AngloAmerican

DARTBROOK MINE

Annual Review | 2016

Hansen Bailey
ENVIRONMENTAL CONSULTANTS

ANGLO COAL (DARTBROOK MANAGEMENT) PTY LTD

DARTBROOK MINE

ANNUAL REVIEW 2016




Annual Review Title Block

Name of operation	Anglo Coal Dartbrook Mine
Name of operator	Anglo American Coal
Development consent	DA 231-07-2000
Name of holder of development consent	Dartbrook Coal Pty Ltd
Mining Leases	CL 386, ML 1497, ML 1381, ML 1456
Name of holder of mining leases	Anglo Coal Dartbrook Pty Ltd & Marubeni Coal Pty Ltd
Water licences	See Table 2 of Appendix B
Name of holder of water licences	Anglo Coal Dartbrook Pty Ltd & Marubeni Coal Pty Ltd
MOP start date	1st January 2013
MOP end date	31 December 2017
Annual Review start date	1 January 2016
Annual Review end date	31 December 2016
I, Douglas Fleming Stewart, certify that this audit report is a true and accurate record of the compliance status of Anglo Coal (Dartbrook Management) Pty Ltd for the period (2016) and that I am authorised to make this statement on behalf of Anglo Coal (Dartbrook Management) Pty Ltd. *Note.* *a) The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, $1 million and for an individual, $250,000.* *b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications / information/documents—maximum penalty 2 years imprisonment or $22,000, or both).*	
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Title of authorised reporting officer	Environmental Coordinator
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Date	March 2017

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Dartbrook Community Consultative Committee Members

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1.0 STATEMENT OF COMPLIANCE

This Annual Review has been prepared to provide a summary of the performance of the Dartbrook Coal Mine (Dartbrook) over the 2016 Calendar Year reporting period.

The compliance status of the Dartbrook against relevant approvals is summarised in Table 1. Dartbrook complied with all conditions of its Development Consent, Mining Authorisations and Environmental Protection Licence (EPL) in 2016.

An Independent Environmental Audit was undertaken by SLR Consulting Australia Pty Ltd (SLR) in July 2016. This audit assessed Dartbrook's compliance with regulatory requirements during the period from August 2013 to July 2016. This audit identified six non-compliances (5 administrative and 1 low risk) that occurred during this period. However, all of these non-compliances occurred prior to the 2016 Annual Review reporting period. The findings of this audit are discussed further in Section 10.0.

Table 1
Statement of Compliance (2016)

Where All the Conditions of the Relevant Approvals Complied With?	Yes/No
Development Consent	Yes
Environmental Protection Licence	Yes
Coal Lease 386	Yes
Mining Lease 1497	Yes
Mining Lease 1381	Yes
Mining Lease 1456	Yes

2.0 INTRODUCTION

2.1 BACKGROUND

Dartbrook Mine is owned by Anglo American Pty Ltd (Anglo American) and managed by its subsidiary, Anglo Coal (Dartbrook Management) Pty Ltd. Dartbrook is located 10 kilometres (km) north of Muswellbrook and 3 km south-west of Aberdeen (see Plan 1 and Table 2) in New South Wales (NSW). Until October 2006, Dartbrook operated as an underground longwall coal mine. As a result of ongoing operational and geological issues, mining was suspended and the operation was placed under Care and Maintenance from 1 January 2007. Under Care and Maintenance, the operation generally consists of:

- The Hunter Tunnel, which along with the Kayuga interseam drift, are the only areas of the underground mine that are still accessible. The Hunter Tunnel and Kayuga interseam drift connect to the Eastern and Kayuga Western mine entrances, respectively;
- The western facilities (West Site), which are located west of the New England Highway and include the administration office, a small workshop, and Wynn and Kayuga mine entrances to the underground mine; and
- The eastern facilities (East Site), which are located east of the New England Highway and include the maintained Coal Handling and Preparation Plant (CHPP), rail load out facilities, cleared coal stockpiles and the rehabilitated Reject Emplacement Area (REA).

During Care and Maintenance, mining approvals, licences and permits have been retained, with Dartbrook continuing to maintain compliance with these.

In late December 2015 the proposed sale of Dartbrook to Australian Pacific Coal Ltd was announced. Current expectations are that the sale will be completed in 2017.

2.2 PURPOSE

This Annual Review provides a summary of activities, environmental management and performance at Dartbrook for the reporting period (i.e. 1 January to 31 December 2016). This Annual Review has been prepared generally in accordance with:

- Care and Maintenance Mining Operations Plan (MOP);
- Mining Lease (ML) conditions;
- Development Consent conditions;
- Environment Protection Licence (EPL) 4885; and
- Anglo American Safety, Health and Environment Policies (see Appendix A).

All figures, tables and graphs pertain to the reporting period, unless stated otherwise.

The Annual Review has been prepared in accordance with the *Annual Review Guideline: Post-approval requirements for State significant mining developments* (NSW Government, 2015). A summary of monitoring data for the reporting period has been provided in this report. Further data is available upon request.

2.3 PERFORMANCE SUMMARY

No mining or coal processing activities were undertaken at Dartbrook during 2016, due to the site being under Care and Maintenance. This has meant that UGM, as contractors, continued to be the statutory managers of the site. As such, UGM was responsible for all maintenance activities completed in 2016 (refer to Section 3.0).

Whilst under Care and Maintenance, Dartbrook has continued to comply with legislative requirements, permits, licences and approvals (as discussed in Table 3 and Section 3.0), as well as implementing practices to monitor, mitigate and minimise any safety, health, environment and community impacts (see Section 4.0 to Section 6.0).

Maintenance work has continued on the River Restoration Project, which was originally established in 2005 as a three year collaboration with the Hunter-Central Rivers Catchment Management Authority (HCRCMA) (see Section 8.4.1). Key maintenance activities included the exclusion of stock from the tree seedlings, noxious weed and feral animal control, and the ongoing monitoring of the rehabilitated areas.

Formal and informal communications with neighbours and community stakeholders were undertaken throughout the year. No formal complaints were received in 2016 (see Section 9.1).

The Dartbrook Mine Community Consultative Committee (DCCC) continued to meet throughout the year, with meetings held in April, September and December (see Section 9.2).

The specific aspects of environmental performance for 2016 are described further in this Annual Review.

2.4 REGULATORY CONSULTATION

Anglo American has consulted with the appropriate regulatory authorities to identify the key issues for consideration in this Annual Review. Anglo American has also considered regulatory feedback on the 2015 Annual Review. Table 2 lists the issues raised by regulatory authorities and indicates where these issues are addressed in this Annual Review.

Table 2
Issues Raised by Regulatory Authorities

ID	Issue	Raised By	Where Addressed
1	Socio-economic impact of Dartbrook Mine, including workforce characteristics	DP&E	Section 4.10
2	Surveillance of prescribed dams	DP&E	Section 7.2
3	Environmental performance with regard to biodiversity management	DP&E	Section 6.4
4	Implementation of weed management programs	DRE	Section 6.5
5	Implementation of a water management system (particularly evaporation ponds) and monitoring program	DRE	Section 4.7
6	Status update on the sale of Dartbrook Mine to Australian Pacific Coal	MSC	Section 2.1
7	Management of water levels in the Wynn Goaf	MSC	Section 4.7
8	Management of spontaneous combustion in Reject Emplacement Areas	MSC	Section 6.10

Photo 1
Tree Screen Planting on the Dartbrook Site Entry, Looking Southward

Sandy Creek Road
Sandy Creek
Dartbrook Road
To SCONE
ABERDEEN
COUNTY of BRISBANE
PARISH of STRATHEARN
UPPER HUNTER SHIRE
Upper Hunter Shire
Muswellbrook Shire
ML 1497
Dart Brook
Hunter River
New England Highway
Main Northern Railway
Upper Hunter Shire
Muswellbrook Shire
Mining Lease
No 2 Shaft Access Rd
No1 Shaft
No2 Shaft
Kayuga Entry
Bamboo Lane
Dart Brook
CHPP
Evap Ponds
Discharge Dam
Surface Facilities
Western Access Road
Dorset Road
KAYUGA
Hunter River
Dorset Road
PARISH of ELLIS
MUSWELLBROOK SHIRE

LEGEND

- CL 386
- ML 1381
- ML 1456
- ML 1497
- Unlimited Depth
- 20m to Unlimited Depth
- Surface to 20m
- Below 20m Above Roof of Mt Arthur Seam

N

0 100 200 400 600 800 1000 metres

Mine Surveyors Certification of Accuracy Date

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DRAWN
PC
09/05/03

REVISIONS

REV.	DATE	BY	DESCRIPTION	CHK.
P	16/02/10	PC	Shire Boundary Highlighted	DS
Q	15/12/10	PC	Updated to 2010	DS
R	18/02/11	PC	Logo Modified to AngloAmerican	DS
S	12/02/13	PC	Air Photo Updated	DS
0	21/12/09	PC	A3 Layout Scale Changed to 1:30000	DS

Dartbrook Mine
Mine Context Plan
PLAN 1

Datum :	AHD	SCALE	A3	DRG.	REV.
GRID :	MGA(56)	1:30000		29411	S

3.0 APPROVALS SUMMARY

Dartbrook operates within the consents, leases and licences summarised in Table 3. A comprehensive list of all environmental approvals held for Dartbrook, including current water licences, is contained in Appendix B. Copies of these documents are available on request.

The MOP in use during the reporting period covered the Care and Maintenance phase of operations. The current approval period of the MOP is from 1 January 2013 to 31 December 2017.

Table 3

Consents, Leases & Licences

Description	Approval Date	Expiry Date	Approval Authority
Mining Authorisations			
Authorisation 256	16/12/1980	02/05/2015**	DRE
Coal Lease (CL) 386	19/12/1991	19/12/2033	DRE
Mining Lease 1381	23/10/1995	23/10/2016**	DRE
Mining Lease 1456	27/09/1999	26/09/2020	DRE
Mining Lease 1497	06/12/2001	05/12/2022	DRE
Exploration Licence 4574	13/08/1993	07/04/2015**	DRE
Exploration License 4575	13/08/1993	23/05/2016**	DRE
Exploration License 5525	22/09/1998	21/09/2016**	DRE
Development Consents			
Development Consent DA 231-07-2000 (as modified)	28/08/2001	28/08/2021	DP&E
Emplacement Area Approvals			
Approval for an Emplacement Area (s126 approval)	13/03/1996	N/A	DRE
Stage 4 Reject Emplacement Approval C95/2265 (s126 approval)	02/01/2000	N/A	DRE
Approval for 14° slopes in the REA Stage 4 (s126 approval)	08/04/2004	N/A	DP&E
Application for Discontinuance of Use of Emplacement Areas (s101 approval)	13/08/2007	Ongoing	DRE
Licences			
Environmental Protection Licence 4885	Granted 30/11/2000 Amended 2016	N/A	EPA
Notification to Work Cover for storage and handling of Dangerous Goods	10/11/2005	N/A	WorkCover
Notification and Declaration to WorkCover that no dangerous goods stored or handled at Dartbrook	Submitted 13/12/2006	N/A	WorkCover
Management Plans			
Surface Safety Management Plan	Submitted 02/06/2004	Ongoing	DP&E
KA102 - KA107 Subsidence Monitoring Program	18/09/2006	Ongoing	DP&E
Revised Erosion and Sediment Control Plan (revised for Consent Modification 1/11/05)	12/11/2014	12/11/2019	DP&E

Description	Approval Date	Expiry Date	Approval Authority
Revised Dust Management Plan	10/06/2015	10/06/2020	DP&E
Revised Noise Management Plan (revised for Consent Modification 01/11/05)	22/08/2006	N/A	DP&E
Revised Site Water Management Plan	20/04/2015	20/04/2020	DP&E
Revised Flora and Fauna Management plan	28/10/2016*	28/10/2021	DP&E
Revised Waste Management Plan	24/11/2016*	24/11/2021	DP&E
Revised Environmental Management Strategy	21/12/2016*	21/12/2021	DP&E
Suspension of Mining Operations for Care and Maintenance under Section 70 (1) and Suspension of Conditions under Section 168 (1) of the *Mining Act 1992*, in respect of CL 386, ML 1381, ML 1456 & ML 1497	Suspension of Mining Operations was extended on 31/12/2014	31/12/2017	DP&E
MOP for Care and Maintenance – Extension	18/12/2012	31/12/2017	DRE

*Note: * Management Plan lodged with DP&E*
*** Application lodged with DRE*

4.0 OPERATIONS SUMMARY

4.1 EXPLORATION

Exploration boreholes are generally drilled for the purpose of evaluating, confirming, improving and upgrading the structure, coal quality and geotechnical characteristics of the coal seams. The coal seams at Dartbrook include the: Blakefield; Glen Munro; Woodlands Hill; Arrowfield; Bowfield; Warkworth; Mt Arthur; Kayuga; Piercefield and Vaux, with some boreholes extending to the Broonie, Bayswater and Wynn coal seams.

No exploration drilling was undertaken at Dartbrook during 2016. In 2016, Anglo American lodged applications to renew Exploration Licences 4575 and 5525.

Following the 2014 audit on the condition of existing exploration boreholes, 26 open boreholes are scheduled to be rehabilitated in the first half of 2017 (see Photo 2).

4.2 LAND PREPARATION

No land preparation work was undertaken in 2016 as part of the Care and Maintenance operations (see Plan 2).

Under Care and Maintenance, land preparation has been restricted to activities associated with exploration drilling. A Permit to Disturb is obtained prior to the commencement of any drilling. The Permit to Disturb considers issues such as land ownership, archaeology, flora and fauna species, surrounding infrastructure and rehabilitation techniques. Any topsoil that is stripped from the area is temporarily stockpiled. On completion, the topsoil is respread and the area is revegetated.

No topsoil was stripped for mining, exploration drilling or rehabilitation purposes in 2016. An estimate of the quantity of topsoil available to be used in rehabilitation is provided in Table 5.

4.3 CONSTRUCTION & DEMOLITION

Minor maintenance repairs to the Riverview Homestead (see Photo 3), Kayuga Cemetery and Kayuga Homestead were carried out in 2016.

4.4 MINING

The Director-General of DRE has approved the suspension of the labour and expenditure conditions of Dartbrook's Coal and Mining Leases until 31 December 2017. In addition, the Care and Maintenance MOP has been accepted by DRE for the period 1 January 2013 to 31 December 2017.

The mining and engineering contracting firm UGM was responsible for Dartbrook's Care and Maintenance operations during the reporting period. UGM conducted the daily tasks required to maintain the site and the CHPP, including the servicing and maintenance of equipment such as pumps, mine ventilation fans, electrical apparatus and underground mine vehicles. Other routine tasks included road works, housekeeping, strata control, statutory inspections, monitoring and reporting associated with the underground mine.

Although no coal was mined during 2016, access to the underground mine was retained via the Hunter Tunnel, the inter-seam decline, the Western Drift and the portions of the Wynn and Kayuga seam workings which are required to access these points. The underground air quality is monitored utilising a tube bundle system and CITECT. Statutory inspections of accessible areas were carried out by UGM in 2016.

Ventilation shaft No. 1 is currently in operation and gas emissions are monitored through CITECT from the CHPP. The No. 2 vent shaft was sealed in 2010 and is not in use.

In response to the commencement of the *Clean Energy Act 2011* (now repealed), the greenhouse gas monitoring system was upgraded with new sensors in Fan House 1.

The annual mine production and waste summary for 2016 is summarised in Table 4.

Photo 2

Borehole RDH 023 – Scheduled for Rehabilitation in 2017

Photo 3

Riverview Homestead – Original Section (Constructed Late 1800s)

Table 4

Production Summary

Material	Approved Limit	Actual Quantity (2015)	Actual Quantity (2016)	Forecast Quantity (2017)
Waste Rock / Overburden	N/A	0	0	0
ROM Coal	6 Mtpa	0	0	0
Coarse Reject	N/A	0	0	0
Fine Reject	N/A	0	0	0
Product Coal	N/A	0	0	0

COUNTY of BRISBANE

PARISH of STRATHEARN

UPPER HUNTER SHIRE

PARISH of ELLIS

MUSWELLBROOK SHIRE

CL386

ML1497

Sandy Creek Road

Sandy Creek

Dartbrook Road

Dart Brook

Hunter River

New England Highway

Bladmore Lane

Dorset Road

Western Access Road

No 2 Shaft Access Rd

No1 Shaft

No2 Shaft

Downcast Entry

Evap Ponds

Surface Facilities

Mining Lease

To SCONE

ABERDEEN

KAYUGA

To MUSWELLBROOK

LONGWALL KA101

LONGWALL KA102

LONGWALL KA103

LEGEND

Extraction Completed

Goaf Drainage Hole Not in Use

Concrete Drop Hole

Mining Lease

0 200 400 800 1200 1600 2000 metres

Mine Surveyors Certification of Accuracy.....Date.....

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DRAWN	REVISIONS					
PC	P	15/12/10	PC	Updated to 2010	DS
	Q	18/02/11	PC	Logo Modified to AngloAmerican	DS
12/01/07	R	26/02/13	PC	Plan No Changed from 4a to 2	DS
	N	16/02/10	PC	Updated to 2009 program	DS
	O	01/03/10	PC	Scone Shire Changed to Upper Hunter Shire	DS
	REV.	DATE	BY	DESCRIPTION	CHK.

Dartbrook Mine
Proposed Mining Activities
PLAN 2

Datum : AHD GRID :	SCALE 1:30000	A3	DRG. 29412	REV. R

4.5 MINERAL PROCESSING

No coal was processed in 2016. Routine maintenance of the CHPP was undertaken by UGM, which involved the periodic dry running of the plant and associated pumps and conveyors. Minor repairs to structural items and the management of corrosion were also undertaken in 2016.

4.6 WASTE MANAGEMENT

4.6.1 Process Waste Management

The total footprint of the REA covers an area of 29 ha (see Plan 3). Final rehabilitation of the majority of the area was completed in mid-2007, with monitoring and appropriate maintenance works being undertaken since that time. The rehabilitation of a small tailings dam was completed in 2015.

No additional coarse reject materials were disposed of in the REA in 2016, nor were any tailings or fines disposed of in the mine goaf.

The Section 126 approval (see Table 3) requires *"an independent engineering assessment to be made...at periods not exceeding three years of the dams and holding structures associated with the rejects disposal project..."*. The latest structural inspection of the REA was undertaken by Douglas Partners in November 2015. The assessed risk of slope failure of the REA was classified as being *very low* to *low* in the short to medium term due to the potential for liquefaction of the coal reject under an earthquake loading. This rating will improve to *very low* in the long term after the coal reject consolidates, provided that drainage is maintained.

The drainage of the REA was maintained in 2016. The drainage basin and the trash trap flowing into the underground pipe in the REA were kept clean to ensure that the pipeline was kept in working order.

Since the installation of the new thermocouples at sites 9 and 10 in February 2015, this area has been subject to regular monitoring and inspections (see Section 6.10). No elevated temperatures have been recorded.

Internal environmental / rehabilitation inspections of the REA were conducted regularly throughout the year; and these confirmed that the rehabilitated areas were in good condition as at the end of 2016. "Crash grazing" was implemented in the REA from March to September to control pasture growth, particularly Rhodes grass.

4.6.2 Non-Process Waste Management

Dartbrook uses a colour coded waste system to maximise recycling opportunities. Remondis is responsible for managing the removal and disposal of all waste generated on-site, including: hazardous, non-hazardous and recyclable waste streams.

During the reporting period, approximately 14.527 tonnes of waste was taken from site (see Table 6). This volume was significantly less than the 2015 reporting period and reflects the additional clean-up activities conducted on site during 2015.
No hazardous waste was removed from site, while 4.769 tonnes of non-hazardous waste was disposed to landfill. Approximately 7.908 tonnes of scrap metal was recycled, as well as 1.072 tonnes of co-mingled recyclable materials.

4.6.3 ROM & Product Coal Stockpiles

The capacity of the coal stockpile areas are listed in Table 7. No coal was stored on any stockpile in 2016.

Table 5
Mineral Waste Summary

	Cumulative Production (t)		
	Start of Period 01/01/2016	End of Period 31/12/2016	End of next period 31/12/2017
Topsoil Stripped	0	0	0
Topsoil used / spread	0	0	0
Topsoil Stockpile	14,780	14,780	14,780
Overburden Stockpiles and Bunds	655,747	655,747	655,747

Table 6
Waste Generation

Waste Type	Disposal	Quantity in 2015 (tonnes)	Quantity in 2016 (tonnes)
General Waste - Non-hazardous (t)	Landfill	14.837	4.769
Scrap Metal (t)	Recycled	7.847	7.908
Office Paper and Co-mingled Recyclables (t)	Recycled	0.1	1.072
Hazardous Waste – Sewage Sludge (Litres)	Treatment	0	0
Waste Oil (Litres)	Recycled / Treatment	726	778
Hazardous Waste - Chemical Anchors / Resins (t)	Treatment / Approved Landfill	0	1.262*

** Outdated fire suppressant*

Table 7
Coal Stockpile Status

Stockpile	Coal Type	Capacity (Tonnes Approx.)	Status
Emergency Stockpile	ROM	50,000	Rehabilitated
Circular Stockpile	ROM	80,000	Cleared of coal material
Eastern ROM stockpile	ROM	185,000	Rehabilitated
Western ROM Stockpile	ROM	90,000	Rehabilitated
Southern ROM Stockpile	ROM	70,000	Rehabilitated
Northern ROM Stockpile	ROM	5,000	Rehabilitated
Rectangular Product Stockpile No. 1	Product	200,000	Cleared of coal material
Rectangular Product Stockpile No. 2	Product	200,000	Cleared of coal material
Reject Stockpile	Reject	20,000	Cleared of coal material
TOTAL		900,000	

4.7 WATER MANAGEMENT

Dartbrook has a water management system whereby all water accumulated on-site has generally been retained in storages (such as mine water dams or the Wynn Seam Goaf). The main inflows to the site water balance occur via rainfall runoff and groundwater seepage into the goaf. Water can be transferred from these storages via pipelines to the CHPP and the underground mine or between the East and West Sites. Dartbrook holds a licence to discharge excess water under the Hunter River Salinity Trading Scheme (HRSTS), with an entitlement of 12 credits.

The site water management system is shown on Figure 1 and Figure 2, with a schematic included as Appendix I.

In 2016, Dartbrook continued to control the water level in the Wynn Goaf by pumping water to surface dams to maximise evaporation. Water accumulating in the goaf is reclaimed by the Wynn Seam Goaf Dewatering Plant, with a pipeline able to transfer water to the Evaporation Ponds, the Staged Discharge Dam (SDD) and the Western Holding Dam (WHD). Water may also be fed by gravity to the Eastern Holding Dam (EHD) for disposal by irrigating it onto the coal pads.

Dust Suppression

Historically, the main loss or use of water at Dartbrook was via the moisture retained in the product coal or waste reject material, as well as water utilised for dust suppression. Given that there was no mining in 2016 and only limited site activities under Care and Maintenance that required the use of water for dust suppression, the total water consumption in 2016 was minimal.

Fresh Water Use

Approximately 4.2 megalitres (ML) of potable water was sourced from the Aberdeen town water supply for the Eastern Facility in 2016. Approximately 1.7 ML of clean groundwater (1.7 ML) was extracted from two bores adjacent to the mine Western Facility during the reporting period.

Sewage

There was no irrigation of land using treated sewage effluent in 2016. This was reported in Dartbrook's Annual Return for EPL 4885.

Surface Water Dams

During the reporting period, water levels in the EHD and WHD (see Photo 4 and Photo 5) were maintained as low as practicable (50 - 70 %) to ensure that there was adequate capacity to capture and contain storm water run-off from the site. The water level in these dams will continue to be maintained at low levels during Care and Maintenance. The Evaporation Ponds and SDD were maintained at higher levels to maximise water losses to evaporation.

The main surface water management Target Action Response Plans (TARP) prescribes the following management objectives for the key dams on site:

- EHD – to be managed at 50 - 70% capacity before it is reduced by pumping to the West Site or underground to the Wynn Seam Goaf;
- WHD – to be managed at 50 - 70% capacity before it is reduced by pumping to the East Site or to the SDD; and
- SDD – to be managed at 70 - 75% capacity to provide a reasonable hydraulic head for possible HRSTS discharges and to maximise evaporation.

Dam storage volumes during 2016 are shown in Table 8.

Hunter River Salinity Trading Scheme

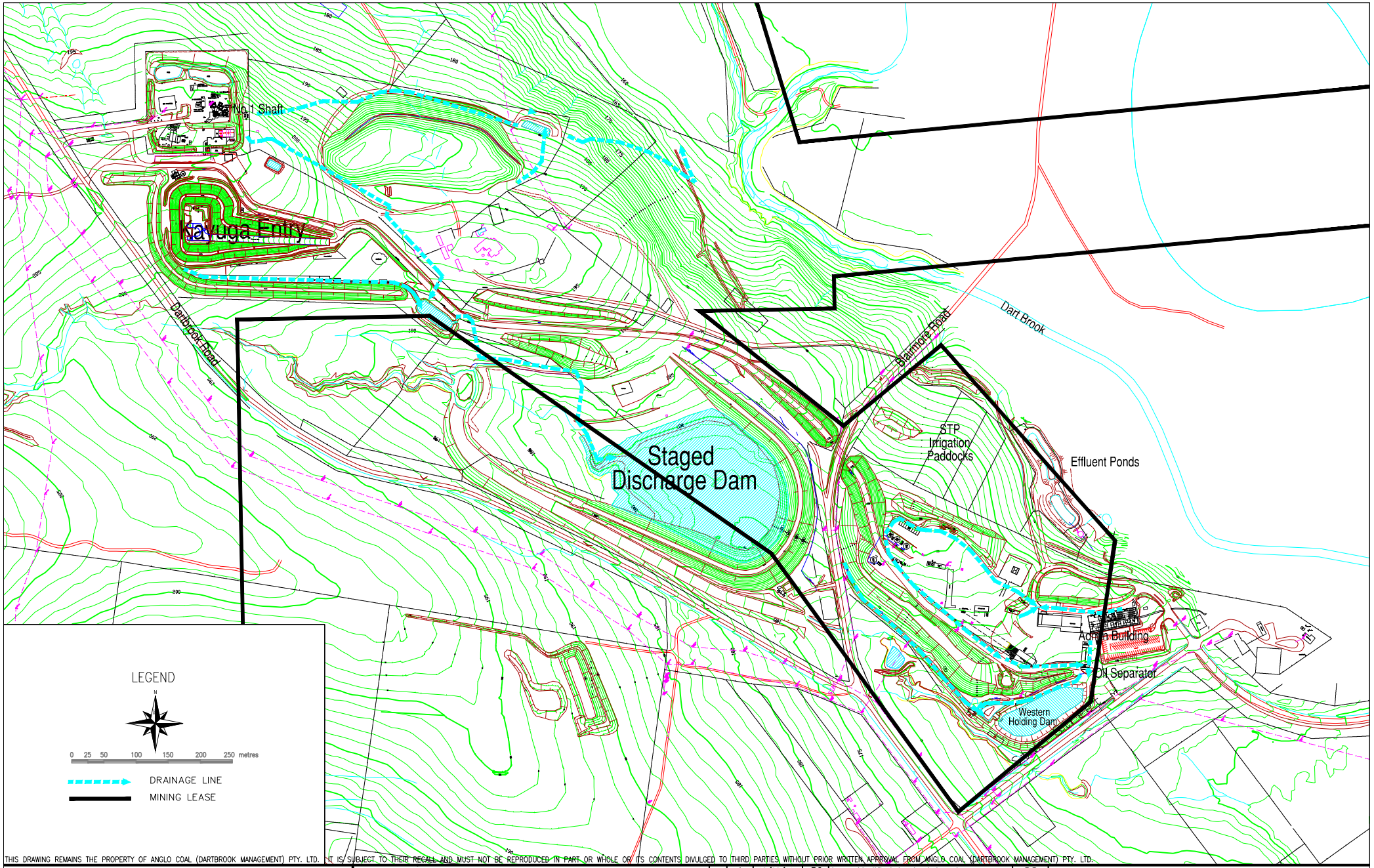
In order to maximise evaporation and readiness for the gravity fed HRSTS discharge system, the SDD is maintained at approximately 70% capacity.

Dartbrook discharged 7.1 ML under the HRSTS in 2016.

Evaporation

Total evaporation from site process water dams during 2016 is calculated at 354 ML. The evaporation occurred predominantly at:

- The Evaporation Ponds, where approximately 217 ML was evaporated in 2016;
- The SDD, where approximately 93 ML was evaporated in 2016.



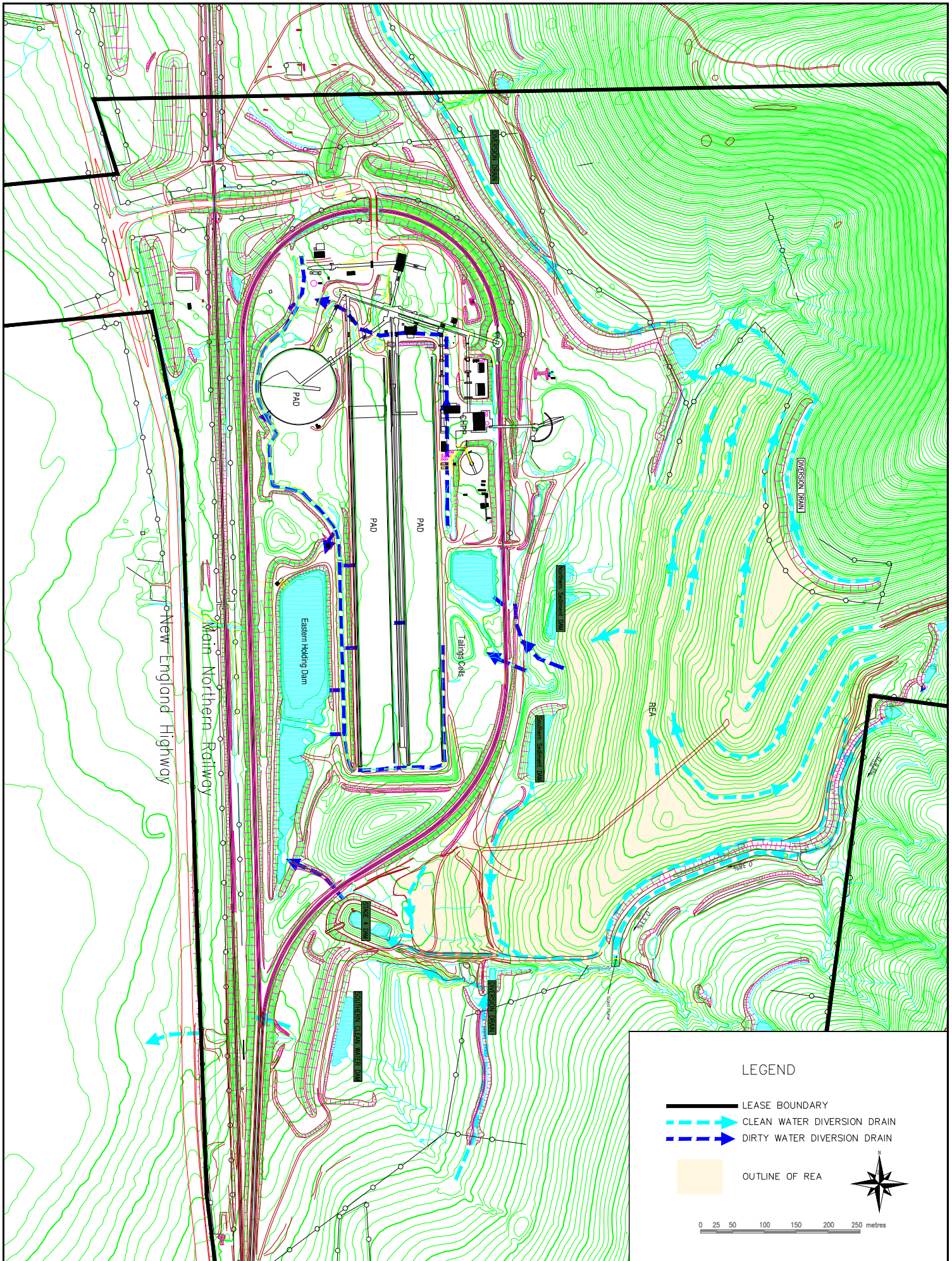
AngloAmerican

REVISION	REV.	DATE	BY	DESCRIPTION	CHK.
	I	18/02/11	PC	Logo Modified to AngloAmerican	DS
	G	30/03/07	PC	A4 View Added	FY
	H	16/02/10	PC	General update	DS

DRAWN	DATE	CHECKED	APPROVED
PC	09/05/03		

Dartbrook Mine
Water Management West Site
FIGURE 1

SCALE	A4	DRG.	REV.
1:7500		29418	I



AngloAmerican

REVISION				
L	18/02/11	PC	Logo Modified to AngloAmerican	
J	08/05/08	PC	REA Contours Updated	
K	17/02/10	PC	REA Drainage Updated	
REV.	DATE	BY	DESCRIPTION	CHK.

DRAWN	DATE	CHECKED	APPROVED
PC	06/03/01		

Dartbrook Mine
Water Management East Site
FIGURE 2

SCALE		DRG.	REV.
1:7500	A4	23346	L

Photo 4

Eastern Holding Dam

Photo 5

Western Holding Dam

Table 8

Dartbrook Stored Water Summary

		Volume Held (m^3)		
	Location	Start of Period 1/01/2016	End of Period 31/12/16	Storage Capacity
Clean Water	No clean water stored on-site			
Dirty Water (runoff)				
Sediment Dam 1 (KGA)	West Site	950	800	1,000
Sediment Dam 2 (KGA)	West Site	320	300	1,000
Northern Dam REA	East Site	0	1,840	3,500
Southern Dam REA	East Site	1,600	6,400	10,800
Stage 4 REA Dam	East Site	0	4,740	7,700
Controlled Discharge Water				
SDD	West Site	330,000	300,000	430,000
Contaminated Water				
Western Holding Dam *	West Site	12,320	5,390	15,000
Eastern Holding Dam *	East Site	61,600	56,320	90,000
Evaporation ponds	West Site	99,000	125,400	132,000
Wynn Seam Goaf	Underground	~2,642,000	~2,642,133	2,915,000

*Note: * Maintained at <50-70% as standard practice to ensure sufficient capacity for storm events.*

Groundwater

There was an estimated 182 ML of groundwater inflow into the Hunter Tunnel during the reporting period. This water was pumped directly into the Wynn Seam Goaf for storage. Groundwater seepage, mainly from the Wynn Seam into the goaf, was estimated at 106 ML for the reporting period. These volumes equate to total inflows of 288 ML during 2016 (see Table 9).

The groundwater inflow into the Hunter Tunnel appears to be decreasing. The measured inflow rate during 2016 was 4% less than the rate for 2015. Since 2014, Hunter Tunnel inflows have been more stable.

The accumulation of water in the Wynn Seam Goaf is the main groundwater management issue for the site during the Care and Maintenance phase. The management strategy is to dewater the Wynn Seam Goaf so that the rate of outgoing water is the same as the rate of incoming water.

The TARP for the Wynn Seam Goaf seeks to maintain the dewatering capacity when the water level reaches RL 9,934 m at the Pleuger pump monitoring site. This level was reached in November and an active investigation plan to accelerate evaporation using additional sprays located above the SDD has commenced.

The historical monitoring point for the Wynn seam has been relocated to Gas Drainage Borehole 901 to accommodate the requirements of the new submersible pump (see Figure 4). This monitoring point has experienced some technical issues due to the extreme depth of the water level during 2016. Dartbrook is continuing its efforts to improve its systems for monitoring the water level in the Wynn Seam Goaf.

Wynn Goaf Inventory Management

Pump metering and modelled groundwater seepage estimates indicate that the Wynn Goaf increased by a net 133 ML during 2016. OPSIM model results indicate that the Wynn Goaf increased by a net 135 ML over the period. Dipping records over the same period indicated a net gain of 197 ML of water in the Wynn Seam from all sources. The OPSIM model continues to be calibrated using monitoring data.

Site Inventory

Measured site inventory increased from 3,510 ML to 3,605 ML during 2016, a net gain of 95 ML, compared to a gain of 203 ML in 2015. OPSIM model results indicate site inventory increased from 3,412 ML to 3,547 ML during 2016, a net gain of 135 ML. The monitoring data and water balance model both indicate that there is a surplus of water accumulating in the Wynn seam which will need to be managed through evaporation and discharges under the HRSTS. Storage inventories for 2016 are shown in Table 8.

Table 9

Estimated Dartbrook Water Balance Components

Water Stream	2016 (ML)
Inputs	
Fresh Water (Blairemore bore)	1.7
Groundwater Seepage In (including Hunter Tunnel)	288
Rainfall Runoff	281
Recycled to CHPP from Tails & Storage (not included in total)	0
Imported Potable (Aberdeen)	4.2
Total Inputs	575
Outputs	
Groundwater Seepage Out	50
Dust Suppression	32
Evaporation – Mine Water & Tailings Dams	397
Entrained in Process Waste	0
Discharged (HRSTS)	7.1
Potable Usage	5.9
Total Outputs	492
Estimated Change in Pit Storage (increased)	83

Note: The change in total site storage value (estimated from monthly inspections of dams) indicates an increase in storage of 95 ML over the year. The observation method used to estimate dam inventories generally tends to overestimate stored volumes.

4.8 HAZARDOUS MATERIALS MANAGEMENT

No licensable quantities of dangerous goods were stored or used at Dartbrook in 2016. There are nominal quantities of hazardous substances required for use at Dartbrook during Care and Maintenance. A permit system is in place for the introduction of chemical substances on the site and a register maintained using ChemAlert. When substances are no longer required they are removed from site.

Dartbrook also has a licence to possess radiation apparatus, which are imbedded in the coal quality monitoring equipment still used at the CHPP.

4.9 OTHER INFRASTRUCTURE MANAGEMENT ACTIVITIES

Apart from minor repairs to the circular reclaimer, there were no significant infrastructure projects in 2016.

4.10 WORKFORCE CHARACTERISTICS

Dartbrook currently maintains a contract workforce of 15 persons residing in the following areas:

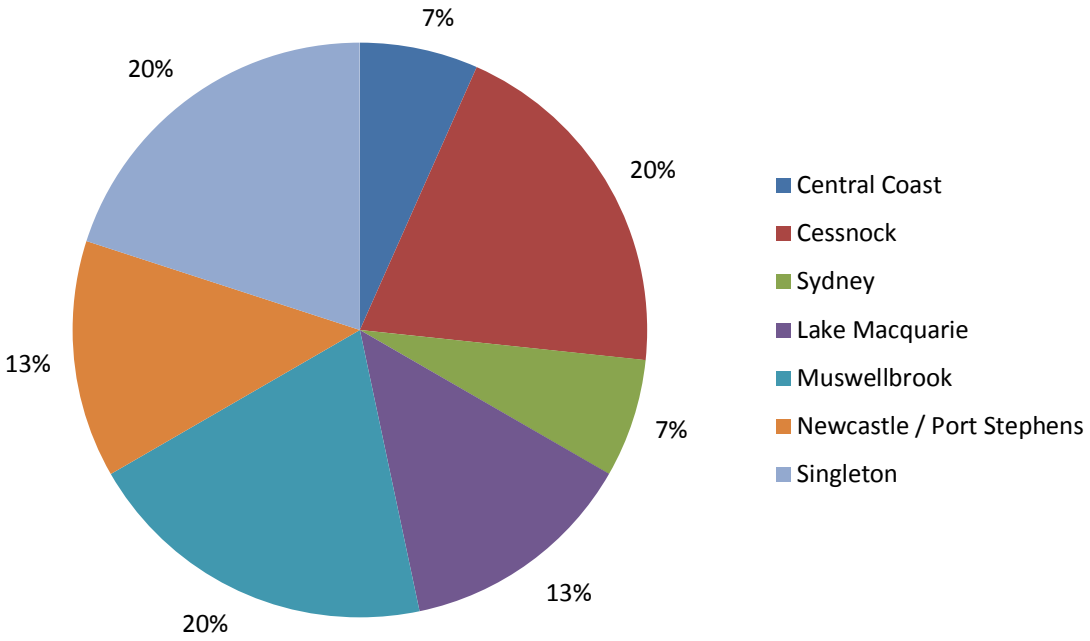
- Muswellbrook (3);
- Singleton (3);
- Cessnock (3);
- Newcastle and Port Stephens (2);
- Lake Macquarie (2);
- Central Coast (1); and
- Sydney (1).

Graph 1 provides a breakdown of the current workforce according to their place of residence.

The workforce is not expected to change significantly in 2017, unless active mining operations are re-commenced.

Graph 1

Breakdown of Current Workforce by Place of Residence



5.0 ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

DP&E advised that it had reviewed the 2015 Annual Review and requested further information in its letter dated 30 May 2016. Dartbrook provided the requested information in its letter dated 7 July 2016.

In its letter dated 21 October 2016, DRE advised that the AEMR for the 2015 reporting period was to the satisfaction of the Minister. DRE raised the importance of ongoing weed management programs and water management (using evaporation ponds).

Table 10 outlines the issues raised by DRE & DP&E and the actions taken in response.

Table 10
Actions Arising from Regulators' Comments on the 2015 Annual Review

Action required	Requested by	Action taken by operator	Section
Ongoing implementation of the weed management program specifically on the banks of the Kayuga visual bunds	DRE	Weeds mown and slashed.	Section 6.5
Ongoing implementation of the water management program, specifically the evaporation ponds and groundwater monitoring	DRE	Continued implementation of Dartbrook's Water Management Plan, which includes the operation of evaporation ponds.	Sections 4.7
Demonstrate that consultation with regulators was undertaken during the preparation of the Annual Review.	DP&E	The requested information was provided in Dartbrook's response to DP&E (letter dated 07/07/2016). Regulatory authorities were consulted with during the preparation of the 2016 Annual Review.	Section 2.4
Provide details on the socio-economic impact of the development, including the workforce characteristics.	DP&E	The requested information was provided in Dartbrook's response to DP&E (letter dated 07/07/2016). This information has also been included in the 2016 Annual Review.	Section 4.10
Provide details on the surveillance of prescribed dams.	DP&E	The requested information was provided in Dartbrook's response to DP&E (letter dated 07/07/2016). This information has also been included in the 2016 Annual Review.	Section 7.2

6.0 ENVIRONMENTAL MANAGEMENT & PERFORMANCE

6.1 OVERVIEW

Dartbrook's Safety, Health, Environment and Community Management System (SHECMS) is an integrated, structured system for proactively identifying and managing safety, health, environment and community risks associated with the operation. SHECMS is modelled on the International Standards Organisation (ISO) 14001: *Environmental Management Systems* and Australian and New Zealand Standards (AS/NZS) 4801/2001: *Occupational Health and Safety Management System Standard*. The system is aimed at ensuring continual improvement in SHEC performance as required by Anglo American (Appendix A).

The SHECMS reflects the Care and Maintenance status of the mine and accommodates the relevant UGM procedures for the Statutory Mine Area. Internal operational inspections of rehabilitation, water, biodiversity and hydrocarbon management components of the SHECMS were undertaken regularly in 2016. These inspections found that there were no operational non-compliances.

An overview of Dartbrook's environmental performance is provided in Table 11.

Table 11
Environmental Performance

Aspect	Performance during 2016	Trends	Management Actions
Air Quality	• Annual average dust deposition rates were within the criteria • PM_{10} concentrations were within the regulatory criteria	• Since mining has not be been undertaken since 2006, any changes in air quality are due to external influences	• Monitoring of PM_{10} and dust deposition
Greenhouse	• 44,450 tonnes of CO_2 equivalent gas (CO2-e) was emitted	• Greenhouse gas emissions have remained relatively low during Care and Maintenance	• Methane and CO_2 from the underground workings are released via Ventilation Shaft No. 1
Noise	• Noise levels produced by Care and Maintenance activities are minimal	• Noise levels have remained relatively low since the suspension of mining in 2006	• Dartbrook has an exemption from noise monitoring requirements during the Care and Maintenance phase
Visual	• The tree screen to the west of the New England Highway continue to develop satisfactorily	• The tree screen has steadily developed since it was planted in 2011	• Drip irrigation of the tree screen during dry periods
Biodiversity	• River Restoration Project, River Red Gum restoration areas and the Forestry Plantation were progressing satisfactorily	• These re-vegetated areas continue to progress well	• Ecological monitoring • Weed and feral animal controls
Heritage	• No additional impacts to Aboriginal or European heritage items	• No impacts to heritage items have occurred during the Care and Maintenance period	• Relocation of the salvaged scarred tree to Simpson Park, Muswellbrook • General maintenance of European Heritage structures
Subsidence	• No additional subsidence • Previously remediated areas have remained stable	• No subsidence has occurred during the Care and Maintenance period	• Visual monitoring of previously subsided areas

6.2 METEOROLOGICAL SUMMARY

A summary of the meteorological monitoring data for 2016 is included in Table 12, Table 13 and Appendix C. Rainfall recorded at Dartbrook during the reporting period was 690.6mm over 80 rain days. This rainfall was considerably above the average annual rainfall (586.1 mm) recorded at Dartbrook since mine records commenced in 1995. A high proportion of this rainfall occurred in January (156 mm), June (109.2 mm), September (74.2 mm) and December (81.6 mm).

The temperature measurements shown in the summary table are averages compiled from the data collected each month. Temperatures were generally cooler in 2016 than in 2015.
In 2016, prevailing winds were generally from the south to south-east during the summer months and from the north during the winter months. The wind speeds were generally greater in 2016 than they were in 2015. The annual windrose for 2016 is presented in Graph 2 and monthly windroses are included in Appendix C.

Dartbrook has two operating meteorological stations (Met01 and Met02). For Annual Review reporting purposes, Dartbrook generally uses data from Met02 due to the availability of long term data (from 1995 to the present). Wind speed and direction data for February and March was sourced from Met01 due to lack of data from Met02 during these months. Both meteorological monitoring sites are operated via real-time telemetry, to assist with accurate data acquisition.

Table 12
Meteorological Summary for 2016

Month	Rainfall (mm)	Cumulative Rainfall (mm)	Number of Wet Days	Number of Rain Days	Min Temperature (°C)	Ave Temperature (°C)	Max Temperature (°C)
January	156	156	14	12	12.3	23.2	38.4
February	2	158	3	2	13.6	24.0	38.9
March	14.6	172.6	4	3	10.4	22.9	36.0
April	11.8	184.4	5	4	8.6	20.0	33.8
May	26.8	211.2	5	4	0.6	16.0	27.7
June	109.2	320.4	13	10	-0.9	12.3	20.5
July	58.2	378.6	7	5	0.1	12.0	23.7
August	48.4	427	12	9	2.0	12.2	23.4
September	74.2	501.2	13	12	3.5	14.9	23.8
October	60.8	562	8	7	3.9	17.3	30.6
November	47	609	6	4	5.4	21.6	35.2
December	81.6	690.6	9	8	11.4	25.2	39.9
Annual	690.6	690.6	99	80	-0.9	18.5	39.9

Table 13

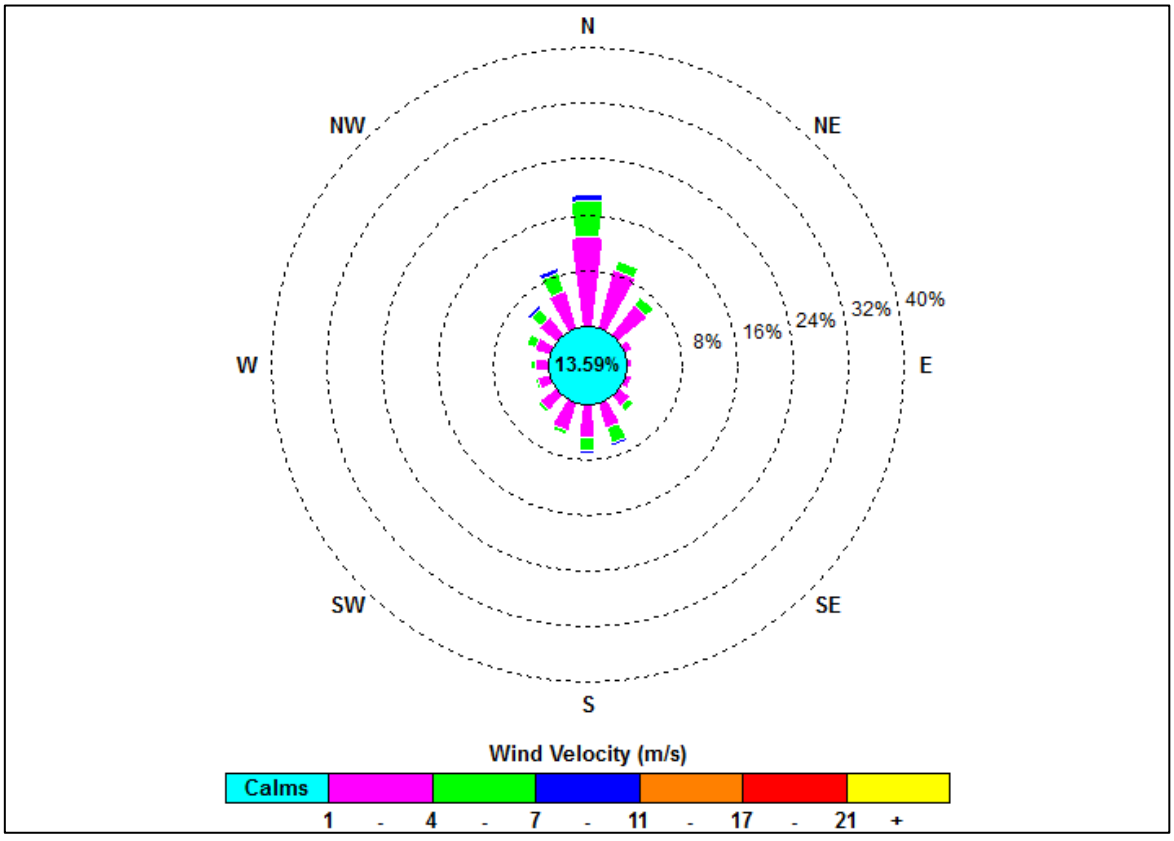
Wind Summary for 2016

Month	% Period with Wind Speed <3.0 m/s	% Period with Wind Speed >3.0 m/s	% Period with Wind Speed >5.4 m/s	Predominant Wind Direction
January	57	43	11	S
February*	38	62	28	SE
March*	51	49	15	SE
April	68	32	9	SSE
May	59	41	9	N
June	57	43	14	N
July	59	41	13	N
August	68	32	6	N-NNE
September	66	34	10	N
October	55	45	11	N
November	63	37	10	N-NNE
December	53	47	14	S
Average	58	42	13	-

No wind data available from MET02. Data substituted with MET01 wind data

Graph 2

Annual Windrose 2016



6.3 AIR QUALITY

6.3.1 Environmental Management

Potential impacts to air quality at Dartbrook include airborne dust and odour. These impacts are managed in accordance with the SHECMS, Development Consent conditions and relevant environmental management plans.

