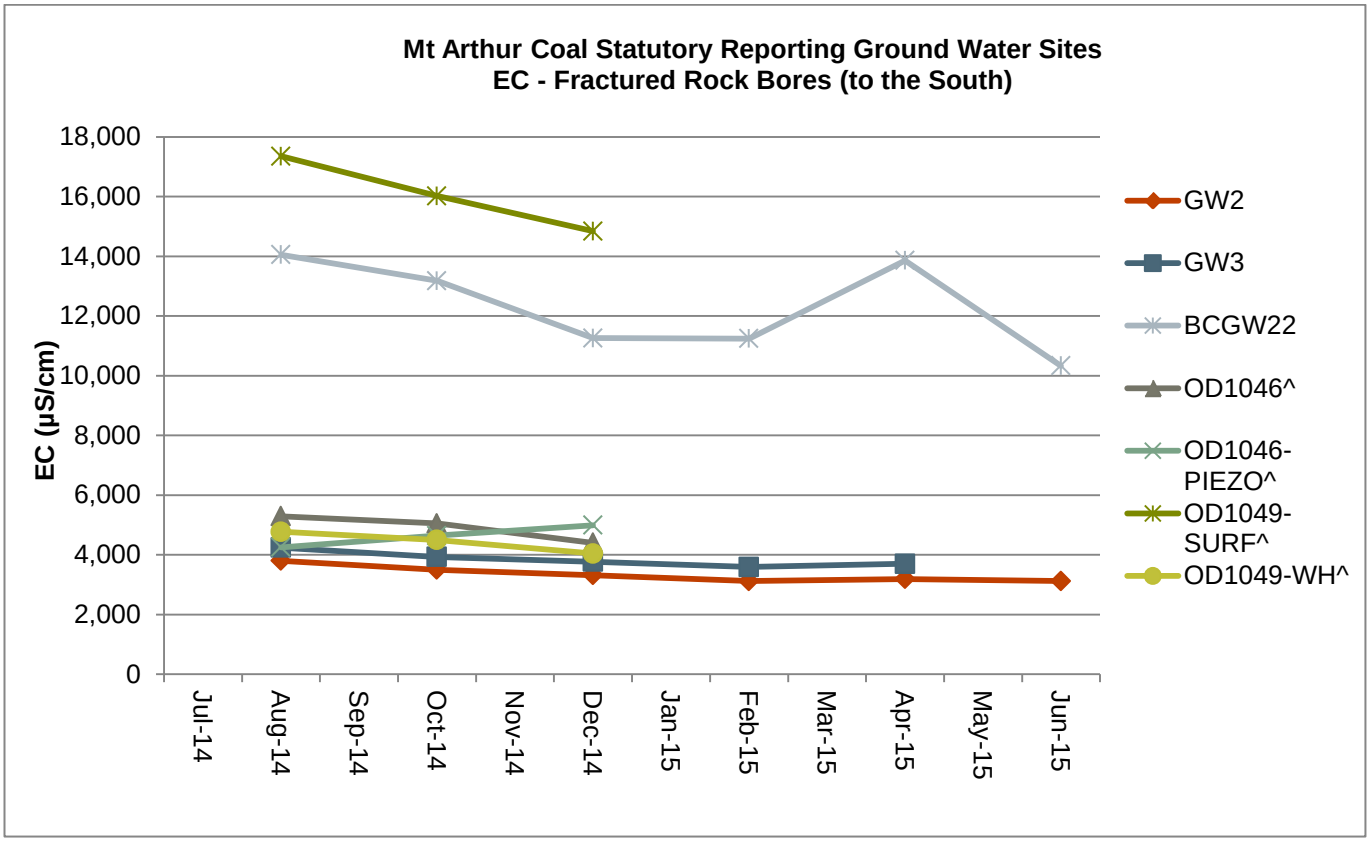


^ Indicates this bore was decommissioned as part of the network review

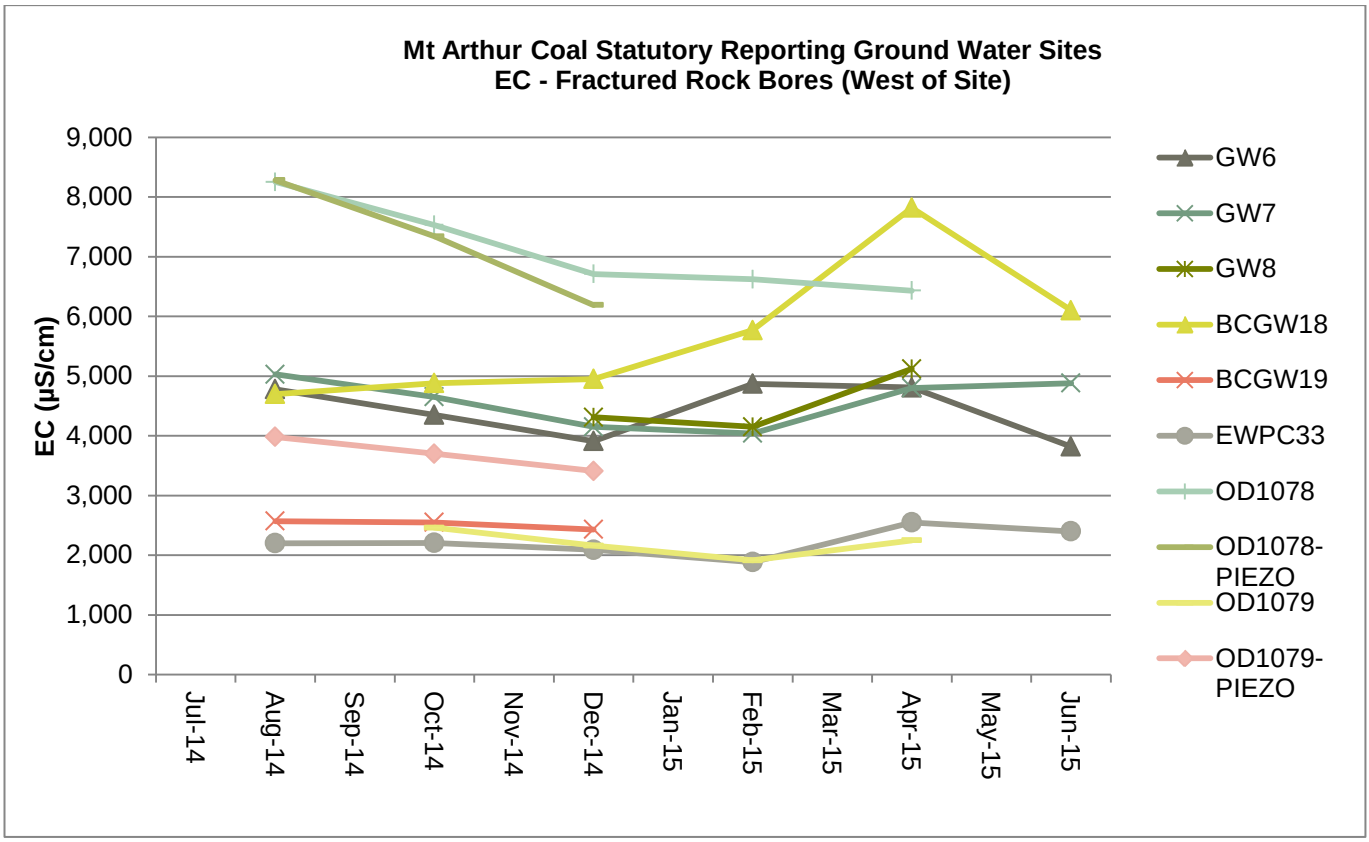


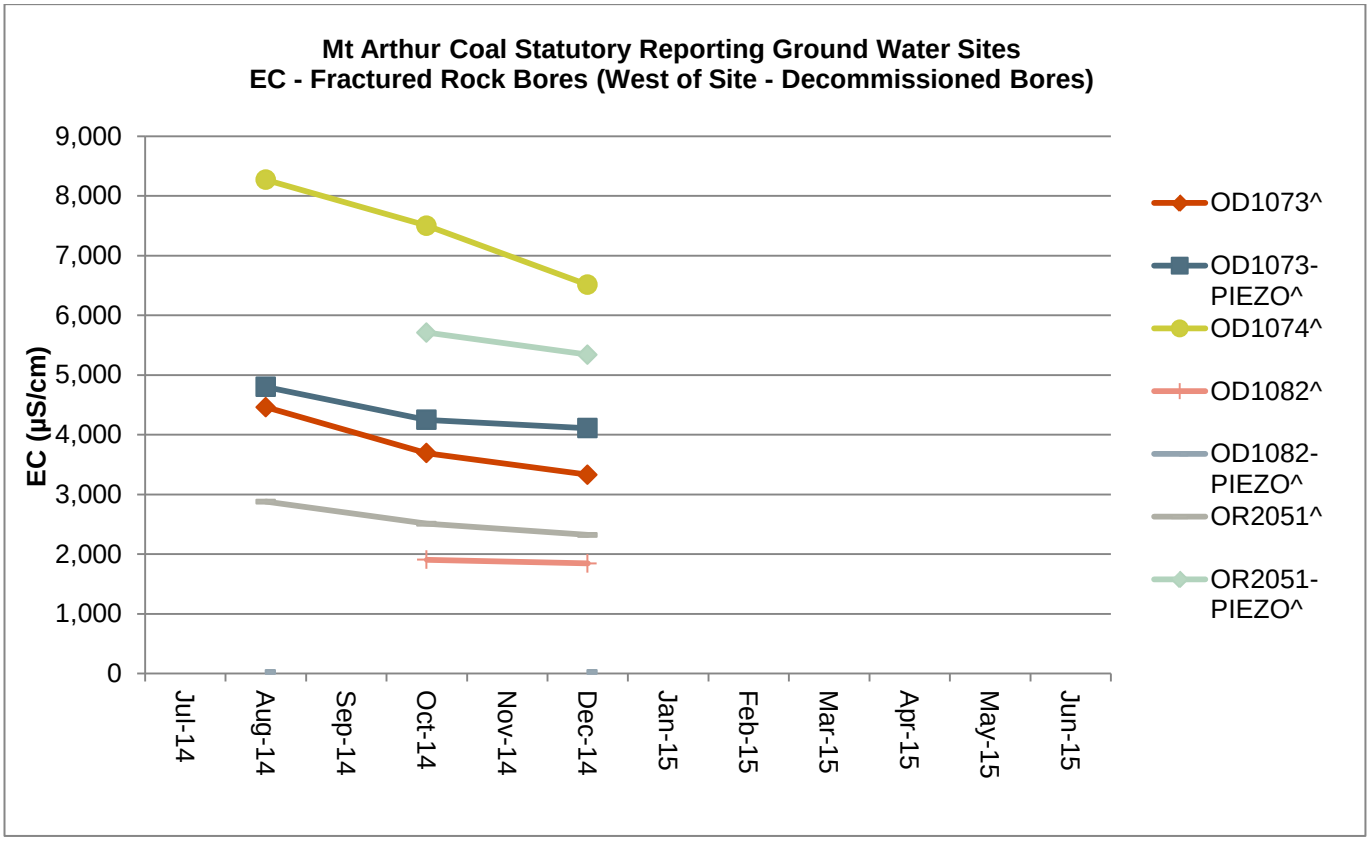


^ Indicates this bore was decommissioned as part of the network review