As specified in the approved Dust Management Plan, which was updated in June 2015, there are a number of controls that are implemented to minimise dust impacts.

Coal stockpile areas and the REA have been previously cleared of coal material and revegetated, in order to minimise potential dust emissions during the Care and Maintenance phase.

Dartbrook is generally not undertaking activities that generate dust during the Care and Maintenance phase. Accordingly, there was no requirement for the usage for water carts during 2016.

There was no evidence of dust being generated from the Evaporation Ponds during 2016 as they were generally covered with water that was being evaporated. These ponds were used throughout the year as stated in Section 4.7.

Dust Monitoring Criteria

The dust standards and goals specified in Condition 6.1(ai) and Condition 6.1(axvii) of the Development Consent are presented in Table 14 and Table 15.

The National Environment Protection Council (NEPC) 24-hour PM_{10} goal allows for five exceedances per year. It should be noted that the goals listed in Table 15 are reporting goals, rather than actual compliance standards.

Dartbrook maintains an air quality monitoring network consisting of 17 dust deposition gauges and 5 High Volume Air Samplers (HVAS) (see Figure 3). However, not all of these monitoring locations are included in the latest Dust Management Plan (dated 16 June 2015). The monitoring network adopted for the Dust Management Plan includes:

- Three dust deposition gauges at locations representative of the closest private residences (including Aberdeen) to the East Site;
- Two PM_{10} monitoring locations located to the south of the CHPP and south of the West Site workshop, which are representative of the closest private residences;
- Two dust deposition gauges at locations representative of the closest private residences to the south and west of the West Site surface operations; and
- A meteorological station at the East and West Sites.

The revised Dust Management Plan was approved by the DP&E on 24 November 2015.

This Annual Review includes data from all 17 dust deposition gauges and 5 High Volume Air Samplers (HVAS).

6.3.2 Environmental Performance

Dust Deposition

In 2016, dust monitoring was undertaken at 17 dust deposition monitoring sites located throughout the area. Dust deposition gauges have been established on a grid network that covers the major areas in relation to all surface activities within the Mining Leases. Results from dust deposition gauges are expressed as insoluble solids, comprised of combustible matter (or organic matter) and ash residue. Ash residue is considered to be more representative of the dust component (from soils and weathered rock) while the remainder, typically organic matter, includes bird droppings, leaf or grass litter, insects and coal. Standard units are reported in g/m^2/month. Most Insoluble Solid results that are above 4 g/m^2/month undergo a XRD scan (microscopic examination) of the combustible matter to determine whether the material is carbonaceous, organic matter or sandy clay matter. Appendix D presents results of air quality monitoring undertaken throughout the year.

Graph 3 and Table 16 summarise the annual average deposition rate of insoluble solids and the ash component of the insoluble solids.

The annual average dust deposition for insoluble solids during 2016 ranged from 0.75 g/m²/month (at the Aberdeen East Site) to 3.20 g/m²/month (at the Macairstrip Site) (see Figure 3). In 2016, annual average dust deposition rates were below the limit of 4 g/m²/month at all sites.

Results where the monthly Insoluble Solids recorded are greater than 4 g/m²/month are displayed in Table 17. The 'contaminated samples' were excluded from calculations of annual average dust deposition rates.

Since Dartbrook is not currently producing coal, the majority of elevated dust results can be attributed to elevated background levels generated by farming and grazing activities.

Table 14
Dartbrook Air Quality Standards & Goals

Health Based Standards/Goals		
Dust Type	Standard/Goal	Agency
Total Suspended Particulate Matter (TSP)	90 μg/m³ (annual mean)	National Health and Medical Research Council
NSW EPA Amenity Based Standards/Goals for Dust Fallout		
Existing Dust Fallout Level (g/m²/month)	Maximum Acceptable Increase Over Existing Deposition Levels (g/m²/month)	
	Residential	Other
2	2	2
3	1	2
4	0	1

Table 15
Dartbrook PM_{10} Air Quality Goals

PM_{10} Goal	Agency
50 μg/m³ (24-hour average)	NEPC
30 μg/m³ (Annual average)	EPA

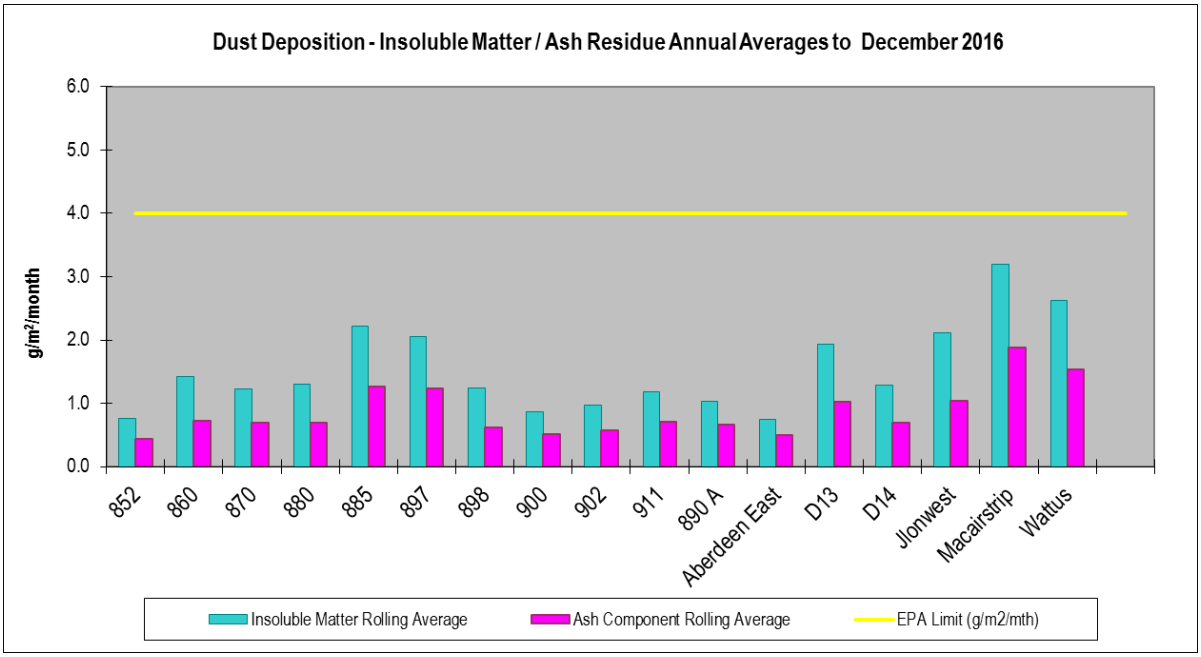
Table 16
Annual Average Dust Deposition for 2016

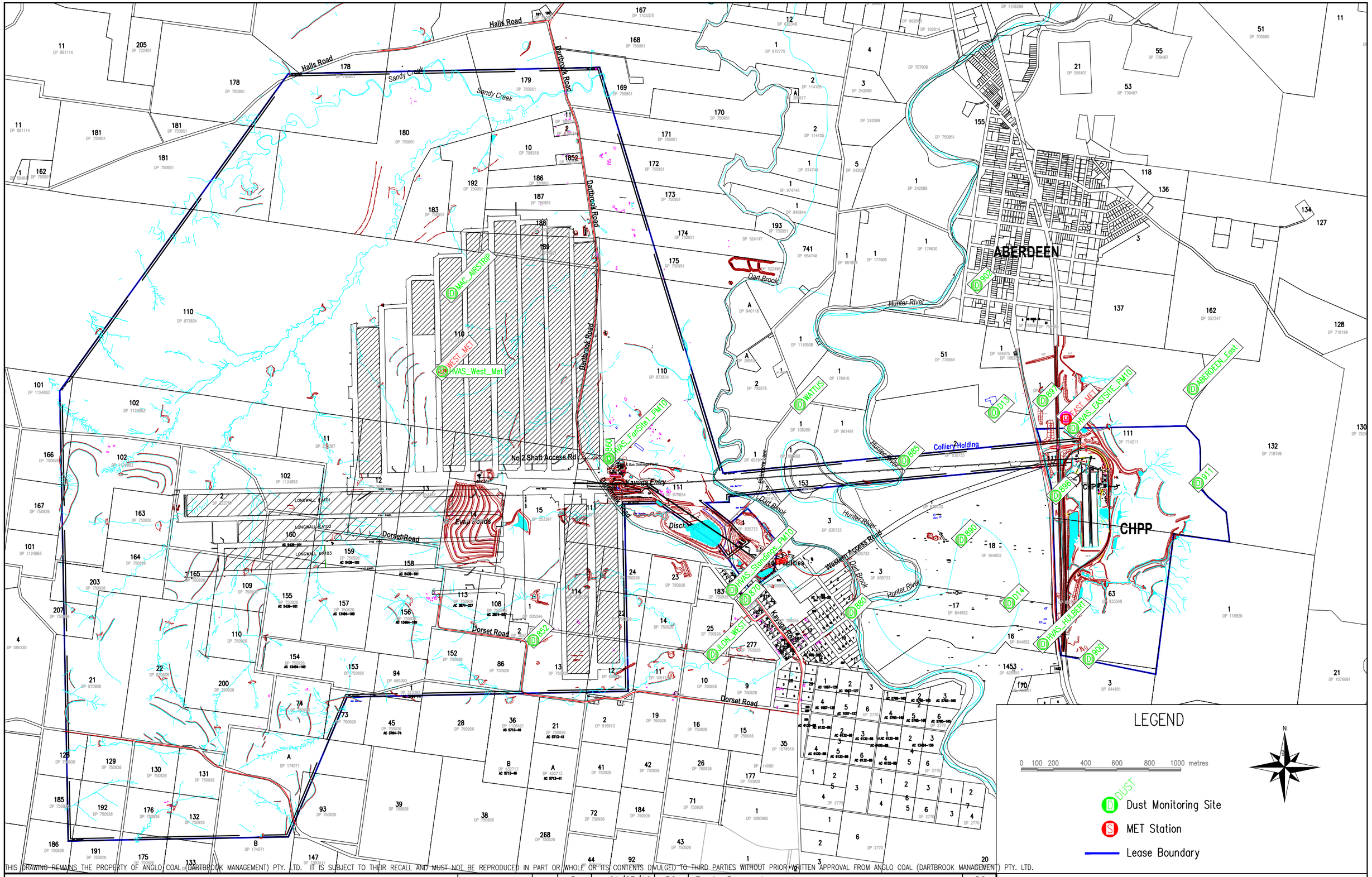
Site	Location Description	Insoluble Solids (g/m²/month)	Ash Component (g/m²/month)	Number of Samples
852	Dorset Road	0.76	0.43	12
860	No. 1 Vent Shaft	1.42	0.73	12
870	Kayuga Village	1.23	0.69	12
880	Hunter River / Dart Brook Junction	1.31	0.69	12
885	Frazer Farm paddock near the Hunter River	2.22	1.26	12
890a	Garoka Dairy	2.05	1.24	12
897	Eastern Site North	1.24	0.63	12
898	Eastern Site West	0.87	0.51	12

Site	Location Description	Insoluble Solids (g/m²/month)	Ash Component (g/m²/month)	Number of Samples
900	Eastern Site South	0.98	0.57	12
902	Aberdeen Tree Screen	1.18	0.71	12
911	Browns Mountain	1.04	0.66	12
Aberdeen East	South east of Aberdeen	0.75	0.49	12
D13	Residence northwest of CHPP	1.94	1.03	12
D14	Southwest of CHPP	1.29	0.81	12
JLON West	Residence south of West Site	2.11	1.04	12
Macairstrip	Northwest of West site	3.20	1.88	12
Wattus	Between Dart Brook and Hunter River	2.63	1.53	12

Graph 3

Annual Average Dust Deposition Levels





LEGEND

0 100 200 400 600 800 1000 metres

N

D DUST Dust Monitoring Site

S MET Station

Lease Boundary

AngloAmerican

DRAWN	REVISIONS					
PC	P	01/03/10	PC	Tracks Removed		DS
	Q	18/02/11	PC	Logo Modified to AngloAmerican, Scale to 1:30000		DS
20/03/00	R	24/02/11	PC	MET Stations added		DS
	S	27/02/12	PC	HVAS at Airstrip Added		DS
	0	16/02/10	PC	Updated to 2009		DS
	REV.	DATE	BY	DESCRIPTION		CHK.

Plan Showing Location of Dust Monitoring Sites FIGURE 3

Datum :	AHD	SCALE	A3	DRG.	REV.
GRID :	MGA(56)	1:30000		27433	S

Table 17

Elevated Monthly Dust Deposition Results

Site	Date	Insoluble Solids	Combustible Matter	Ash Component	Reason for high reading
		(g/m^2/month)	(g/m^2/month)	(g/m^2/month)	
860	17/02/2016	4.2	2.3	1.9	Insects
885	17/02/2016	5.0	1.6	3.4	Insects, Grass, Bird droppings
897	19/05/2016	5.7c	3.9	1.8c	Insects, bird droppings
897	18/07/2016	5.0c	3.5	1.5c	Insects, Vegetation, Bird Droppings
897	13/12/2016	7.4c	5.4	2.0c	Insects, vegetation
890A	13/12/2016	6.2c	4.4	1.8c	Insects, Bird droppings
Aberdeen East	13/12/2016	5.7c	4.2	1.5c	Insects, Bird droppings
D13	19/01/2016	11c	5.8	5.2c	Insects, Bird droppings
D14	17/03/2016	5.5c	4.3	1.2c	Insects, Bird droppings
D14	13/12/2016	4.4c	2.7	1.7c	Insects
Jlonwest	16/09/2016	9.0c	5.4	3.6c	Insects, bird droppings
Macairstrip	17/02/2016	4.4	3.3	1.1	Insects
Macairstrip	18/04/2016	13.4c	10.3	3.1c	Insects, bird droppings
Macairstrip	19/05/2016	4.2c	2.7	1.5c	Insects, bird droppings
Macairstrip	16/06/2016	4.5c	3.1	1.4c	Insects, bird droppings
Macairstrip	18/07/2016	9.9c	4.9	5.0c	Insects, Vegetation, Bird Droppings
Macairstrip	14/10/2016	13.2c	6.3	6.9c	Insects, bird droppings
Macairstrip	11/11/2016	7.0c	3.0	4.0c	Insects, bird droppings, plastic
Macairstrip	13/12/2016	7.6c	4.2	3.4c	Insects, Bird droppings
Wattus	17/03/2016	5.3	2.6	2.7	Insects
Wattus	18/04/2016	5.3c	3.0	2.3c	Insects, bird droppings
Wattus	19/05/2016	5.3	1.4	3.9	Insects
Wattus	11/11/2016	4.8	2.6	2.2	Insects

Note: c = contaminated sample

High Volume Air Samplers

Dartbrook has five HVAS that monitor PM_{10} (particulate matter less than 10 microns) dust concentration. PM_{10} data is also utilised to estimate TSP levels, in accordance with the approved Dust Management Plan. Dust is monitored for a 24-hour period on a 6 day cycle. Sample analyses are carried out in accordance with the relevant Australian Standards.

The locations of the HVAS are illustrated in Figure 3 and described in Table 18, with results presented in Appendix D.

The data recovery rate was 100% for all HVAS sites. All sites were compliant with the NEPC standard, which requires recovery of data to be greater than 75%. The 24-hour annual average PM_{10} results for the HVAS, as presented in Graph 4, show a slight increase across the summer period. The annual average was below the EPA criteria of 30 $\mu g/m^3$ at all sites throughout 2016.

Table 19 presents the annual average PM_{10} concentrations at the five HVAS during 2016 and compares these with the predictions in the EIS and subsequent modifications. As would be expected during Care and Maintenance, PM_{10} concentrations were less than the predicted levels.

Annual average TSP concentrations for the five HVAS sites, which were calculated based on measured PM_{10} values, are presented in Graph 5 and Graph 6. These results show that the annual average criterion was not exceeded at any monitoring site in 2016. Peaks were found to be due to localised industrial and farming activities.

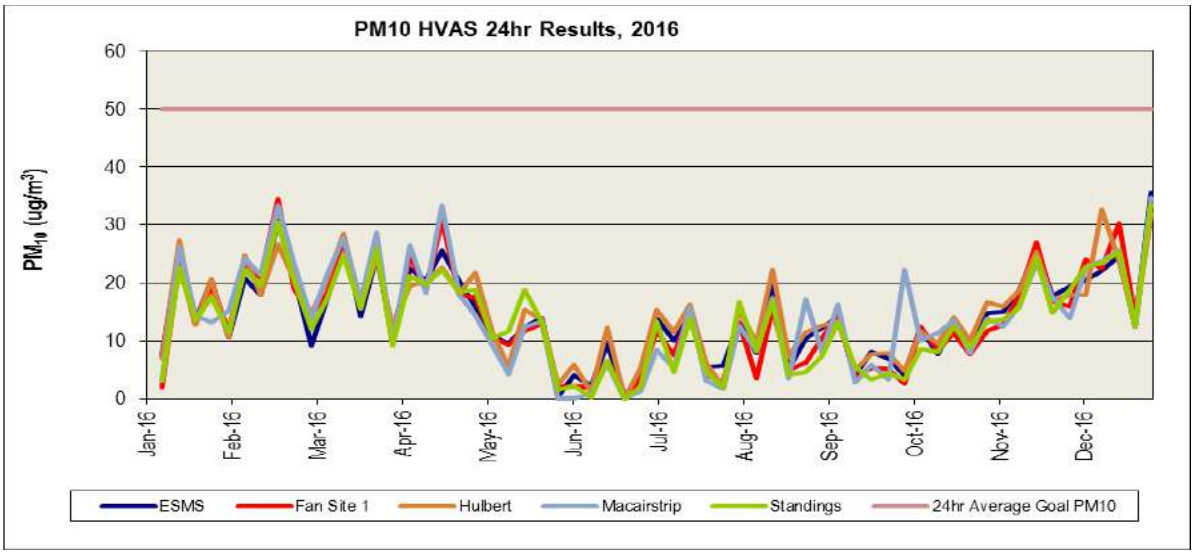
6.3.3 Further Improvements

Dust monitoring will continue throughout the Care and Maintenance period in accordance with the Development Consent and the Dust Management Plan.

Table 18
HVAS Monitoring Sites for PM_{10}

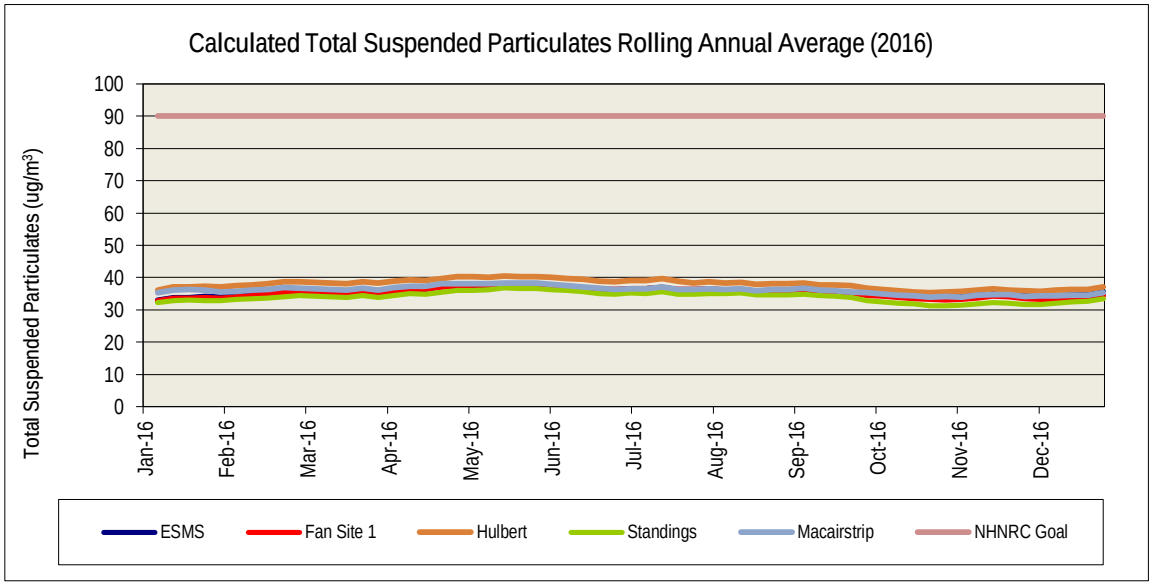
HVAS Site	Location
East Site Meteorological Station (ESMS)	East Site, north of the CHPP
Fan Site Number 1	West Site, adjacent to the ventilation fan
Hulbert	East Site, south-south-west of the CHPP
Standings	West Site, south of the surface infrastructure
Macairstrip	West Site, centre of the Mining Leases

Graph 4
24-hr Average PM_{10} Results



Graph 5

Rolling Annual Average TSP Concentrations



Graph 6

Calculated Annual Average TSP Concentrations

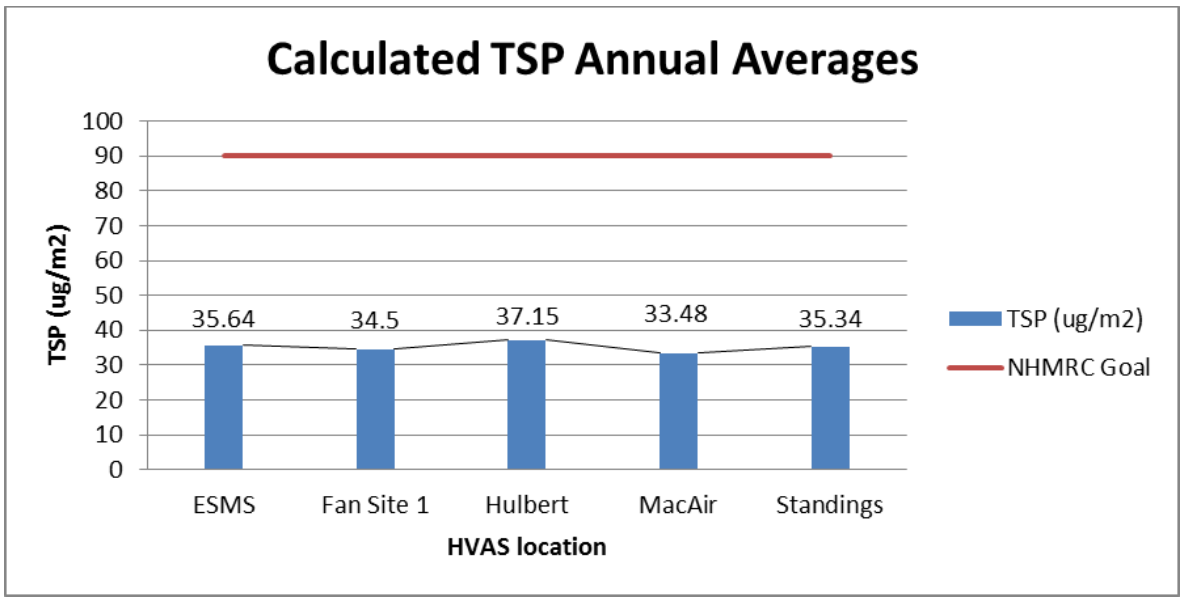


Table 19

Comparison of Measured PM_{10} Concentrations with Predictions

Location	Units	Total Predicted Annual Average	Annual Average Result 2016
ESMS	µg/m³	20.1	14.26
Fan site 1	µg/m³	18.7	13.80
Hulbert	µg/m³	17.4	14.86
Standings	µg/m³	17.3	13.39
Macairstrip	µg/m³	17.0	14.14

6.4 THREATENED FLORA AND FAUNA

6.4.1 Environmental Management & Performance

Dartbrook operations are undertaken in a highly modified and fragmented environment of low significance in terms of threatened flora and fauna species and habitat values.

Ecological studies at Dartbrook in 2011 found that of the four broad vegetation types on site, there are two communities listed as Endangered under the *Threatened Species Conservation Act 1995* (TSC Act). There are approximately 2,252 ha of the Upper Hunter White box Grassy Woodland (Box Gum Woodland) community present within the mine area. There are also about 54 ha of Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions (Hunter Floodplain Red Gum Woodland Complex) present within the mine area.

Two threatened plant species were also recorded as occurring within the mine area, which are Austral Toadflax (*Thesium australe*) and Black Orchid (*Cymbidium canaliculatum*).

The study also found six fauna species that are listed as either threatened under the TSC Act or migratory under the Commonwealth *Environmental Protection and Biodiversity Act 1999* (EPBC Act).

These species included:

- Eastern Bentwing Bat (*Miniopterus schreibersii oceanensis*), listed as vulnerable under the TSC Act;
- Large-footed Myotis (*Myotis macropus*), listed as vulnerable under the TSC Act;
- Speckled Warbler (*Chthonicola sagittata*), listed as vulnerable under the TSC Act;
- Little Eagle (*Hieraaetus morphnoides*), listed as vulnerable under the TSC Act;
- Rufous Fantail (*Rhipidura rufifrons*), listed as marine and migratory under the EPBC Act; and
- White-throated Needletail (*Hirundapus caudacutus*), listed as marine and migratory under the EPBC Act.

Flora and fauna impacts are managed in accordance with the approved Flora and Fauna Management Plan.

Care and Maintenance activities are generally undertaken in areas that provide limited habitat for threatened fauna.

Previous aquatic surveys of areas within Dartbrook's mining authorities have concluded that there are no significant aquatic habitats within the areas affected by past mining operations.

Despite the low ecological significance of the site, Dartbrook continues to minimise ground disturbance and vegetation destruction as much as possible. Prior to land clearing on-site for any purpose, a Permit to Disturb system ensures that areas are checked for any significant flora or fauna. There were no impacts to threatened flora or fauna species identified in 2016.

The Dartbrook River Restoration Project (River Restoration Project) continued in 2016 (see Photo 6), as discussed in Section 8.4.1. Activities to-date have included:

- The strategic removal of introduced willow trees;
- Placing stabilising woody debris in the Hunter River and Dart Brook;
- The control of weeds and feral animals;
- The maintenance of native seedlings along the riparian corridor of the Hunter River. This is aimed at increasing the density and diversity of native vegetation, as well as providing a habitat corridor for fauna within the area; and
- The strategic placement of fish hotels in the Hunter River by DRE (previously Industry & Investment NSW) (Aquatic Habitat Rehabilitation) and HCRCMA was designed to encourage the establishment of native fish stocks.

The River Restoration Project is also undertaking work to enhance and protect a population of *Eucalyptus camaldulensis* (River Red Gums), listed as being endangered under the TSC Act in the Hunter Valley. The area has been fenced to exclude stock and has over 4,000 River Red Gums planted amongst the mature population. In 2016, the River Red Gums, which had naturally regenerated as a result of artificial flooding in 2007, continued to thrive within the constructed bunds.

In 2015, both the River Red Gum area and the Native Forest Plantation were surveyed by Umwelt as part of the ongoing two yearly monitoring of these areas. Both areas were found to be progressing satisfactorily.

The tree screen to the west of the New England Highway, which was planted in 2011 with approximately 20% River Red Gums, continues to progress satisfactorily (see Photo 1).

6.4.2 Further Improvements

During 2017, fauna and flora communities present on the site will continue to be managed in accordance with the approved Flora and Fauna Management Plan. In circumstances where clearing is required, pre-clearing surveys will continue to be undertaken.

In 2017, the tree screen along the New England Highway and the area north of the CHPP, which are planted with native forest, will continue to be surveyed and maintained.

The River Restoration Project will continue in 2017 with the maintenance and monitoring of previously rehabilitated areas.

6.5 NOXIOUS WEEDS AND FERAL ANIMALS

6.5.1 Environmental Management & Performance

The management of noxious weeds and feral animals forms an integral part of the land management practices adopted for the site, as described in the approved Land Management Plan.

Noxious weeds such as African Boxthorn, St Johns Wort, Galenia, Bathurst Burr and Green Cestrum have been located on Dartbrook owned land in the past and their eradication remains a key land management objective.

The control of weeds on the alluvial river flats and riverbank areas on Dartbrook owned land also provides management challenges and the company seeks to work with leaseholders to contain weed outbreaks in these areas. The Upper Hunter Weeds Authority undertakes inspections on a regular basis to review the effectiveness of weed control and advises on further weed control measures.

Dartbrook maintains a Weed Management Register, which outlines the location of the weeds identified, method for control of the weeds and the control works undertaken across the site. Throughout 2016, any disturbed areas were rehabilitated and seeded as soon as possible to reduce the potential for weed invasion.

Weed management activities undertaken in 2016 are outlined in Table 20). Substantial weed control was continued along the stretches of the Hunter River and Dart Brook on Dartbrook owned land as part of the River Restoration Project (see Section 8.4.1).

Weed control also continued across the rehabilitated sites throughout the year. The area of St John's Wort on the western side of the lease was grazed in 2013 to prevent seed setting. Broad scale spraying of St John's Wort was necessary in 2016 after the plants had flowered (see Photo 7).

Slashing to encourage weed control and the thickening of grass swards to discourage seed set in weeds was carried out over approximately 30 ha of land (see Photo 8). In addition, Dartbrook's licensees sprayed weeds, slashed and grazed approximately 100 ha of land. The visual bunds, topsoil stockpiles and tree lines were slashed, which provided mulch for the young trees.

Approximately 5 ha of Giant Reed regrowth south of the Hunter River was controlled through 'crash grazing' by approximately 300 head of cattle. This area had previously been treated in 2013 and 2014.

Feral animal control at Dartbrook during 2016 was focused on dogs, kangaroos and pigs. Minor rabbit poisoning was also conducted in coordination with the Hunter Local Land Services (LLS) (previously the Livestock Health and Pest Authority), near neighbours, Roads and Maritime Services and the Australian Rail Track Corporation.

Pig monitoring sites to the east and west did not provide evidence of any pigs in 2016.

A professional kangaroo shooter holding appropriate licences was engaged to cull the kangaroos to the west of the mine. A total of 91 kangaroos were euthanised during 2016.

During the reporting year Dartbrook cooperated with the Wybong Wild Dog Association participating in Autumn and Spring baiting programs.

6.5.2 Further Improvements

During 2017, regular inspections by mine site personnel and scheduled inspections by the Hunter LLS will continue to be undertaken across the lease area. In particular, inspections of rehabilitated areas including the REA and hardstand areas will be undertaken regularly. In addition, transect type surveys of the site's vegetation will continue.

Feral animal control and weed management will be ongoing and the Dartbrook Weed Management Register will be maintained in 2017.

Photo 6
Dartbrook River Red Gum Project Area

Photo 7
Herbicide Spraying to Control St John's Wort

Photo 8
Slashing of Weed Infested Areas

Table 20
Weed Management Activities

Type of Weed	Area Controlled
African Boxthorn	Spray Dartbrook Road to Halls Road, Browns Mountain, River Restoration Project areas, along the New England Hwy, Dorset Road paddocks, adjacent to Dartbrook Road, River Ridge property, former Ducey property, West Site and Evaporation Ponds and Kayuga Scrub Paddock (Lot 110) and the River Red Gum.
Patterson's Curse	Pleuger pump line again had no regrowth largely due to continuing dry conditions.
Green Cestrum	Banks of Hunter River, Dart Brook upstream of Access Road Bridge and Russell Island.
Giant Reed	Hunter River downstream from Hunter Bridge.
St John's Wort	Area north Dorset Road (Lot1, Lot 144, Lot 22), Wattus Ponds and former Ducey lands were inspected and treated through broadacre herbicide application. The SDD and Pleuger paddocks were also treated.
Tiger Pear	Above Macintyre Bridge was re-treated. The Kayuga Homestead paddock and the flats above the access road bridge were also treated.
General weed control (bamboo, thorn apple, Bathurst burr, Noogoora burr, sticky beak, Galena etc.)	Generally adjacent to the Hunter River and Dart Brook. The lessees retreated annual and perennial weeds (usually sprayed as a pre-emergent) on approximately 500 ha of Class 1 land leased for dairy farming.
African Olive	Dartbrook's east side extending into Browns Mountain was treated through foliar and basal spraying (conducted in conjunction with the Upper Hunter Weeds Authority).

6.6 OPERATIONAL NOISE

6.6.1 Environmental Management

In 2012, the DP&E granted approval for Dartbrook not to undertake noise monitoring while under Care and Maintenance strategy. The Care and Maintenance strategy involves low level equipment and machinery operation for maintenance activities only. Since coal is not mined at the site, there currently is no need to operate production equipment or the CHPP.

6.6.2 Environmental Performance

It is proposed that noise monitoring will be re-commenced when Dartbrook changes from Care and Maintenance back to mining operations.

6.7 VISUAL AND LIGHTING

6.7.1 Environmental Management & Performance

Dartbrook facilities, in Care and Maintenance, may still have the potential to generate visual and stray light impacts for sensitive receivers located in the surrounding environment. With the use of tree screens, earthen bunds, fencing and shielding the impacts of visual and stray light are minimised.

The approved Landscape and Lighting Management Plan (LLMP) includes a comprehensive description of the extent of bunding and screening implemented across the operation.

The DP&E advised that Development Consent Condition 3.8 requirement for "the independent review of the visual impact has been suspended whilst the mine is on Care and Maintenance."

In 2003, a 75 ha Forestry Plantation was established north of the CHPP, as detailed further in Section 8.4.4. This plantation was surveyed by Umwelt in 2015 and was found to progressing well with Spotted Gum dominating. As the trees mature they are proving effective in screening the township of Aberdeen (including the new "Common" subdivision extension) from views of the CHPP.

The health of the tree screens, located on either side of and adjacent to the New England Highway, is monitored on an annual basis. The results for the reporting period are provided in Appendix G. Of the trees monitored, both the Eucalypt and Casuarina species were predominately healthy and growing rapidly (see Photo 9).

During 2016, the western tree screen was strategically drip irrigated during dry periods to ensure survival and optimum growth.

6.7.2 Further Improvements

Maintenance of the tree screening areas will continue throughout 2017, as required, subject to the prevailing weather conditions. Replacement trees will continue to be planted in the bunds and tree screens when mortalities occur.

6.8 ABORIGINAL HERITAGE

6.8.1 Environmental Management & Performance

The preservation of Aboriginal Heritage is an important aspect of the operations undertaken at Dartbrook. There are over 100 known Aboriginal sites identified within the Mining Leases and Exploration Licence areas. Sites that are located within the vicinity of the surface facilities are fenced and signposted to ensure their protection. Dartbrook also has a permit system in place which checks any planned disturbances on site against a database of the known Aboriginal sites to ensure that disturbance of these sites is avoided.

Under the Archaeology and Cultural Heritage Management Plan, post-subsidence monitoring of Aboriginal sites was undertaken within 12 months of undermining.

All post subsidence monitoring of Aboriginal sites located above mining areas have been completed. There have been no incidences of harm or damage to Aboriginal sites identified.

Dartbrook did not apply for any new Section 90 consents to destroy under the *National Parks and Wildlife Act 1974* during the reporting period and no new Aboriginal sites were discovered in 2016.

In 2016, Dartbrook relocated the scarred tree (which was originally salvaged pursuant to Aboriginal Heritage Impact Permit #333) to Simpson Park, Muswellbrook (see Photo 10). An official public unveiling was held in December (see Photo 11). The scarred tree is now under the management of Muswellbrook Shire Council.

6.8.2 Further Improvements

The existing Permit to Disturb system will continue to be utilised throughout 2017 prior to all surface disturbance, including disturbance from activities such as exploration and rehabilitation.

Photo 9
Visual Bund Survey 2016

6.9 EUROPEAN HERITAGE

6.9.1 Environmental Management & Performance

Management of European Heritage is undertaken in accordance with Dartbrook's Archaeology and Cultural Heritage Plan.

General maintenance works, such as mowing, slashing and fence repairs were carried out in 2016 to protect the heritage items under the control of Anglo American. Such areas include the Riverview and Kayuga Homesteads, and the Macintyre, Kayuga and the Dartbrook Cemeteries (see Photo 3).

6.9.2 Further Improvements

Anglo American proposes to continue existing efforts to minimise the impact of the operation on European heritage sites and to continue the upkeep of the various sites throughout 2017.

6.10 SPONTANEOUS COMBUSTION

6.10.1 Environmental management

The risks posed by surface spontaneous combustion at Dartbrook during 2016 generally remained '*low*' to '*very low*' and were limited to the REA. Dartbrook has an approved Spontaneous Combustion Management Plan for the REA, which outlines measures for monitoring and mitigating potential spontaneous combustion issues.

6.10.2 Environmental Performance

The REA underground temperature is monitored using thirteen thermocouples installed in boreholes, located in the various stages of construction, to measure the temperature of the rejects material.

The risk of spontaneous combustion continues to be considered 'low' as the REA has been fully rehabilitated and all coal material has been removed from the coal stockpiles (as discussed in Section 4.6.3).

There were no incidents of spontaneous combustion in 2016. There were also no follow up issues relating to failure of the temperature monitoring probes at REA monitoring sites 9a, 9b, 9c, 10a and 10b in December 2014. All temperature monitoring probes have been reading satisfactorily throughout the reporting period (see Graph 6).

When observing the long-term trends, temperatures stabilised in 2004, and decreased slightly in the second half of 2007. As shown in Graph 6, temperatures remained relatively stable throughout 2016.

Appendix H shows the REA temperature monitoring summary from 2001 to 2016.

The REA is also monitored for sub-surface water level movements, which have remained stable all year (see Appendix H).

6.10.3 Further Improvements

Thermocouple temperatures and piezometric water levels will continue to be monitored and reported throughout 2017.

Photo 10
Relocation of Scarred Tree to Simpson Park, Muswellbrook

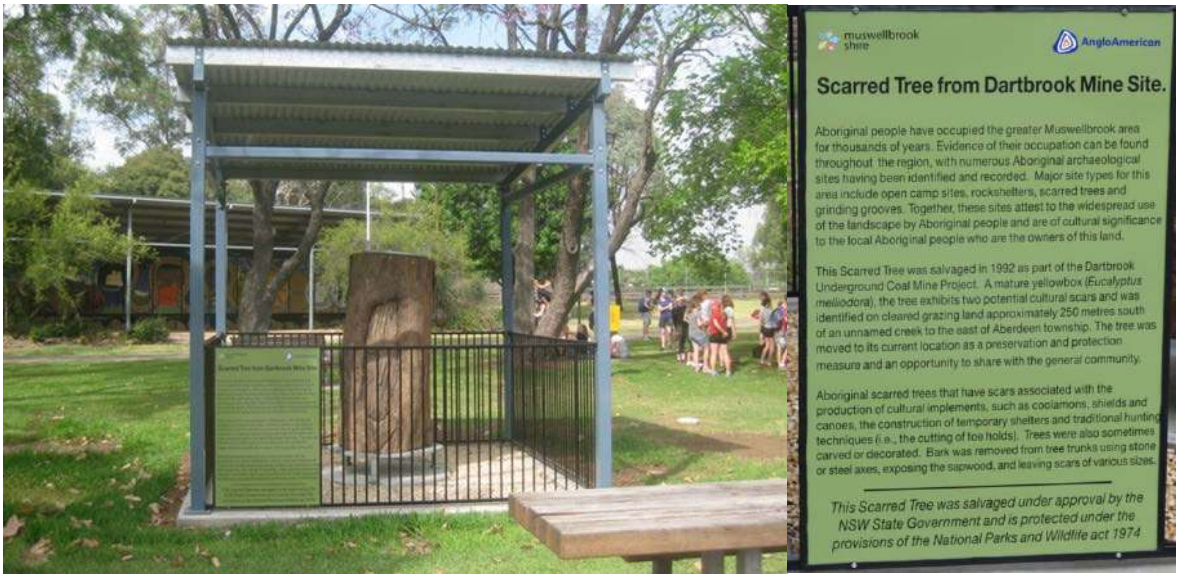


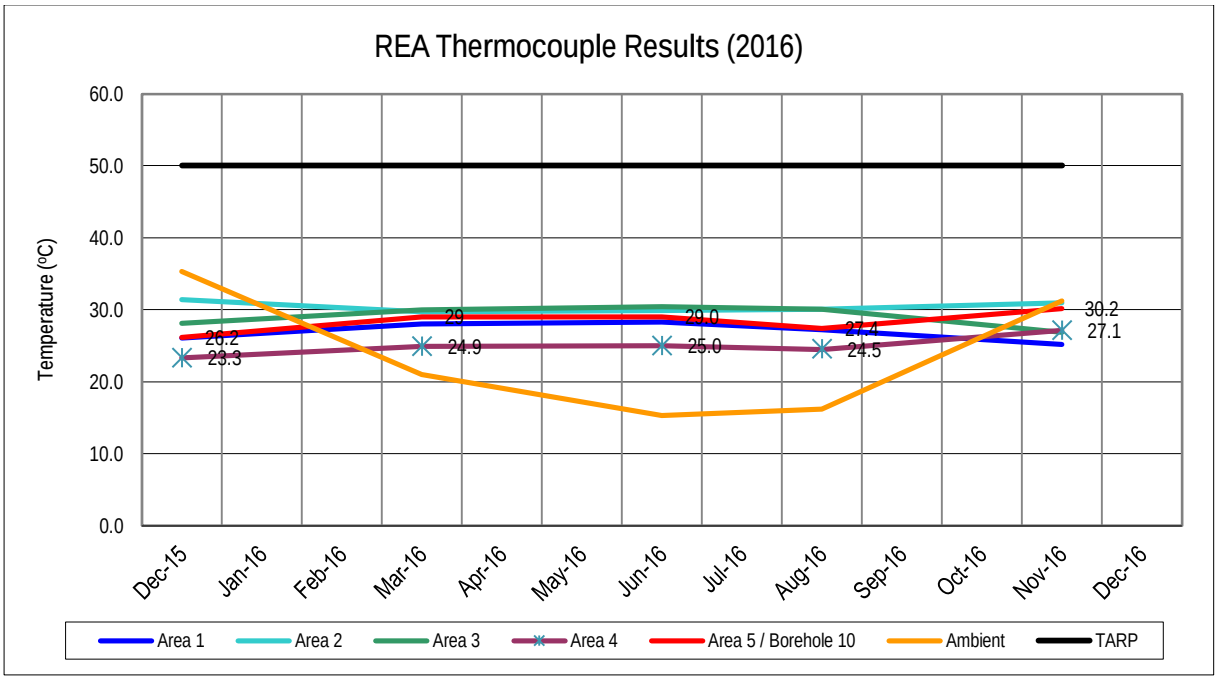
Photo 11
Unveiling of Scarred Tree at Simpson Park, Muswellbrook

Photo 12

Kayuga Cemetery during Heritage Open Day

Graph 7

Thermocouple Temperatures from the REA



6.11 BUSHFIRE

6.11.1 Environmental Management & Performance

The bushfire management strategy employed at Dartbrook relies on prevention as a primary goal, as outlined in the Bushfire Management Plan.

All surface facilities with the potential to create a fire hazard, such as electrical substations, are kept clear of combustible materials to minimise the risk of a fire within these areas. Roadsides are slashed on a regular basis and most surface areas managed by Dartbrook are also grazed by cattle, which assists in the control of fuel build up.

Dartbrook has a fire trailer equipped with a 1,000 L water tank and pump, which can be utilised to control any fire outbreaks if required.

A copy of the 2015 AEMR and Bushfire Management Plan was provided to the Muswellbrook Branch of the Rural Fire Service (RFS) in 2016 as per the Bushfire Management Plan. Dartbrook's nearest RFS are the Kayuga and Edinglassie brigades.

There were no fire outbreaks on Dartbrook owned land in 2016. However, there was a small roadside grass fire beside Dartbrook Road in July. This fire was caused by an electrical fault at a power pole and was extinguished very promptly by the Rural Fire Service.

6.11.2 Further Improvements

Fuel loads across the site will continue to be monitored and reduced (as required) in 2017.

6.12 MINE SUBSIDENCE

6.12.1 Environmental Management

The management of the effects of subsidence is undertaken as detailed in the originally approved Property Subsidence Management Plans (PSMPs) and the Longwall Subsidence Management Plan (LSMP). The current management generally involves an annual inspection to determine if there are any ongoing impacts from subsidence, with remediation works being undertaken as required.

6.12.2 Environmental Performance

There has been no further subsidence activated since September 2006, when longwall mining ceased. In total, 817.8 ha of land have been subsided since mining began at Dartbrook.

There has been negligible impact to land as a result of subsidence to date, with generally only minor cracks (<50 mm) occurring, which appeared around the beginning and end of the longwall blocks. In most instances, earthworks were not required to repair subsidence cracks as the minor cracks naturally repaired themselves.

There have not been any changes to agricultural land suitability classes resulting from longwall mining.

The annual subsidence survey included inspection of areas affected by mining of the Kayuga Seam longwall panels KA101 - KA103. This was to check for any redevelopment of surface cracking and to assess the condition of previous remediation works. The inspection found that the previously treated areas have remained stable. Any disturbed areas were sown with a pasture seed mixture and now have good cover established.

Subsidence resulting from mining the Kayuga Seam has affected three 2nd and 3rd order tributaries of Sandy Creek. There has been only minor cracking and grade changes have been subtle and localised with little impact on stream hydrology. There has been no change to agricultural land capability resulting from Dartbrook mining the Kayuga Seam.

There was no damage to archaeological sites as a result of subsidence or rehabilitation works during 2016.

A summary of impacts to groundwater as a result of mining and subsidence is provided in Section 7.1.

6.12.3 Further Improvements

Due to Dartbrook being under Care and Maintenance, there will be minimal subsidence monitoring in 2017. Treated areas will be re-inspected to determine if further cracking has occurred.

6.13 HYDROCARBON CONTAMINATION

6.13.1 Environmental Management & Performance

There are only minimal quantities of hydrocarbon-based products (such as oils or diesel fuels) that are stored or used at Dartbrook during Care and Maintenance. This has greatly reduced the potential risk of groundwater or surface water contamination from such products. Any oils or fuels that are required to be stored at Dartbrook are appropriately bunded and maintained to prevent spillages to land or water.

The facilities have been constructed so that all drainage from the workshop and service areas flows by gravity into an oil separator for clarification before return to the WHD. The separator and existing sump continued to be serviced and cleaned out regularly during Care and Maintenance, to ensure the system remains effective.

Inspections of the workplace are ongoing to ensure good housekeeping standards are maintained.

Environmental training, which included spill response, water management and hydrocarbon management continued to be offered to new staff and contractors at the site.

Spill kits containing absorbent materials are strategically located on site to assist in containing and immediately cleaning up any spills should they occur. There have not been any contaminated sites confirmed at Dartbrook.

Ninety three longwall roof supports remain stored on the West hardstand in 2016 (see Photo 13).

The hardstand area also has controlled drainage, eventually reaching the WHD through the oil separation system.

6.13.2 Further Improvements

Environmental training for new staff and contractors working in the field will continue to be offered as appropriate. Maintenance of the oil separation system will continue in 2017.

6.14 GAS DRAINAGE / VENTILATION

6.14.1 Environmental Management & Performance

The majority of gas from the underground mine is managed by the mine ventilation and released through an upcast shaft. During Care and Maintenance, methane (CH_4) and carbon dioxide (CO_2) are vented to atmosphere via the Ventilation Shaft No. 1.

Scope 1 are emissions from the underground fugitives (split into methane and carbon dioxide), diesel, petrol, LPG, oils and greases, SF6 stock and wastewater. Scope 2 emissions are those from the use of electricity on site. The total emissions are calculated from both Scope 1 and Scope 2 emissions combined.

Tube bundles measure the gas mix, which have been extrapolated to establish monthly quantities, as shown in Table 21.

All gas drainage boreholes and plants that were previously utilised to extract gas from the mine goaf have been closed. These sites are inspected regularly.

As shown in Table 21, a total of 44,450 tonnes of CO_2 equivalent gas (CO_2-e) was emitted in 2016. The main contributor to total emissions was CH_4 gas emitted from the underground mine (31,505 tonnes CO_2-e).

This amount cannot be compared to the predictions made in the EIS, because of the changes in the mine area that is being ventilated during the Care and Maintenance phase.

6.14.2 Further Improvements

Gas emissions, electricity use and fuel use will continue to be monitored in 2017.