^ Indicates this bore was decommissioned as part of the network review





^ Indicates this bore was decommissioned as part of the network review

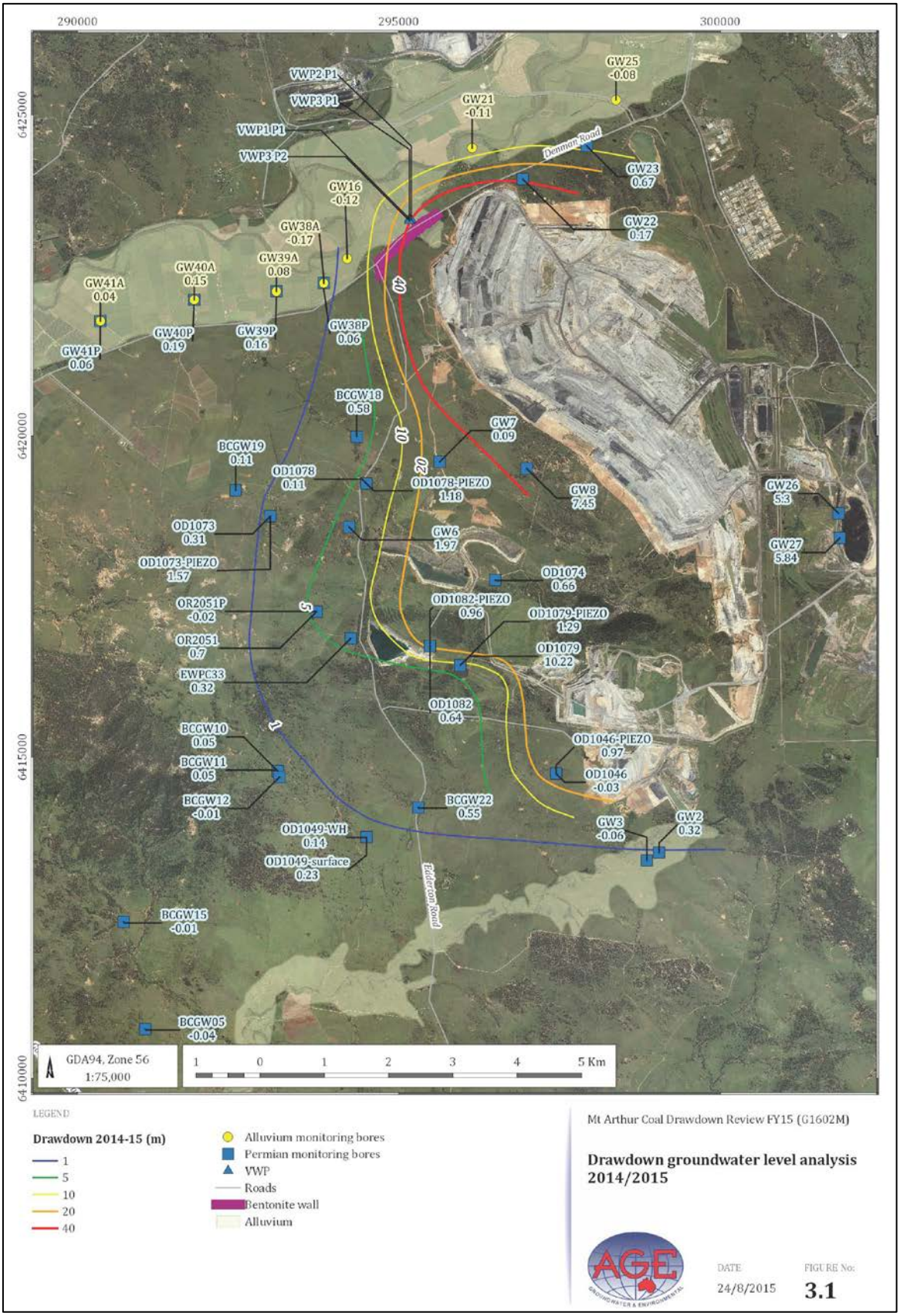


Figure 4A: Total measured ground water drawdown contours and ground water drawdown data points for the reporting period