Table 21
Summary of Greenhouse Gas Emissions

	Scope 1		Scope 2	Total Emissions (t CO_2-e)
	Methane (t CO_2-e)	Carbon Dioxide (t CO_2-e)	Carbon Dioxide (t CO_2-e)	
Jan	5,073.85	741.83	402.75	6,218.43
Feb	4,477.69	688.91	380.76	5,547.36
Mar	2,127.78	676.40	445.85	3,250.03
Apr	2,271.82	572.71	411.33	3,255.86
May	1,178.47	630.18	405.37	2,214.01
Jun	452.75	542.54	394.79	1,390.09
Jul	1,858.90	694.92	365.70	2,919.51
Aug	1,444.03	681.32	381.76	2,507.11
Sep	2,621.47	721.75	363.42	3,706.65
Oct	1,943.85	695.73	386.50	3,026.09
Nov	3,434.72	733.19	416.01	4,583.92
Dec	4,620.06	808.44	402.46	5,830.96
2017 Total	31,505.40	8,187.90	4,756.70	44,450.01

6.15 PUBLIC SAFETY

6.15.1 Environmental Management & Performance

Dartbrook seeks to ensure that the safety of visitors, neighbours and the general public is maintained at all times. Signage, restricted access, fencing, and inspections by security personnel are established means of warning the public and preventing access to operational areas of the mine. To account for the Care and Maintenance situation and the reduced number of personnel on site, a number of additional security measures have been implemented, including:

- Installation of security fences around the box cut mine entrance and the Hunter Tunnel entrance;
- Establishment of secure gates on all mine portals to prevent unauthorised access;
- Employment of a security firm to patrol the site nightly from Monday – Friday and on a 24-hour basis on weekends; and
- Installation of remote surveillance cameras on the east CHPP site and western workshop area.

There were no significant security breaches in 2016. Regular security patrols are undertaken along the boundary fence between the CHPP and the 'Aberdeen Common' a public access area. In addition, remote motion activated cameras have been strategically placed around the site to monitor any areas that are vulnerable to trespassers.

In 2016, Dartbrook's private access road to the New England Highway remained strategically closed at night to reduce the risk of unauthorised access. This strategy continues to be successful.

6.15.2 Further Improvements

Regular patrols by security personnel will continue throughout 2017. Fences will be maintained and gates will remain locked and secured. Further investigations will be undertaken to consider the installation of additional surveillance cameras on the West Site.

Photo 13

Longwall Roof Supports on the West Hardstand

7.0 WATER MANAGEMENT

7.1 GROUNDWATER

7.1.1 Environmental Management

There are two main aquifer systems within the Dartbrook area:

- Alluvial aquifer systems associated with the Hunter River, Dart Brook and Sandy Creek; and
- The Permian coal measures (Burnamwood Formation).

The alluvial aquifers are the most important with respect to groundwater dependent ecosystems and human use. The Hunter River alluvial aquifer is a major aquifer providing high yields and good water quality. It is used for irrigation, stock and domestic purposes, whereas the alluvial aquifers associated with Dart Brook and Sandy Creek are primarily used for stock and domestic purposes.

The Permian aquifers are generally deep, low yielding and contain poor quality (brackish to saline) groundwater. They are less productive aquifers and as such, the impact of the mine on these aquifers has less significance.

Anglo American has established an extensive groundwater monitoring program at Dartbrook to fulfil the following obligations:

- Groundwater monitoring commitments in the Water Management Plan, which is required under the Development Consent; and
- Monitoring of nominated landowner bores in accordance with the approved Property Subsidence Management Plans.

The primary objective of the groundwater monitoring program, as prescribed by Condition 4.2 (a) of the Development Consent, is to collect sufficient data to adequately assess:

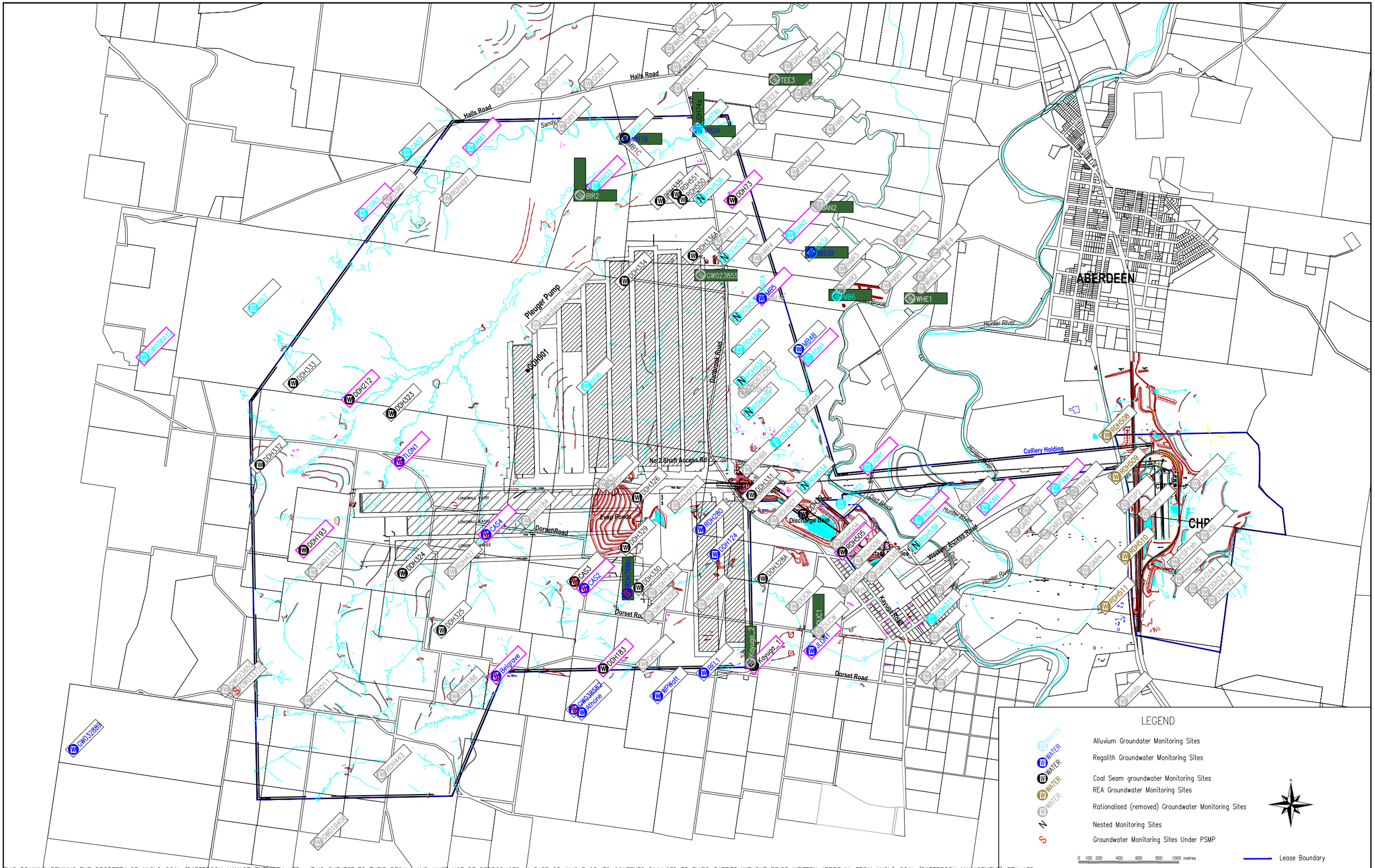
- The impact on groundwater levels at neighbouring properties and in the locality, and to identify any water quality impacts;
- The impact of the development on groundwater associated with the alluvial aquifer of the Hunter River including the ongoing monitoring of the volume and quality of inflows into the Hunter Tunnel;
- Regional groundwater levels and water quality; and
- Any concerns or complaints from surrounding landholders regarding groundwater matters, and any ensuing actions, which shall be recorded and be available to the NOW.

In particular, the monitoring program is designed to detect impacts on alluvial groundwater levels or quality that may have been induced by mining. The potential impacts of mining include seepage from the Hunter River alluvium to the Hunter Tunnel, and seepage from the REA and Wynn Seam Goaf Tailings water storage area to the Wynn Seam.

Details of the groundwater bores included in the groundwater monitoring program are provided in Table 22. The scope of the groundwater monitoring program has been reduced due to the mine being under Care and Maintenance. Most bores were sampled only once during the year, with several bores excluded from the groundwater monitoring program. Figure 4 shows the locations of all groundwater monitoring bores sampled during the 2016 reporting period.

Groundwater monitoring results for 2016 and hydrographs showing long term trends are included in Appendix F.

Appendix F includes graphs of groundwater levels and water quality parameters for the aquifers that were monitored. Appendix F also includes monitoring results for pH and EC.



AngloAmerican

DRAWN
PC
20/03/00

REVISIONS

REV.	DATE	BY	DESCRIPTION	CHK.
U	29/05/12	PC	2012 Drilling Added	DS
V	05/07/12	PC	RDH550 & RDH551 Added	JF
W	29/11/13	PC	Scale moved to 1:34000 to extend range	DS
X	08/03/17	PC	Pleuger Pump & GDH901 Added	DS
T	27/02/12	PC	Bores Included in Program, Moved West to Show GW032889	DS

Plan Showing Location of Ground Water Monitoring Sites FIGURE 4

Datum :	AHD	SCALE	A3	DRG.	REV.
GRID :	MGA(56)	1:34000		27431	X

Table 22

Groundwater Monitoring Bores

Bore	Bore Type	Aquifer Monitored	Details	Parameter / Frequency
Hunter River Alluvium (overlying Conveyor Tunnel) Monitoring Bores				
FRA1	Well	Hunter River alluvium	Monitor any leakage from the alluvial aquifer to the Hunter Tunnel. Located in a west to east direction across the alluvial plain, along the alignment of the Hunter Tunnel.	Monitored on an annual basis for pH, EC and water depth.
JOR1	Well			
KAI1	Well			
WAL2	Well			
Dart Brook Alluvium Monitoring Bores				
ADN1	Well	Dart Brook alluvium	Monitor water levels and quality within the Dart Brook alluvium. These bores are located between the underground mining area and the Hunter River alluvium, and therefore should be first to detect impacts from mining.	Monitored on an annual basis for pH, EC and water depth.
DAN2	Well			
WM1A	Bore			
Sandy Creek Alluvium Monitoring Bores				
BRO3	Bore	Sandy Creek alluvium	Five bores/wells are located in the Sandy Creek alluvium to provide even coverage of the creek.	Monitored on an annual basis for pH, EC and water depth.
COR3	Bore			
WM3	Bore			
CAD2	Bore			
GW038412	Well			
Coal Seam Monitoring Bores				
Kayuga 1	Bore	Kayuga Seam	Monitor the Kayuga and Wynn Seam aquifers. Bores are located around the perimeter of the mining areas.	Monitored on an annual basis for pH, EC and water depth.
DDH183	Bore			
DDH193	Bore			
DDH212a	Bore	Wynn Seam		
Regolith Monitoring Bores				
CAS2	Bore	Regolith – shallow overburden	Monitor the regolith overlying and in the vicinity of the Wynn and Kayuga longwall panels.	Monitored on an annual basis for pH, EC and water depth.
CAS4	Windmill			
TLON1	Windmill			
BEL1	Well			
Athlone	Bore			
JLON1	Windmill			
GW038582	Bore			
Belgrave	Bore			
REA Monitoring Bores				
RDH508	Bore	Hunter River alluvium	These bores are located west of the REA and CHPP. Monitoring of these bores is a requirement under the Development Consent. Monitoring bores RDH508 and RDH509,	Monitored on an annual basis for pH, EC and water depth.
RDH509	Bore			

Bore	Bore Type	Aquifer Monitored	Details	Parameter / Frequency
RDH510	Bore		located on the eastern side of the Hunter River alluvium should be able to detect seepage to the Hunter Tunnel; however their primary purpose is to detect seepage from the REA.	
RDH511	Bore			

Note: Bore = Monitoring bore and not a current water supply

7.1.2 Cumulative Rainfall Departure

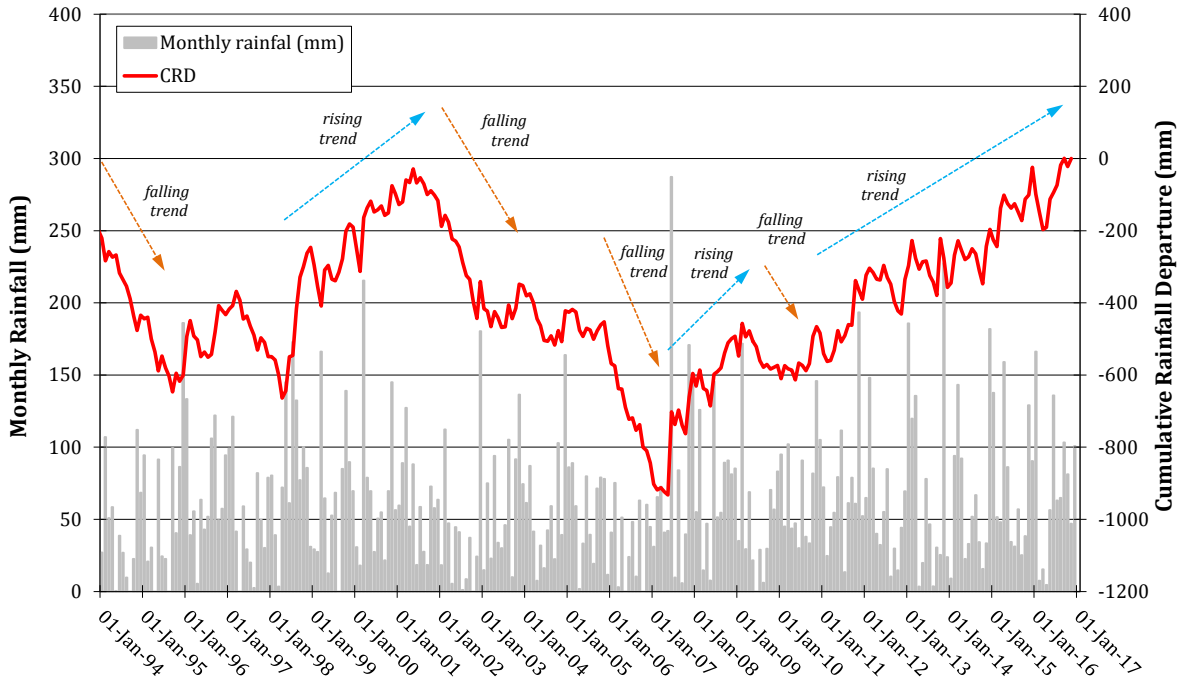
Groundwater levels in relatively shallow wells or bores constructed in alluvium or the regolith are generally highly dependent on rainfall recharge and can rise or decline quite rapidly in response to rainfall events.

Where hydrographs of shallow wells or bores indicate a declining trend in groundwater levels, a comparison is made with the Cumulative Rainfall Departure (CRD). The CRD is the cumulative difference between average monthly and actual observed monthly rainfall and can be used to assess recharge rates to a shallow, water table aquifer.

The CRD trends on Graph 8 show that during the reporting period, the Dartbrook Mine area received rainfall slightly above the average. The CRD indicates that there was an extended dry period from mid-2001 to mid-2007. Dartbrook has experienced an extended period of above average rainfall since 2010.

Graph 8

Cumulative Rainfall Departure



Source: AGE (2017)

7.1.3 Hunter River Alluvium

Water Levels

As shown in Graph F-1 in Appendix F, the groundwater levels in the Hunter River alluvium monitoring bores (JOR1, FRA1, KAI1 and WAL2) increased by 0.27 m to 0.59 m.

The monitoring results for 2016 continue to indicate that water levels in the Hunter River alluvium have not been affected by depressurisation of the coal measures. Changes in water levels are influenced by rainfall rather than the effects of mining.

Water Quality

Water quality trends for the Hunter River alluvium monitoring bores are shown in Graphs F-2 and F-3 in Appendix F. The pH for these bores remained within historic limits and generally ranged from 6.4 to 7.7

The EC for these alluvial monitoring bores has remained relatively steady and within historical limits. The exception is bore JOR1 which has recorded a decrease in EC from approximately 3000 µS/cm in 2008 to approximately 2000 µS/cm by the end of 2016.

7.1.4 Dart Brook Alluvium

Water Levels

As shown in Graph F-4 in Appendix F, the Dart Brook alluvium monitoring bores (WM1A, DAN2 and ADN1) recorded increases in water levels of 0.86 m to 1.11 m. There is no indication that water levels in the Dart Brook alluvium have been impacted by mining.

Water Quality

Water quality trends for the Dart Brook alluvium monitoring bores are shown in Graphs F-5 and F-6 in Appendix F. The recorded pH levels in 2016 were within the historical range of 6.8 to 7.5. The water quality at these bores is brackish, with ECs in the range of 2,000 to 3,500 µS/cm.

7.1.5 Sandy Creek Alluvium

Water Levels

Groundwater levels for the Sandy Creek alluvium monitoring bores (COR3, CAD2, WM3, BRO3 and GW038412) are shown on Graph F-7 in Appendix F. These bores generally recorded increases in water levels during 2016. Water levels in bores COR3, CAD2, WM3 and GW038412 increased by 0.34 m to 1.5 m. In contrast, the water level in BRO3 declined by 0.1 m. This is likely due to natural variability of water levels in the alluvium; however, this cannot be confirmed due to the reduced frequency of monitoring in 2016. There is no evidence of impacts to the Sandy Creek alluvium due to mining activities.

Water Quality

Water quality trends for the Sandy Creek alluvium monitoring bores are shown on Graphs F-8 and F-9 in Appendix F. In 2016, the pH levels for these bores were within the historical range of 6.6 to 7.5.

The EC at WM3 has declined substantially from 4,400 µS/cm in 2008 to 1,800 µS/cm in early 2016. However, the second measurement in 2016 returned an EC of 3,000 µS/cm. EC levels have remained relatively stable for the other Sandy Creek alluvium monitoring bores.

7.1.6 Coal Seams

Water Levels

Water levels in the Kayuga Seam are monitored by three bores (Kayuga-1. DDH183 and DDH193). All three bores were affected by depressurisation associated with mining of the Kayuga longwall panels. As shown in Graph F-12 in Appendix F, water levels in Kayuga-1 and DDH183 have remained relatively steady since the cessation of mining in 2006. The water level in DDH193 has recovered by 2.45 m since 2012. This trend also continued in 2016.

Bore DDH212a measures water levels in the Wynn Seam. Depressurisation of the Wynn Seam occurred during mining operations. Water levels in DDH212a have remained steady from 2012 to 2016.

Water Quality

Water quality trends for the Coal Seam monitoring bores are shown in Graphs F-13 and F-14 in Appendix F. The three Kayuga Seam bores (DDH183, DDH193 and Kayuga 1) typically exhibit pH in the range of 6.5 to 7.5. Bore DDH212a is screened in the Wynn Seam and typically exhibits pH in the range of 7.5 to 8.5. The recorded pH values in 2016 were within these historical levels.

EC levels have remained relatively stable since 2009. The EC levels recorded in 2016 were within historical levels.

7.1.7 Regolith

Water Levels

Graph F-15 in Appendix F shows the groundwater levels in bores CAS2, CAS4, JLON1 and TLON1. Water levels in TLON1 have remained relatively stable since the commencement of care and maintenance. In 2016, the water level decreased by 0.09 m.

The water level in CAS4 has steadily increased since 2012. This increase in water level correlates with above average rainfall from 2012 to 2016. In 2016, the water level in CAS4 increased by 0.51 m.

Water levels in CAS2 have steadily declined since 2002. In 2016, the water level decreased by 1.07 m. Monitoring at bore JLON1 was not undertaken during the reporting period.

Water Quality

Graphs F-16 and F-17 in Appendix F show the pH and EC trends for the Regolith monitoring bores. Bores CAS2 and CAS4 have consistently exhibited a neutral pH since 2009. The pH at TLON1 has fluctuated between 6.8 and 7.7. The pH at these bores remained neutral in 2016.

The water quality at bores CAS2 and CAS4 is saline. The EC at bore CAS2 has remained relatively stable between 12,000 and 13,500 µS/cm. Since 2008, the EC at bore CAS4 has decreased from 14,000 to 11,000 µS/cm.

The EC at bore TLON1 varies from brackish to moderately saline. In 2016, TLON1 exhibited EC of 5,000 to 6,000 µS/cm, which is within historical levels.

7.1.8 Rejects Emplacement Area

Water Levels

Groundwater levels for the REA Bores are shown in Graph F-18 in Appendix F. During the 2016 monitoring period, water levels in RDH508, RDH509, RDH510 and RDH511 increased from 0.35 m to 1.36 m.

Water Quality

The pH and EC trends for the REA monitoring bores are shown in Graphs F-20 and F-21 in Appendix F. The pH levels for these bores are typically in the range of 6.8 to 7.7. The pH measurements taken in 2016 were within this range.

The ECs of the REA monitoring bores are moderately saline. The ECs of bores RDH508 and RDH510 regularly fluctuate by ±500 µS/cm. These bores have exhibited an upward trend in EC since 2008.

The ECs at RDH509 are typically in the range of 4,000 to 6,000 µS/cm. The ECs recorded in 2016 were greater than historical levels.

RDH511 is moderately saline and exhibits large fluctuations in EC. The 2016 measurements were within historical levels.

7.1.9 Landowner Bores

Water Levels

Monitoring is currently undertaken at three landowner bores (GW038582, Belgrave and CAS2) as shown in Graph F-21 in Appendix F. In 2016, the water level in GW038582 increased by 0.88 m. The water level in the Belgrade bore increased by 0.46 m during 2016. Monitoring results for CAS2 were discussed in Section 7.1.7.

Water Quality

Water quality trends for the Landowner Property bores are shown in Graphs F-22 and F-23 in Appendix F. The pH at the Belgrave bore generally fluctuates between 7.0 and 8.0. The 2016 measurements were within this range. The pH at GW038582 has followed an upward trend since 2008.

EC levels for GW038582 and Belgrave in 2016 were within historical levels. The water quality at bore CAS2 was discussed in Section 7.1.7.

7.1.10 Groundwater Assessment

Condition 4.1(b) of the Development Consent requires the proponent to conduct an annual assessment of the accuracy of the groundwater model predictions contained in the Dartbrook EIS. The assessment involves comparing the results of actual monitoring with predictions under the model. In 2016, this

assessment was carried out by Australasian Groundwater and Environmental Consultants Pty Ltd (AGE).

AGE's assessment for 2016 came to the following conclusions:

- Monitoring results for the alluvium monitoring bores confirms the statement in the Dartbrook EIS that "existing bores and wells in the alluvial lands will remain unaffected by depressurization within the coal measures" (MER, 2000).

  Where a decline in groundwater level has been recorded, it can be attributed to below average rainfall from mid-2001 to mid-2007, rather than to mining activities. This finding is confirmed by a rise in groundwater levels in the alluvial bores as a result of above average rainfall recorded during the period of mid-2007 to mid-2009 and again during the period from 2010 to 2012.

- Groundwater levels recorded from the bores in the Dart Brook and Sandy Creek alluvium continue to show a greater range of fluctuation and better correlation with rainfall;

- The bores in the regolith to the south-east of the completed longwall panels have shown a decline in groundwater levels in response to mining between 2004 and 2006. Groundwater levels in these bores have recovered to pre-mining conditions following the cessation of mining. Current trends in groundwater levels generally correspond to rainfall patterns. These findings indicate that there will be no long-term impact on groundwater levels within the overburden, consistent with the predictions in MER (2000);

- The bores in the regolith directly overlying the Kayuga longwall panels have shown a decline in groundwater levels in response to mining between 2004 and 2006. Unlike the bores to the south-east of the longwall panels, water levels have not recovered in the overburden directly above the Kayuga longwall panels. These groundwater levels have stabilised in bores CAS4 and TLON1 but at a lower level than pre-mining conditions. These trends are likely to be associated with mine subsidence and surface cracking. The level of decline is well within the predictions in MER (2000). The water level at CAS2 has continued to decline following the cessation of mining. This is likely to be related to the position of the bore between the Kayuga Seam and Wynn Seam longwall panels and the predicted connective cracking that occurred as a result of mining;

- Groundwater levels in the coal seams have declined due to mining related depressurisation. However, the magnitude of the decline has been less than the predictions in the Dartbrook EIS. This is due to mining being suspended in 2006 rather than progressing for the 20 year period that was modelled by MER (2000). Since the cessation of mining, groundwater levels in the coal seam monitoring bores have recovered to varying degrees. By the end of 2014, water levels in these bores had stabilised at a level corresponding to that of the flooded Wynn Seam goaf.

In conclusion, the review of monitoring data for groundwater levels during the reporting period showed results were generally consistent with the predictions made in the Dartbrook EIS and in agreement with similar assessments undertaken by AGE in previous years.

7.1.11 Further Improvements

Monitoring will continue in 2017 with the ongoing review of groundwater levels and water quality for bores on lands owned by Dartbrook, in accordance with the requirements of DA 231-07-2000.

7.2 SURFACE WATER

7.2.1 Environmental Management

Dartbrook's Water Management Plan includes strategies for the mitigation of impacts to surface water and groundwater resources during the Care and Maintenance period. Multiple control strategies have been implemented across Dartbrook to minimise the risks associated with water pollution. These strategies include:

- Separation of clean and mine water sources;
- Use of sedimentation dams and traps to collect sediment;
- Diversion of clean water around the site;
- Containment of runoff from disturbed areas;
- Usage and re-use of potentially contaminated runoff and process water from the mine;
- Pumping and pipeline systems to transfer water between the surface and underground and also between the East and West Sites;
- Maximise water evaporation through the Evaporation Ponds (see Photo 14);

- Employee and contractor awareness and training in relation to spill response and pollution control;
- Licensed discharge facilities to discharge excess water from the SDD into the Hunter River in accordance with the requirements of the HRSTS; and
- Regular sampling and inspections of surface waters.

Water samples are collected and analysed on a regular basis from water dams and streams in and around the mining lease to examine the water quality. Specifically, samples are collected from an upstream and downstream site in the Hunter River and Dart Brook. This sampling regime is used to confirm that Dartbrook is not having an adverse impact on the water catchment and streams.

The water analyses include measurement of pH, Electrical Conductivity (EC), Alkalinity, Calcium, Chloride, Magnesium, Potassium, Sodium, Sulphates, Total Dissolved Solids (TDS) and Total Suspended Solids (TSS). Selected mine water dams are also tested for reactive phosphorus, Methylene Blue Active Substances (foaming agents), oil and grease, and algae.

All runoff from the western workshop and hardstand area eventually flows through the oil separator and into the WHD. Water from the WHD is pumped to the SDD or to the EHD, as required, to ensure that the WHD is maintained at 50 - 70 % capacity (see Photo 4 and Photo 5).

All runoff from the CHPP and disturbed surrounds eventually flows into the EHD. Water from the EHD is pumped on to the coal stockpile areas for evaporation, to the Wynn Seam Goaf or to the WHD, as required, to ensure the EHD is maintained at approximately 50% capacity.

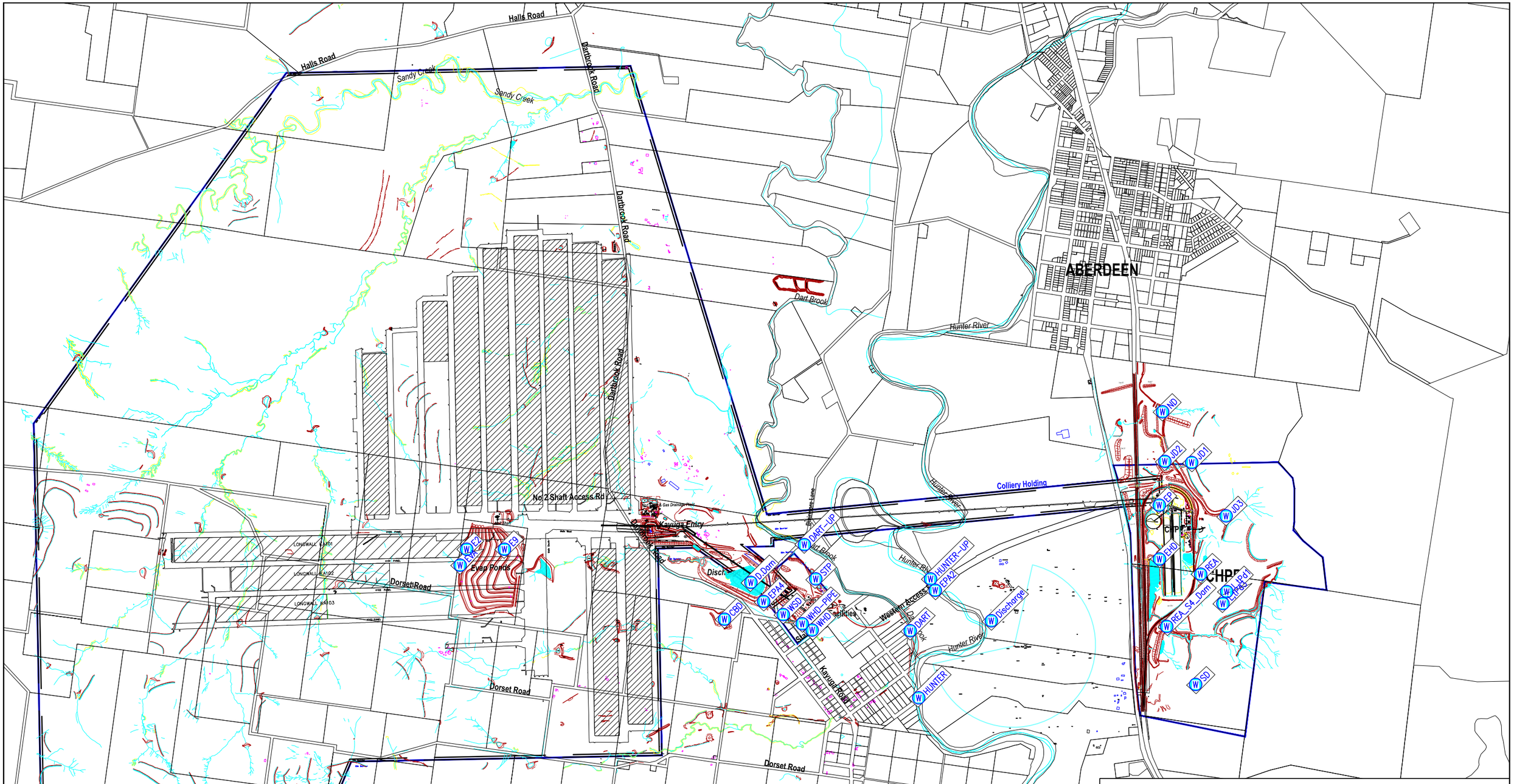
An active evaporation system above the SDD was implemented during 2016 (see Photo 15). This system involves using the existing pumping system to pump mine water through a series of fine nozzles to accelerate evaporation while minimising any offsite effects.

The general levels of the major dams are inspected weekly and the water level of the SDD, WHD and EHD are continuously monitored via the Dartbrook CITECT system. The SDD is also registered under the *Dams Safety Act 1978* and such, is subject to a regular surveillance audits. The 2016 inspections did not identify any non-compliances or issues.

The five yearly reviews of the SDD, as required by the Dam Safety Committee (DSC), were carried out in 2016. Both the latest Surveillance Report and the Environmental Management Plan were submitted to the DSC.

The surface water monitoring sites at Dartbrook are listed in Table 23 and illustrated in Figure 5.

Photo 14
Evaporation Ponds



LEGEND

N

0 100 200 400 600 800 1000 metres

WATER Surface Water Monitoring Sites

Lease Boundary

AngloAmerican

DRAWN
PC
09/05/03

REVISIONS

REV.	DATE	BY	DESCRIPTION	CHK.
K	18/02/11	PC	logo modified to AngloAmerican, Scale to 1:30000	DS
G	30/03/07	PC	E7 Renamed to E2	FY
H	02/05/08	PC	General Update	FY
I	23/06/09	PC	Updated to 2008	RC
J	01/03/10	PC	Roads Removed for Clarity	DS

Plan Showing Location of Surface Water Monitoring Sites FIGURE 5

Datum :	AHD	SCALE	A3	DRG.	REV.
GRID :	MGA(56)	1:30000		29419	K

Table 23

Surface Water Monitoring Sites

Sampling Site	Location
CBD	Contour Bank Dam (Wattus Ponds)
DART(a)	Dart Brook downstream of the Access Road bridge, (upstream of confluence with Hunter River)
DARTUP	Dart Brook at Macintyre's bridge
Dewatering Plant Tank	Tank located at the Goaf Dewatering Boreholes
Dirty Raw Water Tank	Dirty Raw Water Tank (West Site)
E2, E9	Evaporation ponds 2 and 9
East Site	Potable Water
East Site Tank (at WHD)	Mine water
EHD	Eastern Holding Dam, below the CHPP on the East Site
EP	Eastern Portal dam adjacent to Hunter Tunnel
EPA2	Discharge pipeline on the Hunter River bank adjacent to the Hunter River Bridge
EPA4	The bypass line from the 1,200 mm concrete main discharge line
EPA5	Irrigation area. Paddocks 1-4, West Site
EVA	Farm dam located on western boundary of evaporation ponds
HUNT	Hunter River downstream of junction with the Dart Brook
HUNTUP	Hunter River upstream of access road bridge
JD1	Jones Dam (Sediment Dam in northern diversion system for REA)
JD2	Jones 2nd Dam (Sediment Dam in northern diversion system for REA)
JD3	Jones 3rd Dam (Sediment Dam in northern diversion system for REA)
Leachate Pond 1b	Reject Area
Leachate Pond 3	Reject Area
ND	Northern Dam (farm dam) – North of the CHPP
REA	REA (Underdrainage)
REA Stage 4 Dam	Stage 4 of the REA (Run-off from REA)
SD	Southern Dam (farm dam) – South of the CHPP
Sewage Treatment Plant	Sewage Treatment Plant
SSD	Staged Discharge Dam, West Site above the junction of the Dartbrook and Blairemore roads.
Treated Potable Water	Potable water supply to west site administration
Untreated Potable Water	Untreated potable water at the west site
WHD	Western Holding Dam, dam below workshop on the West Site
WHI&I NSWPE	Western Holding Dam pipe (Sample from WHD near pipeline - mine water dam)
WSD	Western Surface Dam (Spillway dam for the WHD, mine water dam)

Photo 15

Active Evaporation System

7.2.2 Environmental Performance

Appendix E includes a summary of surface water quality monitoring undertaken in 2016. Most surface water sampling is undertaken for internal use only.

Dartbrook discharged 7.1 ML in September 2016 in accordance with the HRSTS and the conditions of EPL 4885. Dartbrook obtained an additional two HRSTS salinity credits in the 2016 Credit Auction.

All relevant monitors are calibrated annually as required by the HRSTS to maintain compliance with Dartbrook's EPL requirements.

Table 24 presents a summary of the water quality results for the Hunter River and Dart Brook for 2016. Surface water monitoring of the Hunter River in 2016 showed that EC, TDS and pH were similar at both upstream and downstream sites.

The Dart Brook had a higher EC and TDS upstream, with the pH results for water quality approximately the same at both upstream and downstream sites. The Dart Brook upstream EC fluctuated throughout 2016 with higher readings in the first half of the year. The downstream monitoring site is located within the vicinity of the Hunter River confluence, meaning this site's recordings can be influenced by backflow from the Hunter River, hence the marginally lower EC and TDS results than upstream. These results generally follow the trends of previous years.

The water salinity trends observed throughout most of 2016 were generally higher for the Hunter River and the Dart Brook when compared to the 2015 readings.

The pH levels for the Dart Brook upstream were slightly higher than the downstream readings - ranging between levels of 7.8 and 8.4.

The pH levels for the Hunter upstream and downstream readings were similar – ranging between 8.0 and 8.5.

7.2.3 Further Improvements

Surface water monitoring will continue to be implemented in 2017, as required by the Development Consent and Water Management Plan.

The HRSTS discharge system will remain in readiness so that discharges can be undertaken as required.

7.3 EROSION & SEDIMENT

7.3.1 Environmental Management

Erosion and sediment control across the site remains a priority, despite the relatively small amount of surface disturbance. Strategies to prevent erosion and control sediment include:

- The installation of diversion drains and contour banks to redirect overland flow from disturbed areas into dams and sediment structures;
- The use and maintenance of silt traps to slow water flow and capture water borne sediments;
- Design of rehabilitation areas to reduce slope length and minimise the potential for erosion;
- The re-establishment of vegetation onto disturbed areas to minimise exposure of bare ground with erosion risk; and
- Monitoring and inspection of rehabilitation areas and disturbed areas to identify risks of erosion.

Erosion and sediment control is managed as described in Dartbrook's Erosion and Sediment Control Plan.

7.3.2 Environmental Performance

The maintenance of drains, sediment traps and sumps was ongoing in 2016, with routine inspections undertaken of all sediment structures. Any drains, sumps or traps that contained greater than 30% sediment are scheduled to be cleaned out during dry periods in 2017.

Contour banks, drains and sediment traps were constructed as part of the final landform of the REA to ensure that runoff is directed into appropriate sediment and water control structures. During 2016, only minor repairs continued to be made to key contour banks to ensure the flow of runoff waters, while rehabilitation continues to gradually build up surface vegetation and litter. The pipe drainage system servicing the REA continued to function satisfactorily throughout 2016.

7.3.3 Further Improvements

Sediment structures will continue to be maintained during 2017, with an ongoing monitoring and desilting program. Water runoff from any disturbed areas will continue to be directed into sediment dams until areas are adequately revegetated with grass cover.

Table 24
Summary of Water Quality Results for the Hunter River and Dart Brook

Site	EC Range (µS/cm)	TDS Range (mg/L)	pH Range
Hunter River Upstream	397 – 492	270 – 330	7.8 - 8.2
Hunter River Downstream	422 – 537	280 – 360	7.9 - 8.2
Dart Brook Upstream	646 – 3,370	430 – 2,260	8.0 - 8.2
Dart Brook Downstream	644 – 2,130	430 – 1,430	7.4 - 8.2

Photo 16

REA Rehabilitation 2016

8.0 REHABILITATION

8.1 BUILDINGS

Under the Care and Maintenance program, no mine related buildings were constructed or rehabilitated in the reporting period.

8.2 REHABILITATION OF DISTURBED LAND

The rehabilitation that has been completed to date is outlined in Table 25, Plan 3, Plan 4 and Plan 5. No additional rehabilitation was undertaken in 2016. The rehabilitation maintenance activities undertaken during the reporting period are outlined in Table 26.

The REA was covered, topsoiled and seeded in 2007. The land capability of the area has since considerably improved to that of grassland (see Photo 16).

During 2016, 'crash grazing' was undertaken on the rehabilitated REA to reduce the dominance of Rhodes grass.

As discussed in Section 6.12, land that was previously undermined by longwall mining did not show any significant subsidence impacts during the reporting period. Therefore, no rehabilitation work was required during 2016.

8.3 OTHER INFRASTRUCTURE

No structural exploration work was undertaken in 2016. The existing open exploration boreholes are proposed to be rehabilitated in the first half of 2017 (see Section 4.1).

8.4 REHABILITATION TRIALS AND RESEARCH

8.4.1 River Restoration Project

The River Restoration Project was undertaken in conjunction with the HCRCMA from 2005 to 2010. Monitoring and maintenance activities were undertaken in 2016. The main maintenance activities included:

- Maintenance of native trees planted along the banks of the Russell Island Channel and Hunter River upstream of the bridge (northern site);
- Establishing engineered log structures; and
- 'Crash grazing' and weed spraying within the River Restoration Project areas (see Section 6.4).

The River Restoration Project will continue in 2017 with ongoing maintenance within the project areas (particularly the Russell Island Channel).

In July 2016, the Hunter LLS conducted an inspection of river stabilisation works, River Red Gums and 20 Log Jams constructed in the Hunter River. Hunter LLS found that the bank stabilisation was progressing satisfactorily.

Two Fish-Hotels and about 20 Log Jams have been constructed over a 6.5 km stretch of the Hunter River that interfaces with Dartbrook owned land. These structures create pool and riffle sequences as well as stabilise the bank. This more diverse habitat favours native fish species.

8.4.2 Riparian Vegetation Management

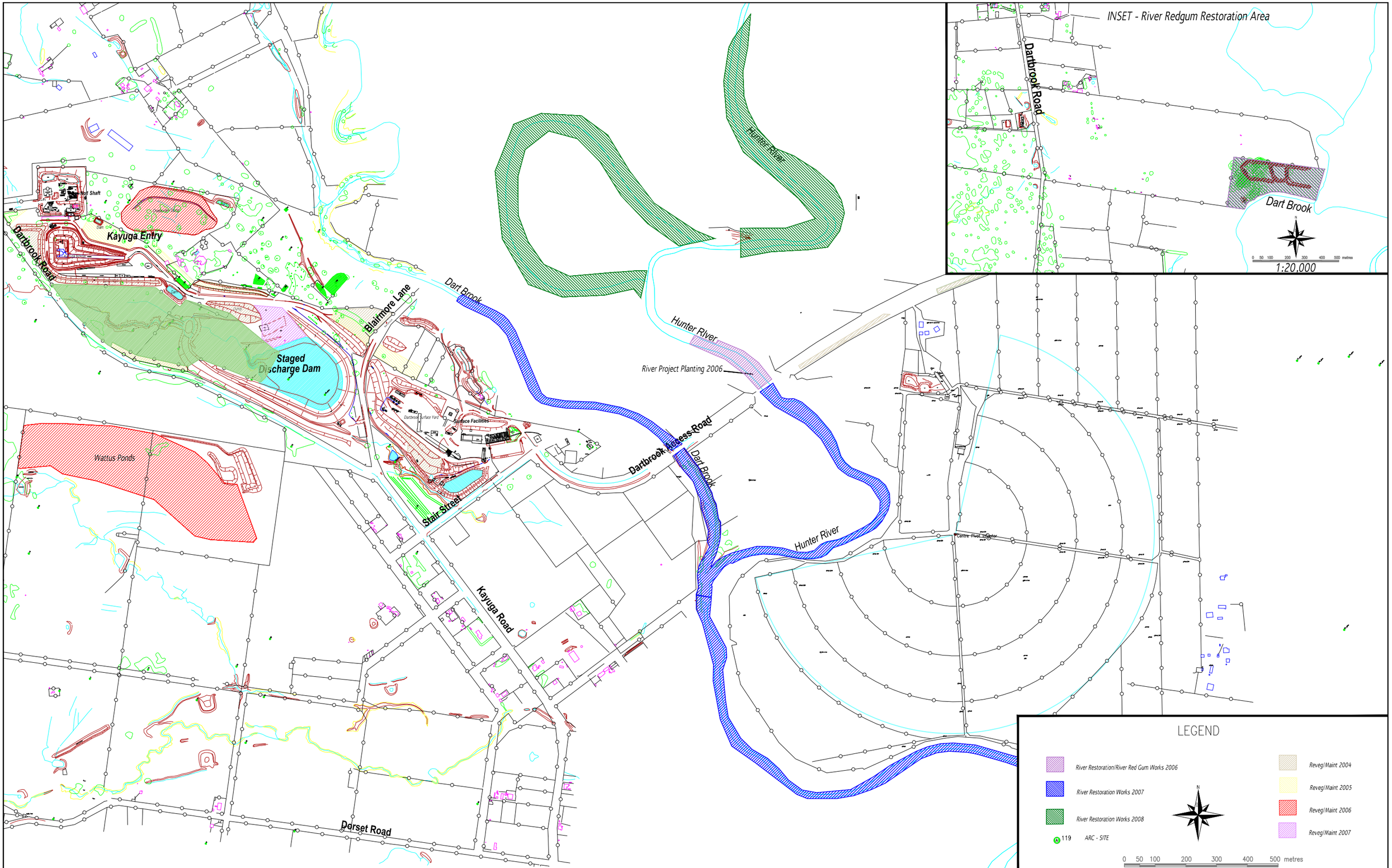
Approximately 5,000 tree seedlings have been planted to date. The seedling stock was comprised mostly of River Red Gum but also river oak, yellow and white box, apple. The trees have since established themselves to the point where "crash grazing" can be undertaken in riparian areas without damaging the trees. "Crash grazing" is undertaken to prevent weeds seeding, allowing native and naturalised grasses to dominate. Approximately 200 head of cattle grazed the Hunter River banks below the access road at Dartbrook for less than 1 week in February 2016. This vegetation control measure was very effective (see Photo 17).

Table 25

Rehabilitation Status

		Area Affected/ Rehabilitated (ha)		
		To date (End 2016)	Last report (End 2015)	Next Report (Est End 2017)*
A:	MINE LEASE AREA			
A1	Mine Lease(s) Area CL386, ML1381, ML1497, ML1456	3,258	3,258	3,258
B:	DISTURBED AREAS			
B1	Infrastructure area (other disturbed areas to be rehabilitated at closure including facilities, roads)	117	117	117
B2	Active Mining Area (excluding items B3 - B5 below)	-	-	-
B3	Waste emplacements (active/unshaped/in or out-of-pit)	0	0	0
B4	Tailings emplacements (active/unshaped/uncapped)	0	1	0
B5	Shaped waste emplacement (awaits final vegetation)	Nil	Nil	Nil
ALL DISTURBED AREAS		118	118	118
C:	REHABILITATION PROGRESS			
	Overburden Dump	3.7	3.7	3.7
	Wattus Ponds	14.7	14.7	14.7
	Rejects Emplacement Area	29.2	29.2	29.2
	Infrastructure Area	4	4	4
C1	Total Rehabilitated area (except for maintenance)	51.6	51.6	51.6
D:	REHABILITATION ON SLOPES			
D1	10 to 18 degrees	32.9	32.9	32.9
D2	Greater than 18 degrees	-	-	-
E:	SURFACE OF REHABILITATED LAND			
E1	Pasture and grasses	51.6	51.6	51.6
E2	Native forest/ecosystems	-	-	-
E3	Plantations and crops	-	-	-
E4	Other (includes non-vegetative outcomes)	-	-	-

** Subject to new Dartbrook ownership*



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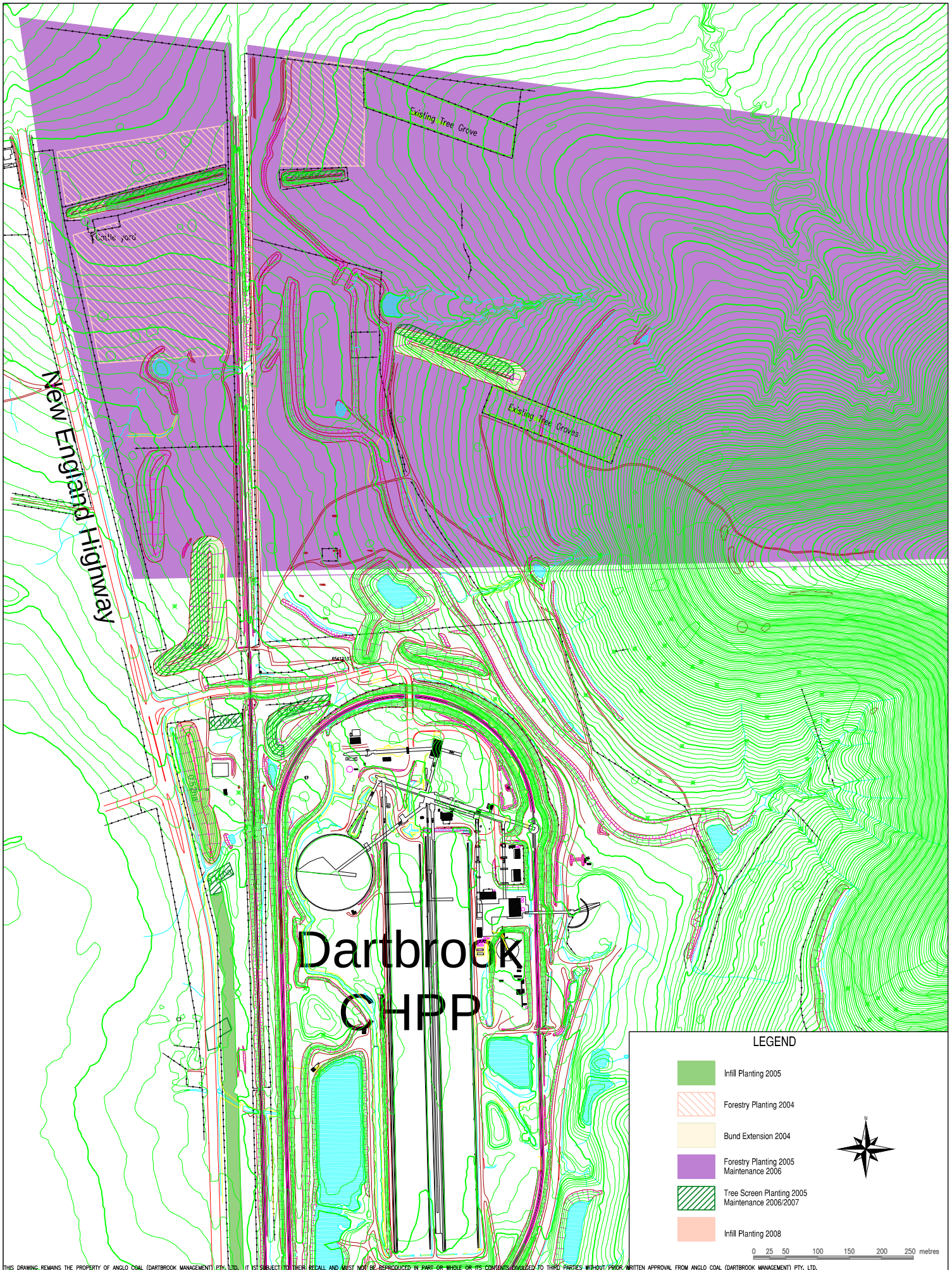
9/05/03

REVISIONS

REV.	DATE	BY	DESCRIPTION	CHK.
K	23/06/09	PC	Updated to 2008	RC
L	01/03/10	PC	Roads Removed for Clarity	DS
M	18/02/11	PC	Logo Modified to AngloAmerican	DS
N	26/02/13	PC	Plan No Changed from 5a to 3	DS
J	02/05/08	PC	Areas Updated	FB

Dartbrook Mne
West Site Rehabilitation Activities
PLAN 3

Datum :	AHD	SCALE	A3	DRG.	REV.
GRID :	MGA(56)	1:10000		29420	N



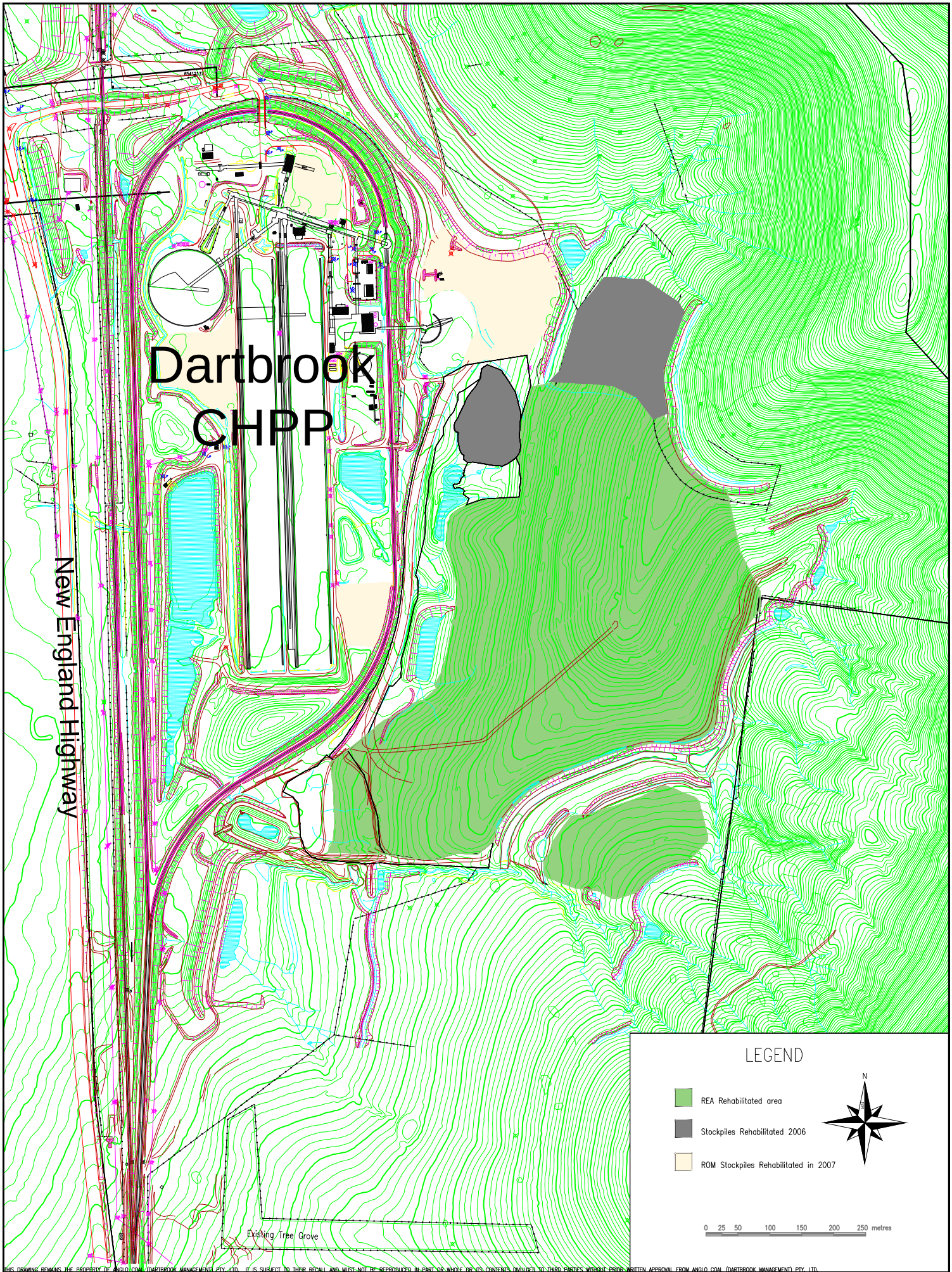
AngloAmerican

REVISION				
I	18/02/11	PC	Logo Modified to AngloAmerican	
J	26/02/13	PC	Plan No Changed from 5b to 4	
H	23/06/09	PC	Updated to 2008	
REV.	DATE	BY	DESCRIPTION	CHK.

DRAWN	DATE	CHECKED	APPROVED
AS	06/10/04		

Dartbrook Mine
East Site Rehabilitation Activities
PLAN 4

SCALE	A4	DRG.	REV.
1:7500		31031	J



AngloAmerican

REVISION				
REV.	DATE	BY	DESCRIPTION	CHK.
H	01/03/10	PC	REA Banks Updated	
I	18/02/11	PC	Logo Modified to AngloAmerican	
J	26/02/13	PC	Plan No Changed from 5c to 5	

DRAWN	DATE	CHECKED	APPROVED
PC	18/05/05		

Dartbrook Mine
Rehabilitation of Reject Emplacement Area
PLAN 5

SCALE		DRG.	REV.
1:7500	A4	32043	J

Table 26

Maintenance Activities on Rehabilitated Land

NATURE OF TREATMENT	Area Treated (ha) Report period (2016)	Area Treated (ha) Next period (2017)*	Comment / control strategies / treatment detail
Additional erosion control works (drains re-contouring, rock protection)	0	1	Maintenance works may be required if settlement has occurred.
Re-covering (detail - further topsoil, subsoil sealing etc.)	0	0	No re-covering of the REA erosion control contour banks was required in 2016.
Soil treatment (detail - fertiliser, lime, gypsum etc.)	0	0	No additional gypsum and fertilizer to the REA erosion control contour banks in 2016.
Treatment/management (detail - grazing, cropping, slashing etc.)	0	0	Continued controlled grazing of Wattus Ponds area. Some areas of the REA rehabilitation were slashed. Grazing continued in the REA in 2016. This included heavy grazing with 50 cows and calves in late winter / spring. Areas in the River Restoration Project were also slashed.
Re-seeding/replanting (detail - species density, season etc.)	<1	<1	No maintenance of disturbed REA erosion control contour banks areas was required in 2016.
Adversely affected by weeds (detail - type and treatment)	~20	~20	The following weeds were controlled by spraying or slashing in 2016 across the mine area: Galenia, St John's Wort, Tiger Pear, Bathurst Burr, Turnip weed, Boxthorn. 'Crash grazing' was also undertaken in the River Restoration Area to assist in weed control. The weed control program will continue in 2017.
Feral animal control (detail - fencing, trapping, baiting etc.)	10	10	Appropriate rabbit controls were implemented at the visual bund and along both sides of the New England Highway (in conjunction with the LLS). Pig trapping and dog / fox poisoning was conducted in conjunction with the LLS where appropriate. Kangaroo culling was undertaken (with the approval of the National Parks and Wildlife Service) in 2016 and will continue in 2017.

** Subject to new Dartbrook ownership*

Photo 17

Crash Grazing Trial – Before and After

8.4.3 River Red Gums Restoration

The purpose of this project is to enhance and protect a population of River Red Gums (listed as being endangered in the Hunter Valley). The project area is remote from any mine related infrastructure, has been fenced to exclude stock, and contains over 2,500 River Red Gums that have been planted amongst the mature population. The River Red Gums that had naturally regenerated as a result of artificial flooding in 2007 continue to thrive within the constructed bunds. Monitoring of this area is conducted by independent ecologists (Umwelt) every two years. The previous round of monitoring (conducted in 2015) found that the area was progressing well.

Research and monitoring of the River Red Gum Restoration Project area will continue in 2017.

8.4.4 Forestry Plantation

In 2003, Dartbrook commenced the establishment of a 75 ha forestry plantation in conjunction with Forests NSW. The plantation was located on undulating grazing land north of the CHPP, and south of the town of Aberdeen (see Plan 3). Approximately 75,000 seedlings, comprised mainly of Spotted Gum (*Corymbia maculata*) were planted in 2004 and 2005.

The plantation was part of a regional plan to create a sustainable forestry resource on land that was previously grazed. With improved seasonal conditions, the plants continued to grow well in 2016.

Monitoring of the plantation is also undertaken by ecologists every two years. The 2015 biennial monitoring found that the most successful species were Spotted Gum and Grey Box. To date, the project has also been successful at achieving the additional objectives of establishing a biodiversity corridor, visual screening and stabilising the soil.

8.4.5 Sustainable Cattle Grazing Trial

Dartbrook commenced a grazing trial in 2015 to demonstrate that rehabilitated land, in this case the REA, could sustain grazing by livestock, be productive and blend with the adjacent land uses.

This trial proved to be successful as evidenced by the weight gains observed in the cattle (see Graph 9).

A further 50 cows and calves were introduced to "crash graze" the rehabilitated REA in February 2016. This purpose of "crash grazing" was to graze down remnant Rhodes grass swathes and even the height of the grasses.

Pasture growth was monitored at five sites on five occasions (at regular intervals). Sites 1 and 4 were Rhodes Grass dominant pasture, with greater than 80% coverage throughout the year. Site 2 hayed-off more than the other sites with some lodging of the tall Rhodes Grass. Site 3 and Site 5 were dominated by other grass species including kikuyu, couch and medics. The latter species were significant in providing palatable high protein feed in the July to September period when summer growing species were more dormant. Phalaris, Green Panic and Lucerne are widespread throughout the REA and many native grasses were observed sporadically including Queensland Blue Grass, Plains Grass, Chloris spp., Wallaby Grass, Wiregrass, Barbwire Grass and Sporobolus spp.

Graph 10 shows the successful maintenance of groundcover throughout the trial.

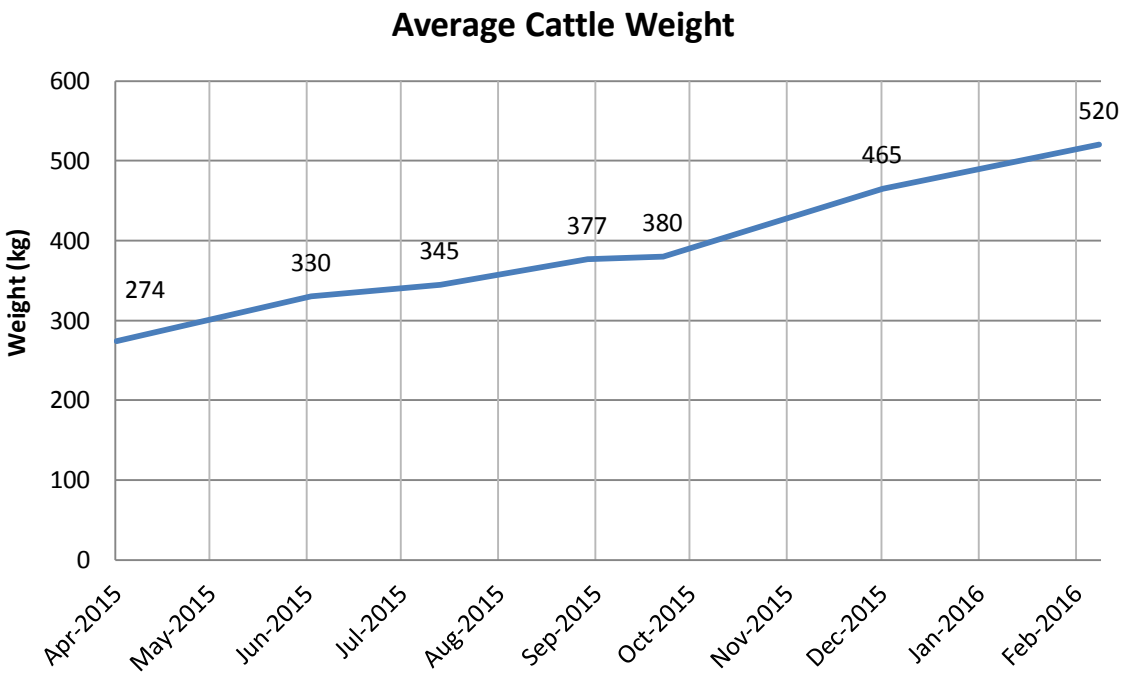
8.5 PROPOSED ACTIVITIES FOR NEXT REPORTING PERIOD

No additional rehabilitation is proposed to be undertaken in 2017. Dartbrook will continue to undertake rehabilitation maintenance activities as required. Maintenance activities may include weed controls, feral animal controls and drainage works.

Dartbrook will also continue monitoring areas associated with the River Restoration Project, River Red Gum Restoration Project and Forestry Plantation in 2017.

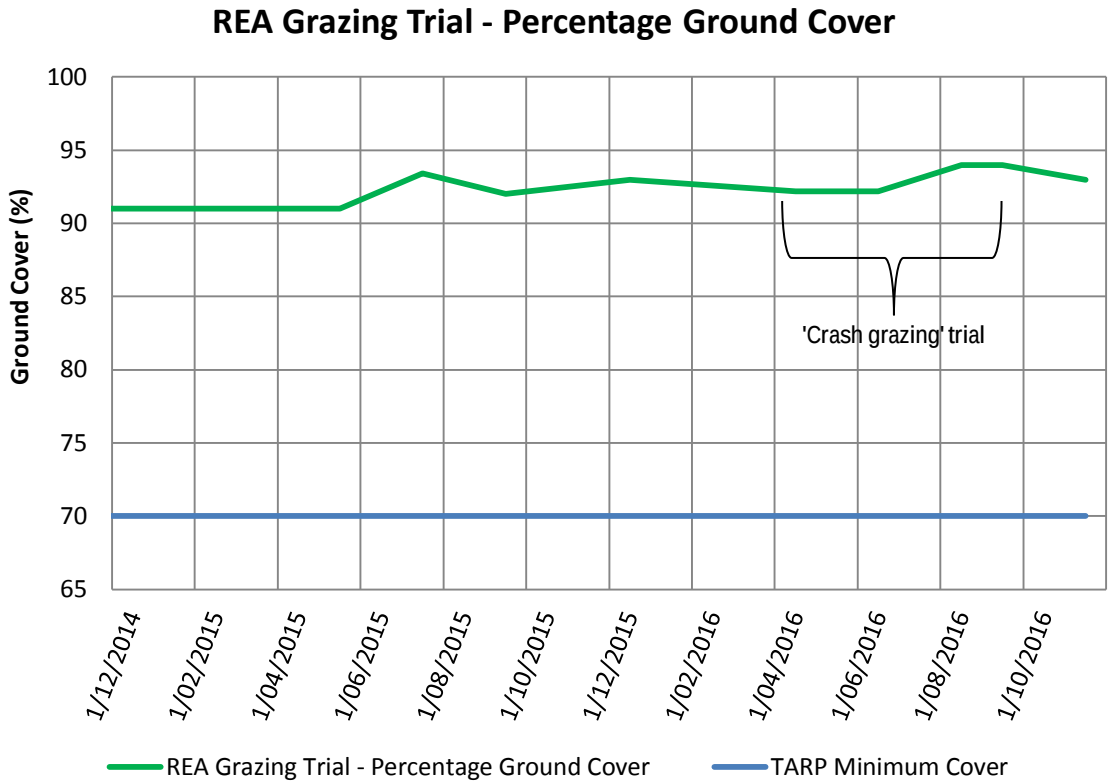
Graph 9

Average Steer Weight from Dartbrook Grazing Trial



Graph 10

Sustained Pasture Levels



9.0 COMMUNITY RELATIONS

9.1 ENVIRONMENTAL COMPLAINTS

Dartbrook operates under an approved Complaints Handling Protocol, which details the process for receiving and responding to complaints. The process involves:

1. Recording the complaint;
2. Seeking immediate identification and addressing the cause of the complaint (where possible);
3. Telephone contact with the complainant within 24 hours (where possible); and
4. Formal follow up with a letter of response.

Complaints can be received via a dedicated complaints telephone line, general telephone number, facsimile, email, letter or in person. All complaints received are recorded in a Complaints Register.

No formal complaints were received during the reporting period. Dartbrook has not received any formal complaints since 2007.

9.2 COMMUNITY LIAISON

9.2.1 Dartbrook Community Consultative Committee

Due to the limited activity during Care and Maintenance, the frequency of Dartbrook Community Consultative Committee (DCCC) meetings was reduced from six per year to three per year in 2006.

The DCCC is usually comprised of community representatives from Muswellbrook Shire Council (MSC) and Upper Hunter Shire Council (UHSC), council staff and community representatives. The current council representatives are Jennifer Lecky (Chair and previously the MSC representative) and Kiwa Fisher (UHSC representative). Paul Smith was the staff representative from UHSC. MSC have not yet appointed a replacement for Craig Fleming, who resigned in April 2015. The community representatives on the DCCC are Arthur Mitchell, Annette Rahn, Tony Lonergan and Noel Downs (representing the Wanaruah Local Aboriginal Land Council).

Table 27 lists the dates of meetings held during 2016 and the topics discussed at these meetings, which included the suspension of the exploration program, fire hazard and land management, relocation of the scarred tree (see Photo 10) and statutory requirements. In addition to those items listed, each DCCC meeting also considered business arising from the previous meeting minutes, correspondence and general business. Minutes of the meetings are posted on the Dartbrook website. Updates of Anglo American activities were also distributed to the DCCC during the reporting period.

9.2.2 Community Activities / Participation

Throughout 2016, Dartbrook continued its sponsorship of the local newspaper, *The Upper Hunter Connector* (formerly the *Aberdeen Whisper*). In return, *The Upper Hunter Connector* advertised Dartbrook's environmental hotline and offered Dartbrook the opportunity to convey information to the local community regarding its ongoing activities.

In 2016, Dartbrook also continued to host the Aberdeen Rifle Club, which is located on land owned by Anglo American.

The latest edition of the *Kayuga – Dartbrook Oral History* (edited by Rob Tickle) was published on 16 April 2016. Dartbrook also donated historical memorabilia to the Muswellbrook Historical Society, which included the original model of the Dartbrook Underground Mine landscape (see Photo 18).

Dartbrook supported MSC's "Paddle n' Plant" event in September 2016 (see Photo 19), which had the objective of planting River Red Gums at Karoola Wetlands.

Dartbrook undertook a rubbish collection program to reduce litter along Dartbrook and Blairemore Roads (see Photo 20).

Table 27
Summary of Topics Discussed During 2016 Dartbrook CCC Meetings

Date	Topics Discussed
28/04/2016	• Summary of environmental monitoring and performance • Exploration activities are currently on hold • Prefeasibility studies have been suspended indefinitely • Security issues • Annual Return for EPA Licence and Annual Environmental report distributed • Repairs to Riverview Homestead and Kayuga Cemetery • Plashett Homestead open day • Relocation of scarred tree – waiting for ARTC approval to install at the Reconciliation Mural shelter • Latest edition of "Kayuga – Dartbrook Oral History" (prepared by Rob Tickle) • Weed control (Box Thorn, Green Cestrum, Tiger Pear and St Johns Wort) • Feral animal control (Kangaroos) • REA borehole temperature monitoring • Water management – Evaporation pond usage and the gradual rise in the Wynn Seam groundwater level • REA Sustainable Grazing demonstration (completed) • Greenhouse emissions explained • MOP closure works and security deposit explained • River Red Gum Restoration Project maintenance (including slashing)
14/09/2016	• Summary of Dartbrook's environmental performance • Prefeasibility studies have been suspended indefinitely • Project Exploration (EL 5525 renewal, EMR submitted) • Weed Control (Box thorn, Green Cestrum, African Olives and Tiger Pear) • Feral animal control (Kangaroos) • Tree trimming and bushfire management • Fence repairs to Brown's Mountain property • EPA HRSTS Return lodged • Visits by WaterNSW and DRE • Independent Compliance Audit commenced • Scarred Tree and AHIP discussions progressing with OEH & MSC • REA crash grazing trial – cattle and pasture being monitored • Inspection of rural septic sewerage systems • DSC Surveillance report commenced • Various procedures and Management Plans reviewed - the Complaints Handling Protocol, Spontaneous Combustion Management Plan, Waste Management Plan, Archaeological Management Plan and Environmental Management System • Committee Representation – 2 positions vacant • DRE's responses to Dartbrook's Annual Review • The HRSTS Annual Report was submitted. • Dartbrook purchased two HRSTS credits at the EPA auction • Independent Compliance Audit was conducted recently by SLR Consultants – awaiting audit report

Date	Topics Discussed
	• DRE (Marianne Bonnay) inspected Dartbrook – showed concern about weeds on Kayuga visual bund • Five yearly Surveillance Report required by DSC is underway • Discussions with MACHenergy (Mt Pleasant) regarding common boundary issues • Wynn seam water level rising due to a damp winter and unable to evaporate more water through the use of evaporation ponds & new evaporation system • Relocation of the Scarred Tree to MSC owned land at Simpson Park. An Agreement has been reached between MSC and Anglo American. The site has been confirmed this week. The relocation is expected to occur in Q4. • Dartbrook is supporting the Paddle n' Plant event at the Karoola Wetlands
12/11/2015	• Summary of the Dartbrook's environmental performance • Progress of the sale of Dartbrook • Exploration – advised that the rehabilitation of 26 holes is being organised for Q1 of 2017 • Weed control (African Box thorn, African olives, St John's Wort spraying) • Feral animal control (kangaroos and wild dogs) • Inspection and maintenance of septic sewerage systems on rural properties • REA "crash grazing' trial – cattle removed • Slashing and mowing of topsoil stockpiles as per recommendation from DRE • Rubbish pick up along Dartbrook and Blairemore Roads • Meetings with the EPA and SCS on site and DPI offsite • HRSTS discharge of 7.1 ML in September • Independent Compliance Audit Report submitted to DP&E and circulated for consultation. Status discussed including the 6 low level non compliances. • Tree screen management and drip irrigation • REA borehole temperature monitoring – no high readings since the installation of new thermocouples • Scarred tree was relocated to Simpson Park under the management of the MSC • Desktop Emergency environmental exercise undertaken • DCCC membership still to be resolved – awaiting MSC advice

Photo 18

Historical Memorabilia Donated by Dartbrook

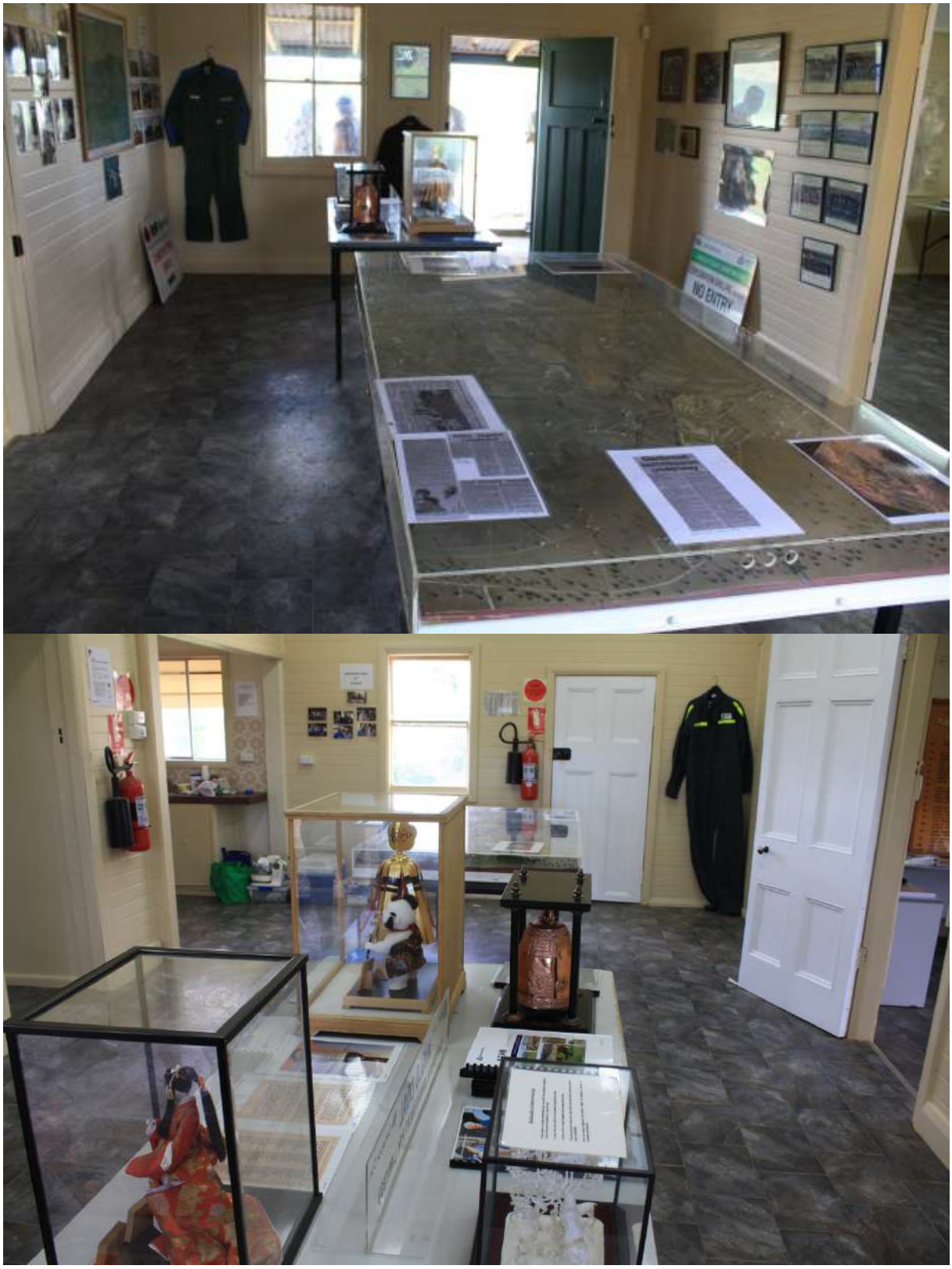


Photo 19

Paddle n' Plant

Photo 20

Rubbish Collection along Dartbrook and Blairemore Roads

9.2.3 Leaseholders and Dairy Farm

Dartbrook has 7 major leaseholders and agistees that occupy the Dartbrook owned land surrounding the mine. There are also 18 tenants who occupy the residences that were acquired to enable the mine to commence.

The Garoka Dairy has been operating on Dartbrook's land since 1992, and is located on the alluvial lands between the Dartbrook CHPP and the workshop and portal entry. The dairy currently supports 600 to 700 head of cattle. The Garoka Dairy is an amalgamation of the four farms that were originally established to the east of the Hunter River and Dartbrook's administration office, and one farm at the confluence of the Hunter River and Dart Brook.

The dairy farms were fully operational during active mining operations at the site and there were no reported adverse impacts on the dairying operations or the quality of the milk.

Photo 21
Dartbrook Dairy Farm

10.0 INDEPENDENT AUDIT

As required by the conditions of DA 231-07-2000 (as modified), an Independent Audit of Dartbrook's operations was undertaken during the reporting period. The audit was undertaken by SLR in July 2016.

The audit considered Dartbrook's performance during the period from August 2013 (i.e. the previous audit) to July 2016. The audit identified six low level non-compliances and recommended the following actions:

- Management Plans to be published on Dartbrook's website;
- Better consultation with the relevant government agencies when reviewing the management plans;
- Timely submission of the Independent Compliance Audit report;
- Resolution of a minor error in the EPA's Annual return; and
- Update the Flora and Fauna Management Plan to include the monitoring frequency.

All of these non-compliances occurred prior to the 2016 Annual Review reporting period. The key findings and recommendations of the audit are summarised in Table 28.

Dartbrook responded to SLR's recommendation in a letter to DP&E dated 29 September 2016. On 13 March 2017, DP&E advised that both the audit report and Dartbrook's response were satisfactory.

Table 28

Summary of Non-compliances Identified by the Audit

Requirement	Description of Requirement	Compliance Status	Description of Non-compliance
DA 231-07-2000 Condition 3.2(e)	The Applicant shall make copies of the environmental management plans in sub-clause (d) above available to relevant government agencies, MSC, SSC and the CCC and ensure that the plans are made publicly available within 14 days of approval by the Director-General.	Administrative Non-Compliance	No evidence of submission of Dust Management Plan to MSC, UHSC and the CCC within 14 days of its approval. It is acknowledged that the agencies were consulted for updated management plans, but final plans should be sent to the required agencies and CCC.
DA 231-07-2000 Condition 6.1(a)	The Applicant shall, prior to the commencement of construction or Mining Operations, prepare a Dust Management Plan detailing air quality safeguards and procedures for dealing with dust emissions from the Dartbrook Underground Mine Extension to the satisfaction of the Director-General. The Dust Management Plan shall be prepared in consultation with the EPA, MSC and SSC.	Administrative Non-Compliance	There is no evidence that consultation was completed for the 2015 update of the Dust Management Plan apart from the submission to DP&E for approval. During the field inspection it was observed that the former coal stockpile area has been partially rehabilitated with a pasture mix. However, there are several areas that have poor ground cover.
DA 231-07-2000 Condition 8.1(a)	Every three years from the date of this consent until completion of mining in the DA area, or as otherwise directed by the Director-General, the Applicant shall conduct an environmental audit of the mining and infrastructure areas of the development in accordance with *ISO 14010 – Guidelines and General Principles for Environmental Auditing* and *ISO 14011 – Procedures for Environmental Auditing* (or the current versions), and in accordance with any specifications required by the Director-General. Copies of the report shall be	Administrative Non-Compliance	The previous audit was conducted in 2013 by Parsons Brinkerhoff. The audit report was submitted to DP&E on 23/10/2013. The Audit Report was sent to MSC, DPI Water and OEH on 14 November 2013. This was three weeks after the report was submitted to the DP&E. There is no evidence of submission to UHSC.

Requirement	Description of Requirement	Compliance Status	Description of Non-compliance
	submitted by the Applicant to the Director-General, MSC, SSC, EPA, DLWC, DMR, NPWS and CCC within two weeks of the report's completion for comment.		
EPL 4885 Condition R1.1	The licensee must complete and supply to the EPA an Annual Return in the approved form comprising: a) a Statement of Compliance; and b) a Monitoring and Complaints Summary. At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.	Non-Compliance (Low Level Risk)	The 2014/15 Annual Return indicated that only one sample was collected for TSS and pH. This did not satisfy the requirement for two samples (one for each day of discharge at LDP004). Further evidence was provided illustrating that sampling was completed for the 22 and 23 April 2015 discharge. It was determined that there was an error in the Annual Return for the 2014/2015 period.
Previous non-compliance	Ensure copies of management plans are made publicly available following approval by DP&I.	Administrative Non-Compliance	The site water management plan is the only revised plan that was uploaded to the website (at the time of the audit).
Previous non-compliance	Amend the Flora and Fauna Management Plan and/or Environmental Monitoring Program to specify a frequency for undertaking rehabilitation monitoring.	Administrative Non-Compliance	The Flora and Fauna Management Plan was not amended during the audit period.

11.0 ENVIRONMENTAL INCIDENTS & NON-COMPLIANCES

11.1 ENVIRONMENTAL INCIDENTS

There were no reportable environmental incidents during 2016.

There was an internal investigation into the triggering of the initial Wynn Seam groundwater level TARP. This investigation led to the installation of a second evaporation system above the SDD and a review of the TARP (see Section 7.2). This incident did not result in non-compliances with any conditions of regulatory approvals or licences.

11.2 ENVIRONMENTAL NON-COMPLIANCES

As part of the SHECMS (as discussed in Section 2.3), internal and external audits are undertaken to assess compliance with regulatory requirements including the conditions of Development Consent, EPL 4885 and Mining Leases. The 2016 internal audits did not identify any operational non-conformances.

12.0 ACTIVITIES PROPOSED IN THE NEXT REPORTING PERIOD

The activities proposed to be undertaken in 2017 are summarised in Table 29. Further details on the proposed activities are provided in Section 6.0 and Section 7.0.

Table 29
Dartbrook Environmental Management Activities Proposed for 2017

Area	Proposed Activity
Air Quality	Minor dust controls may need to be considered where needed during 2017. Air quality monitoring will continue in accordance with the Air Quality Management Plan.
Erosion and Sediment	Sediment structures will continue to be maintained (as required). Water runoff from disturbed areas will continue to be directed into sediment dams until areas are adequately revegetated with grass cover.
Surface Water Management	Surface water monitoring will continue subject to an ongoing review to rationalise the frequency required by NOW, EPA and DP&E.
Ground Water Management	Groundwater monitoring will continue in accordance with the Site Water Management Plan.
Rehabilitation	Rehabilitation of exploration boreholes is scheduled for the first half of 2017.
Threatened Flora and Fauna	Fauna and flora communities will be managed in accordance with the approved Management Plan. In circumstances where clearing is required, the disturbance permits process will continue to be undertaken. The River Restoration Project monitoring will continue.
Noxious Weeds and Feral Animals	Weed control will continue to be conducted within the Mining Lease areas and the Weed Control Register will be maintained. Feral animals will be controlled as necessary.
Operational Noise	Noise monitoring is not required unless mining operations re-commence.
Visual / Stray Light	Maintenance of the tree screens will continue (as required).
Aboriginal Heritage	The existing permit system will continue to be implemented prior to commencing ground disturbance activities such as exploration and rehabilitation. .
European Heritage	Existing efforts to minimise impacts to European heritage will be continued.
Spontaneous Combustion	Thermocouple temperatures will continue to be monitored and reported.
Bushfire	Fuel loads across the site will continue to be monitored and reduced as required.
Mine Subsidence	Treated areas will be re-inspected to determine if further subsidence cracking has occurred.
Hydrocarbon Management	Ongoing appropriate storage and maintenance of the oil separator and associated facilities.
Gas drainage / Ventilation	Monitoring of gas emissions from the mine will be continued.
Public Safety	Regular patrols by security personnel will continue with CCTV surveillance. Fences will be maintained and gates will remained locked and secured, as required. Roadside vegetation slashing and New England Highway verge upgrade will continue.
REA	Continuation of the grazing demonstration trail to prove the sustainability of the REA's rehabilitation.

Anglo American Safety, Health & Sustainable Development Policies

Appendix

A

AngloAmerican

Hansen Bailey
ENVIRONMENTAL CONSULTANTS

SUSTAINABLE DEVELOPMENT

SAFETY
COAL, AUSTRALIA AND CANADA

OUR VISION

ZERO HARM

Our vision is to achieve Zero Harm through effective management of safety in all our managed operations.

We believe our people are our key asset and Zero Harm is achievable – we do not accept that people may be injured while working for us. All employees should be able to return home fit and well at the end of each shift. We believe one injury is one too many.

OUR PRINCIPLES

Underpinning the Vision are three fundamental Safety Principles:

ZERO MINDSET

All injuries and occupational illnesses are preventable.

NO REPEATS

All necessary steps are taken to learn from incidents in order to prevent recurrence.

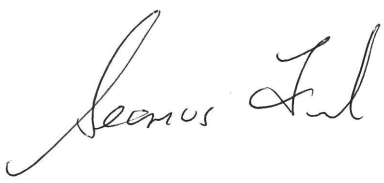
SIMPLE NON–NEGOTIABLE STANDARDS

Safety standards and rules are consistently applied throughout the Group.

OUR POLICY

Anglo American's Coal business is one of Australia's leading coal producers with extensive coal mining interests in Queensland, New South Wales, and British Columbia, Canada. To realise our vision and principles at all operations:

- We hold all employees and contractors accountable for the safety of our people.
- We expect managers and supervisors to provide effective leadership in safety while recognising and supporting that good safety behaviour is the responsibility of all those who work for us.
- Management at all operations is responsible for the full implementation of the Coal Safety, Health & Environment Management System, The Safety Way, our Group Technical Standards (Safety) and all relevant legislation. This requires the allocation of appropriate resources and the provision of training, education, consultation and auditing to ensure compliance.
- We commit to open, honest communication with our employees, contractors, suppliers, other business partners and interested third parties to encourage a safety culture that reflects the intent of this policy.
- We will set measurable objectives and targets and monitor progress against these to ensure continual improvement towards our goal of Zero Harm.



Seamus French
CEO, Coal

September 2014

This policy will be reviewed at appropriate intervals and revised when necessary to keep it current.

AngloAmerican

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SUSTAINABLE DEVELOPMENT

OCCUPATIONAL HEALTH COAL, AUSTRALIA AND CANADA

OUR VISION

ZERO HARM

Our vision is to achieve Zero Harm through effective management of safety in all our managed operations.

We believe our people are our key asset and Zero Harm is achievable – we do not accept that people may be injured while working for us. All employees should be able to return home fit and well at the end of each shift. We believe one injury is one too many.

OUR PRINCIPLES

Underpinning the Vision are three fundamental Health Principles:

ZERO MINDSET

All injuries and occupational illnesses are preventable.

NO REPEATS

Learn from our monitoring of exposure and surveillance of disease incidence and use this information to prevent the occurrence of occupational disease.

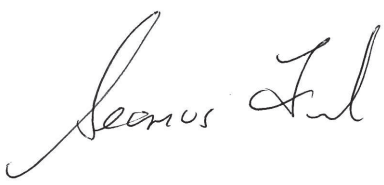
SIMPLE NON-NEGOTIABLE STANDARDS

Health standards and rules are consistently applied throughout the Group.

OUR POLICY

Anglo American's Coal business is one of Australia's leading coal producers with extensive coal mining interests in Queensland, New South Wales, and British Columbia, Canada. To realise our vision and principles at all operations:

- We hold all employees and contractors accountable for the occupational health of our people.
- We expect managers and supervisors to provide effective leadership in occupational health management while recognising and supporting that all of those who work for us have a responsibility to contribute to a working environment that is without significant risk to health.
- We commit to the reduction of exposure at source through good engineering practice and the application of the As Low As Reasonably Possible (ALARP) principle. Compliance with the law will always be the minimum standard.
- Management at all operations is responsible for the full implementation of the Coal Safety, Health & Environment Management System, The Safety Way, our Group Technical Standards (Occupational Health) and all relevant legislation. This requires the allocation of appropriate resources and the provision of training, education, consultation and auditing to ensure compliance.
- We commit to open, honest communication with our employees, contractors, suppliers, other business partners and interested third parties to encourage a health and safety culture that reflects the intent of this policy.
- We will set measurable objectives and targets for employees and contractors and monitor progress against these to ensure continual improvement towards our goal of Zero Harm.



Seamus French
CEO, Coal

September 2014

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SUSTAINABLE DEVELOPMENT

ENVIRONMENTAL MANAGEMENT COAL, AUSTRALIA AND CANADA

OUR VISION

ZERO HARM

Our vision is to minimise harm to the environment by designing, operating and closing all of our operations in an environmentally responsible manner.

OUR PRINCIPLES

Underpinning the Vision are three fundamental Environmental Principles:

ZERO MINDSET

We shall apply the mitigation hierarchy of avoiding, minimising and mitigating environmental impacts arising from our activities, products and services.

NO REPEATS

All necessary steps will be taken to learn from environmental impacts, incidents, audit findings and other non-conformances, to prevent their recurrence.

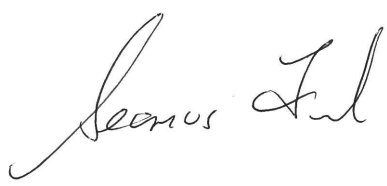
SIMPLE NON–NEGOTIABLE STANDARDS

Common, non-negotiable Environmental Management and Performance Standards and procedures shall be applied throughout the Group as a minimum requirement.

OUR POLICY

Anglo American's Coal business is one of Australia's leading coal producers with extensive coal mining interests in Queensland, New South Wales, and British Columbia, Canada. To realise our vision and principles at all operations:

- We hold all employees and contractors accountable for the environmental management of our activities.
- We expect line managers and supervisors to provide effective leadership in environmental management while recognising that environmental management is the responsibility of everyone who works for us.
- Managers of every business or operation are responsible for the full implementation of the Coal Safety, Health and Environment Management System, the Anglo Environmental Management Framework and participation in the Peer Review Program.
- This requires:
  - the allocation of appropriate resources and the provision of training, education, consultation and auditing to ensure compliance
  - the development, implementation and maintenance of environmental policies, programs and procedures
  - effective environmental impact identification, assessment and control, designed to achieve proactive management of our activities, products and services
  - setting environmental objectives and targets, reviewing performance and communicating results
- We shall conserve and protect environmental resources through, amongst approaches, the efficient use of energy and water, reduction in greenhouse gas emissions intensity, minimising waste and preventing pollution.
- We shall demonstrate active stewardship of the land, freshwater systems and biodiversity with which we interact.
- We respect people's cultural beliefs and heritage.
- We shall comply with environmental legislation and other standards which we have adopted, and develop a culture of continual improvement.
- We commit to open communication with our employees, local communities, contractors, suppliers, investors, business partners and other interested third parties to encourage an environmentally responsible culture that reflects the intent of this policy.



Seamus French
CEO, Coal

September 2014

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SUSTAINABLE DEVELOPMENT

SOCIAL WAY

OUR VISION

The Anglo American Social Vision is to make a lasting, positive contribution to the communities associated with our operations, be a partner of choice for host governments and communities and be an employer of choice.

We recognise mining involves the depletion of a resource and therefore, if we are to contribute to sustainable development we need to enhance the social, human and manufactured capital in the communities around our operations.

We intend to be an industry leader in the management of social issues, to contribute to good governance, to seek the consent of local people and to innovate in our practices.

OUR PRINCIPLES

Anglo American's Social Vision is based on four core principles:

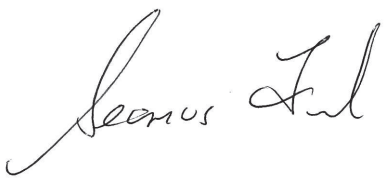
1. We will engage respectfully with host communities throughout the project cycle, and be accountable to our stakeholders.
2. Host communities should experience a lasting benefit from the presence of Anglo American operations and we will seek to maximise the benefits flowing from the operation of our core business in addition to traditional social investment.
3. All necessary steps will be taken to spread the application of good practice, and to learn from negative social impacts, complaints, incidents, audit findings and other non-conformances to prevent their recurrence. We will put in place appropriate mechanisms for handling and resolving grievances.
4. Common, non-negotiable performance standards and procedures shall be applied throughout the Group as a minimum requirement.

OUR POLICY

The future of our business and our longer term access to mine resources is dependent upon the trust, goodwill and consent of others. To secure trust, it is essential we behave in a consultative, accountable and transparent manner.

The Coal business and management team is committed to upholding our social responsibilities and the Anglo American Social Way. We will:

- Build open and honest relationships and engage regularly with all stakeholders in our host communities.
- Conduct the SEAT (Socio-Economic Assessment Toolbox) process at each operation every three years to understand issues that are important to the local community and develop Social Management Plans.
- Undertake Environmental Impact Studies as part of our project planning process, incorporating Social Impact Management Plans to minimise the impacts of our operations on our host communities.
- Advertise our Social Investment and Donations Programme in local publications calling for applications from local community groups. Applications will be assessed against a set of social criteria to ensure projects supported deliver sustainable benefits for people in our host communities and are aligned with priority areas set out in the SEAT report.
- Partner with local councils and governments to identify projects to support that will make a meaningful difference.
- Implement a Complaints and Grievance Procedure to identify and resolve any issues relating to our operation.



Seamus French
CEO, Coal

September 2014

This policy will be reviewed at appropriate intervals and revised when necessary to keep it current.

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SUSTAINABLE DEVELOPMENT

INDIGENOUS PEOPLES POLICY COAL, AUSTRALIA AND CANADA

OUR VISION

Anglo American respects the traditions, values and cultures of Australia's Indigenous Peoples.

We fully recognise their rights and their special relationship with their traditional lands.

OUR PRINCIPLES

Our goal is to work in partnership and close cooperation with the Indigenous Peoples of the lands in which we operate in a relationship of care, respect, understanding and trust.

OUR POLICY

- Establish open and constructive consultation with Traditional Owners;
- Adopt consultation procedures that are developed with Indigenous Peoples as the foundation for achieving mutually beneficial outcomes;
- Join with Traditional Owners in devising management plans to integrate consideration of cultural heritage into every aspect of the planning and operation of our developments;
- Encourage and support initiatives that provide Indigenous Peoples with fair access to employment and business opportunities associated with our operations;
- Provide cultural learning programs for our employees to increase understanding of the cultural heritage and native title rights and interests of Traditional Owners.

We will actively promote the endorsement of this policy by our Joint Venture partners and contractors.

Seamus French
CEO, Coal

September 2014

This policy will be reviewed at appropriate intervals and revised when necessary to keep it current.