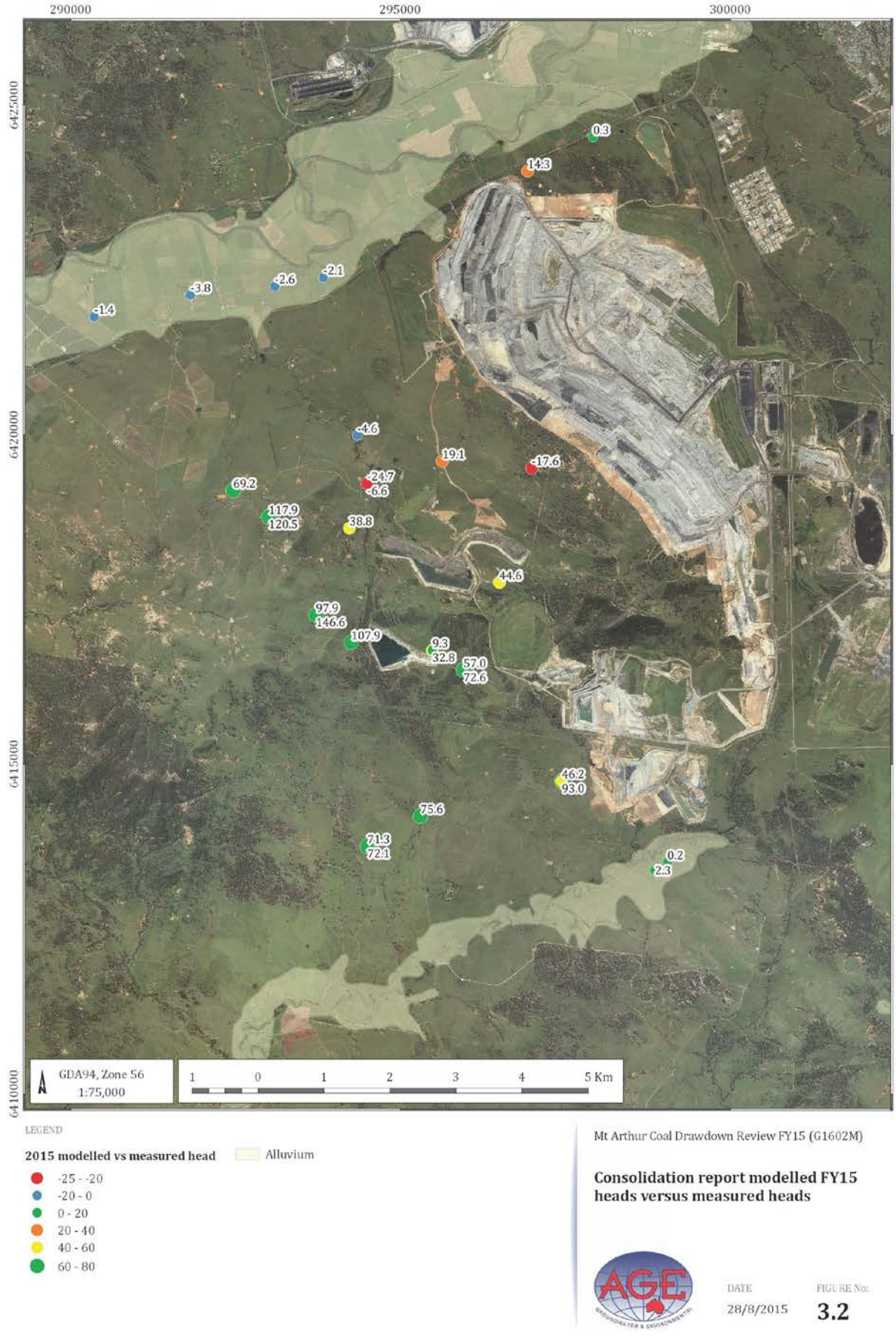
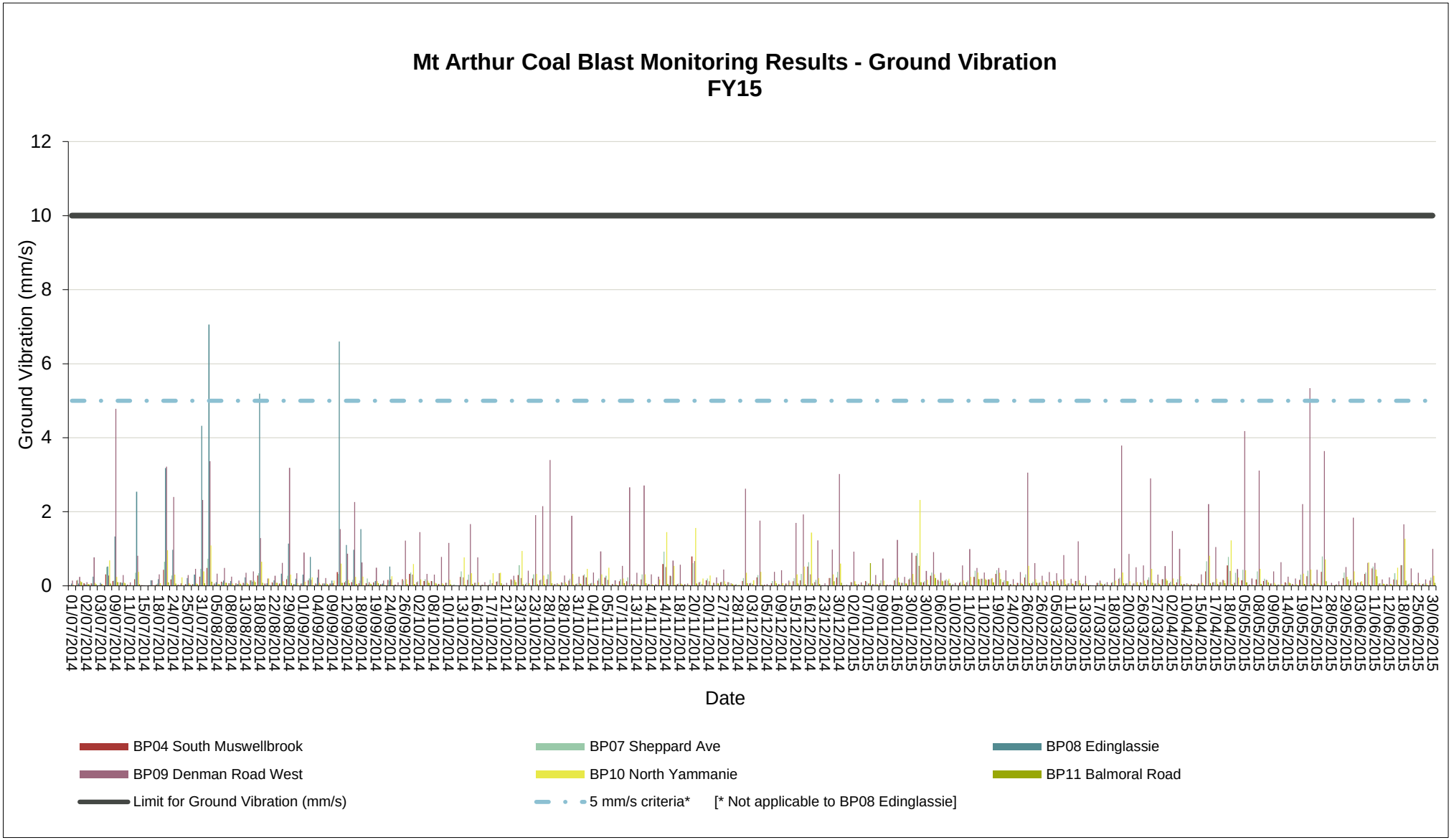