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Environmental Licences & Approvals

Appendix

B

AngloAmerican

Hansen Bailey
ENVIRONMENTAL CONSULTANTS

Table 1
Licences and Approvals

Description	Approval Date	Expiry Date	Approval Authority
Mining Authorisations			
Authorisation 256	16/12/1980	02/05/2015**	DRE
Coal Lease (CL) 386	19/12/1991	19/12/2033	DRE
Mining Lease 1381	23/10/1995	23/10/2016**	DRE
Mining Lease 1456	27/09/1999	26/09/2020	DRE
Mining Lease 1497	06/12/2001	05/12/2022	DRE
Exploration Licence 4574	13/08/1993	07/04/2015**	DRE
Exploration License 4575	13/08/1993	23/05/2016**	DRE
Exploration License 5525	22/09/1998	21/09/2016**	DRE
Development Consents			
Development Consent DA 231-07-2000 (as modified)	28/08/2001	28/08/2021	DP&E
Emplacement Area Approvals			
Approval for an Emplacement Area (s126 approval)	13/03/1996	N/A	DRE
Stage 4 Reject Emplacement Approval C95/2265 (s126 approval)	02/01/2000	N/A	DRE
Approval for 14° slopes in the REA Stage 4 (s126 approval)	08/04/2004	N/A	DP&E
Application for Discontinuance of Use of Emplacement Areas (s101 approval)	13/08/2007	Ongoing	DRE
Licences			
Environmental Protection Licence 4885	Granted 30/11/2000 Amended 2016	N/A	EPA
Notification to Work Cover for storage and handling of Dangerous Goods	10/11/2005	N/A	WorkCover
Notification and Declaration to WorkCover that no dangerous goods stored or handled at Dartbrook	Submitted 13/12/2006	N/A	WorkCover
Management Plans			
Surface Safety Management Plan	Submitted 02/06/2004	Ongoing	DP&E
KA102 - KA107 Subsidence Monitoring Program	18/09/2006	Ongoing	DP&E
Revised Erosion and Sediment Control Plan (revised for Consent Modification 1/11/05)	12/11/2014	12/11/2019	DP&E
Revised Dust Management Plan	10/06/2015	10/06/2020	DP&E
Revised Noise Management Plan (revised for Consent Modification 01/11/05)	22/08/2006	N/A	DP&E
Revised Site Water Management Plan	20/04/2015	20/04/2020	DP&E
Revised Flora and Fauna Management plan	28/10/2016*	28/10/2021	DP&E
Revised Waste Management Plan	24/11/2016*	24/11/2021	DP&E
Revised Environmental Management Strategy	21/12/2016*	21/12/2021	DP&E

Description	Approval Date	Expiry Date	Approval Authority
Suspension of Mining Operations for Care and Maintenance under Section 70 (1) and Suspension of Conditions under Section 168 (1) of the *Mining Act 1992*, in respect of CL 386, ML 1381, ML 1456 & ML 1497	Suspension of Mining Operations was extended on 31/12/2014	31/12/2017	DP&E
MOP for Care and Maintenance – Extension	18/12/2012	31/12/2017	DRE

Table 2
Bore Water Licences

Water Licences - Bores for Stock, Water and/or Domestic Use:	Date Issued/ Date Expiry	Statutory Agency/ Reference
20BL030444 (20PT910024) 20AL207820 WAL 18210	17/05/2008	DPI – Water
20BL031359 (20PT910024) 20AL207820 Wal18210	06/10/2008	DPI – Water
20BL031360 (20PT910024) 20AL207820 WAL18210	05/10/2008	DPI – Water
20BL103726 (20PT910551) 20AL208002 20CA208003 WAL18134	01/08/2009	DPI – Water
20BL150466 (20PT910551) 20AL208002 WAL18134	31/05/2009 30/05/2014	DPI – Water
20BL119568 (20PT910361) 20AL207978 20CA207979 WAL 18239	01/08/2009	DPI – Water
20BL119567 (20PT910361) 20AL207978 20CA207979 WAL 18239	01/08/2009	DPI – Water
20BL121506 (20PT910361) 20AL207978 WAL 18239	07/06/2008	DPI – Water
20BL132575 (20PT910361) 20AL207978 WAL 18239	30/04/2008	DPI – Water
20BL120262 (20PT910321) 20AL206893 20CA206894 * WAL 17781	01/08/2009	DPI – Water
20BL120918 (20PT910321) 20AL206893 20CA206894 * WAL17781	01/08/2009	DPI – Water
20BL167916 (20PT910321) 20AL206893 20CA206894 * WAL17781	01/08/2009	DPI – Water
20BL128424 (20PT910206) 20AL207906 20CA207907 WAL18225	01/08/2009	DPI – Water
20BL134934 (20PT910206) 20AL207906 20CA207907 WAL18225	01/08/2009	DPI – Water
20BL167955 (20PT910801) 20AL208044 20CA208044 WAL 18228	01/08/2009	DPI – Water
20BL136549	04/08/1987 Perpetuity	DPI – Water
20BL015046 20WA206616	13/05/1965 Perpetuity	DPI – Water
20BL015045	13/05/1965 Perpetuity	DPI – Water
20BL015043 (20PT911119) 20CA207010	13/05/1965 Perpetuity	DPI – Water
20BL142369 (20PT910249) 20AL207914 20CA207915* WAL 18174	01/08/2009	DPI – Water
20BL105550	27/10/1976 Perpetuity	DPI – Water
20BL012711 (20PT910756) 20AL206947 WAL 17762	1/02/1962	DPI – Water
20BL005764 (20PT910756) 20AL206947 WAL 17762	1/02/1956	DPI – Water
20BL109113 (20PT910756) 20AL206947 WAL 17762	21/11/2008	DPI – Water
20BL008565 (20PT910024) 20AL207820 WAL 18210	-	DPI – Water
20BL006448 20WA206679	1957	DPI – Water
20BL015600 20AL207061 WAL 17863	1965	DPI – Water
20BL166148 20AL206919 20CA206894 WAL 17739	01/08/2009	DPI – Water

* *License renewal being followed up with DPI – Water.*

Mining Bores		
20BL166121 (20PT910566) 20AL200402 (GW078058) WAL23875	31/07/2022	DPI – Water
20BL166122 (20PT910566) 20AL211402 (GW078059) WAL 23875	31/07/2022	DPI – Water
20BL169015 (20PT911199)	25/08/2003 Not yet converted	DPI – Water
20BL169016 (20PT911200)	25/08/2003 Not yet converted	DPI – Water
Test Bores		
20BL167825	12/04/2000 Perpetual	DPI – Water
20BL166538	4/10/1996 Perpetual	DPI – Water
20BL166539	4/10/1996 Perpetual	DPI – Water
20BL166540	4/10/1996 Perpetual	DPI – Water
20BL166541	4/10/1996 Perpetual	DPI – Water
20BL166542	4/10/1996 Perpetual	DPI – Water
20BL166543	4/10/1996 Perpetual	DPI – Water
20BL166947	27/10/1999 Perpetual	DPI – Water
20BL172321	20/08/2009 Perpetual	DPI – Water
20BL172322	20/08/2009 Perpetual	DPI – Water
20BL172323	20/08/2009 Perpetual	DPI – Water
20BL172324	20/08/2009 Perpetual	DPI – Water
20BL172390	22/12/2009 Perpetual	DPI – Water
20BL172391	22/12/2009 Perpetual	DPI – Water
20BL172393	22/12/2009 Perpetual	DPI – Water
20BL172394	22/12/2009 Perpetual	DPI – Water
20BL172396	22/12/2009 Perpetual	DPI – Water
20BL172397	22/12/2009 Perpetual	DPI – Water
20BL172398	22/12/2009 Perpetual	DPI – Water
20BL172399	22/12/2009 Perpetual	DPI – Water

Table 3
Surface Water Licences

Previous Surface Water Licences (Water Act 1912)	Date Issued/ Date Expiry	Statutory Agency/ Reference	WAL Number G - General S - Supplementary H - High Security	Water Access Licences (Water Act, 2000)	Approvals
20SL045342	31/07/2004 30/06/2017	DPI – Water	WAL1005 (G) WAL1313 (S)	20AL201335 20AL203026	20CA201336
20SL045339	31/07/2004 30/06/2017	DPI – Water	WAL1023 (H) WAL1024 (G) WAL1317 (S)	20AL201385 20AL201386 20AL203032	20CA201387
20SL045504	31/07/2004 30/06/2017	DPI – Water	WAL1235 (G)	20AL201915	20CA201916
20SL046409	01/07/2004 12/01/2018	DPI – Water	WAL996 (G)	20AL201304	20CA201305
20SL060818	31/07/2004 30/06/2017	DPI – Water	WAL955 (H) WAL956 (G)	20AL201215 20AL201216	20CA201217
20SL060047	31/07/2004 30/06/2017	DPI – Water	WAL1025 (G) WAL1026 Domestic & stock	20AL201388 20AL201389	20CA201390
20SL044961	31/07/2004 30/06/2017	DPI – Water	WAL1022 (G) - 264 WAL1316 (S) - 10	20AL201381 20AL203031	20CA201382
20SL042634	03/08/2012 02/08/2017	DPI – Water	WAL 17889	20AL207131	20CA207132
20SL023159	01/07/2004 06/11/2018	DPI – Water	WAL759 (G) - 24 WAL1267 (S) - 6	20AL200737 20AL202963	20CA200738
20SL038148	31/07/2004 30/06/2017	DPI – Water	WAL1027 (G) - 63 WAL1318 (S) - 23.8	20AL201391 20AL203033	20CA201392
20SL051598	08/09/2009 14/03/2014	DPI – Water	NA	-	20WA209200
20SL038778	31/07/2004 30/06/2017	DPI – Water	WAL1021 (G)	20AL201379	20CA201380
20SL035586	01/07/2004 01/03/2018	DPI – Water	WAL9048 (G) - 135 WAL9055 (S) - 35	20AL200228 20AL202899	20CA200229
20SL036681	0/07/2004 20/03/2019	DPI – Water	WAL 13386 (G) 270 WAL 13336 (S) 18.7	20AL201476 20AL203049	20CA201477
20SL060087	01/07/2004 30/06/2017	DPI – Water	WAL 13363	20AL200597	20WA200598
20SL026514	31/07/2004 30/06/2017	DPI – Water	WAL506 (G)	20AL200119	20CA200120
20SL048970	31/07/2004 30/06/2017	DPI – Water	WAL838 (H)	20AL200951	20WA200952
	01/07/2004 30/06/2017	DPI – Water	WAL14605 (S) WAL14607 (G) WAL14609 (H)	20AL203509 20AL203511 20AL203531	20WA201572

Table 4
Summary of Minor Amendments to Development Consent Conditions during Care & Maintenance

Approval Document Reference	Development Consent No. Reference	Existing Requirement	Requirement During Care & Maintenance
Complaints protocol	6.5a (iv)	Complaints line is required to be manned 7 days week, 24hrs day.	A pager system will be responded to on week days.
Complaints protocol & Environmental Management Strategy	10.2a (ii)	6 monthly complaints report to DoP, MSC, UHSC, EPA, DPI-MR and CCC.	Complaints to be included in Annual Environmental Management Report and Community Consultative Committee Meetings only.
Community Consultation	10.1 (i)	The DCCC meet 6 times per year (every two months).	Three DCCC meetings per annum.
Community Consultation	10.1 (ii)1	Two company representatives required on the DCCC.	One company representative on the DCCC.
Development Consent	10.2b	Required to have two company persons available as EPA contact 24hrs day.	One person as the EPA person contact. This person will be available via a pager system.
Development Consent & Environmental Management Strategy	32.f	Review of Environmental Management Plans is required every 5 years (2007 due).	Continue to operate under existing mgt plans without reviewing. Propose to modify these Mgt Plans should any activities recommence.
Development Consent	3.3 (l)	Surface subsidence monitoring is required up to 3 years following mining.	Reduce this period due to limited impacts observed on the surface from subsidence to-date.
Development Consent	8.1a	An Independent compliance audit is required every 3 years (due 2007).	Audit to occur, scope to be re-defined (e.g. cannot audit against EIS predictions etc).
Development Consent	3.2d	Preparation of the Water Mgt Plan and Soil Stripping Mgt Plan is required prior to construction of the REA.	As the REA is not being constructed and there are no further construction activities proposed, a Soil Stripping Management Plan is not necessary. The Water Management Plan will be prepared prior to Care & Maintenance.
Development Consent	2.1 (e)	A Mine Closure Plan is required to be prepared 2 years prior to completion of mining, in consult with DoP, DPI-MR, DNR, MSC, UHSC & approved by DoP and DPI-MR.	Decision and process to be managed through MOP.
Environmental Management Strategy & Dust Management Plan	6.1b (iii)	Required to report on a quarterly basis the results of air quality monitoring data to DoP and MSC.	Report on annual basis via the AEMR.
Lighting and Landscape Management Plan		Monitoring of tree screens is required 2 - 3 times per year.	Monitor once per year.
Waste Management Plan		A Waste audit is required to be undertaken annually.	Waste to be reported via the AEMR.
Noise Management Plan	6.4.1b	Attended noise surveys are to be undertaken on a quarterly basis.	DP&I advised that noise monitoring could be suspended as from 10/05/12 .
REA Surveillance Program		Extensive monitoring requirements for the current REA (e.g. weekly thermocouples).	To be managed through the MOP process with DRE.

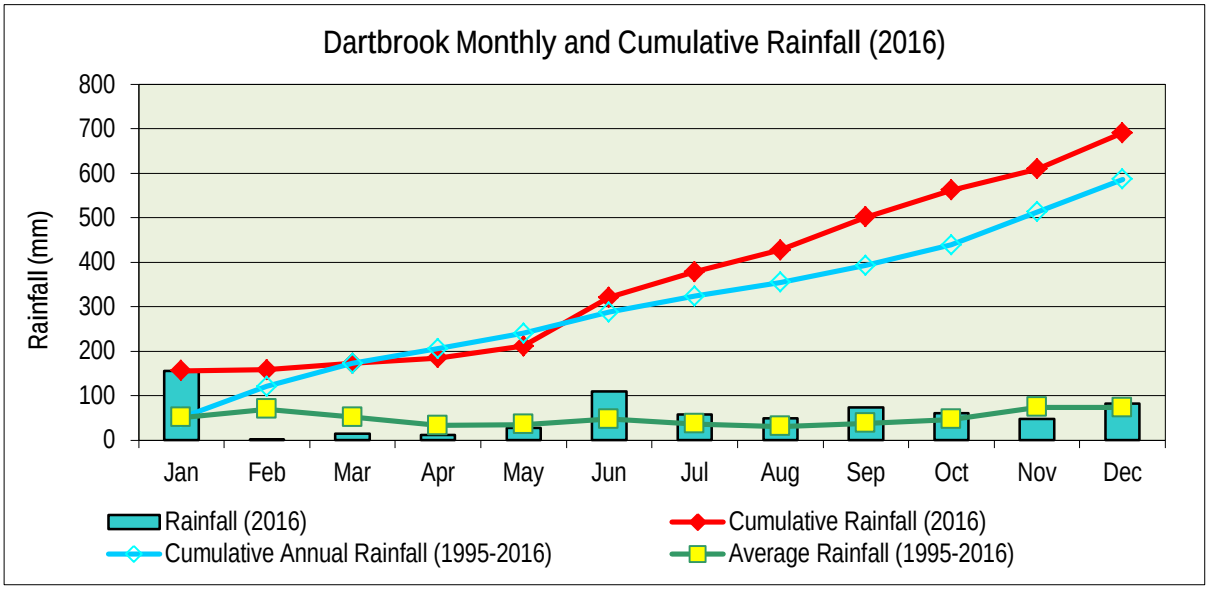
Meteorological Summary

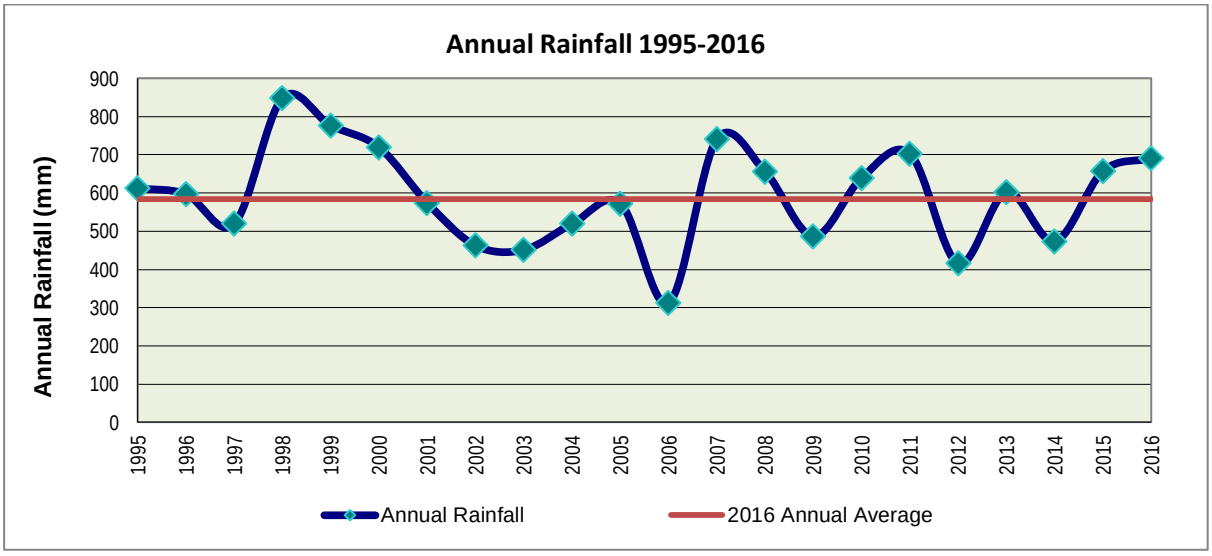
Appendix

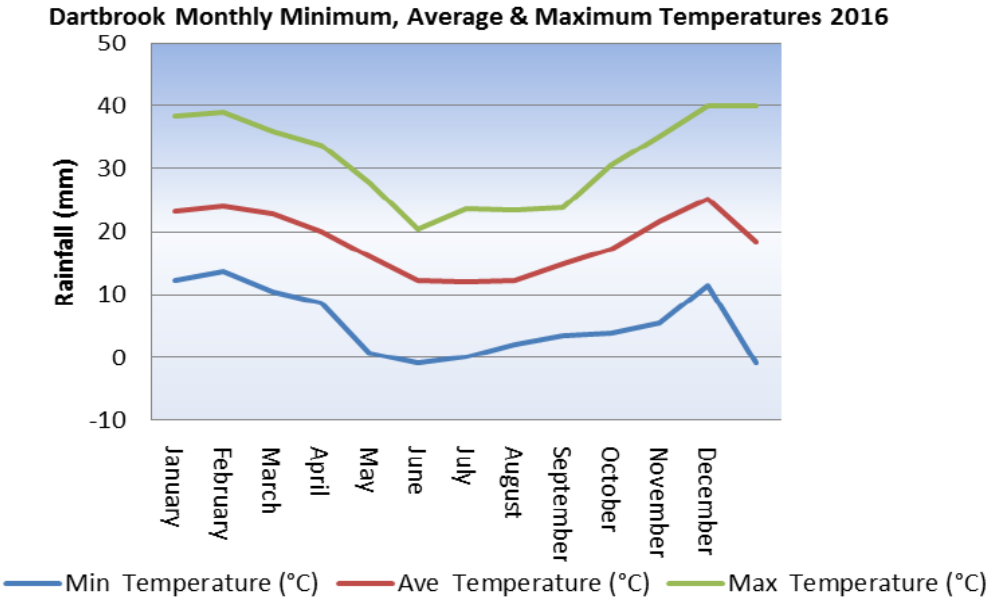
C

AngloAmerican

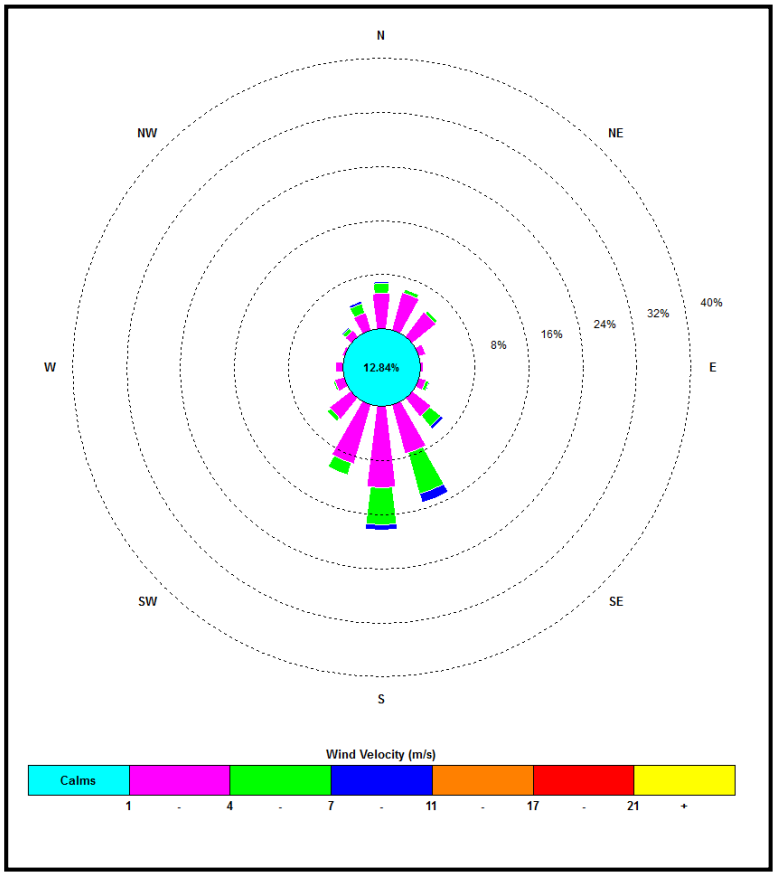
Hansen Bailey
ENVIRONMENTAL CONSULTANTS


Dartbrook Monthly and Cumulative Rainfall (2016)
Rainfall (mm)
800
700
600
500
400
300
200
100
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Rainfall (2016)
Cumulative Rainfall (2016)
Cumulative Annual Rainfall (1995-2016)
Average Rainfall (1995-2016)

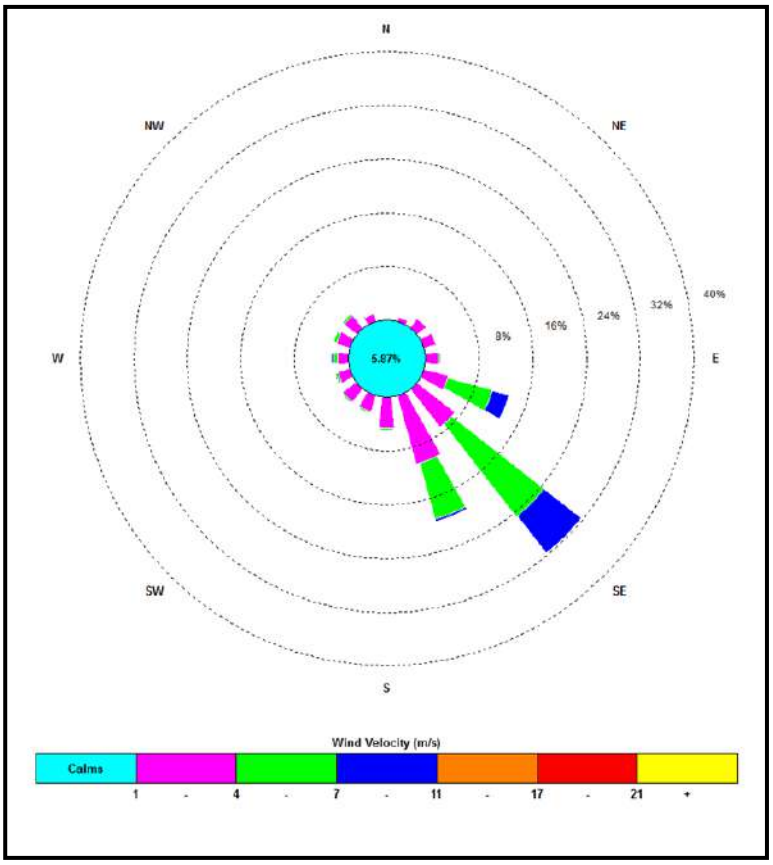

Annual Rainfall 1995-2016
Annual Rainfall (mm)
900
800
700
600
500
400
300
200
100
0
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Annual Rainfall
2016 Annual Average


Dartbrook Monthly Minimum, Average & Maximum Temperatures 2016
Rainfall (mm)
50
40
30
20
10
0
-10
January
February
March
April
May
June
July
August
September
October
November
December
Min Temperature (°C)
Ave Temperature (°C)
Max Temperature (°C)

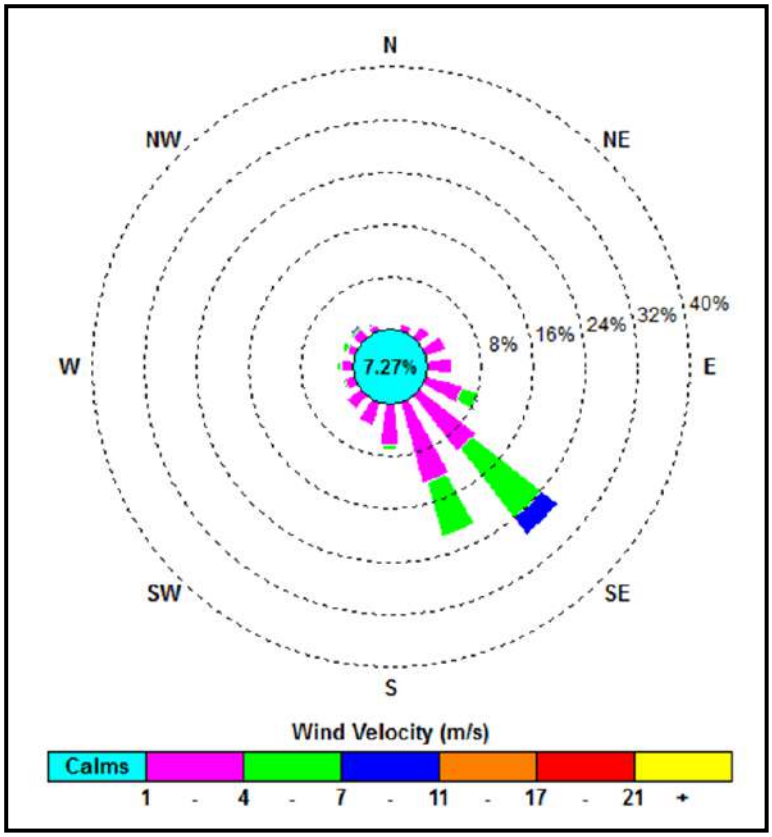
January 2016



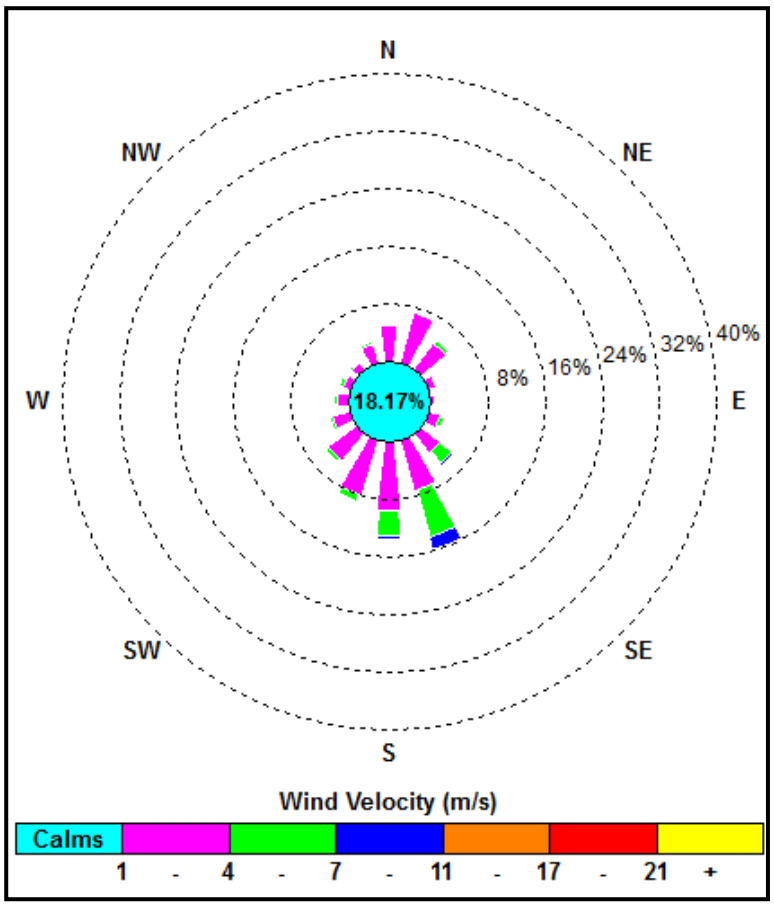
February 2016



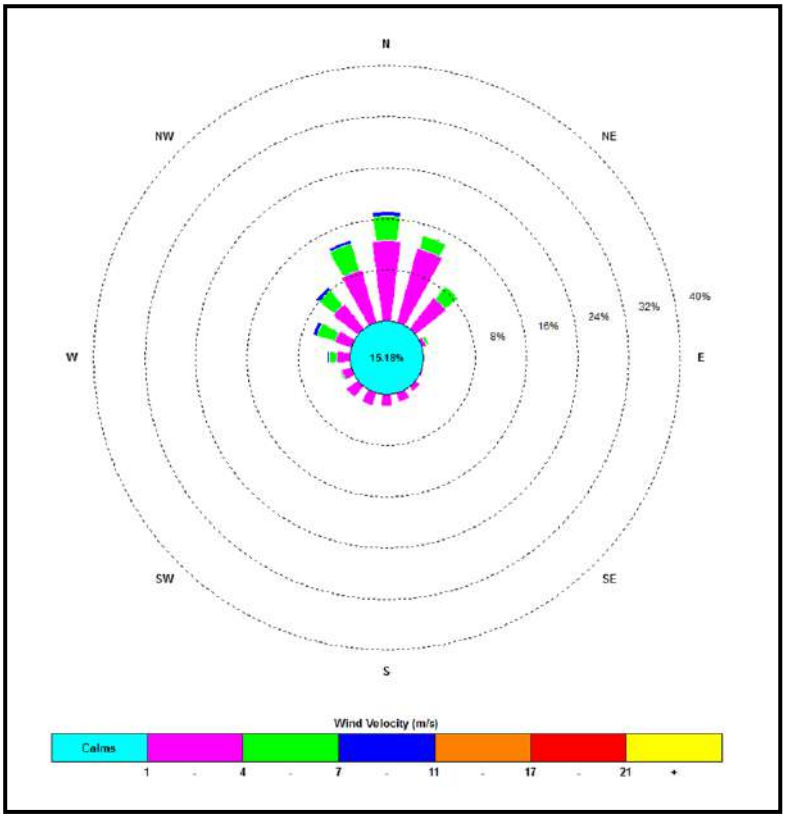
March 2016



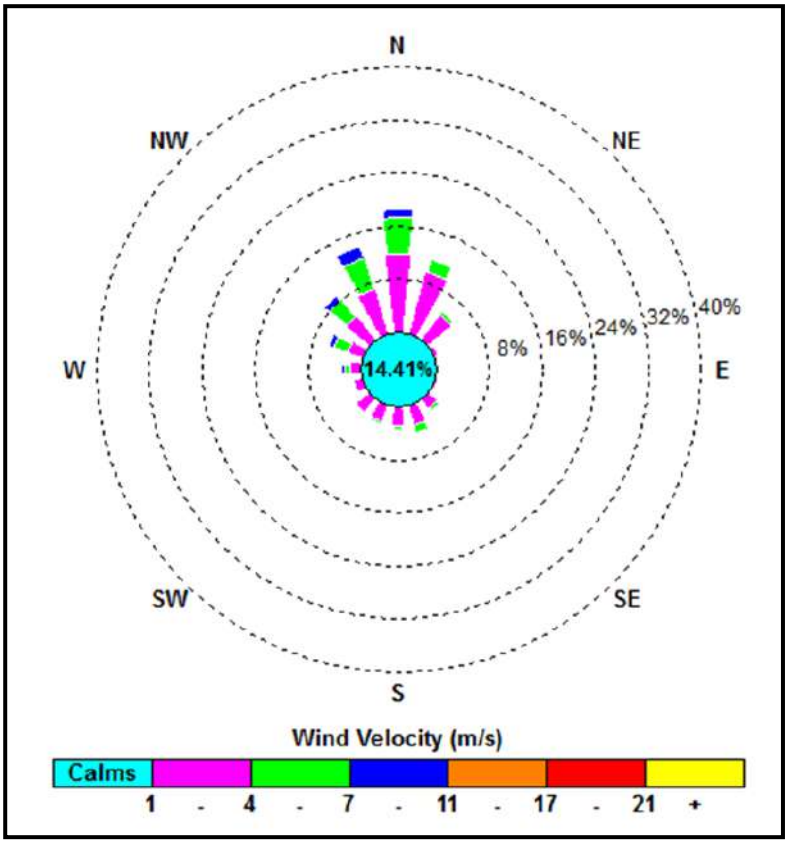
April 2016



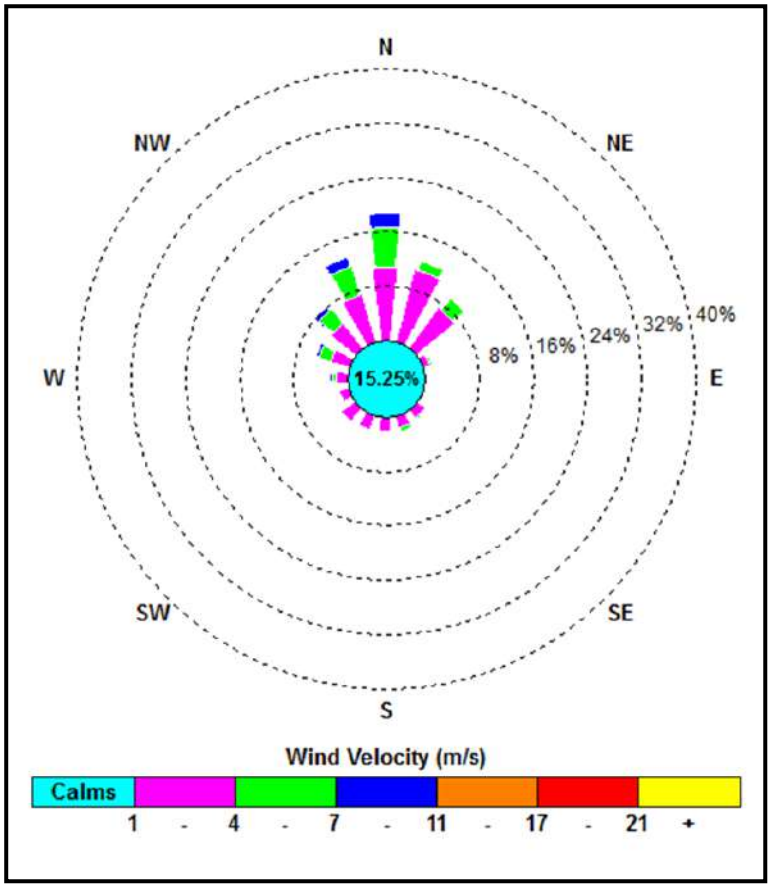
May 2016



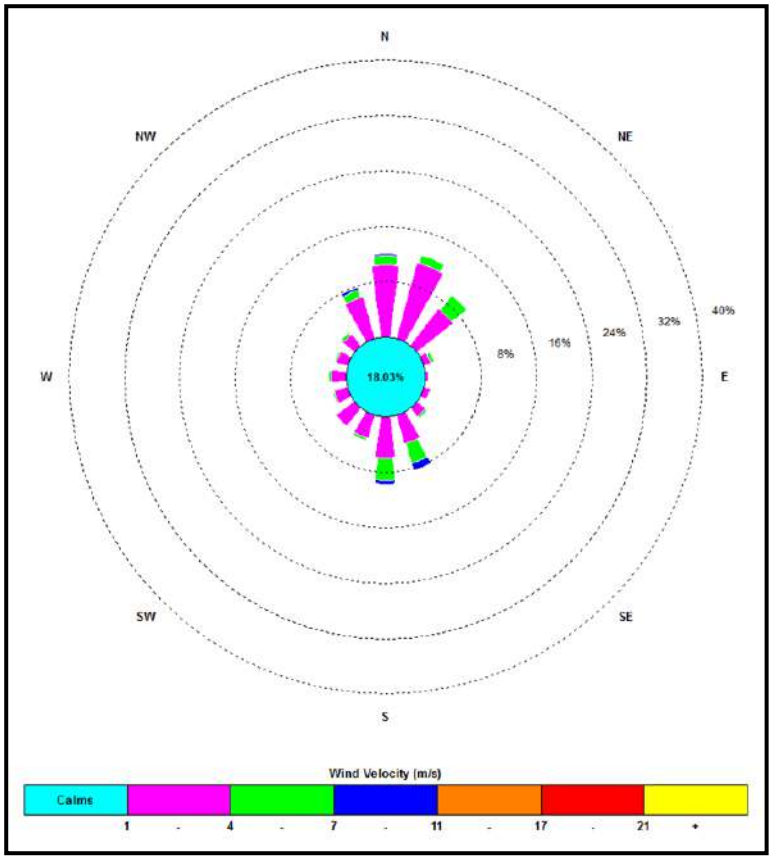
June 2016



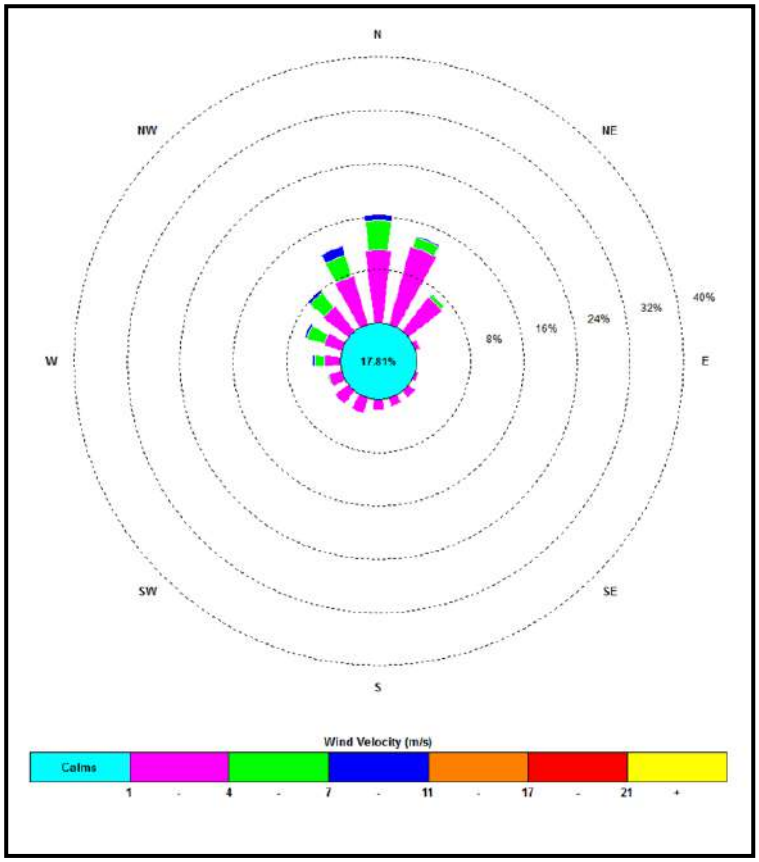
July 2016



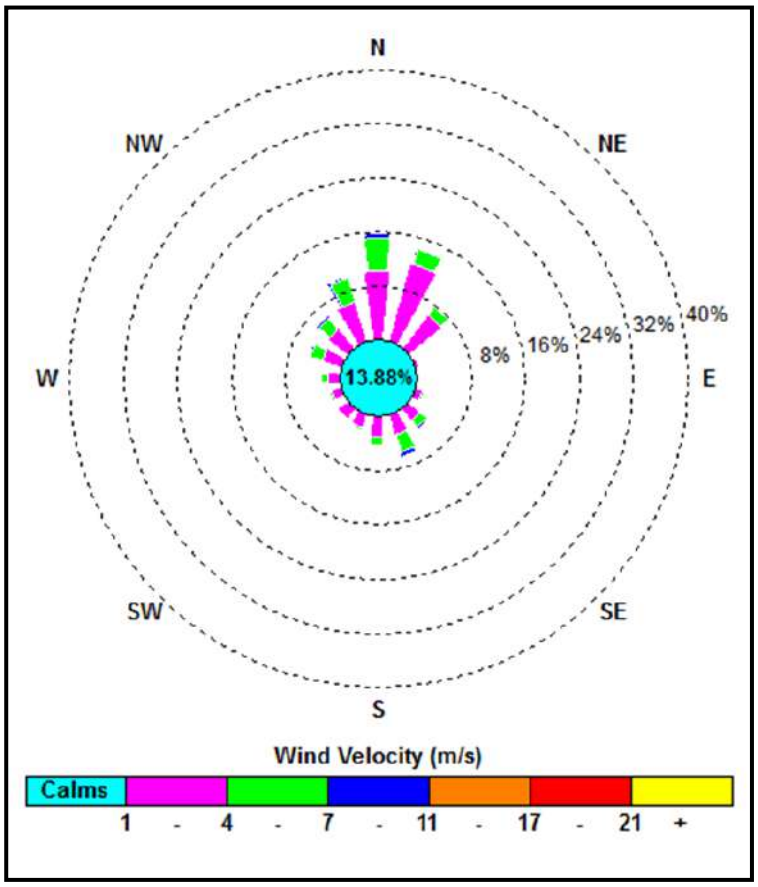
August 2016



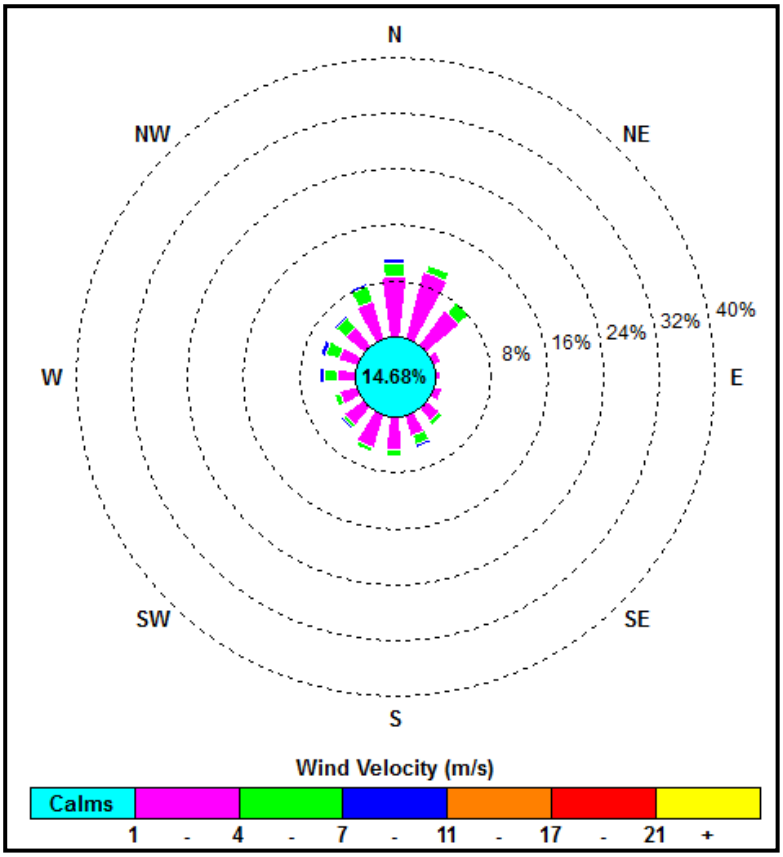
September 2016



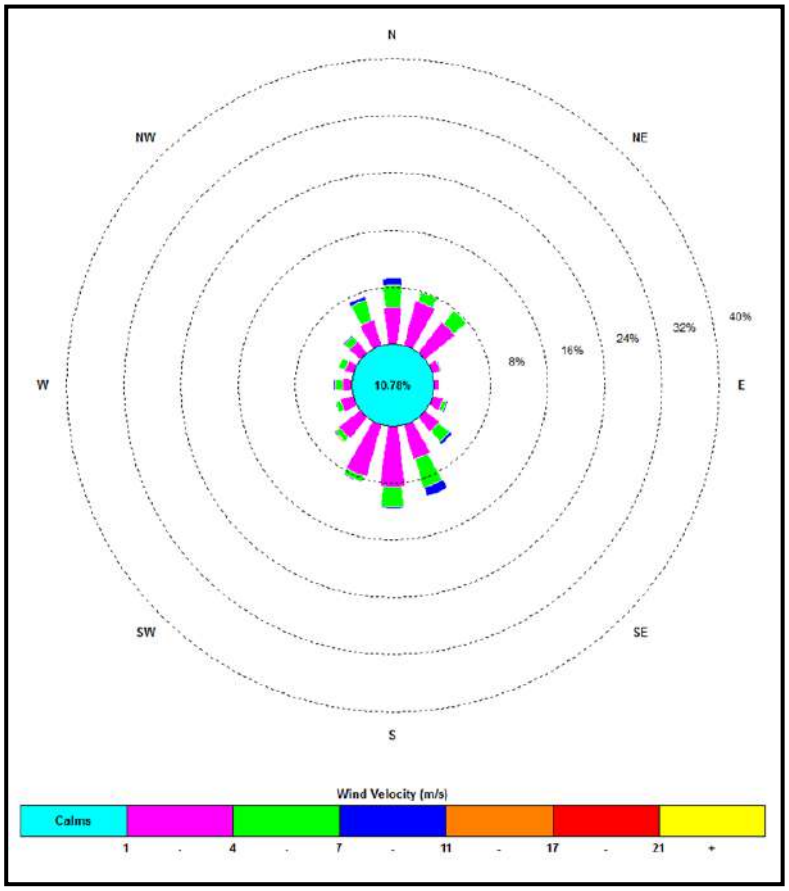
October 2016



November 2016



December 2016



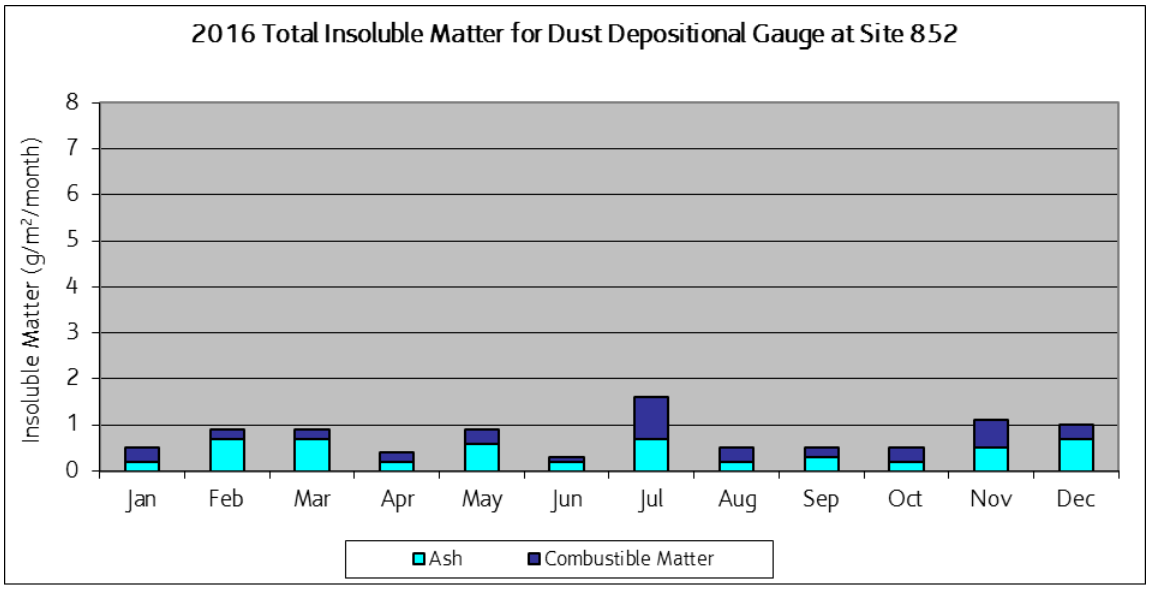
Air Quality Monitoring Summary

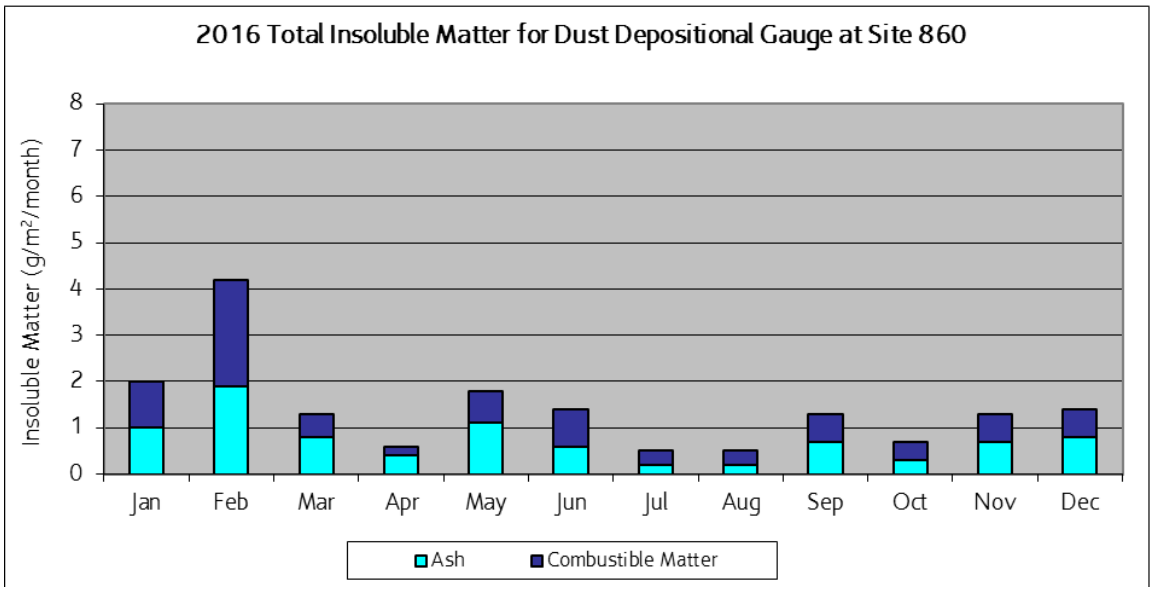
Appendix

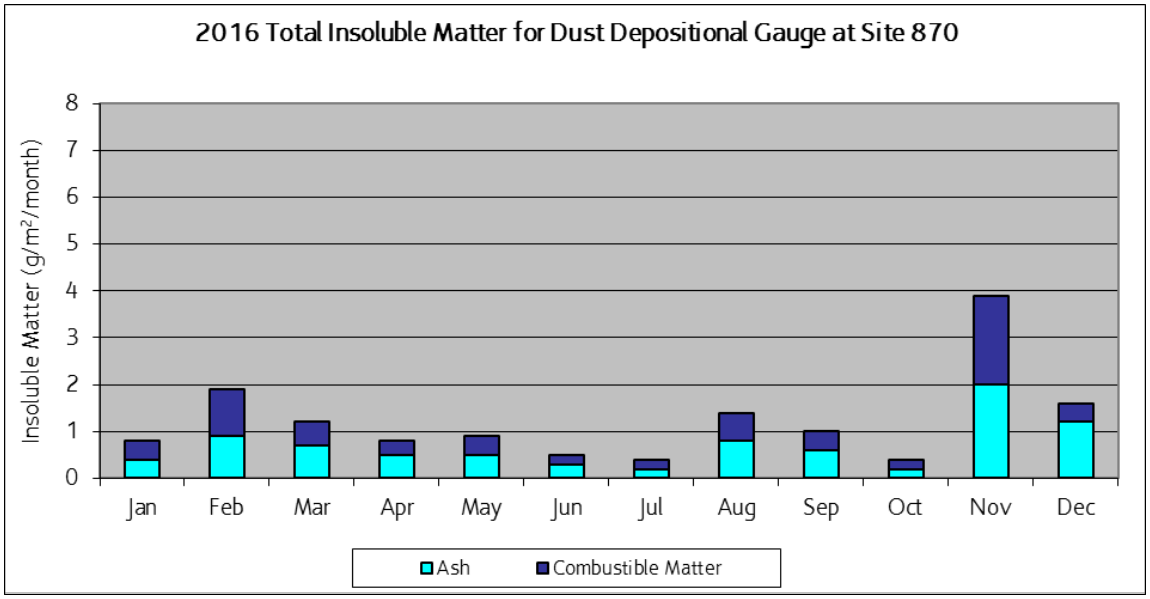
D

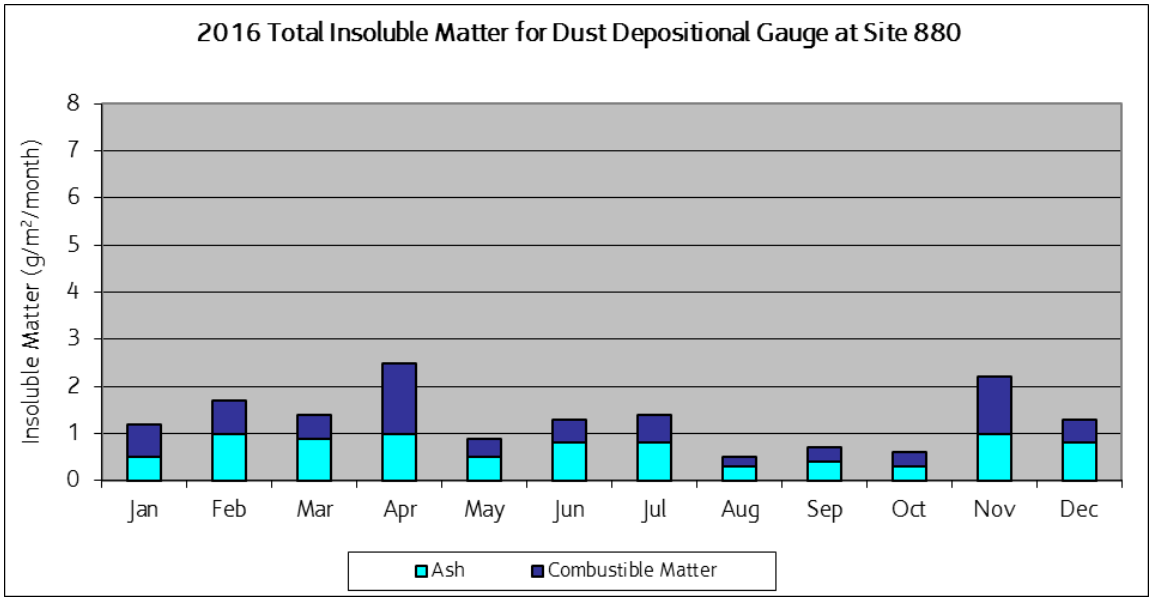
AngloAmerican

Hansen Bailey
ENVIRONMENTAL CONSULTANTS


2016 Total Insoluble Matter for Dust Depositional Gauge at Site 852
Insoluble Matter (g/m²/month)
0
1
2
3
4
5
6
7
8
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ash
Combustible Matter