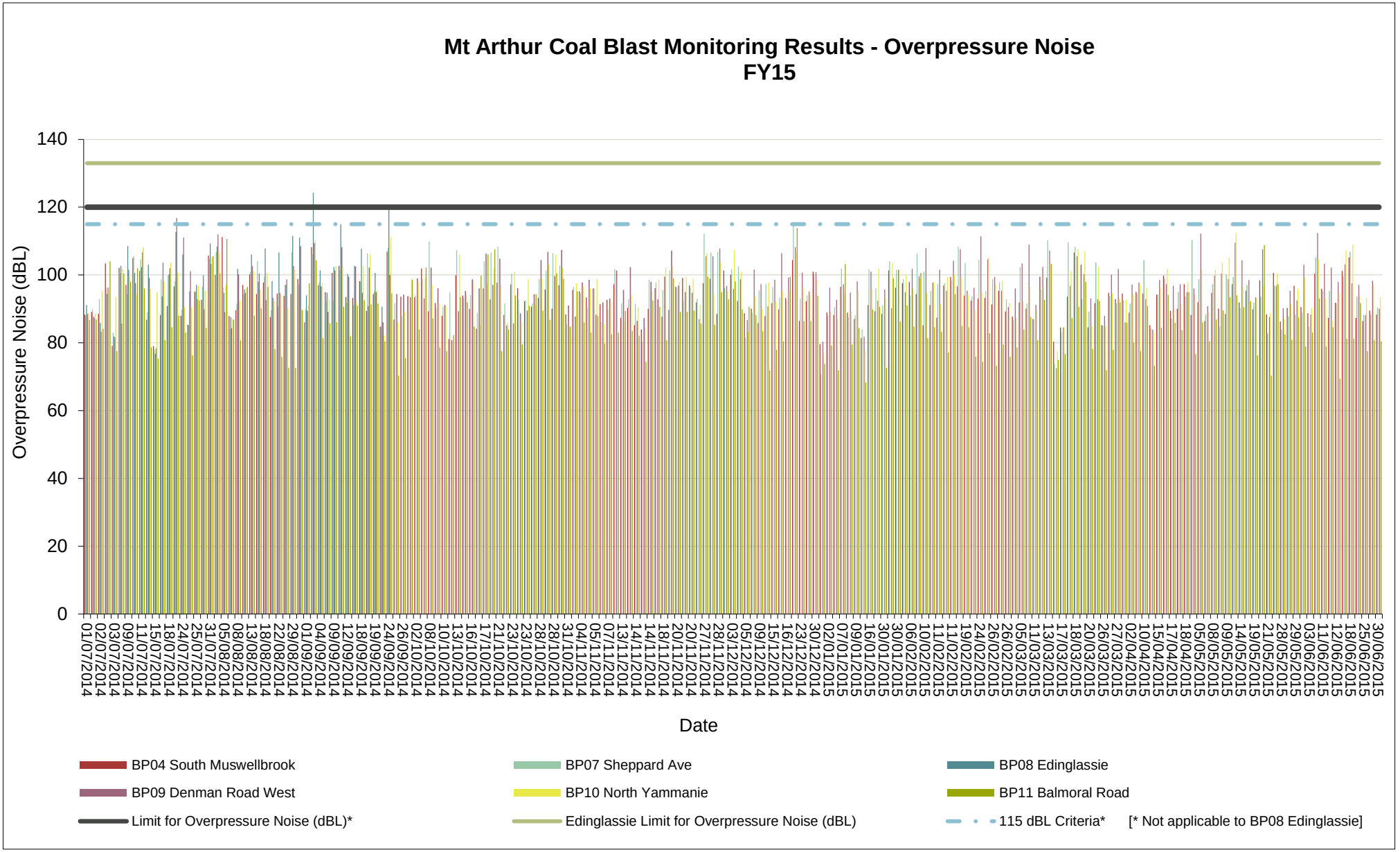


Figure 4B: Modelled versus measured ground water drawdown comparison

Appendix 5 - Blast Monitoring Results




Mt Arthur Coal Blast Monitoring Results - Overpressure Noise
FY15
Overpressure Noise (dBL)
140
120
100
80
60
40
20
0
Date
BP04 South Muswellbrook
BP07 Sheppard Ave
BP08 Edinglassie
BP09 Denman Road West
BP10 North Yammanie
BP11 Balmoral Road
Limit for Overpressure Noise (dBL)*
Edinglassie Limit for Overpressure Noise (dBL)
115 dBL Criteria*
[* Not applicable to BP08 Edinglassie]

Appendix 6 - Meteorological Data

WS09	Temperature 2m (°C)			Temperature 10m (°C)			Relative Humidity (%)			Wind speed (m/s)			Sigma Theta			Solar Radiation (W/m^2)			Rainfall (mm)	No. of days rain >1mm
	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.		
July 2014	1.4	10.5	21.0							0.0	3.7	11.9	3.9	15.4	99.8	0.0	194.0	1140.1		
August 2014	0.9	11.5	19.8							0.0	3.1	12.9	1.2	17.1	94.1	0.0	226.5	1315.9		
September 2014	2.7	14.6	29.1							0.0	3.1	11.0	3.6	18.1	101.4	0.0	322.4	1646.7		
October 2014	5.7	19.2	37.7	12.1	24.0	36.7	9.9	41.8	89.5	0.0	3.3	15.5	2.7	20.2	97.9	0.0	401.6	1606.1		
November 2014	10.7	21.8	42.4	11.5	22.1	41.4	9.8	56.1	91.7	0.0	3.8	16.7	4.3	19.5	100.9	0.0	392.5	1727.6		
December 2014	11.8	21.9	36.6	7.2	22.3	35.7	10.8	62.8	91.1	0.0	3.6	12.0	4.7	19.4	97.9	0.0	343.5	1786.1		
January 2015	12.2	23.1	34.8	12.7	23.4	34.4	16.2	63.9	91.1	0.0	3.5	12.9	5.1	20.1	101.1	0.0	371.6	1809.5		
February 2015	12.2	22.0	34.2	13.5	22.3	33.6	22.6	67.3	90.8	0.0	3.6	9.7	5.4	18.2	93.5	0.0	378.4	1751.5		
March 2015	12.2	23.1	34.8	12.7	23.4	34.4	16.2	63.9	91.1	0.0	3.5	12.9	5.1	20.1	101.1	0.0	371.6	1809.5	5.6	2
April 2015	7.2	16.8	30.6	8.1	17.3	30.5	30.1	69.8	92.1	0.0	3.3	13.9	0.1	16.7	92.2	0.0	219.6	1351.8	10.2	5
May 2015	2.3	13.8	24.8	3.3	14.5	25.3	30.8	69.8	93.1	0.0	3.4	11.6	4.1	14.8	99.3	0.0	169.3	1089.0	5.4	2
June 2015	0.7	11.2	19.2	1.8	11.2	20.4	37.1	74.6	93.5	0.0	2.0	7.7	3.6	18.6	101.7	0.0	157.3	972.6	14.0	3

Note: 10m temperature and humidity data was not available from 1 July to 22 October 2014 due to a broken sensor.
Note: Valid rainfall data was not recorded from 1 July 2014 to 7 March 2015 due to a calculation error caused by system upgrades

WS10	Temperature 2m (°C)			Temperature 10m (°C)			Relative Humidity (%)			Wind speed (m/s)			Solar Radiation (W/m^2)			Rainfall (mm)	No. of days rain >1mm
	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.		
July 2014	-5.5	9.2	23.1	-2.9	10.2	22.5				0.0	1.3	5.5	1.0	126.1	917.0	15.2	4
August 2014	-3.8	10.6	21.6	-1.0	11.6	20.7	34.2	80.4	99.3	0.0	1.2	5.9	1.1	108.5	893.7	21.4	5
September 2014	-2.0	13.5	31.6	1.0	14.6	30.8	20.3	71.2	99.4	0.0	1.2	5.2	0.0	112.9	932.9	49.8	6
October 2014	1.0	18.5	39.9	3.6	19.2	38.3	9.7	60.2	99.1	0.0	1.4	6.5	1.1	146.6	1330.7	44.0	6
November 2014	0.0	22.5	45.7	0.0	22.8	44.0	0.0	60.6	99.5	0.0	1.8	6.7	1.1	212.7	1211.3	26.0	5
December 2014	4.6	22.5	40.1	11.2	22.9	37.6	13.5	69.9	99.0	0.0	1.6	6.2	1.0	265.9	1515.4	24.2	3
January 2015	8.9	23.5	37.1	10.8	23.9	35.4	17.0	70.4	98.9	0.0	1.6	5.7	1.0	277.3	1569.4	94.2	9
February 2015	9.2	22.7	37.2	11.1	23.0	35.6	20.2	71.9	99.2	0.0	1.9	5.2	1.1	259.1	1543.0	22.4	3
March 2015	3.2	21.1	40.4	6.3	21.7	38.8	14.5	69.1	99.6	0.0	1.5	7.3	0.8	214.3	1267.3	44.2	5
April 2015	5.8	16.9	32.4	6.7	17.4	31.7	28.6	77.2	99.7	0.0	1.3	5.9	1.1	147.7	1229.3	131.6	8
May 2015	-1.4	13.6	26.5	0.5	14.4	26.2	32.2	78.3	99.8	0.0	1.2	5.6	0.8	114.0	1070.7	60.0	8
June 2015	-3.1	9.0	22.0	-1.7	10.1	21.6	23.8	86.3	100.3	0.0	0.7	3.4	0.8	108.3	886.7	22.8	2

Note: Valid relative humidity data was not available 1 July to 11 August 2014 due to a faulty sensor.