2016 Total Insoluble Matter for Dust Depositional Gauge at Site 860
Insoluble Matter (g/m²/month)
0
1
2
3
4
5
6
7
8
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ash
Combustible Matter


2016 Total Insoluble Matter for Dust Depositional Gauge at Site 870
Insoluble Matter (g/m²/month)
0
1
2
3
4
5
6
7
8
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ash
Combustible Matter


2016 Total Insoluble Matter for Dust Depositional Gauge at Site 880
Insoluble Matter (g/m²/month)
0
1
2
3
4
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Jan
Feb
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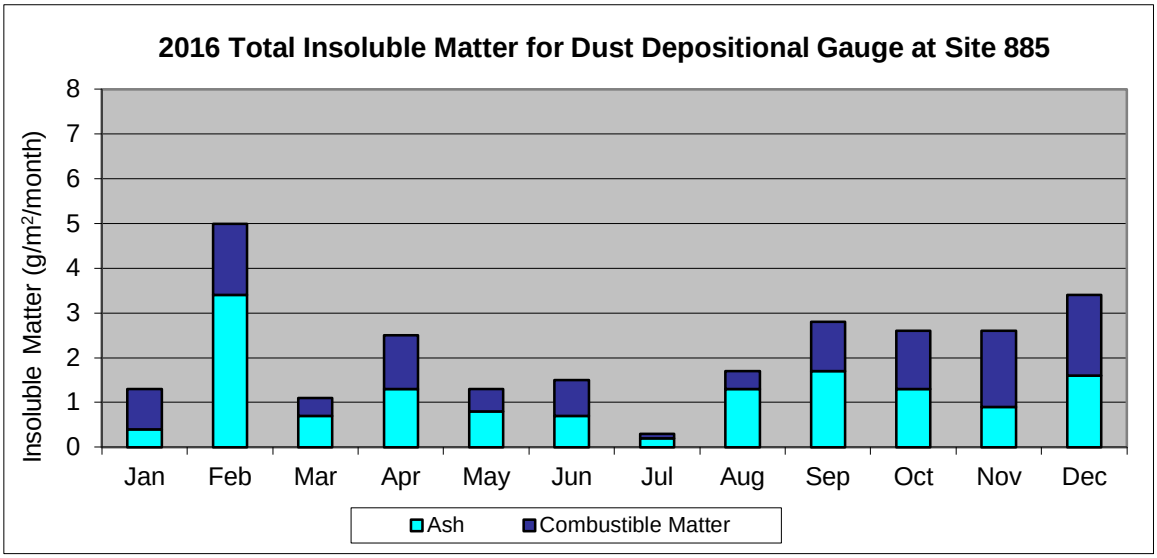
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ash
Combustible Matter


2016 Total Insoluble Matter for Dust Depositional Gauge at Site 885
Insoluble Matter (g/m²/month)
0
1
2
3
4
5
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8
Jan
Feb
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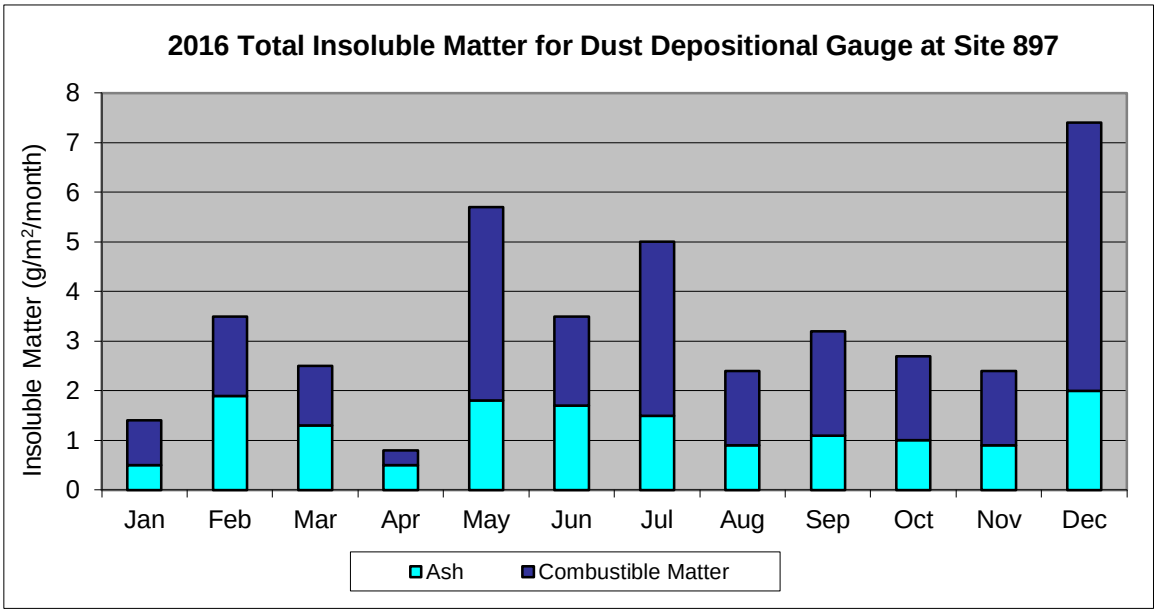
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ash
Combustible Matter


2016 Total Insoluble Matter for Dust Depositional Gauge at Site 897
Insoluble Matter (g/m²/month)
0
1
2
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4
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Jan
Feb
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May
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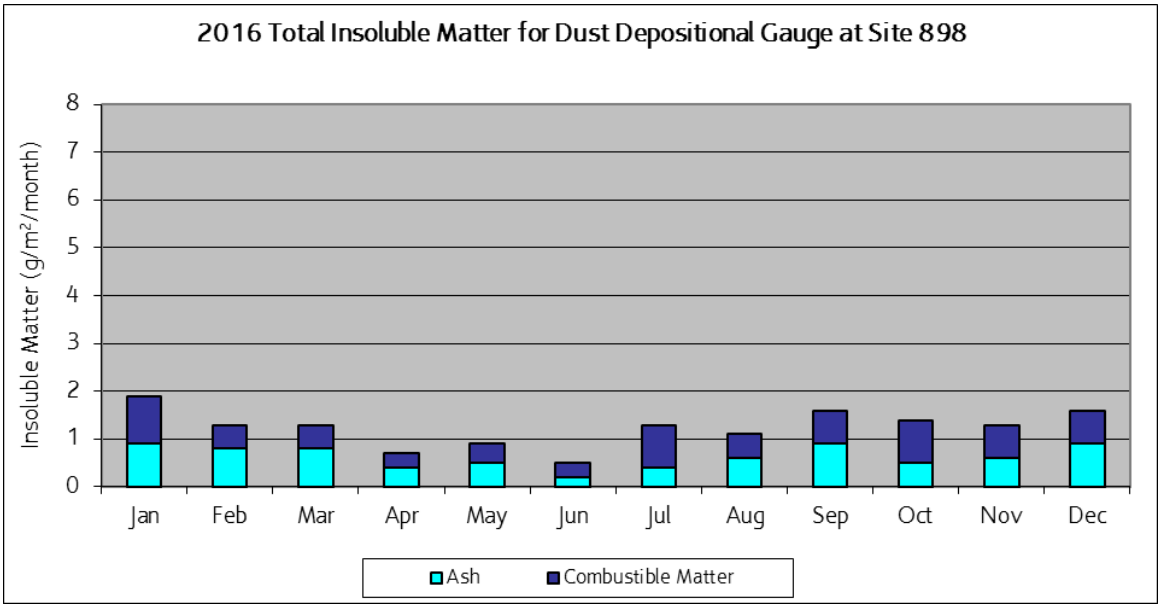
Oct
Nov
Dec
Ash
Combustible Matter


2016 Total Insoluble Matter for Dust Depositional Gauge at Site 898
Insoluble Matter (g/m²/month)
0
1
2
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Jan
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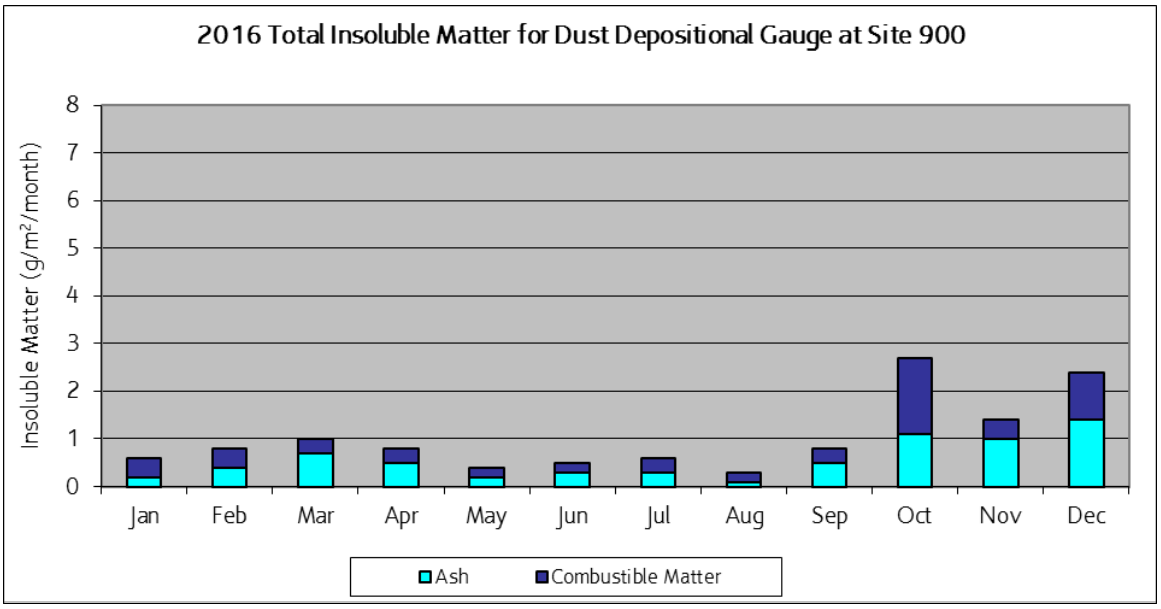
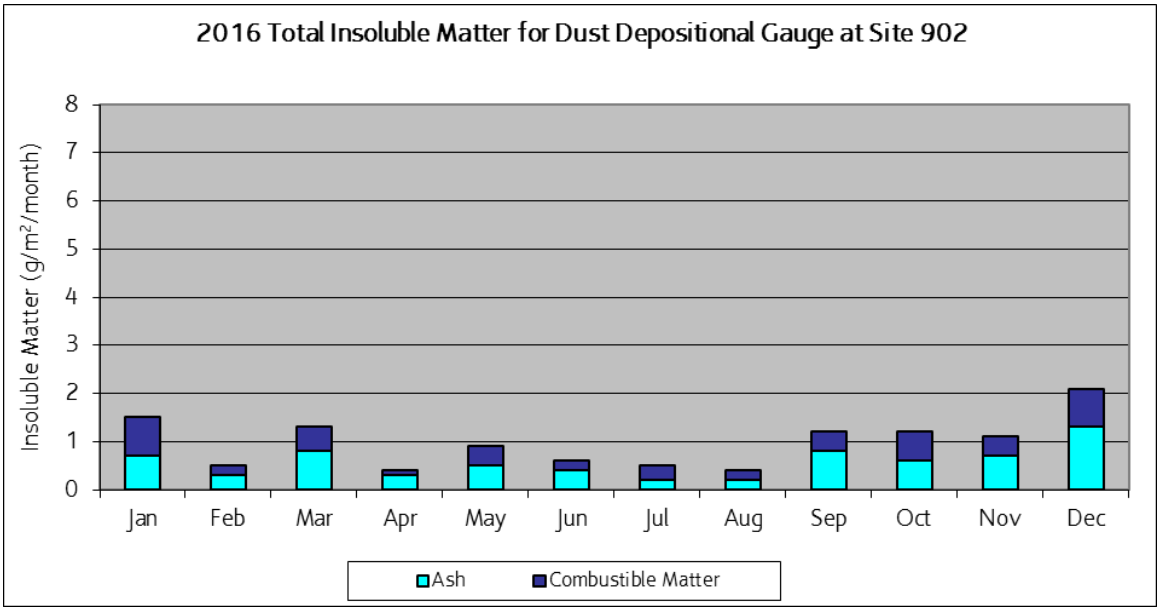
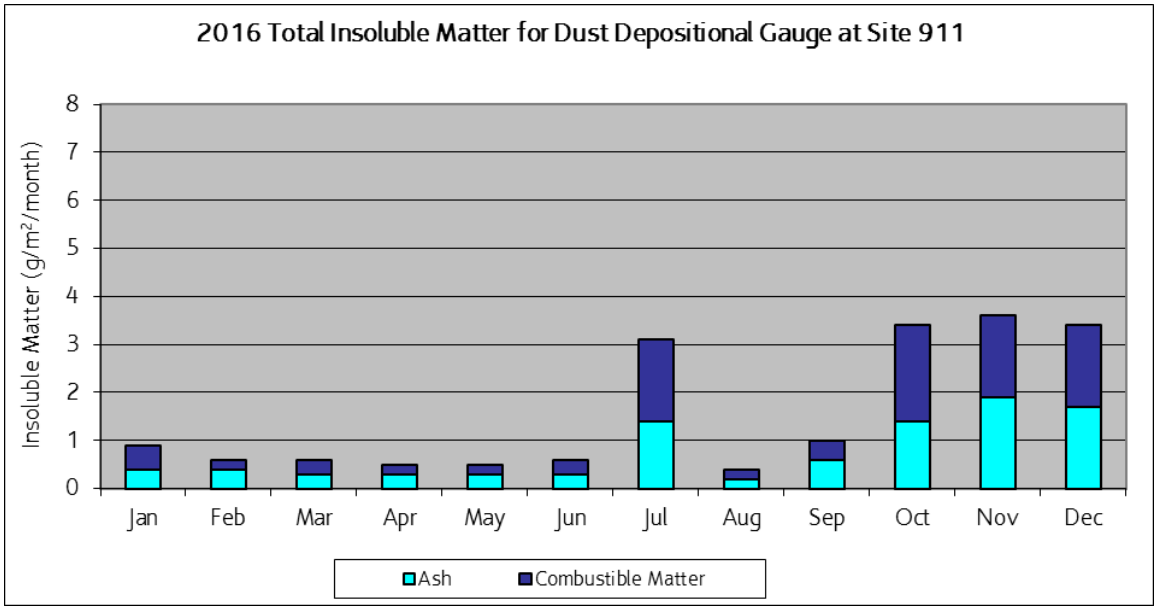
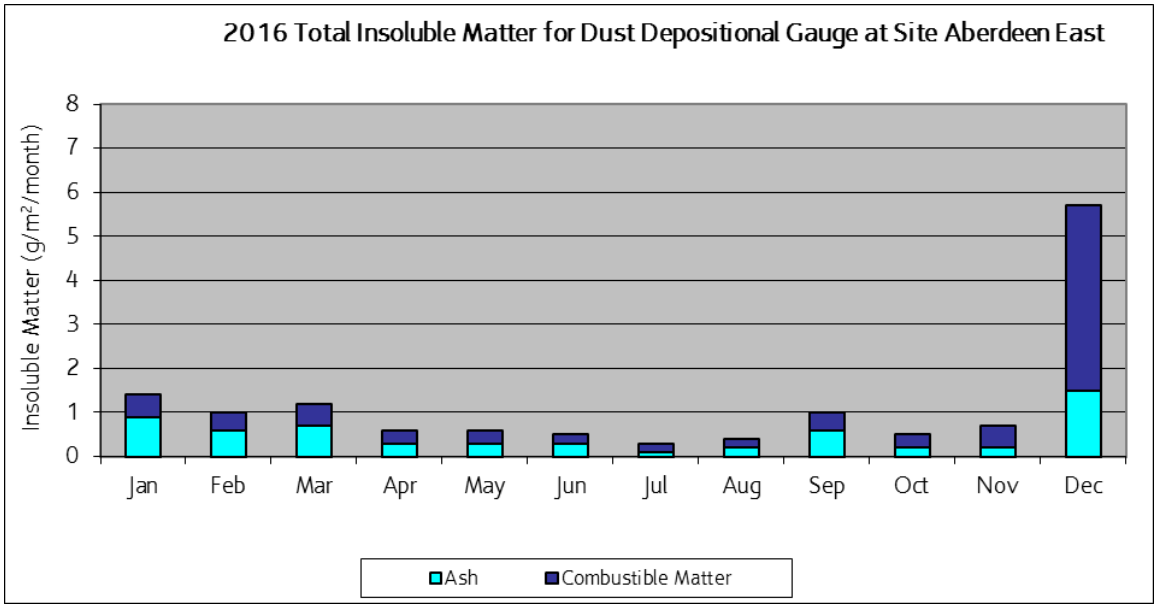
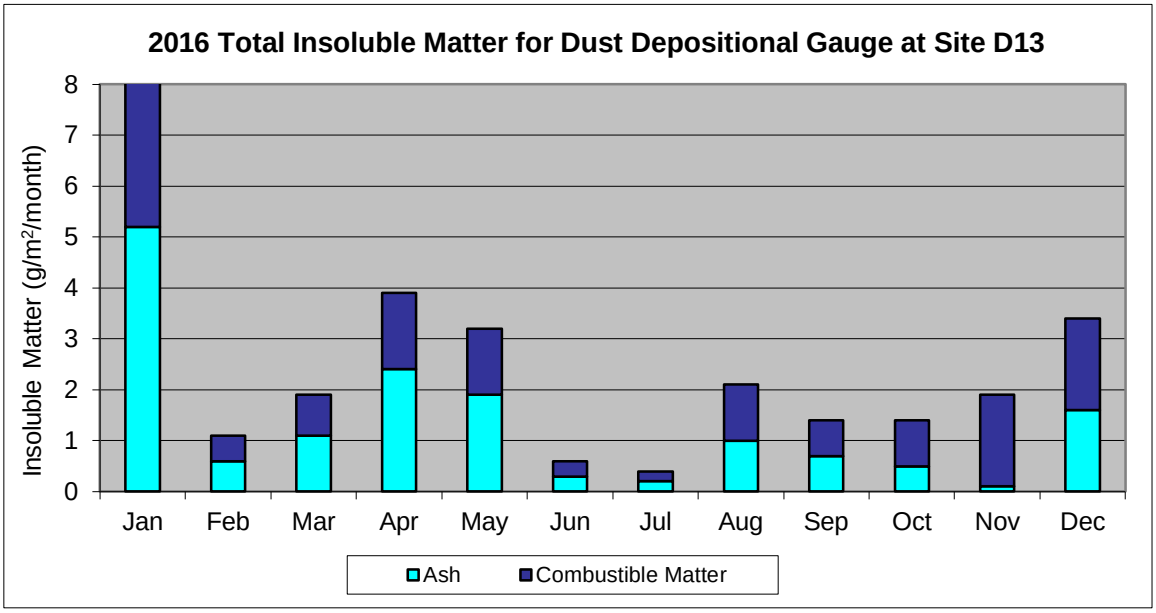
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ash
Combustible Matter

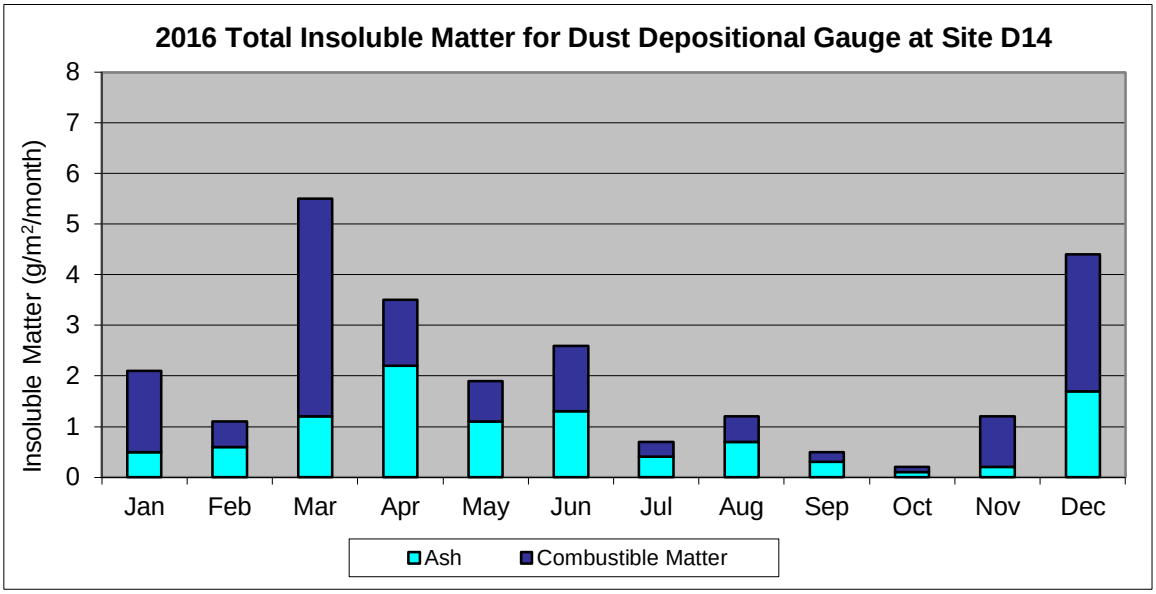

2016 Total Insoluble Matter for Dust Depositional Gauge at Site 900
Insoluble Matter (g/m²/month)
0
1
2
3
4
5
6
7
8
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ash
Combustible Matter

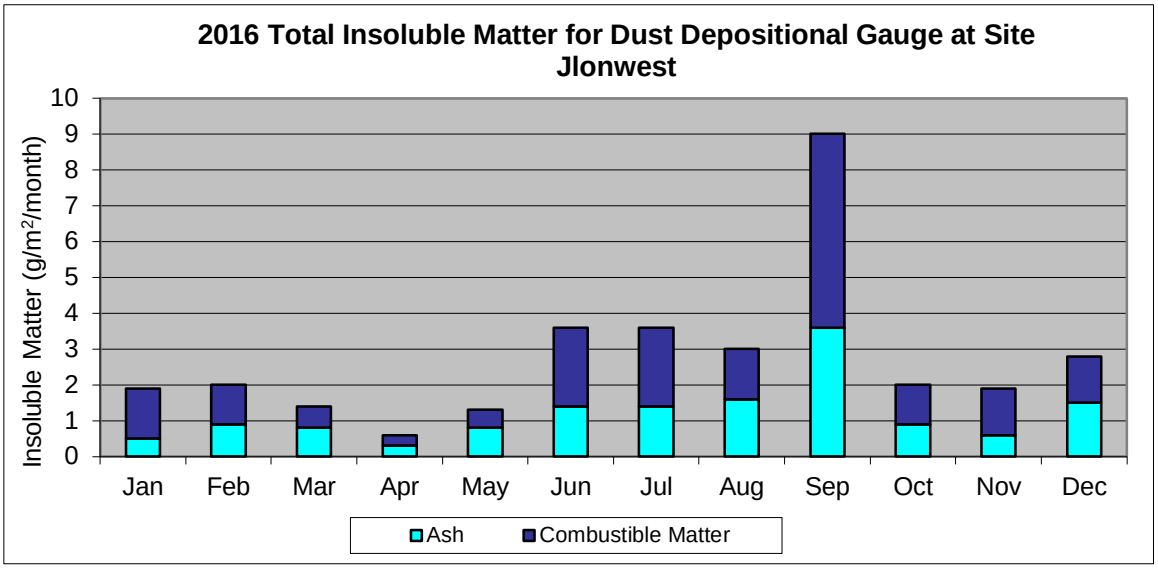

2016 Total Insoluble Matter for Dust Depositional Gauge at Site 902
Insoluble Matter (g/m²/month)
0
1
2
3
4
5
6
7
8
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ash
Combustible Matter

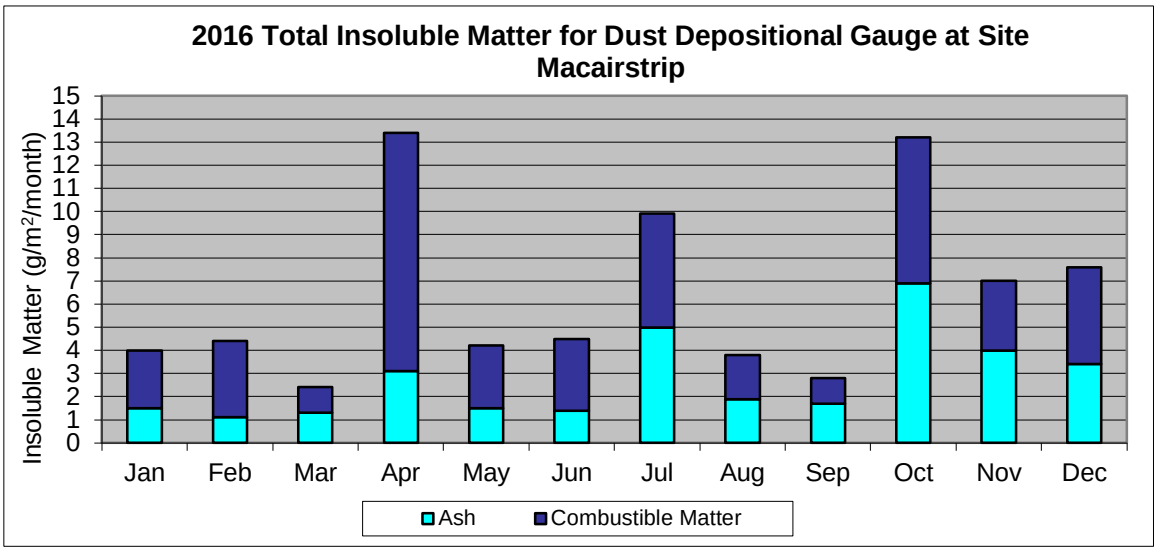

2016 Total Insoluble Matter for Dust Depositional Gauge at Site 911
Insoluble Matter (g/m²/month)
0
1
2
3
4
5
6
7
8
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ash
Combustible Matter

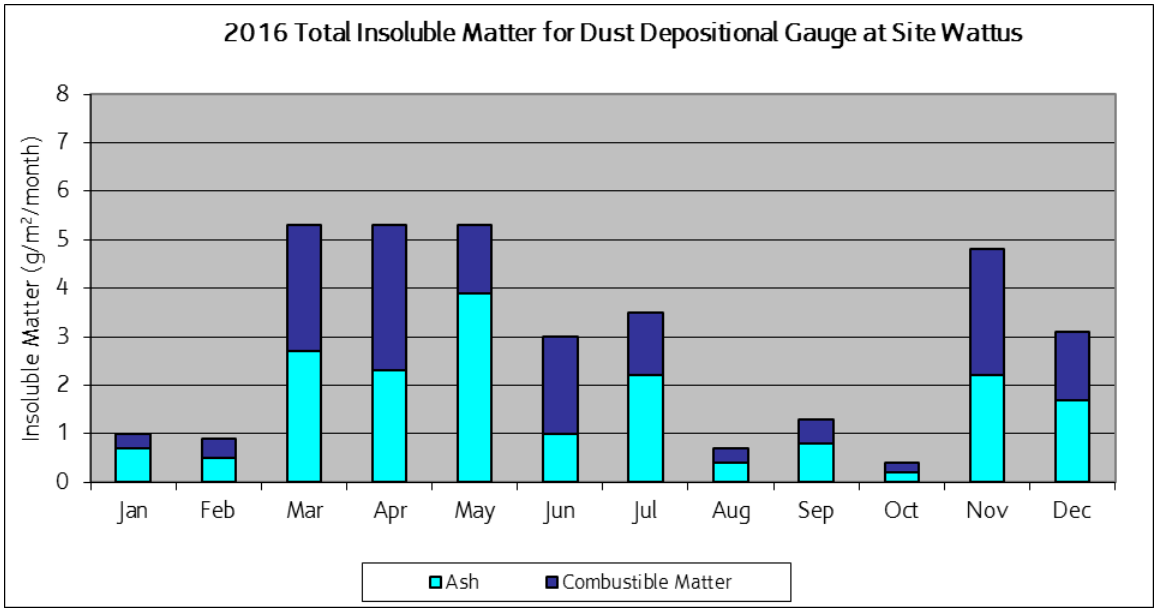

2016 Total Insoluble Matter for Dust Depositional Gauge at Site Aberdeen East
Insoluble Matter (g/m²/month)
0
1
2
3
4
5
6
7
8
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ash
Combustible Matter


2016 Total Insoluble Matter for Dust Depositional Gauge at Site D13
Insoluble Matter (g/m²/month)
0
1
2
3
4
5
6
7
8
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ash
Combustible Matter

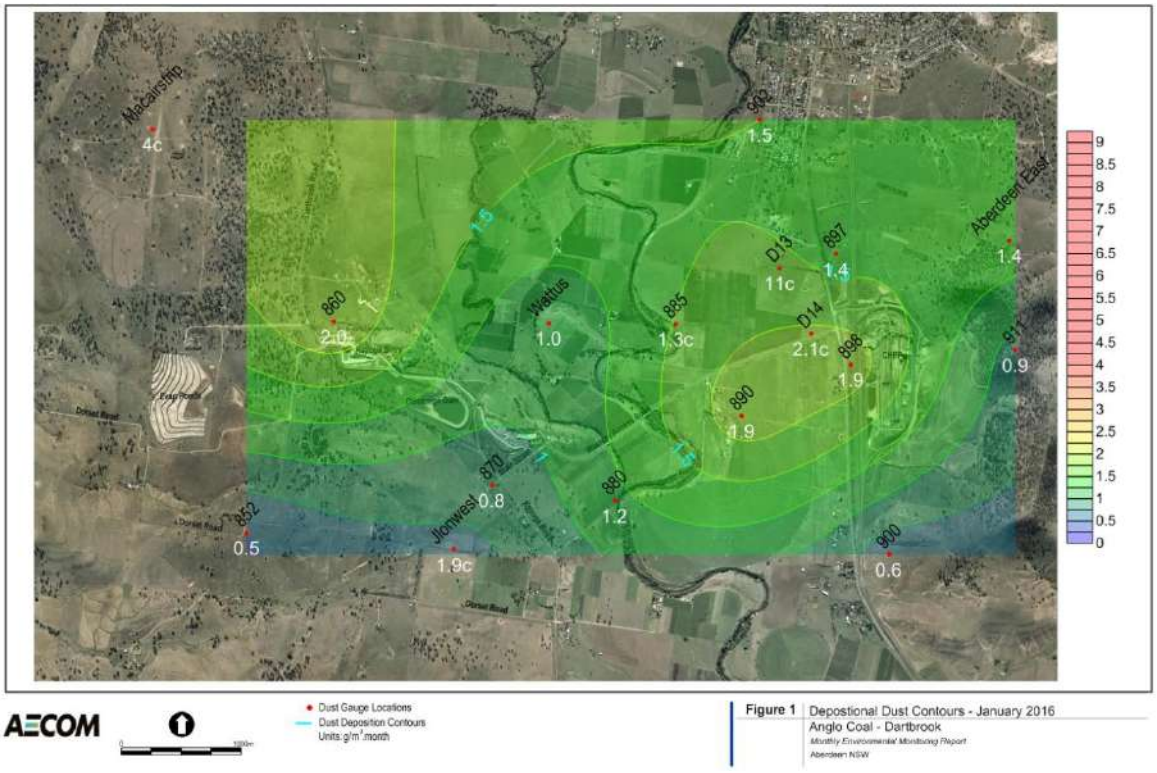

2016 Total Insoluble Matter for Dust Depositional Gauge at Site D14
Insoluble Matter (g/m2/month)
0
1
2
3
4
5
6
7
8
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ash
Combustible Matter


2016 Total Insoluble Matter for Dust Depositional Gauge at Site Jlonwest
Insoluble Matter (g/m2/month)
0
1
2
3
4
5
6
7
8
9
10
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ash
Combustible Matter

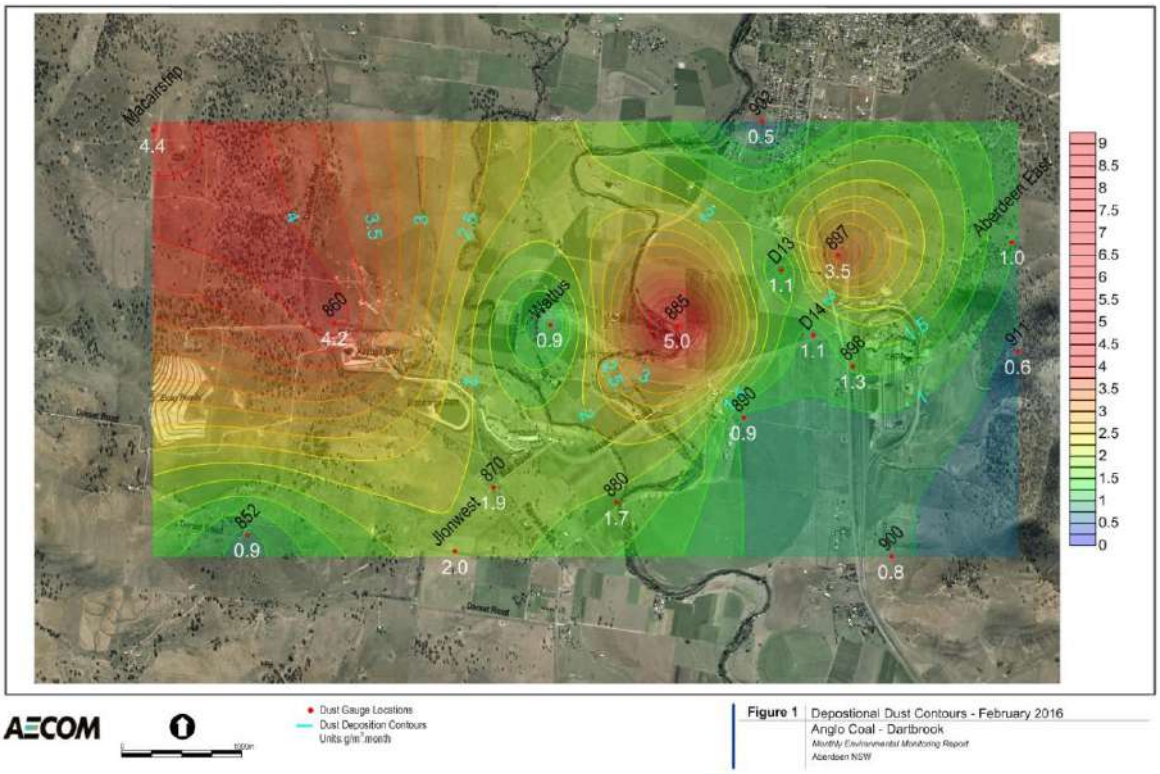

2016 Total Insoluble Matter for Dust Depositional Gauge at Site Macairstrip
Insoluble Matter (g/m2/month)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ash
Combustible Matter