Appendix 7 - Community Complaints Register

Date and time	Complainant Identifier	From	Issue	Lodgement type	Investigation and response to caller
01/07/2014 11:09	33	Denman Road	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria.
03/07/2014 10:28	4	Muswellbrook	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria.
08/07/2014 11:02	8	Denman Road	Blast Dust	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria.
14/07/2014 22:12	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
15/07/2014 23:39	19	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
17/07/2014 11:46	25	Denman Road	Other	Community Response Line	Investigation revealed that a delivery truck exiting the site had tracked mud onto a public road. Mt Arthur Coal had commenced a response to the incident at the time.
19/07/2014 12:42	12	South Muswellbrook	Operational Noise	Community Response Line	Investigation revealed no unusual mining operations were occurring at the time.
20/07/2014 23:29	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
20/07/2014 00:31	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
23/07/2014 02:05	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
24/07/2014 02:15	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
24/07/2014 14:38	8	Denman Road	Blast Fume	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria.

Date and time	Complainant Identifier	From	Issue	Lodgement type	Investigation and response to caller
24/07/2014 14:39	18	Other	Blast Overpressure Noise	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria.
24/07/2014 15:00	27	Other	Blast Fume	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria.
24/07/2014 00:35	19	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
25/07/2014 00:28	19	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
30/07/2014 20:44	10	Skellatar Stock Route	Lighting	Community Response Line	Investigation revealed location of lights, no action was taken as the lights were not facing the neighbour. Caller did not request to be called back regarding investigation results.
04/08/2014 03:19	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
04/08/2014 20:27	10	Skellatar Stock Route	Lighting	Community Response Line	Investigation revealed location of lights, which were redirected or turned off. Caller did not request to be called back regarding investigation and monitoring results.
05/08/2014 10:44	4	Muswellbrook	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
06/08/2014 17:57	10	Skellatar Stock Route	Lighting	Community Response Line	Investigation revealed location of lights, however no action was taken as lights were not facing the road. Caller was advised of investigation results and action taken.
07/08/2014 19:41	16	Roxburgh Road	Lighting	Community Response Line	Caller was notified that no unusual operations occurring at the time of the complaint.

Date and time	Complainant Identifier	From	Issue	Lodgement type	Investigation and response to caller
08/08/2014 10:52	15	Denman Road	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Fume rating was 0. Caller was advised of investigation and monitoring results.
08/08/2014 11:05	16	Roxburgh Road	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Fume rating was 0. Caller was advised of investigation and monitoring results.
08/08/2014 11:06	26	Roxburgh Road	Blast Overpressure Noise	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Fume rating was 0. Caller was advised of investigation and monitoring results.
08/08/2014 11:16	30	Roxburgh Road	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Fume rating was 0. Caller was advised of investigation and monitoring results.
12/08/2014 03:54	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
12/08/2014 11:52	16	Roxburgh Road	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Fume rating was 0. Caller was advised of investigation and monitoring results.
12/08/2014 23:09	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
14/08/2014 23:35	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
23/08/2014 22:56	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.

Date and time	Complainant Identifier	From	Issue	Lodgement type	Investigation and response to caller
01/09/2014 02:44	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
01/09/2014 10:02	8	Denman Road	Blast Dust	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated minimal dust associated with the blast. Fume rating was 0. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
16/09/2014 04:49	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
23/09/2014 21:48	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
25/09/2014 23:10	19	Roxburgh Road	Lighting	Community Response Line	Investigation revealed location of lights, which were redirected or turned off. Caller was advised of investigation results and action taken.
27/09/2014 02:41	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
27/09/2014 04:08	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
27/09/2014 06:29	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
27/09/2014 22:36	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
28/09/2014 12:38	19	Roxburgh Road	Lighting	Community Response Line	Investigation revealed location of lights, which were redirected or turned off. Caller was advised of investigation results and action taken.
30/09/2014 01:28	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
07/10/2014 23:29	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
12/10/2014 19:48	10	Skellatar Stock Route	Lighting	Community Response Line	Investigation revealed location of lights, which were redirected or turned off. Caller was advised of investigation results and action taken. Caller advised they were satisfied that the issue had been resolved.

Date and time	Complainant Identifier	From	Issue	Lodgement type	Investigation and response to caller
13/10/2014 15:41	2	Denman Road	General Dust	Community Response Line	Investigation revealed mining operations had already ceased at the time. Results at the nearest monitor indicated dust levels were not elevated at the time, and the 24 hour average remained within regulatory criteria. Caller was advised of investigation and monitoring results.
18/10/2014 23:59	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
23/10/2014 10:37	9	Racecourse Road	Blast Fume	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results at the nearest monitor indicated dust levels were not elevated at the time, and the 24 hour average remained within regulatory criteria. Caller was advised of investigation and monitoring results.
28/10/2014 09:21	32	Antiene	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
28/10/2014 09:34	8	Denman Road	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
29/10/2014 10:27	19	Roxburgh Road	Lighting	Community Response Line	Investigation revealed location of lights, which were redirected or turned off. Caller was advised of investigation results and action taken.
31/10/2014 13:35	5	Racecourse Road	Blast Fume	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.

Date and time	Complainant Identifier	From	Issue	Lodgement type	Investigation and response to caller
08/11/2014 20:13	30	Roxburgh Road	Lighting	Community Response Line	Investigation revealed location of lights, which were redirected or turned off. Caller was advised of investigation results and action taken.
10/11/2014 10:28	11	Other	General Dust	Lodged with Third Party	Received from the NSW Environment Protection Authority on behalf of a resident. Investigation revealed no unusual mining operations were occurring at the time. Results at the nearest real-time monitor indicated noise levels were within internal benchmarks. The Authority was advised of investigation and monitoring results.
13/11/2014 14:27	34	Edderton Road	Blast Dust	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results at the nearest monitor indicated dust levels were not elevated at the time, and the 24 hour average remained within regulatory criteria. Caller was advised of investigation and monitoring results.
13/11/2014 22:52	19	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
13/11/2014 23:05	19	Roxburgh Road	Operational Noise	Lodged with Third Party	Received from the NSW Environment Protection Authority on behalf of a resident. Investigation revealed no unusual mining operations were occurring at the time. Results at the nearest real-time monitor indicated noise levels were within internal benchmarks. The Authority was advised of investigation and monitoring results.
17/11/2014 18:48	23	Racecourse Road	General Dust	Community Response Line	Investigation revealed mining operations had already ceased at the time. Results at the nearest monitor indicated dust levels were not elevated at the time, and the 24 hour average remained within regulatory criteria. Caller did not request to be called back regarding investigation and monitoring results.

Date and time	Complainant Identifier	From	Issue	Lodgement type	Investigation and response to caller
20/11/2014 13:08	5	Racecourse Road	Blast Dust	Community Response Line	Investigation revealed mining operations had already ceased at the time. Results at the nearest monitor indicated dust levels were not elevated at the time, and the 24 hour average remained within regulatory criteria. Caller did not request to be called back regarding investigation and monitoring results.
23/11/2014 07:38	7	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual mining operations were occurring at the time. Results at the nearest real-time monitor indicated noise levels were within internal benchmarks. Caller was advised of investigation and monitoring results.
28/11/2014 09:15	29	Denman Road	General Dust	Community Response Line	Investigation revealed mining operations had already ceased at the time. Results at the nearest monitor indicated dust levels were not elevated at the time, and the 24 hour average remained within regulatory criteria. Caller was advised of investigation and monitoring results.
30/11/2014 12:43	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
03/12/2014 12:37	8	Denman Road	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
09/12/2014 21:05	10	Skellatar Stock Route	Lighting	Community Response Line	Investigation revealed location of lights, which were redirected or turned off. Caller was advised of investigation results and action taken. Caller advised they were satisfied that the issue had been resolved
15/12/2014 09:35	32	Antiene	Train Noise	Community Response Line	Investigation revealed trains were operating at the time. Results at the nearest real-time monitor indicated noise levels were within regulatory criteria. Caller was advised of investigation and monitoring results.

Date and time	Complainant Identifier	From	Issue	Lodgement type	Investigation and response to caller
15/12/2014 10:57	8	Denman Road	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results at the nearest monitor indicated dust levels were not elevated at the time, and the 24 hour average remained within regulatory criteria. Caller was advised of investigation and monitoring results.
15/12/2014 12:59	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
16/12/2014 12:40	22	Denman Road	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
17/12/2014 23:13	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
19/12/2014 07:01	16	Roxburgh Road	Lighting	Community Response Line	Investigation revealed location of lights, which were redirected or turned off. Caller was advised of investigation results and action taken. Caller advised they were satisfied that the issue had been resolved
19/12/2014 22:41	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
28/12/2014 00:16	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
01/01/2015 12:11	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
01/01/2015 22:22	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
15/01/2015 21:17	10	Skellatar Stock Route	Lighting	Community Response Line	Investigation revealed location of lights, which were redirected or turned off. Caller was advised of investigation results and action taken. Caller advised they were satisfied that the issue had been resolved
21/01/2015 22:29	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
26/01/2015 23:12	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.

Date and time	Complainant Identifier	From	Issue	Lodgement type	Investigation and response to caller
27/01/2015 03:19	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
30/01/2015 14:56	14	Racecourse Road	Blast Overpressure Noise	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
30/01/2015 23:44	19	Roxburgh Road	Lighting	Community Response Line	Investigation revealed location of lights, which were turned off or redirected. Caller did not request to be called back regarding investigation results.
31/01/2015 20:57	16	Roxburgh Road	Lighting	Community Response Line	Investigation revealed location of lights, which were turned off or redirected. Caller did not request to be called back regarding investigation results.
06/02/2015 23:10	19	Roxburgh Road	Lighting	Community Response Line	Investigation revealed location of lights, which were redirected or turned off. Caller was advised of investigation results and action taken. Caller advised they were satisfied that the issue had been resolved
07/02/2015 21:20	16	Roxburgh Road	Lighting	Community Response Line	Investigation revealed location of lights, which were redirected or turned off. Caller was advised of investigation results and action taken. Caller advised they were satisfied that the issue had been resolved
10/02/2015 02:05	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
13/02/2015 16:39	19	Roxburgh Road	General Dust	Community Response Line	Investigation revealed mining operations had already ceased at the time. Caller was advised of investigation and monitoring results.
16/02/2015 10:47	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
18/02/2015 03:13	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
03/03/2015 04:34	30	Roxburgh Road	Lighting	Community Response Line	Investigation revealed location of lights, which were redirected or turned off. Caller was advised of investigation results and action taken. Caller advised they were satisfied that the issue had been resolved

Date and time	Complainant Identifier	From	Issue	Lodgement type	Investigation and response to caller
04/03/2015 11:03	32	Antiene	Train Noise	Community Response Line	Investigation revealed trains were operating at the time. Results at the nearest real-time monitor indicated noise levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
04/03/2015 21:39	19	Roxburgh Road	Lighting	Community Response Line	Investigation revealed location of lights, which were redirected or turned off. Caller was advised of investigation results and action taken. Caller did not answer call.
05/03/2015 19:39	19	Roxburgh Road	General Dust	Community Response Line	Investigation revealed mining operations had already ceased at the time. Results at the nearest monitor indicated dust levels were not elevated at the time, and the 24 hour average remained within regulatory criteria. Caller was advised of investigation and monitoring results.
05/03/2015 19:57	3	Other	General Dust	Community Response Line	Investigation revealed mining operations had already ceased at the time. Results at the nearest monitor indicated dust levels were not elevated at the time, and the 24 hour average remained within regulatory criteria. Caller was advised of investigation and monitoring results.
18/03/2015 13:51	8	Denman Road	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
26/03/2015 11:01	8	Denman Road	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
26/03/2015 00:21	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.