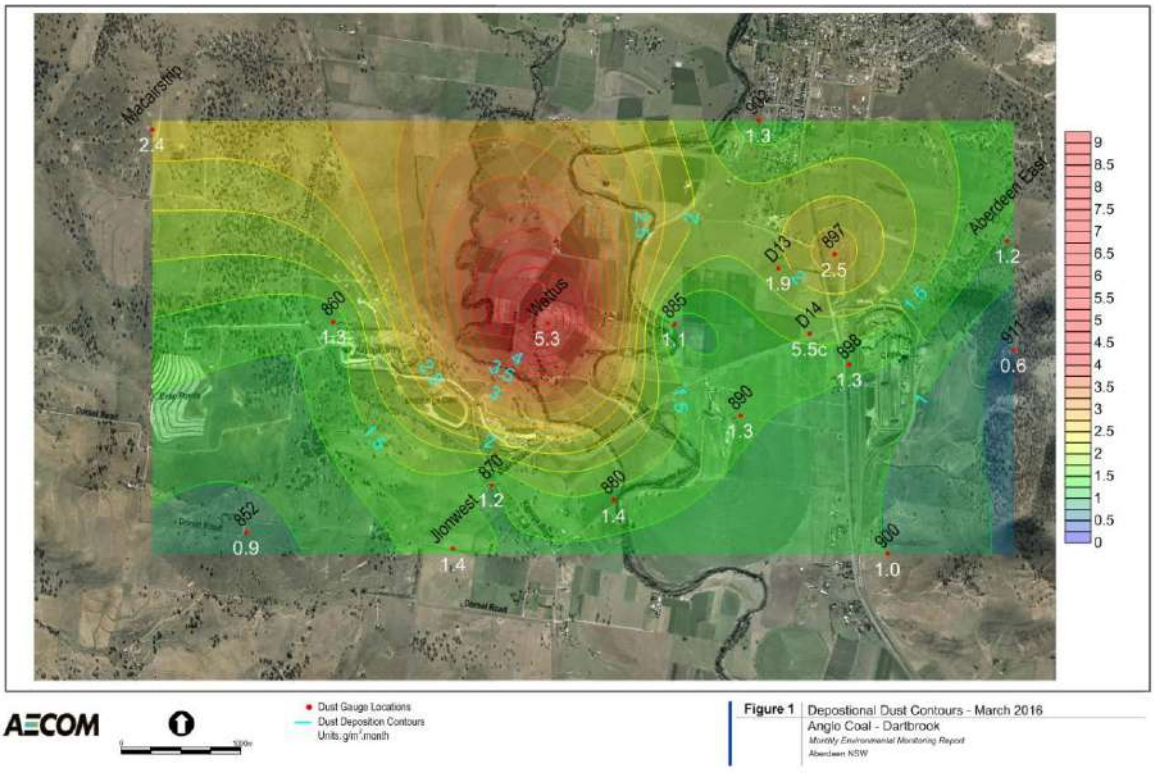
Dust Isopleth – January 2016



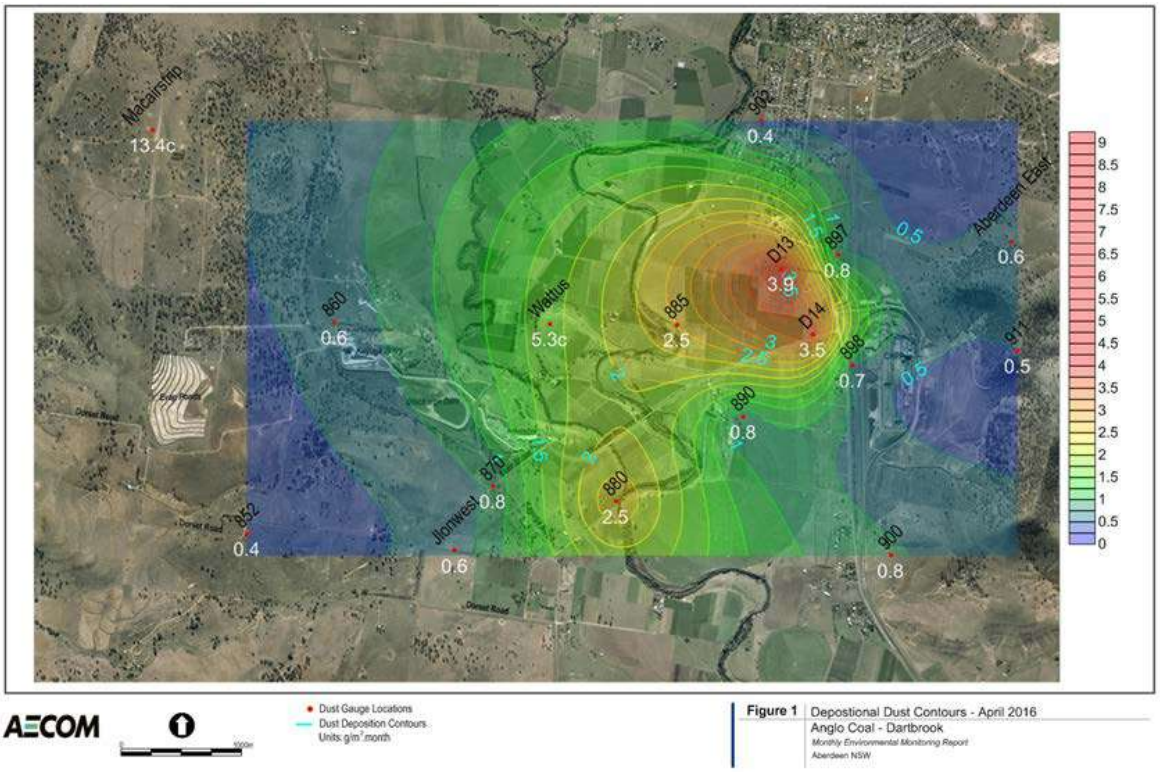
Dust Isopleth – February 2016



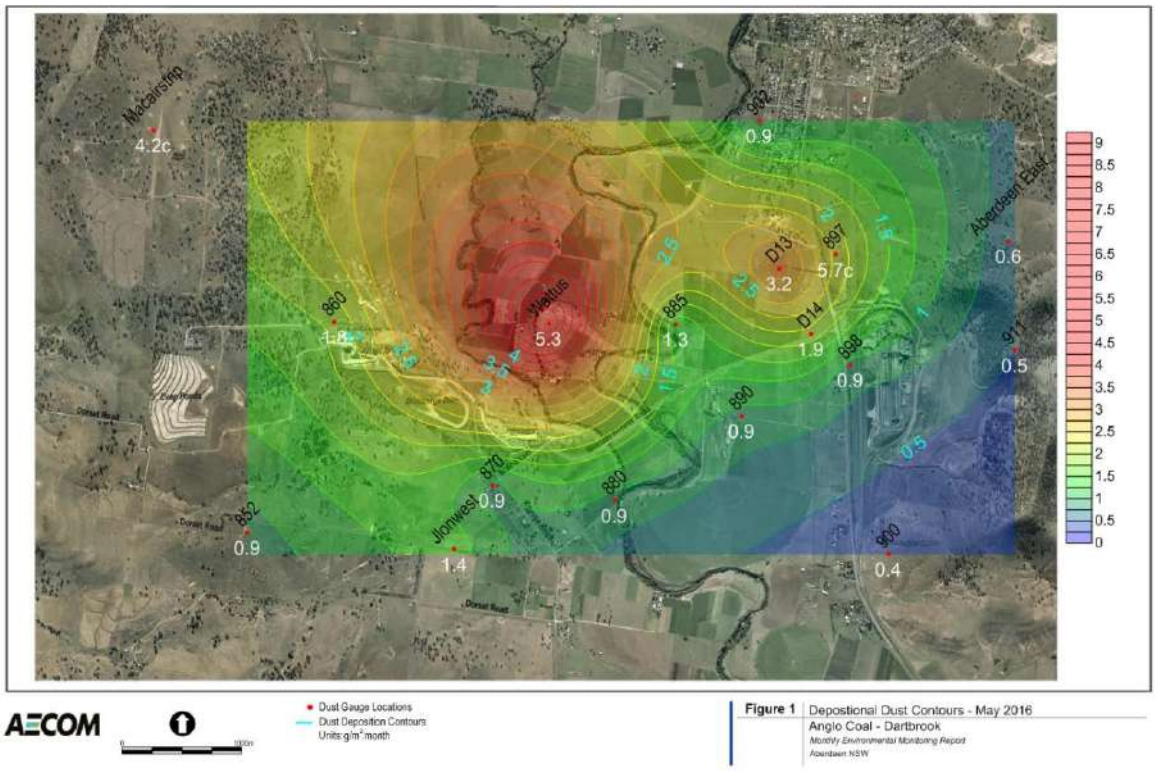
Dust Isopleth – March 2016



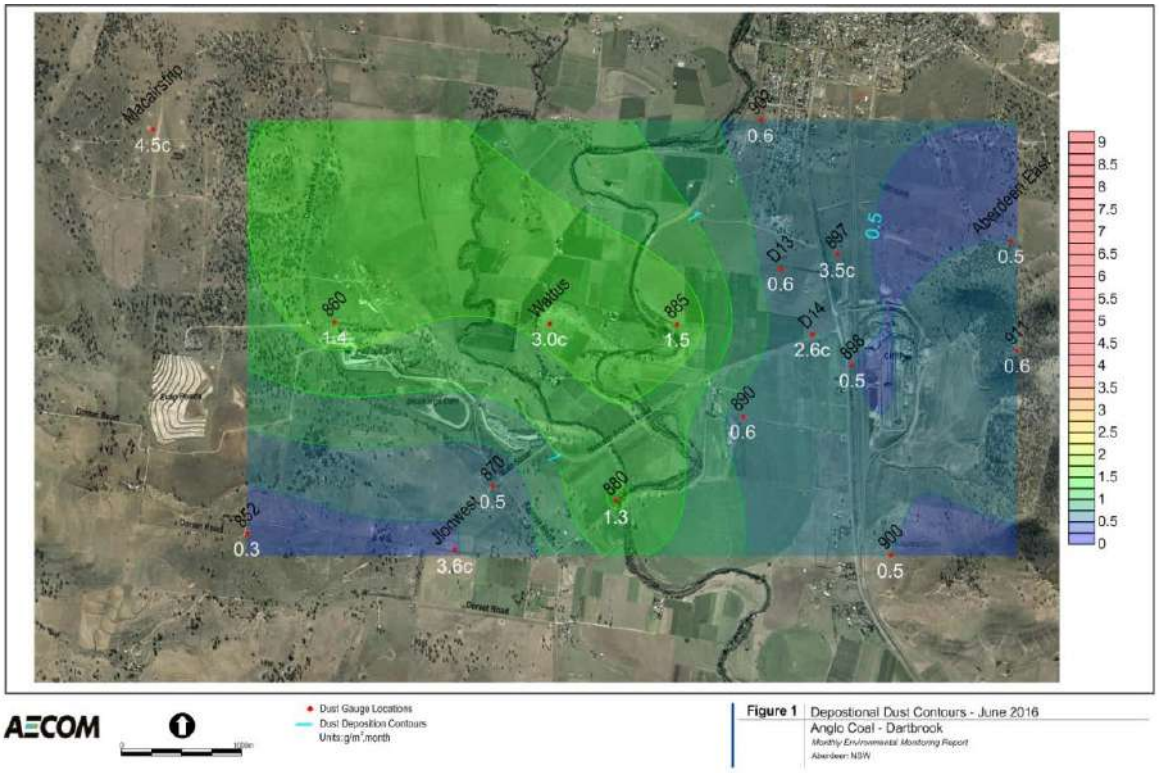
Dust Isopleth – April 2016



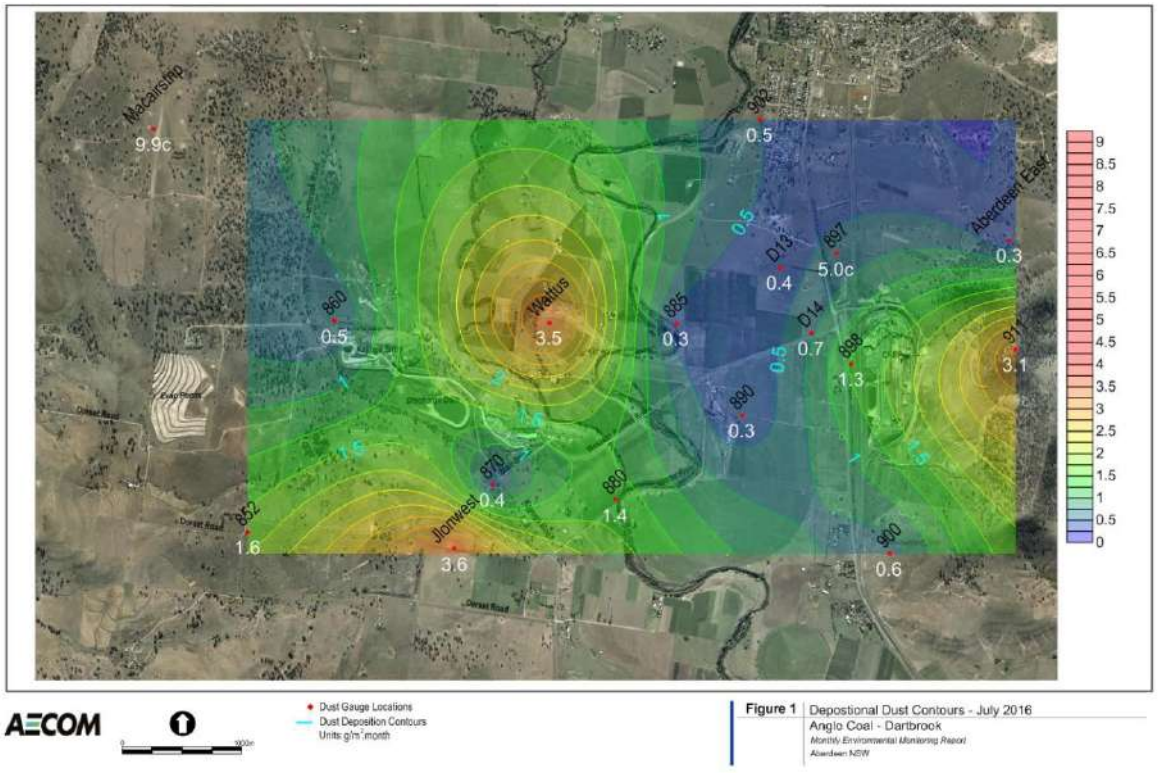
Dust Isopleth – May 2016



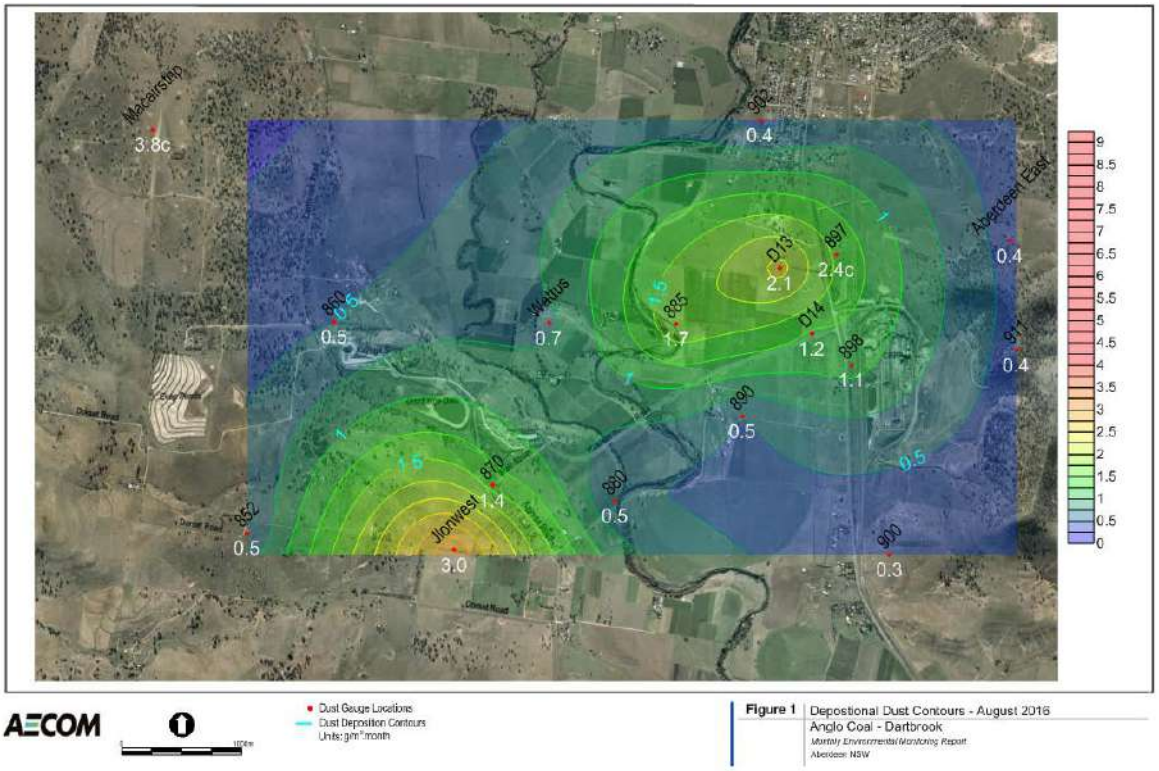
Dust Isopleth – June 2016



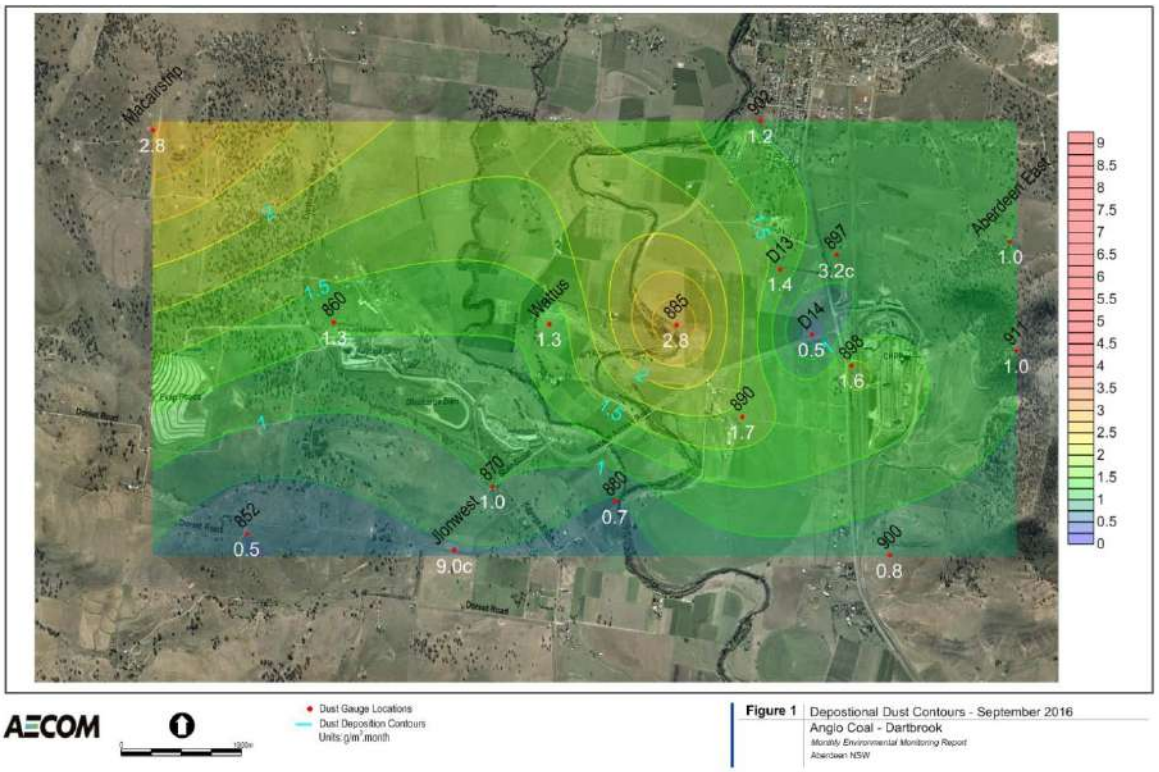
Dust Isopleth – July 2016



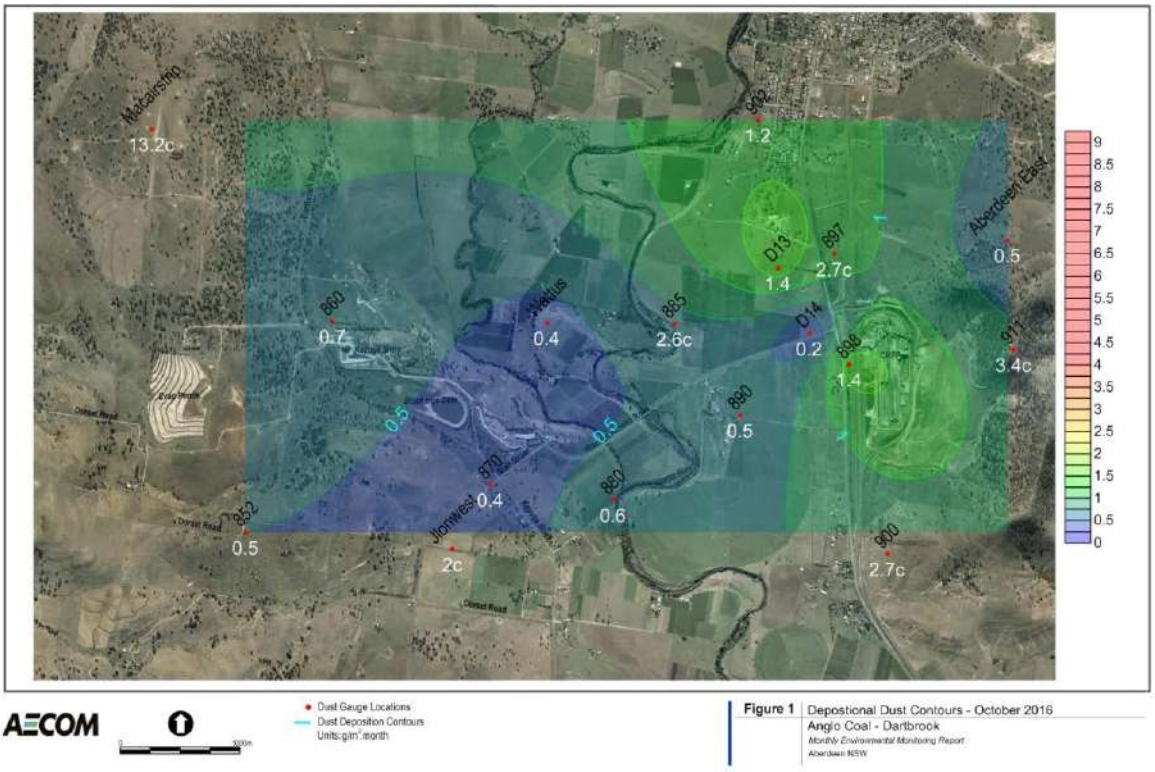
Dust Isopleth – August 2016



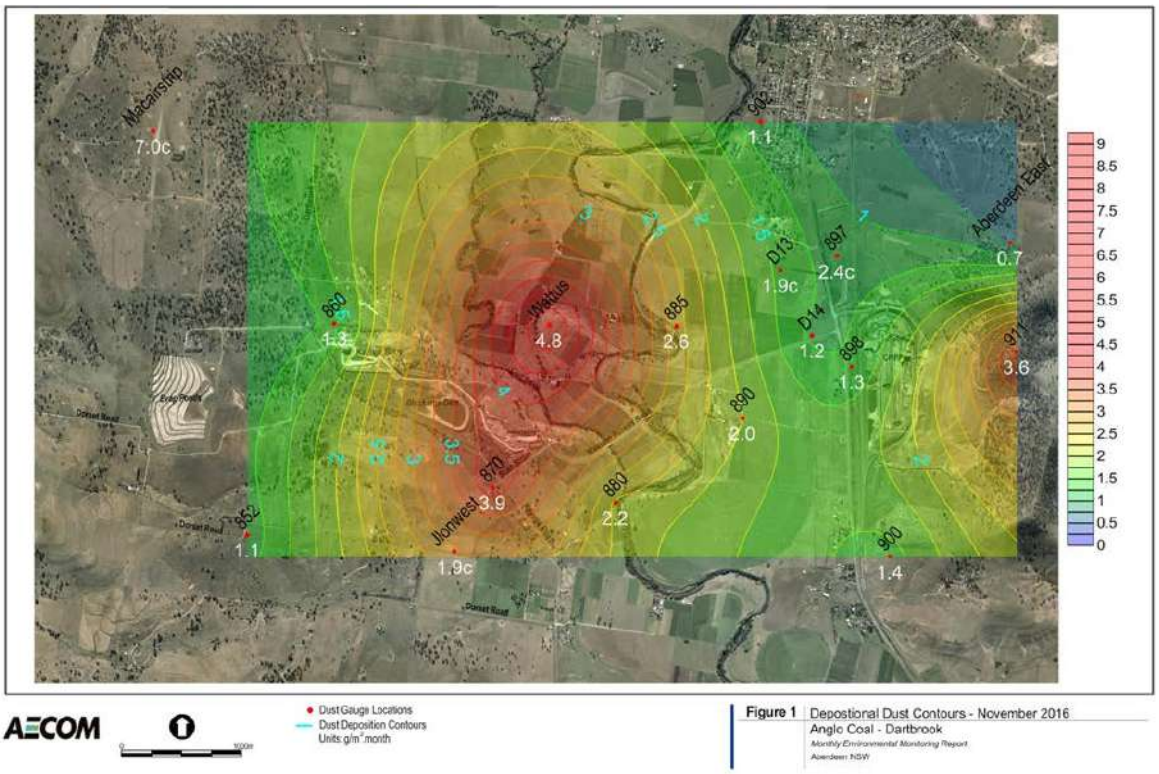
Dust Isopleth – September 2016



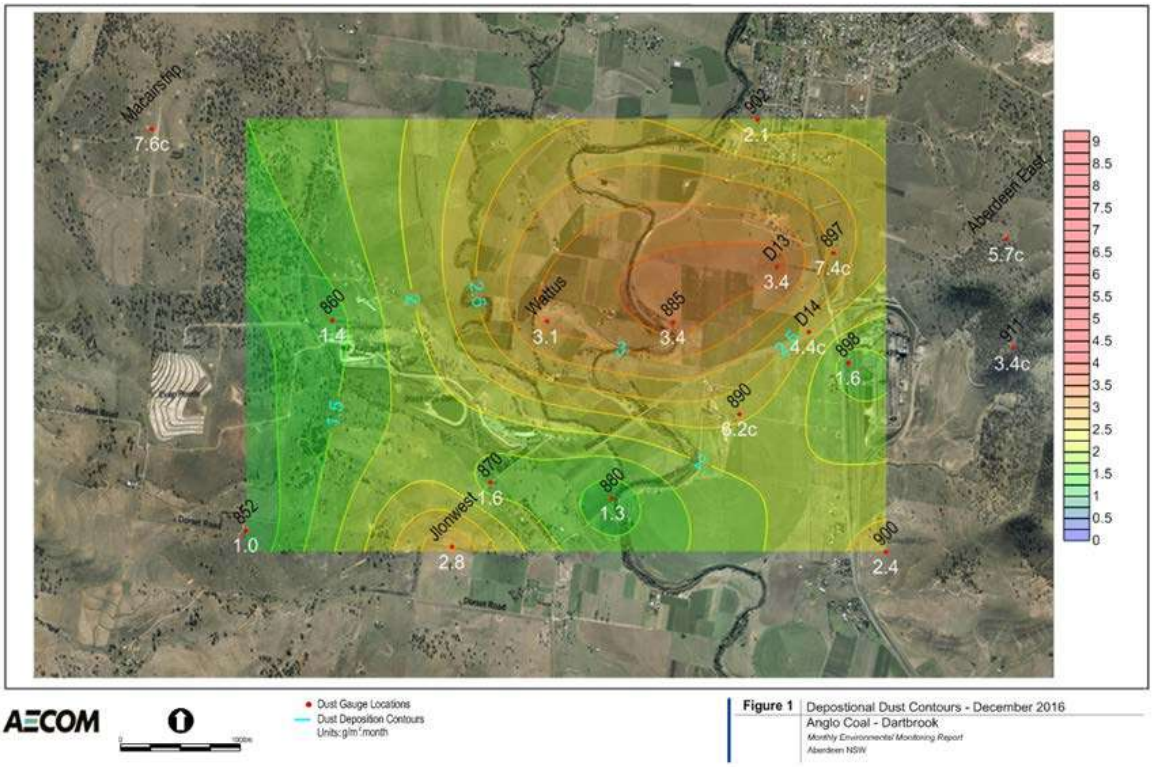
Dust Isopleth – October 2016

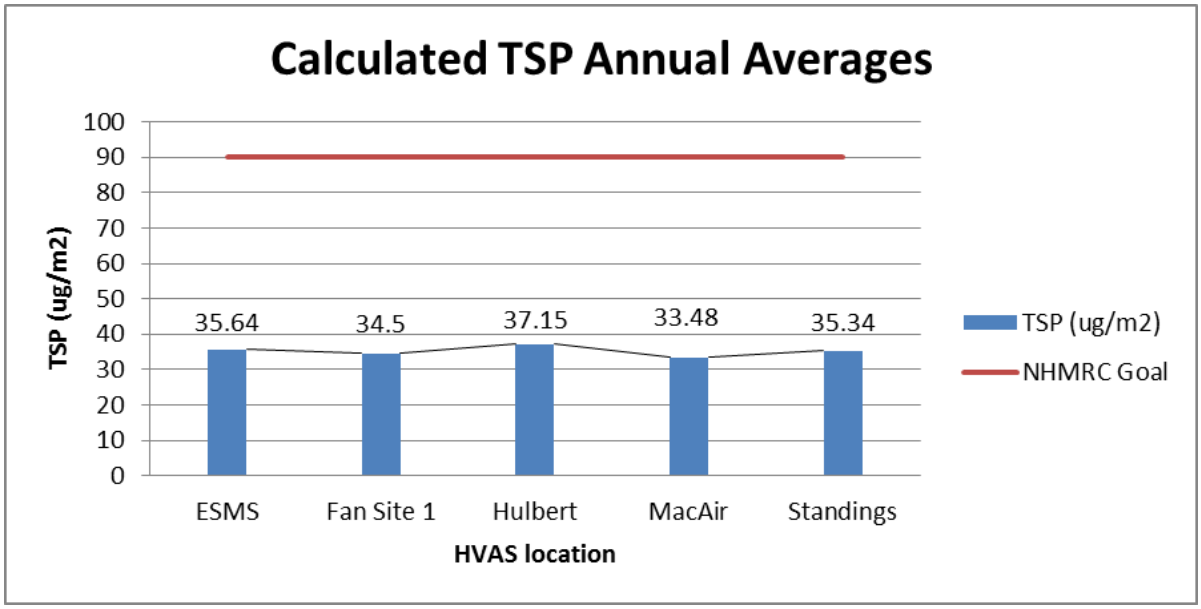


Dust Isopleth – November 2016



Dust Isopleth – December 2016





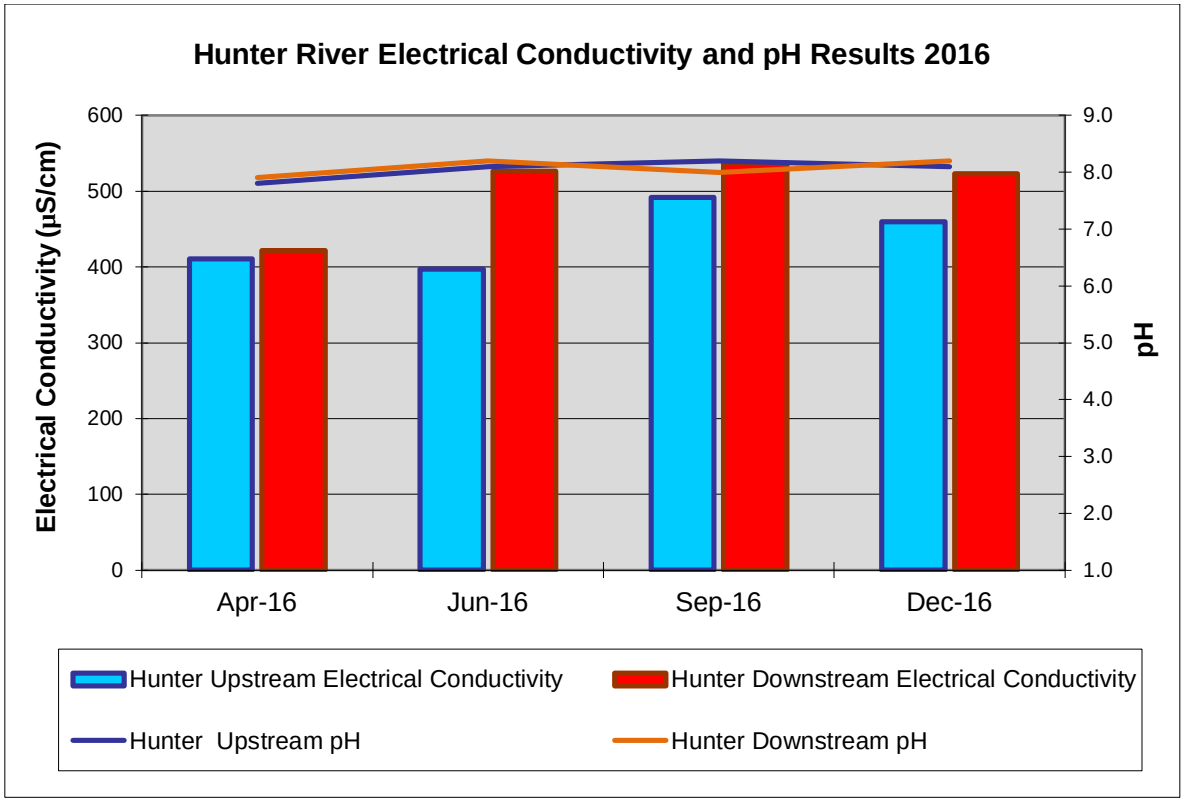
Surface Water Monitoring Summary

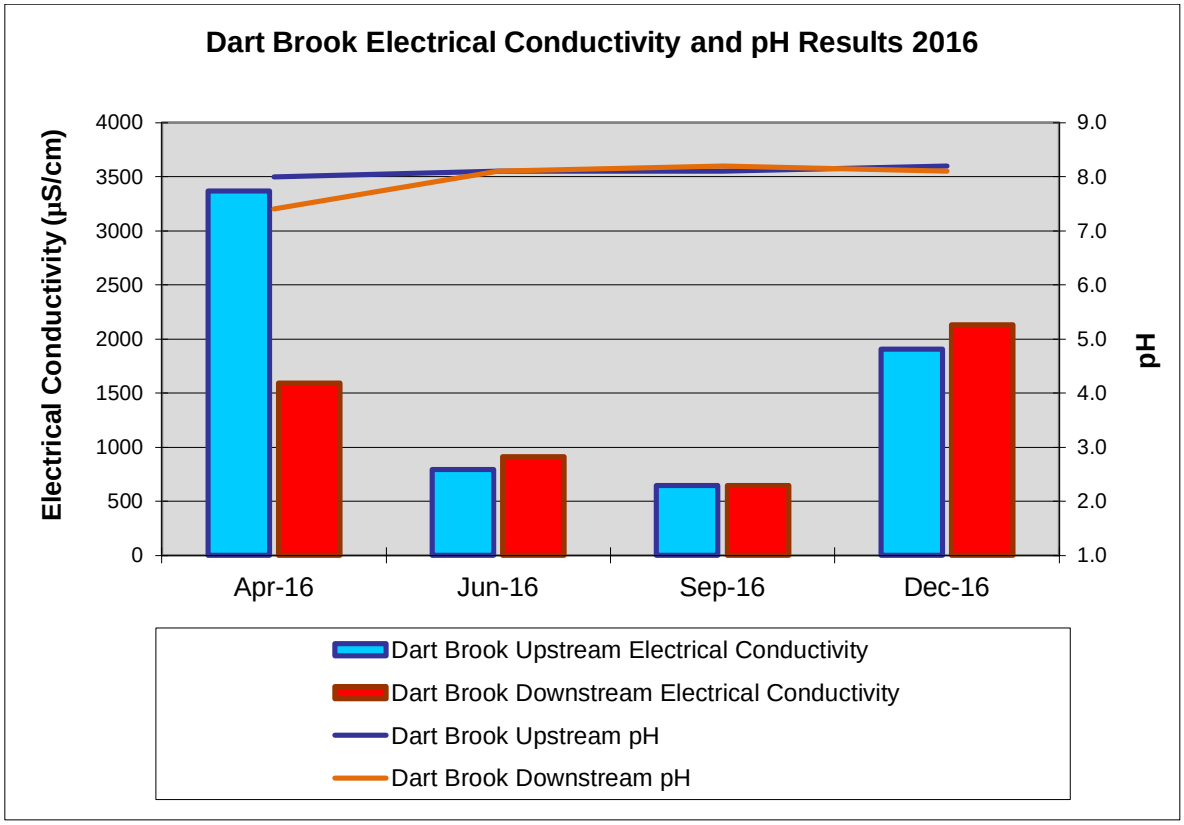
Appendix

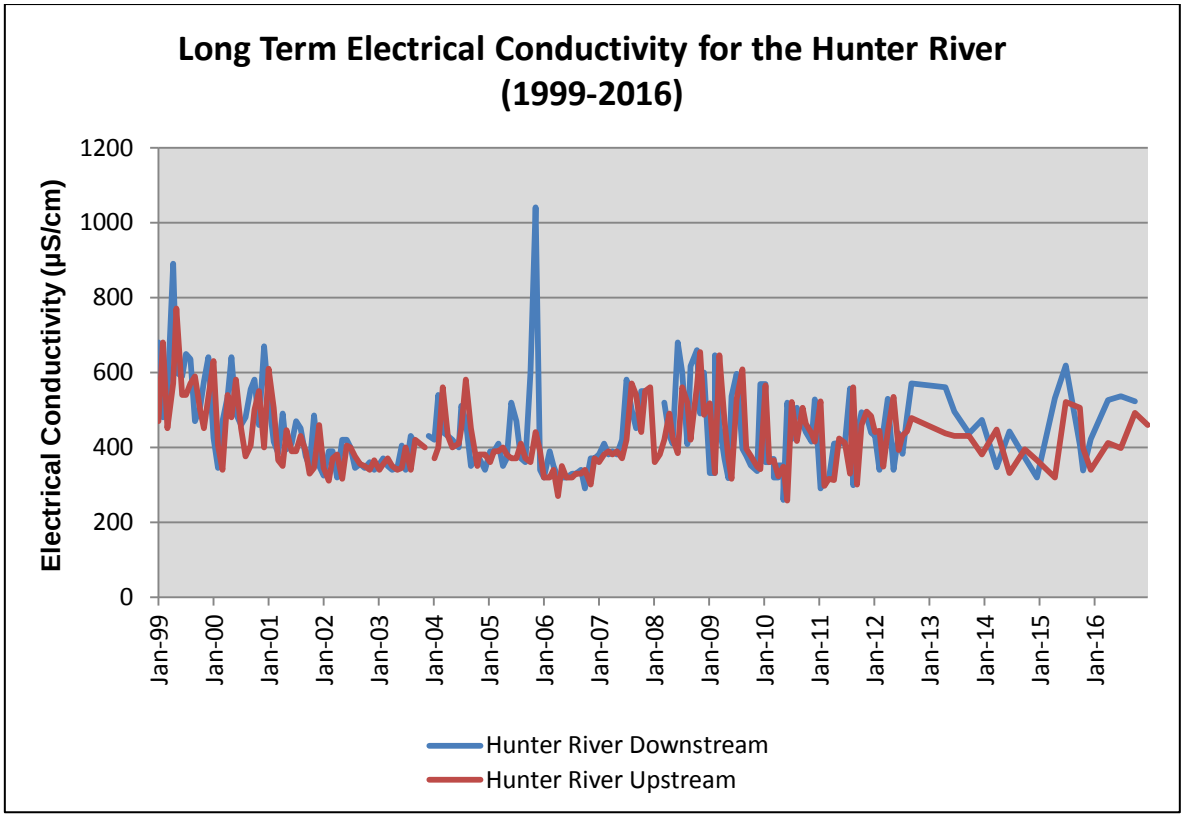
E

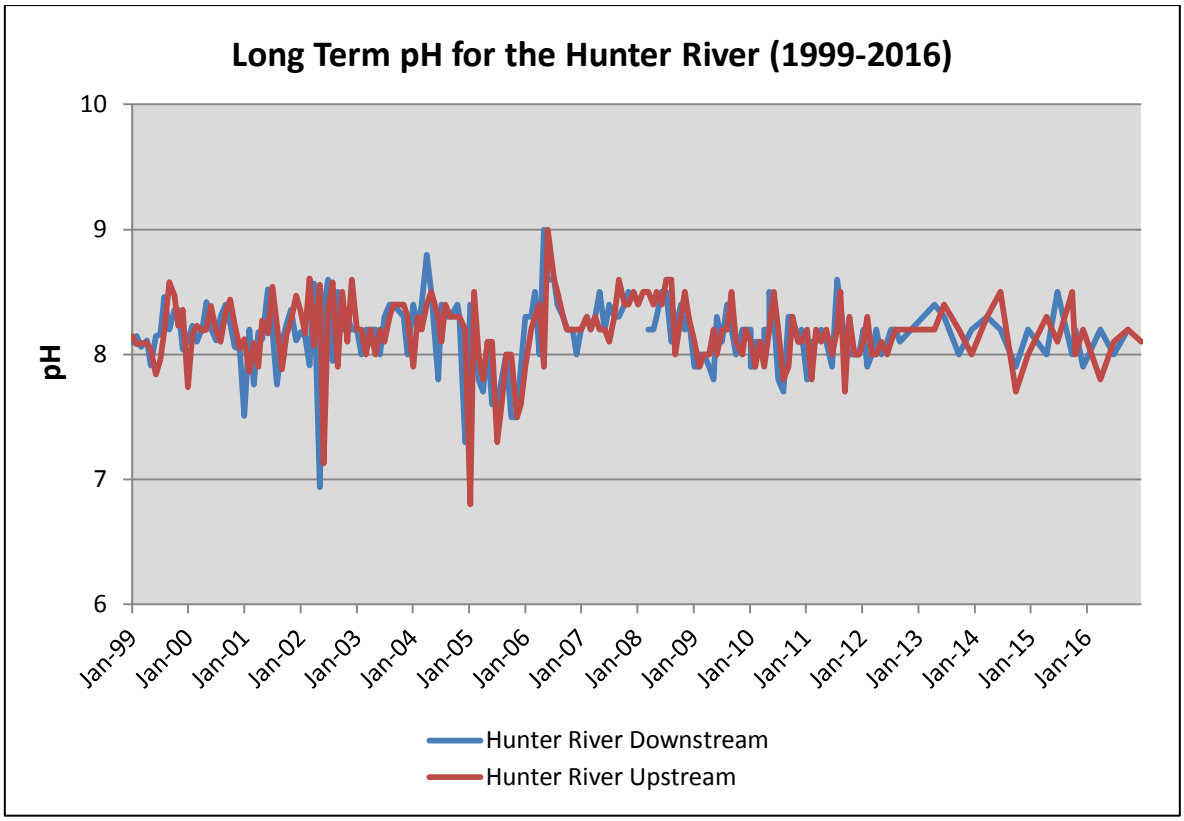
AngloAmerican

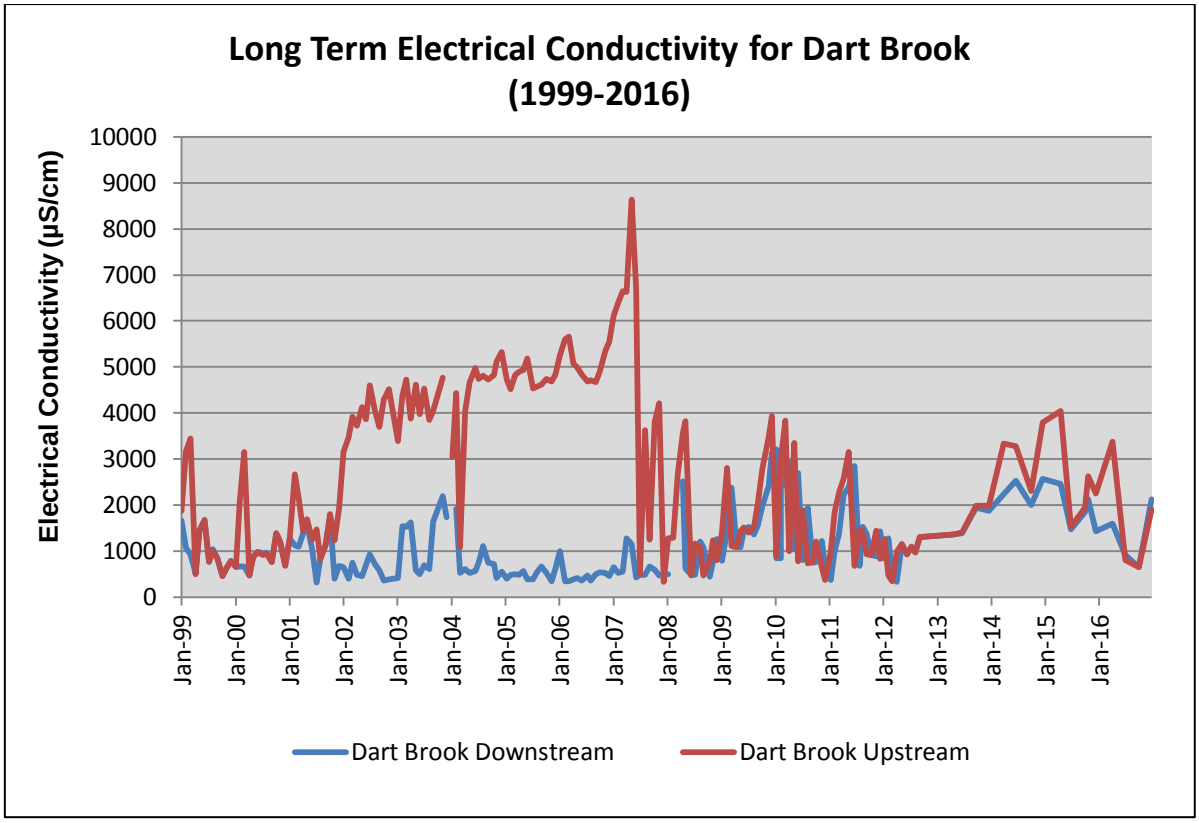
Hansen Bailey
ENVIRONMENTAL CONSULTANTS

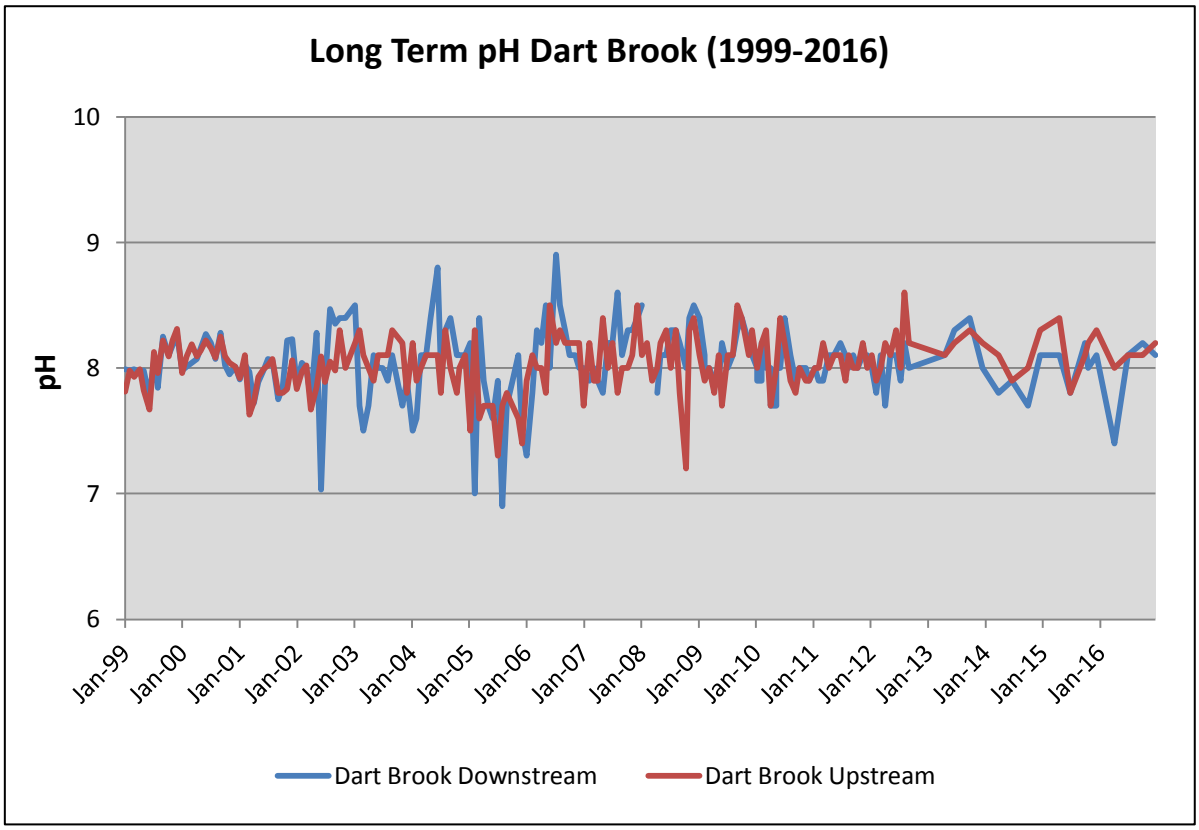

Hunter River Electrical Conductivity and pH Results 2016
Electrical Conductivity (µS/cm)
600
500
400
300
200
100
0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
pH
Apr-16
Jun-16
Sep-16
Dec-16
Hunter Upstream Electrical Conductivity
Hunter Downstream Electrical Conductivity
Hunter Upstream pH
Hunter Downstream pH

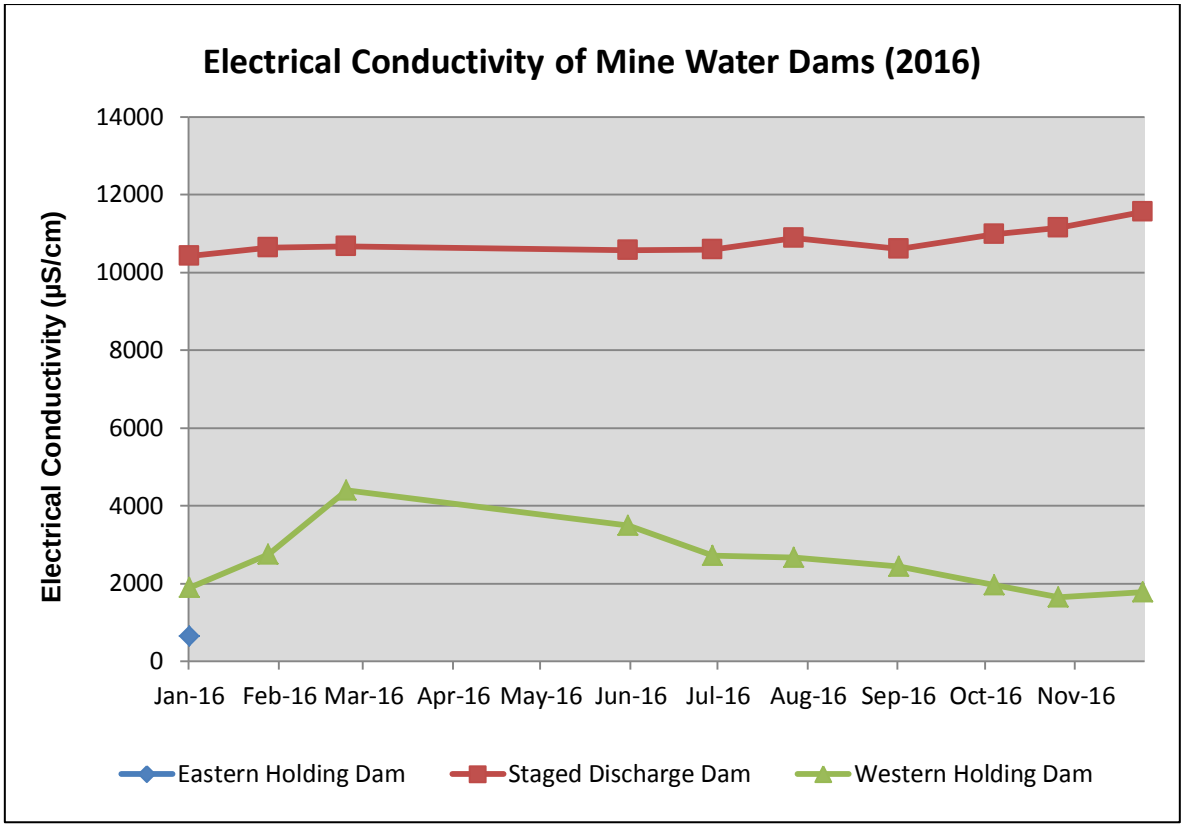

Dart Brook Electrical Conductivity and pH Results 2016
Electrical Conductivity (µS/cm)
4000
3500
3000
2500
2000
1500
1000
500
0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
pH
Apr-16
Jun-16
Sep-16
Dec-16
Dart Brook Upstream Electrical Conductivity
Dart Brook Downstream Electrical Conductivity
Dart Brook Upstream pH
Dart Brook Downstream pH

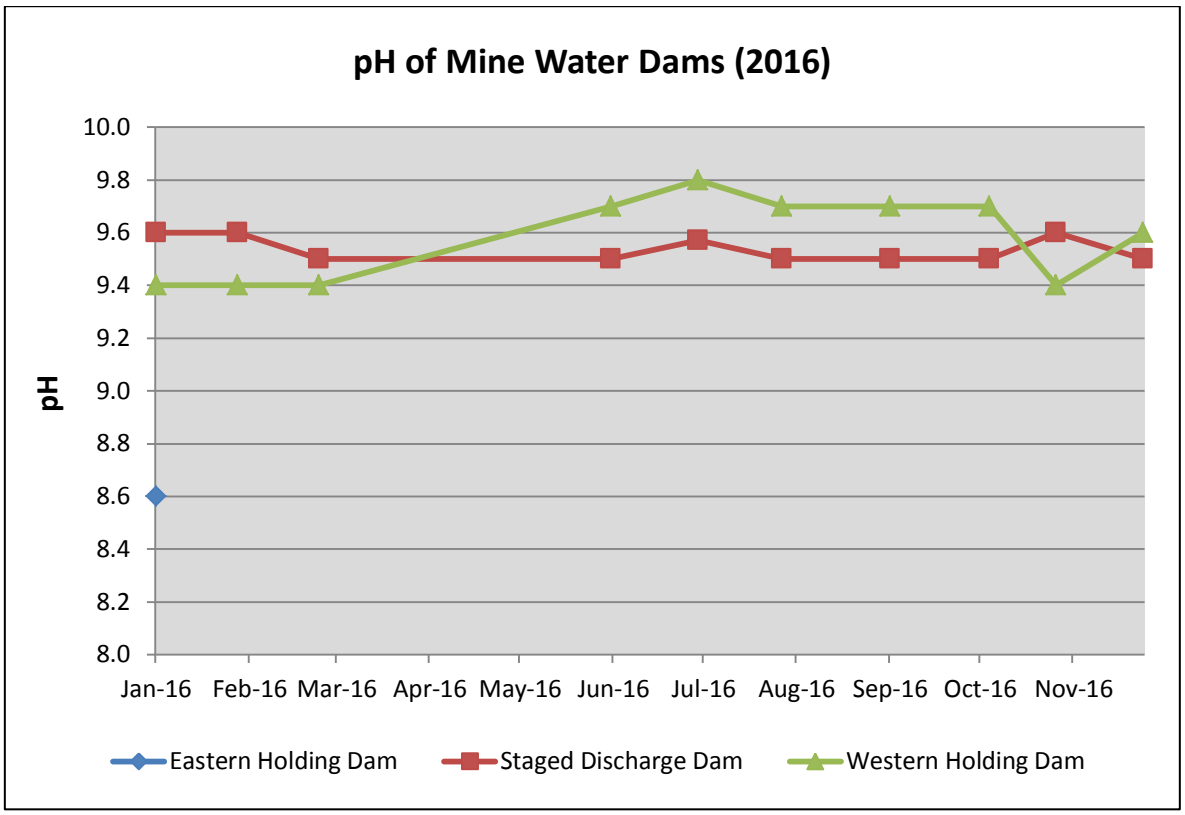

Long Term Electrical Conductivity for the Hunter River (1999-2016)
Electrical Conductivity (µS/cm)
1200
1000
800
600
400
200
0
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Hunter River Downstream
Hunter River Upstream


Long Term pH for the Hunter River (1999-2016)
pH
10
9
8
7
6
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Hunter River Downstream
Hunter River Upstream


Long Term Electrical Conductivity for Dart Brook (1999-2016)
Electrical Conductivity (µS/cm)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Dart Brook Downstream
Dart Brook Upstream


Long Term pH Dart Brook (1999-2016)
pH
10
9
8
7
6
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Dart Brook Downstream
Dart Brook Upstream


Electrical Conductivity of Mine Water Dams (2016)
Electrical Conductivity (µS/cm)
14000
12000
10000
8000
6000
4000
2000
0
Jan-16
Feb-16
Mar-16
Apr-16
May-16
Jun-16
Jul-16
Aug-16
Sep-16
Oct-16
Nov-16
Eastern Holding Dam
Staged Discharge Dam
Western Holding Dam


pH of Mine Water Dams (2016)
pH
10.0
9.8
9.6
9.4
9.2
9.0
8.8
8.6
8.4
8.2
8.0
Jan-16
Feb-16
Mar-16
Apr-16
May-16
Jun-16
Jul-16
Aug-16
Sep-16
Oct-16
Nov-16
Eastern Holding Dam
Staged Discharge Dam
Western Holding Dam