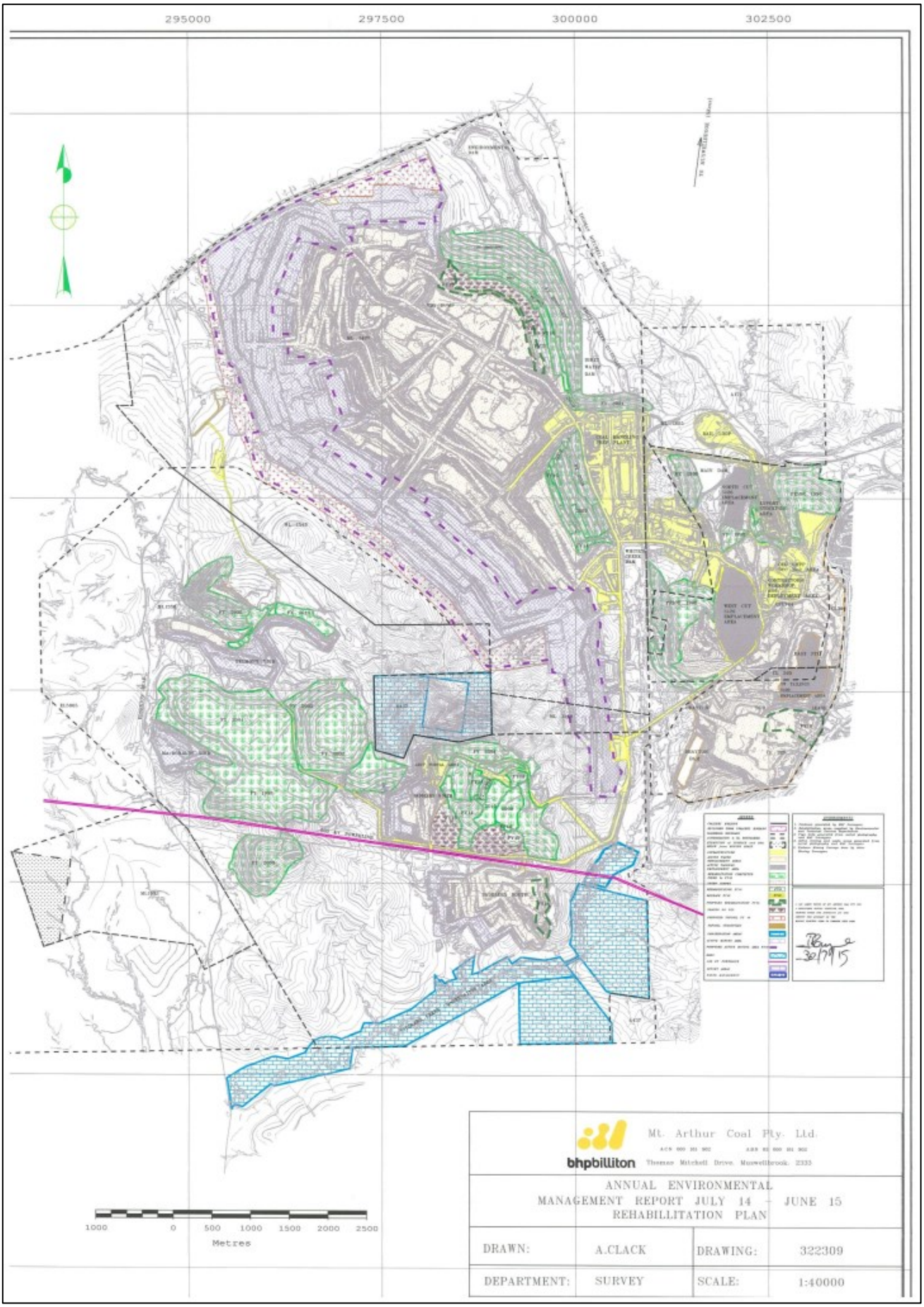
Date and time	Complainant Identifier	From	Issue	Lodgement type	Investigation and response to caller
04/04/2015 11:06	13	Other	Odour	Community Response Line	Investigation revealed no unusual mining operations were occurring at the time. Results at the nearest wind monitor indicated no notable wind activity. Caller was advised of investigation and monitoring results.
04/04/2015 11:06	24	Other	Odour	Lodged with Third Party	Received from the NSW Environment Protection Authority on behalf of a resident. Investigation revealed no unusual mining operations were occurring at the time. Results at the nearest wind monitor indicated no notable wind activity. Caller was advised of investigation and monitoring results.
26/04/2015 18:42	30	Roxburgh Road	Lighting	Community Response Line	Investigation revealed location of lights, which were turned off or redirected. Caller did not request to be called back regarding investigation results.
28/04/2015 09:21	16	Roxburgh Road	Blast Overpressure Noise	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
02/05/2015 19:47	17	Denman Road	Lighting	Community Response Line	Investigation revealed locations of lights were shining into the residence. OCE fixed during shift and complainant was satisfied with this upon call back the following day.
03/05/2015 03:28	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.
04/05/2015 20:29	6	Denman Road	Lighting	Community Response Line	Investigation revealed location of lights were the issue. The on shift OCE adjusted these after complaint was received and notified complainant. Complainant was satisfied with this response.

Date and time	Complainant Identifier	From	Issue	Lodgement type	Investigation and response to caller
07/05/2015 08:36	33	Denman Road	Odour	Community Response Line	Investigation revealed that at the time of complaint wind was blowing in a NW direction at 4m/s and therefore not coming from Mt Arthur Coal. I spoke with complainant to provide her with the wind direction and speed information and she said the smell had subsided since her call.
13/05/2015 08:24	8	Denman Road	Lighting	Community Response Line	Investigation revealed location of lights were the issue. On shift OCE redirected these after call was received and resident was satisfied with this outcome
14/05/2015 11:10	16	Roxburgh Road	Blast Vibration	Community Response Line	Investigation revealed our blast was within criteria. Upon call back resident wished to advise that she felt large vibration from under the house that went on for 10 seconds, her glass windows shook and she thought it was an earthquake. Resident was satisfied that blast was within criteria, but wanted to advise us that she felt it in Wybong. Resident was satisfied wuth response.
20/05/2015 10:32	28	Other	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
20/05/2015 10:32	8	Denman Road	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
20/05/2015 10:32	1	New England Highway	Blast Vibration	Lodged with Third Party	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.

Date and time	Complainant Identifier	From	Issue	Lodgement type	Investigation and response to caller
20/05/2015 10:32	20	Antiene	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
21/05/2015 13:12	21	Antiene	Blast Overpressure Noise	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
23/05/2015 18:00	32	Antiene	Odour	Phone Call	Investigation revealed no unusual mining operations were occurring at the time. Results at the nearest wind monitor indicated no notable wind activity. Caller was advised of investigation and monitoring results.
23/05/2015 18:00	13	Other	Odour	Lodged with Third Party	Received from the NSW Environment Protection Authority on behalf of a resident. Investigation revealed no unusual mining operations were occurring at the time. Results at the nearest wind monitor indicated no notable wind activity. Caller was advised of investigation and monitoring results.
27/05/2015 09:39	24	Other	Lighting	Community Response Line	Caller was notified that no unusual operations occurring at the time of the complaint.
27/05/2015 11:28	31	Roxburgh Road	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
27/05/2015 23:28	35	Roxburgh Road	Operational Noise	Community Response Line	Investigation revealed no unusual operations occurring at the time of the complaint.

Date and time	Complainant Identifier	From	Issue	Lodgement type	Investigation and response to caller
28/05/2015 09:20	1	New England Highway	Blast Vibration	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
12/06/2015 11:59	32	Antiene	Blast Overpressure Noise	Community Response Line	Investigation revealed weather conditions were suitable for blasting at the time. Results indicated overpressure noise and ground vibration levels were within regulatory criteria. Caller was advised of investigation and monitoring results.
15/06/2015 17:46	17	Denman Road	Lighting	Community Response Line	Investigation revealed location of lights, which were turned off or redirected. Caller did not request to be called back regarding investigation results.

Appendix 8 - Rehabilitation Plan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bhpbilliton
Mt. Arthur Coal Pty. Ltd.
Thomas Mitchell Drive, Muswellbrook, 2333
ANNUAL ENVIRONMENTAL
MANAGEMENT REPORT JULY 14 - JUNE 15
REHABILLITATION PLAN
DRAWN: A.CLACK
DRAWING: 322309
DEPARTMENT: SURVEY
SCALE: 1:40000