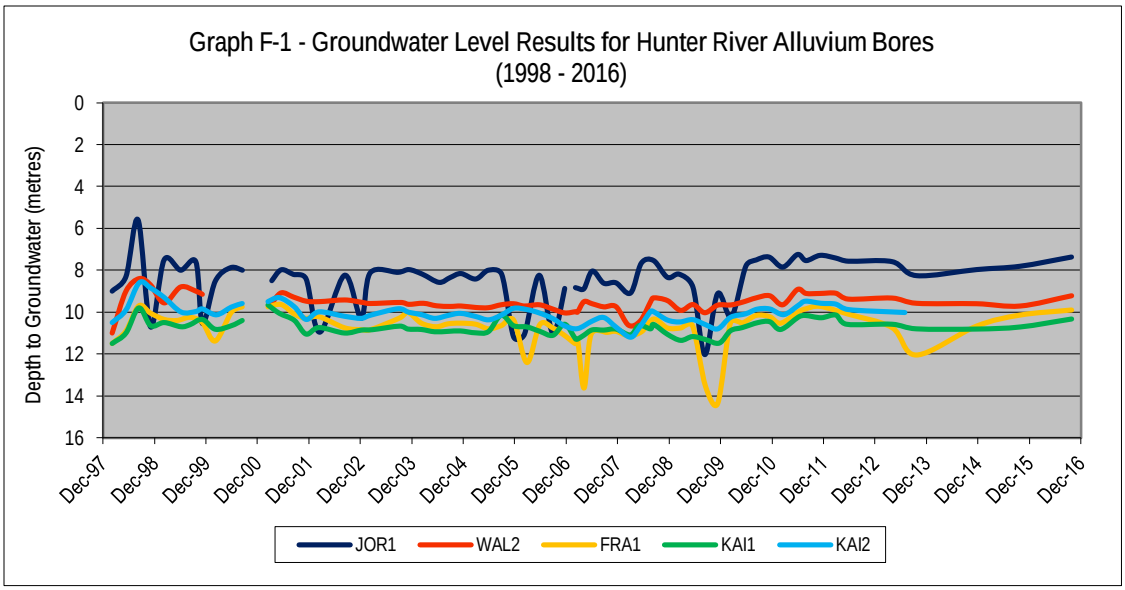
Groundwater Monitoring Summary

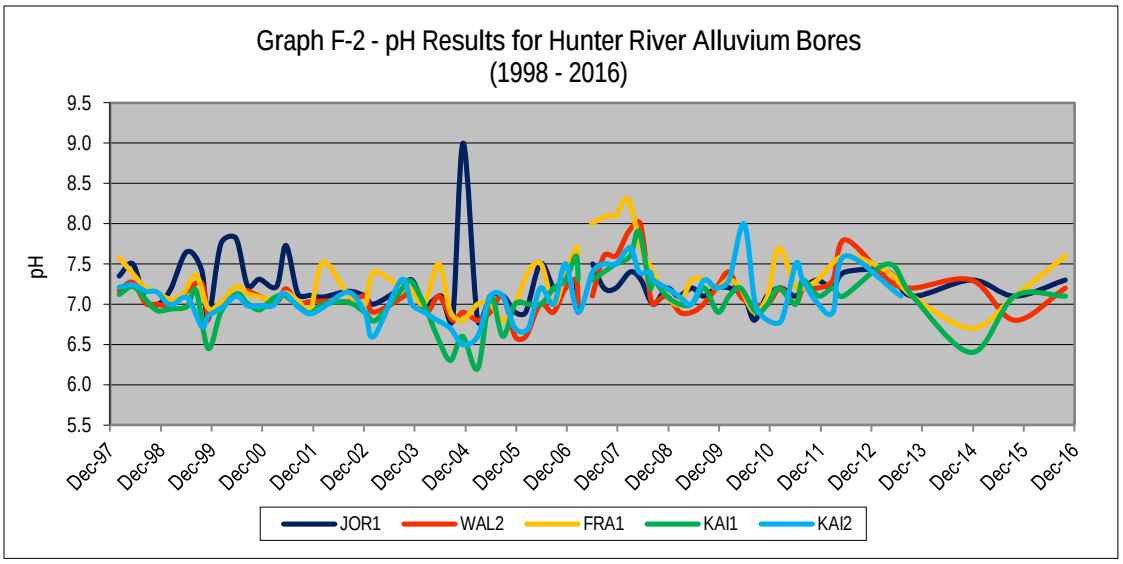
Appendix

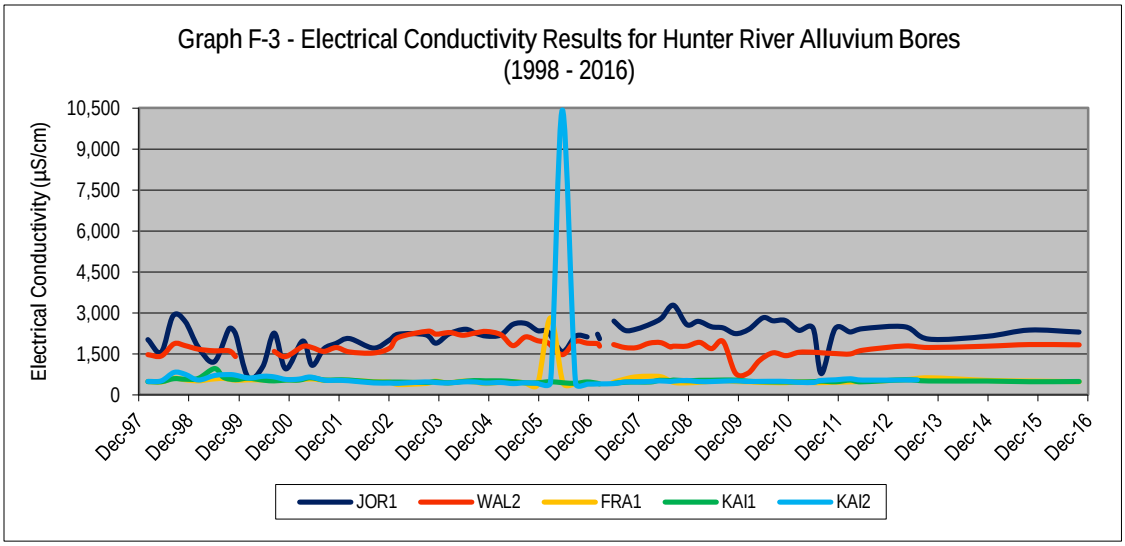
F

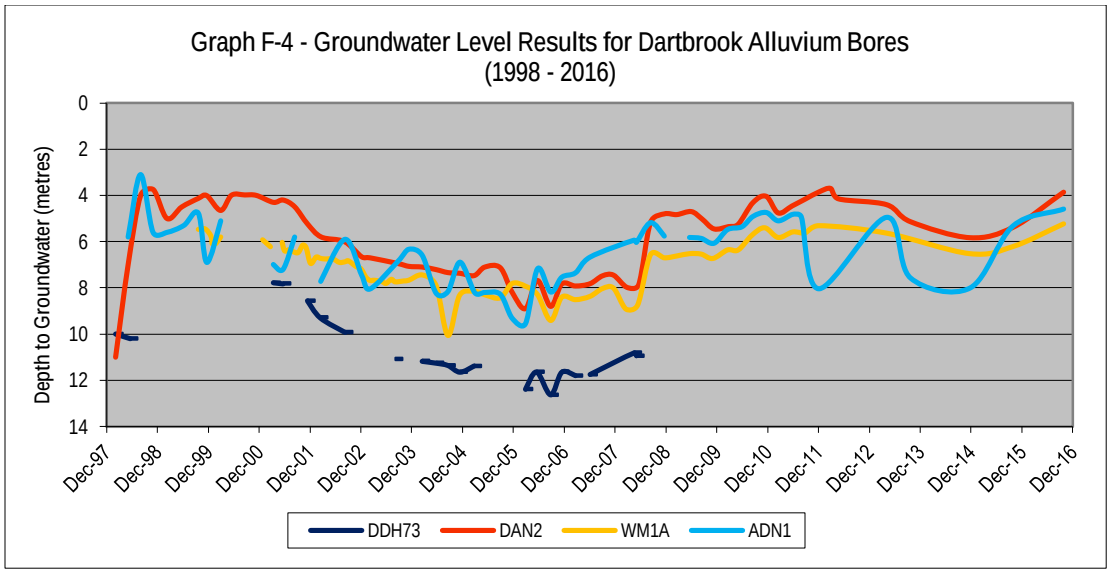
AngloAmerican

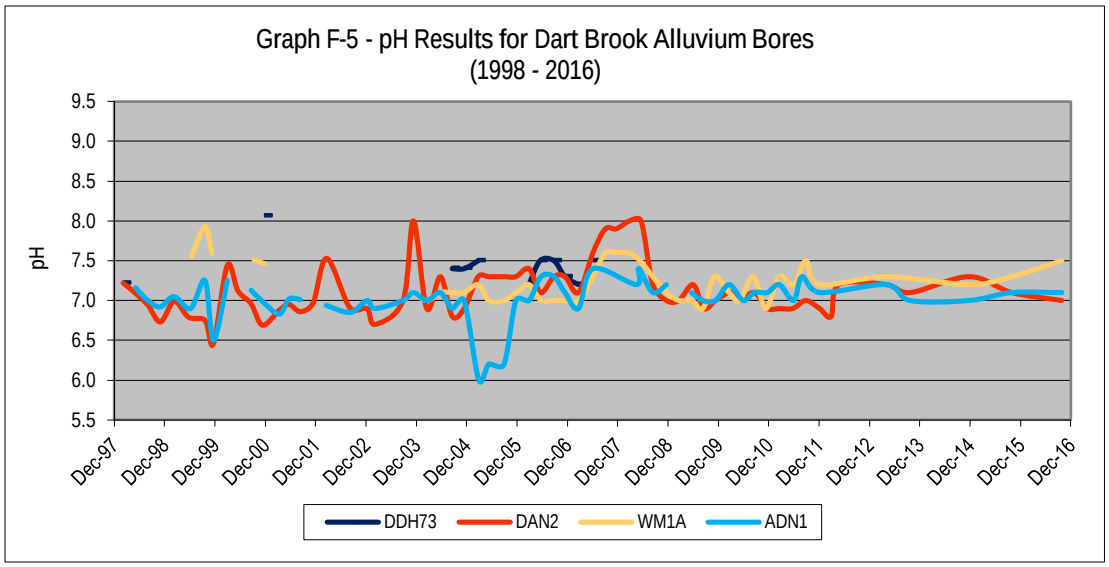
Hansen Bailey
ENVIRONMENTAL CONSULTANTS

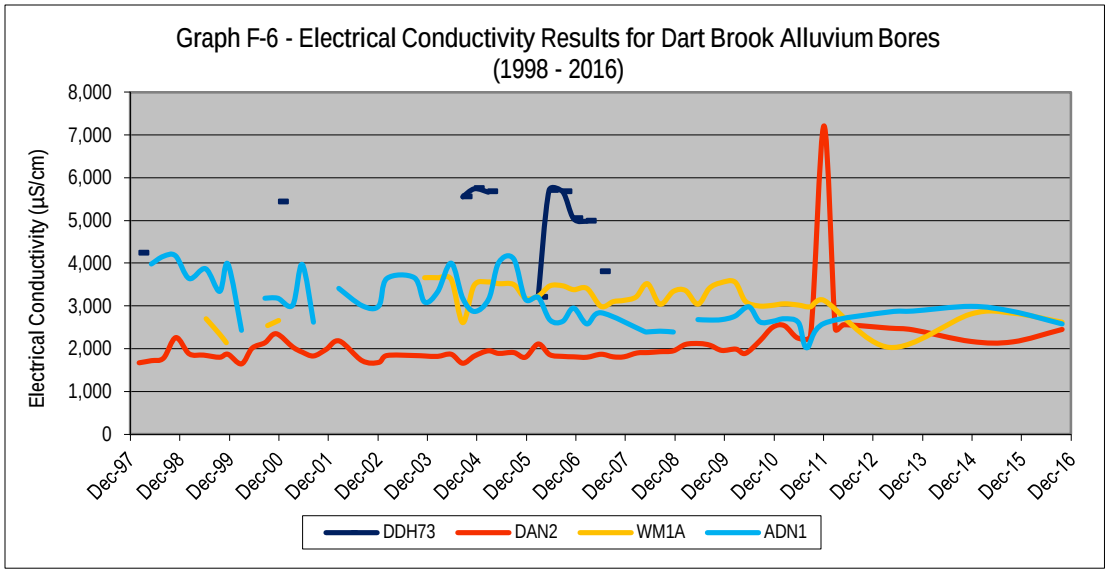

Graph F-1 - Groundwater Level Results for Hunter River Alluvium Bores
(1998 - 2016)
Depth to Groundwater (metres)
0
2
4
6
8
10
12
14
16
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
JOR1
WAL2
FRA1
KAI1
KAI2


Graph F-2 - pH Results for Hunter River Alluvium Bores
(1998 - 2016)
pH
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
JOR1
WAL2
FRA1
KAI1
KAI2

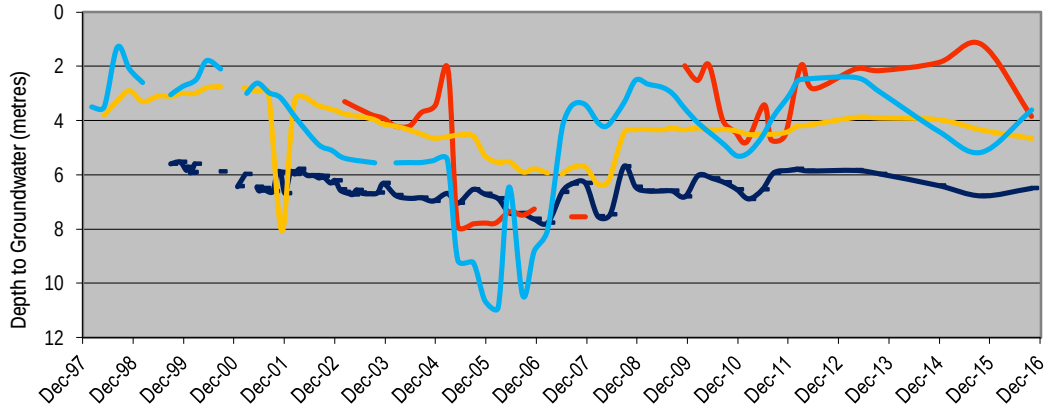

Graph F-3 - Electrical Conductivity Results for Hunter River Alluvium Bores
(1998 - 2016)
Electrical Conductivity (µS/cm)
10,500
9,000
7,500
6,000
4,500
3,000
1,500
0
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
JOR1
WAL2
FRA1
KAI1
KAI2


Graph F-4 - Groundwater Level Results for Dartbrook Alluvium Bores
(1998 - 2016)
Depth to Groundwater (metres)
0
2
4
6
8
10
12
14
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
DDH73
DAN2
WM1A
ADN1

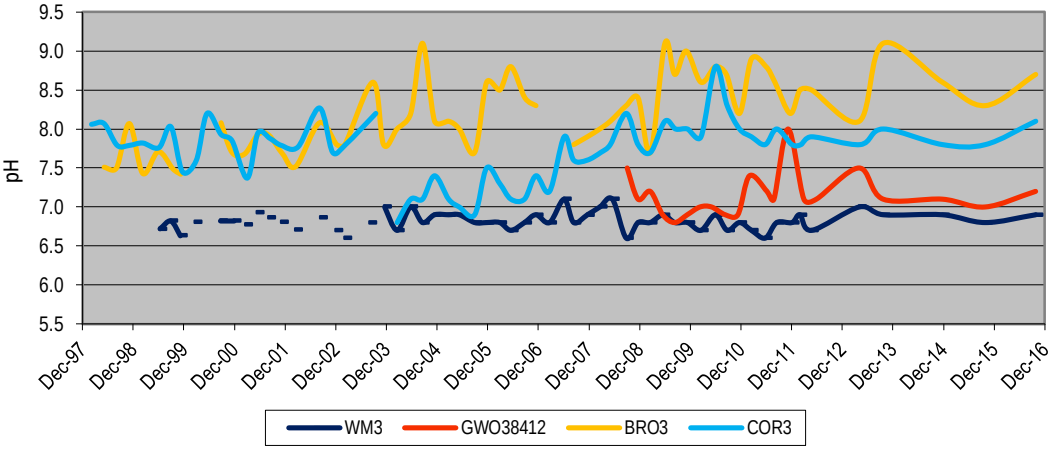

Graph F-5 - pH Results for Dart Brook Alluvium Bores
(1998 - 2016)
pH
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
DDH73
DAN2
WM1A
ADN1


Graph F-6 - Electrical Conductivity Results for Dart Brook Alluvium Bores
(1998 - 2016)
Electrical Conductivity (µS/cm)
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
DDH73
DAN2
WM1A
ADN1

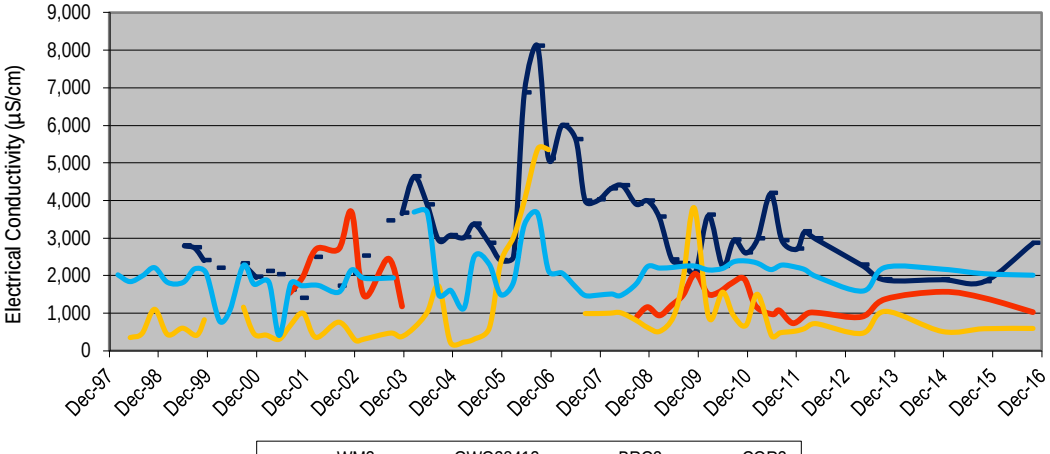
Graph F-7 - Groundwater Level Results for Sandy Creek Alluvium Bores
(1998 - 2016)

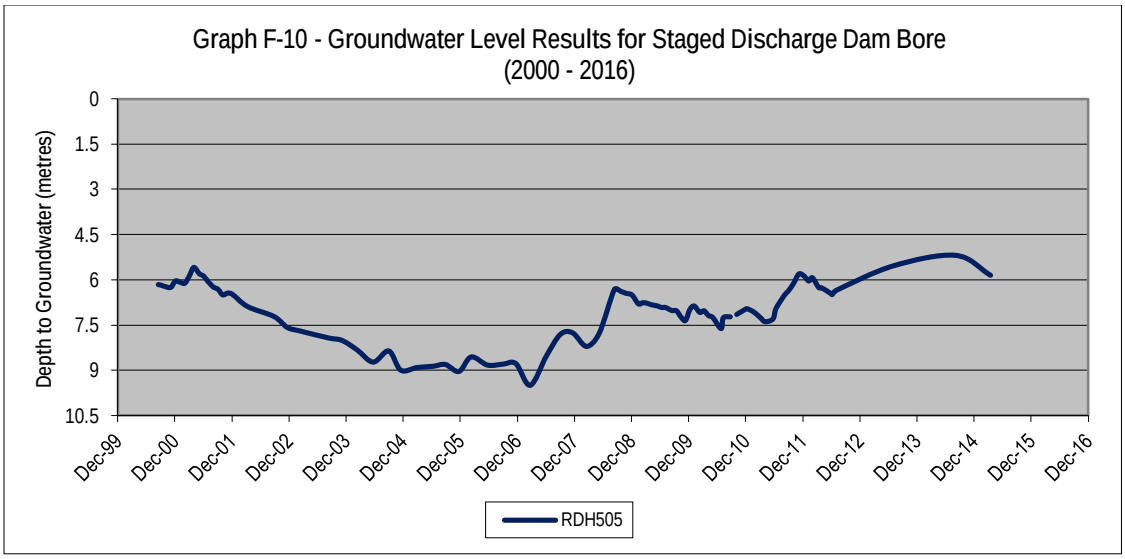


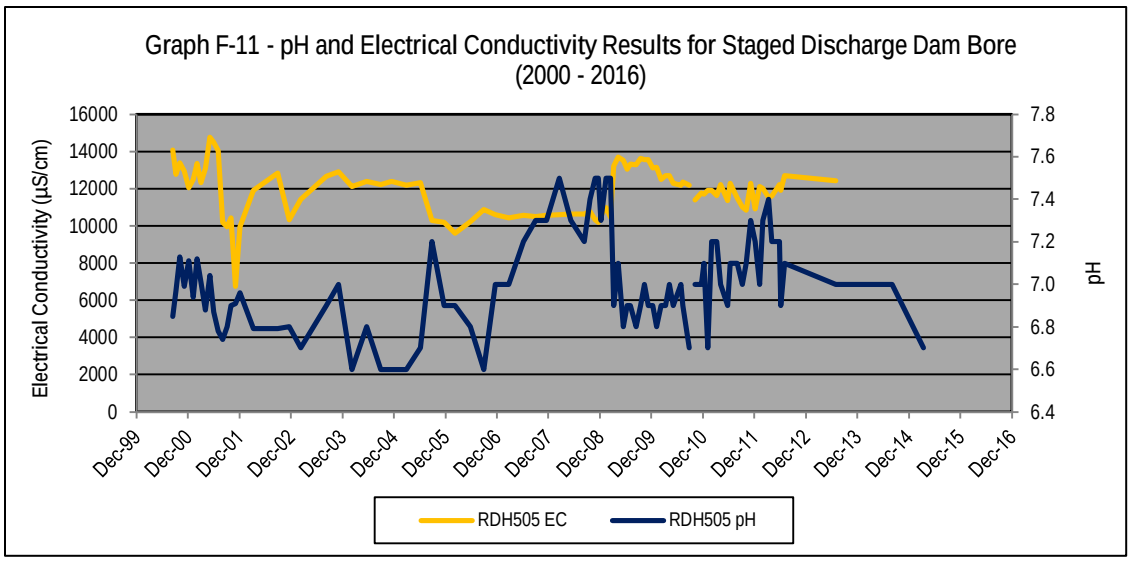
Graph F-8 - pH Results for Sandy Creek Alluvium Bores
(1998 - 2016)



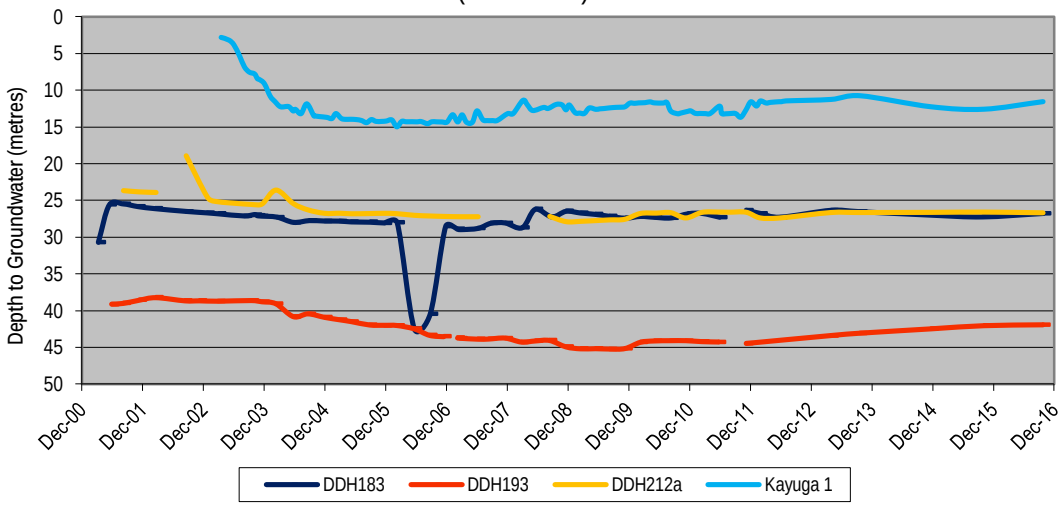
Graph F-9 - Electrical Conductivity Results for Sandy Creek Alluvium Bores
(1998 - 2016)



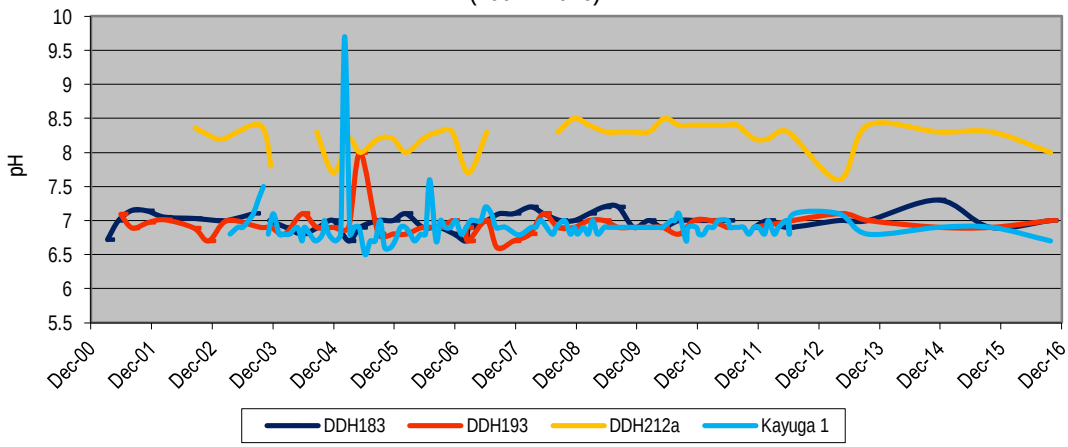

Graph F-10 - Groundwater Level Results for Staged Discharge Dam Bore
(2000 - 2016)
Depth to Groundwater (metres)
0
1.5
3
4.5
6
7.5
9
10.5
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
RDH505


Graph F-11 - pH and Electrical Conductivity Results for Staged Discharge Dam Bore
(2000 - 2016)
Electrical Conductivity (µS/cm)
16000
14000
12000
10000
8000
6000
4000
2000
0
pH
7.8
7.6
7.4
7.2
7.0
6.8
6.6
6.4
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
RDH505 EC
RDH505 pH

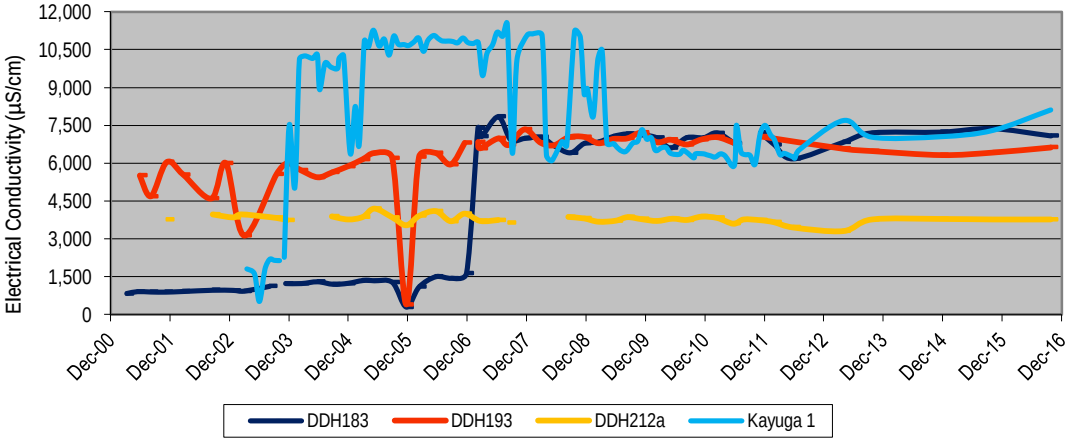
Graph F-12 - Groundwater Level Results for Coal Seam Bores
(2001 - 2016)



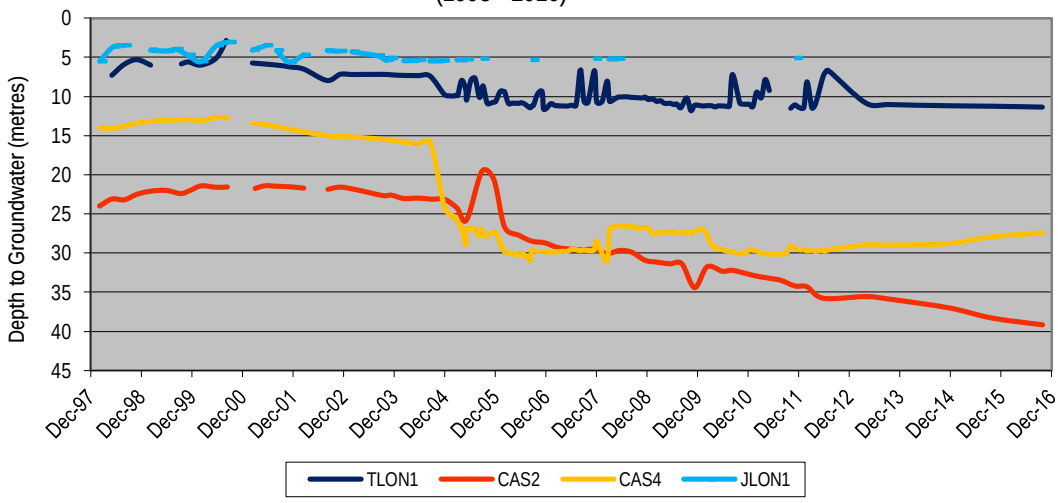
Graph F-13 - pH Results for Coal Seam Bores
(2001 - 2016)



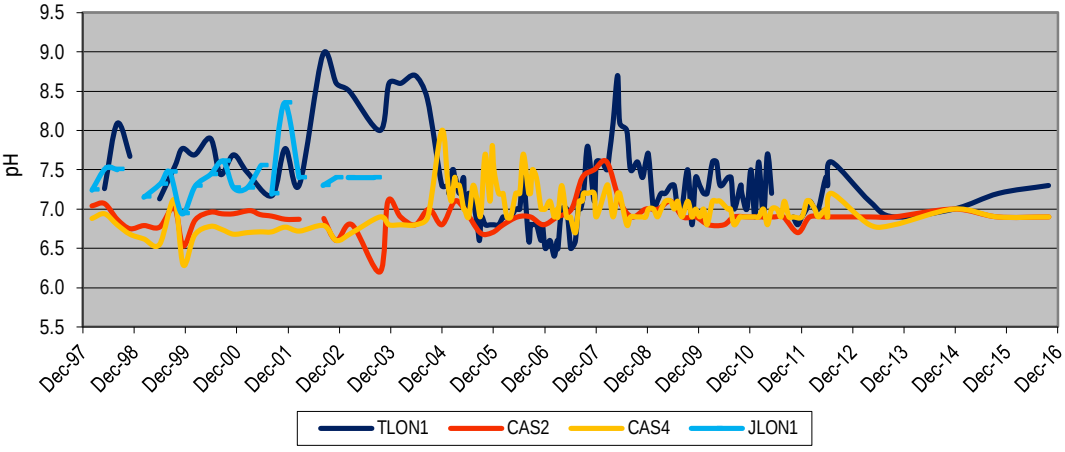
Graph F-14 - Electrical Conductivity Results for Coal Seam Bores
(2001 - 2016)



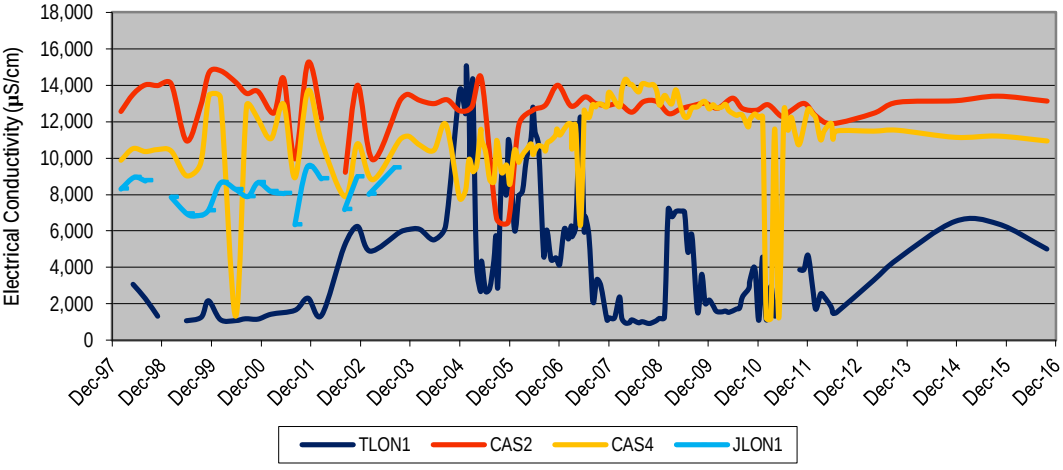
Graph F-15 - Groundwater Level Results for Regolith Bores
(1998 - 2016)



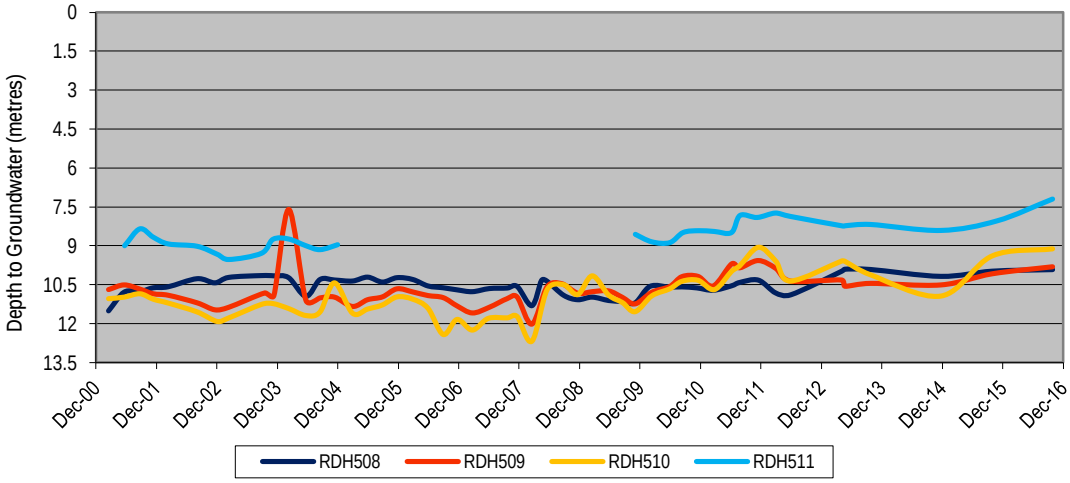
Graph F-16 - pH Results for Regolith Groundwater Bores
(1998 - 2016)



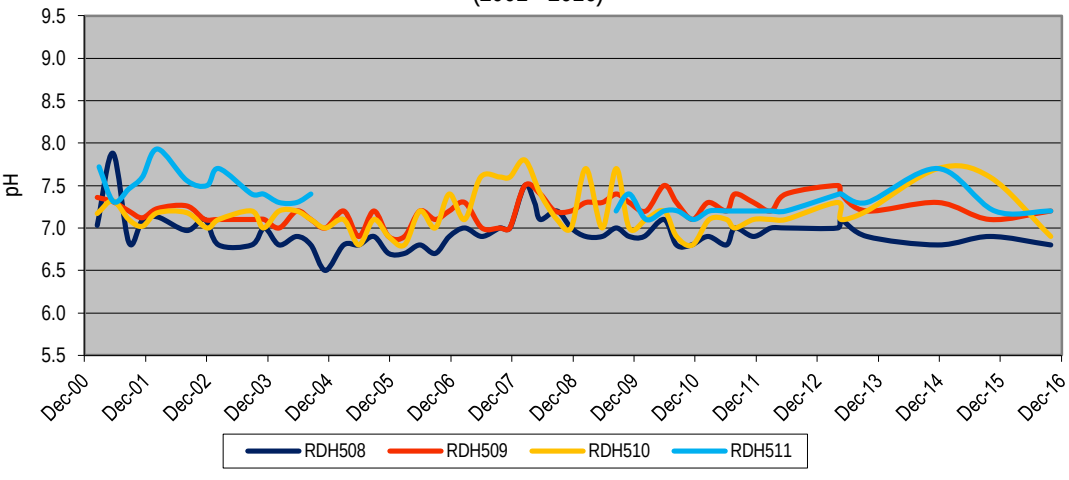
Graph F-17 - Electrical Conductivity Results for Regolith Groundwater Bores
(1998 - 2016)



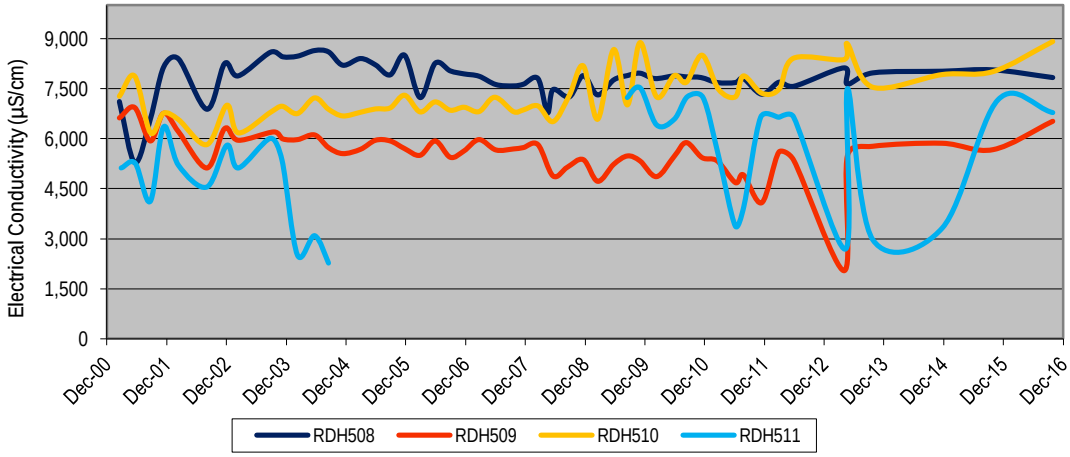
Graph F-18 - Groundwater Level Results for Reject Emplacement Area Bores
(2001 - 2016)

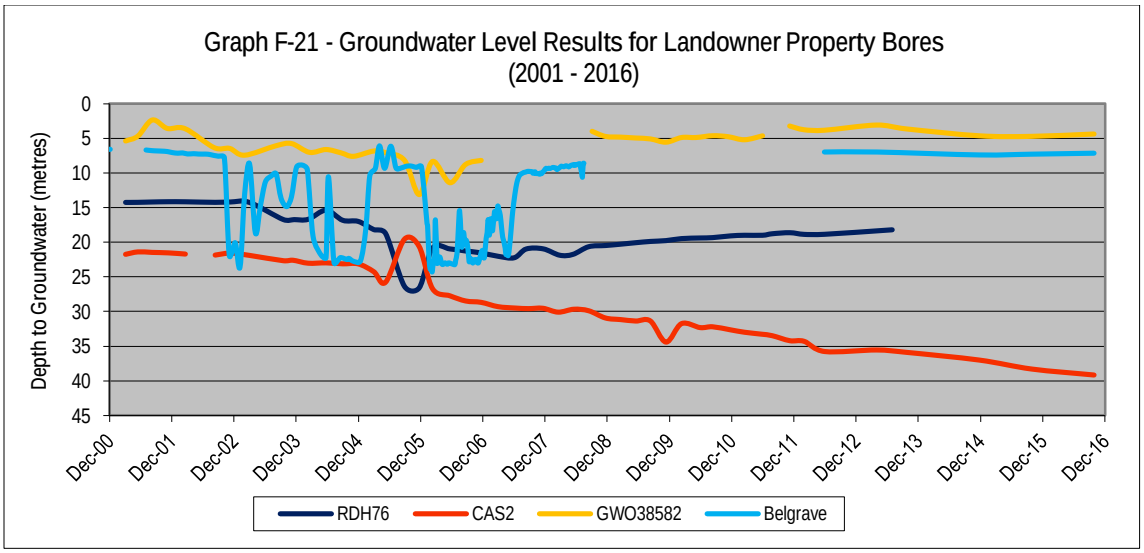


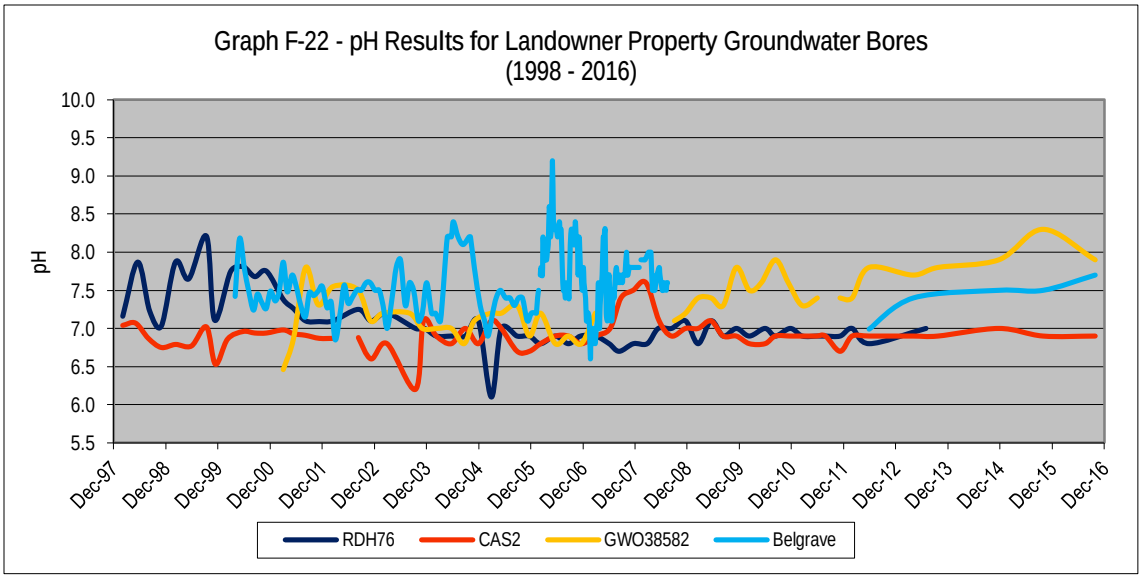
Graph F-19 - pH Results for Reject Emplacement Area Bores
(2001 - 2016)



Graph F-20 - Electrical Conductivity Results for Reject Emplacement Area Bores
(2001 - 2016)




Graph F-21 - Groundwater Level Results for Landowner Property Bores
(2001 - 2016)
Depth to Groundwater (metres)
0
5
10
15
20
25
30
35
40
45
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
RDH76
CAS2
GWO38582
Belgrave


Graph F-22 - pH Results for Landowner Property Groundwater Bores
(1998 - 2016)
pH
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
RDH76
CAS2
GWO38582
Belgrave

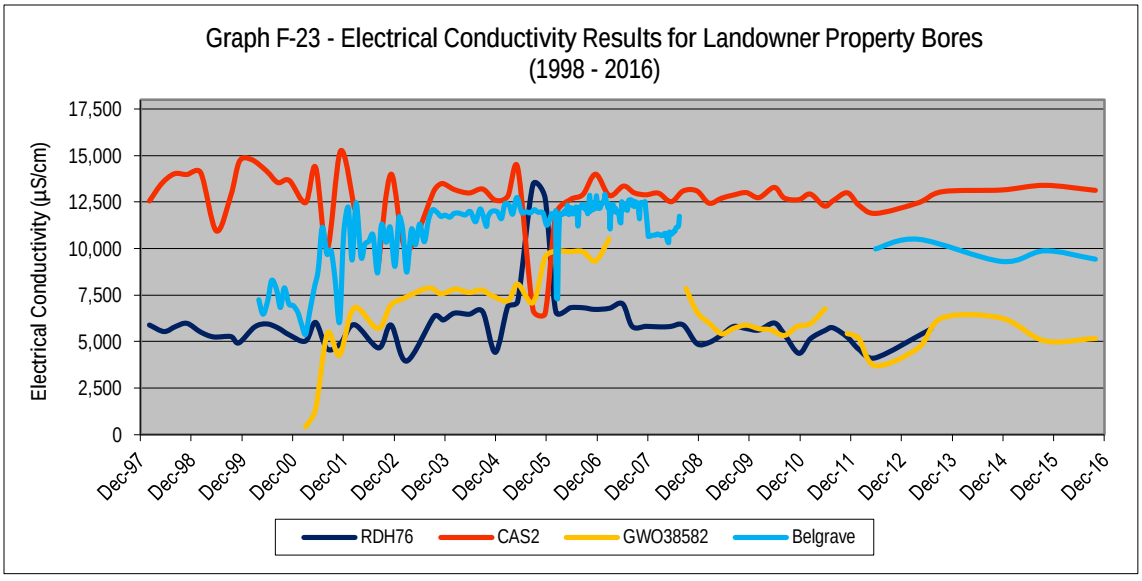

Graph F-23 - Electrical Conductivity Results for Landowner Property Bores
(1998 - 2016)
Electrical Conductivity (µS/cm)
17,500
15,000
12,500
10,000
7,500
5,000
2,500
0
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
RDH76
CAS2
GWO38582
Belgrave

Table F-1 – Groundwater Monitoring Summary

Sample Location	Sample Date	Field EC (µS/cm)	Field pH	Depth to Ground (m)	Depth to Standpipe (m)
Hunter River Alluvium					
FRA1	27-Oct-16	481	7.6	9.9	10.26
JOR1	26-Oct-16	2296	7.3	7.37	7.98
KAI1	27-Oct-16	487	7.1	10.33	10.89
WAL2	27-Oct-16	1829	7.2	9.22	9.35
Dart Brook Alluvium					
ADN1	26-Oct-16	2580	7.1	4.59	5.21
DAN2	26-Oct-16	2450	7.0	3.86	4.01
WM1A	26-Oct-16	2620	7.5	5.23	5.77
Sandy Creek Alluvium					
BRO3	26-Oct-16	593	8.7	4.66	4.69
COR3	26-Oct-16	2010	8.1	3.61	3.99
GWO38412	25-Oct-16	1026	7.2	1.8	1.80
WM3	26-Oct-16	2860	6.9	6.5	7.19
Coal Seams					
DDH183	27-Oct-16	7080	7.0	26.78	27.30
DDH193	25-Oct-16	6620	7.0	41.93	42.84
DDH212a	25-Oct-16	3770	8.0	26.69	27.49
Kayuga 1	25-Oct-16	8110	6.7	11.56	12.06
Regolith over Kayuga LW					
CAS2	27-Oct-16	13130	6.9	39.16	39.71
CAS4	27-Oct-16	10940	6.9	27.44	27.89
JLON1	25-Oct-16				
TLON1	25-Oct-16	5010	7.3	11.36	11.61
Rejects Emplacement Area					
RDH508	27-Oct-16	7830	6.8	9.92	10.47
RDH508a	27-Oct-16	7530	6.9	17.58	18.06
RDH509	27-Oct-16	6520	7.2	9.81	10.06
RDH509a	27-Oct-16			14.58	14.79
RDH510	27-Oct-16	8910	6.9	9.12	9.63
RDH510a	27-Oct-16	8610	7.1	9.14	9.54
RDH511	27-Oct-16	6780	7.2	7.99	7.99
RDH511a	27-Oct-16	6730	7.4	7.99	7.99
Property Subsidence Management Plans					
Belgrave	27-Oct-16	9430	7.7	7.16	7.16
GWO38582	27-Oct-16	5170	7.9	4.39	4.73
Other Monitoring Bores					
Athlone	27-Oct-16	9870	7.0	5.88	6.22
Bel1	25-Oct-16	1641	7.5	2.61	2.61
CAD2	26-Oct-16	4170	6.9	12.22	12.46
DDH124	27-Oct-16			14.05	14.64
DDH212b	25-Oct-16	3790	8.3	26.69	27.39
DDH212c	25-Oct-16	3720	8.0	26.68	27.29

Table F-2 – Statistical Analysis of Groundwater Quality Monitoring Data

Sample Location	Parameter	Mean	Standard Deviation	Variance	Minimum	Maximum
Hunter River Alluvium						
JOR1	pH	7.3	N/A	N/A	7.3	7.3
JOR1	EC	2296.0	N/A	N/A	2296.0	2296.0
WAL2	pH	7.2	N/A	N/A	7.2	7.2
WAL2	EC	1829.0	N/A	N/A	1829.0	1829.0
KAI1	pH	7.1	N/A	N/A	7.1	7.1
KAI1	EC	487.0	N/A	N/A	487.0	487.0
FRA1	pH	7.6	N/A	N/A	7.6	7.6
FRA1	EC	481.0	N/A	N/A	481.0	481.0
Dart Brook Alluvium						
DAN2	pH	7.0	N/A	N/A	7.0	7.0
DAN2	EC	2450.0	N/A	N/A	2450.0	2450.0
WM1A	pH	7.5	N/A	N/A	7.5	7.5
WM1A	EC	2620.0	N/A	N/A	2620.0	2620.0
ADN1	pH	7.1	N/A	N/A	7.1	7.1
ADN1	EC	2580.0	N/A	N/A	2580.0	2580.0
Sandy Creek						
GWO38412	pH	7.2	N/A	N/A	7.2	7.2
GWO38412	EC	1026.0	N/A	N/A	1026.0	1026.0
BRO3	pH	8.7	N/A	N/A	8.7	8.7
BRO3	EC	593.0	N/A	N/A	593.0	593.0
COR3	pH	8.1	N/A	N/A	8.1	8.1
COR3	EC	2010.0	N/A	N/A	2010.0	2010.0
WM3	pH	6.9	N/A	N/A	6.9	6.9
WM3	EC	2860.0	N/A	N/A	2860.0	2860.0
Coal Seams						
DDH183	pH	7.0	N/A	N/A	7.0	7.0
DDH183	EC	7080.0	N/A	N/A	7080.0	7080.0
DDH193	pH	7.0	N/A	N/A	7.0	7.0
DDH193	EC	6620.0	N/A	N/A	6620.0	6620.0
Kayuga 1	pH	6.7	N/A	N/A	6.7	6.7
Kayuga 1	EC	8110.0	N/A	N/A	8110.0	8110.0
DDH212(a)	pH	8.0	N/A	N/A	8.0	8.0
DDH212(a)	EC	3770.0	N/A	N/A	3770.0	3770.0
Regolith						
CAS2	pH	6.9	N/A	N/A	6.9	6.9
CAS2	EC	13130.0	N/A	N/A	13130.0	13130.0
CAS4	pH	6.9	N/A	N/A	6.9	6.9
CAS4	EC	10940.0	N/A	N/A	10940.0	10940.0

Sample Location	Parameter	Mean	Standard Deviation	Variance	Minimum	Maximum
TLON1	pH	7.3	N/A	N/A	7.3	7.3
TLON1	EC	5010.0	N/A	N/A	5010.0	5010.0
Rejects Emplacement Area						
RDH508	pH	6.8	N/A	N/A	6.8	6.8
RDH508	EC	7830.0	N/A	N/A	7830.0	7830.0
RDH508(a)	pH	6.9	N/A	N/A	6.9	6.9
RDH508(a)	EC	7530.0	N/A	N/A	7530.0	7530.0
RDH509	pH	7.2	N/A	N/A	7.2	7.2
RDH509	EC	6520.0	N/A	N/A	6520.0	6520.0
RDH510	pH	6.9	N/A	N/A	6.9	6.9
RDH510	EC	8910.0	N/A	N/A	8910.0	8910.0
RDH510a	pH	7.1	N/A	N/A	7.1	7.1
RDH510a	EC	8610.0	N/A	N/A	8610.0	8610.0
RDH511	pH	7.2	N/A	N/A	7.2	7.2
RDH511	EC	6780.0	N/A	N/A	6780.0	6780.0
RDH511a	pH	7.4	N/A	N/A	7.4	7.4
RDH511a	EC	6730.0	N/A	N/A	6730.0	6730.0
Property Subsidence Management Plans						
GWO38582	pH	7.9	N/A	N/A	7.9	7.9
GWO38582	EC	5170.0	N/A	N/A	5170.0	5170.0
Belgrave	pH	7.7	N/A	N/A	7.7	7.7
Belgrave	EC	9430.0	N/A	N/A	9430.0	9430.0
Other Bore Holes						
Athlone	pH	7.0			7.0	7.0
Athlone	EC	9870.0			9870.0	9870.0
Bel 1	pH	7.5			7.5	7.5
Bel 1	EC	1641.0			1641.0	1641.0
CAD2	pH	6.9			6.9	6.9
CAD2	EC	4170.0			4170.0	4170.0
DDH124	pH	N/A			N/A	N/A
DDH124	EC	N/A			N/A	N/A
DDH212b	pH	8.3			8.3	8.3
DDH212b	EC	3790.0			3790.0	3790.0
DDH212c	ph	8.0			8.0	8.0
DDH212c	EC	3720.0			3720.0	3720.0

Tree Screen Monitoring

Appendix

G

AngloAmerican

Hansen Bailey
ENVIRONMENTAL CONSULTANTS

EASTERN SIDE OF THE NEW ENGLAND HIGHWAY

Table 1: Results – Southern Section

Tree No	Tree Type	Height (m)				DBH (cm)				Leaf density (%)				Tree Health			
		Apr 2013	Mar 2014	Mar 2015	Mar 2016	Apr 2013	Mar 2014	Mar 2015	Mar 2016	Apr 2013	Mar 2014	Mar 2015	Mar 2016	Apr 2013	Mar 2014	Mar 2015	Mar 2016
1	*Casuarina*	-	-	-	-	-	-	-	-	-	-	-	-	*No longer present*	-	-	-
2	*Casuarina*	6.5	6.5	7.0	**7.5**	18	18	18	**19**	55	50	50	**50**	Generally healthy	Generally healthy	Stressed	**Healthy**
3	*Casuarina*	-	-	-	-	-	-	-	-	-	-	-	-	*No longer present*	-	-	-
4	*Casuarina*	5.5	5.5	5.5	**6.5**	15	15	13	**13**	<40	<40	<40	**60**	Stressed	Very Stressed	Very Stressed	**Generally Healthy**
5	*Casuarina*	7.5	8.0	9.0	**9**	13	13	13	**14**	50	55	50	**55**	Stressed	Generally healthy	Generally healthy	**Healthy**
6	*Casuarina*	7.0	8.0	9.0	**9**	14	14	14	**16**	65	65	65	**65**	Generally healthy	Healthy	Healthy	**Healthy**
7	*Casuarina*	-	-	-	-	-	-	-	-	-	-	-	-	*No longer present*	-	-	-
8	*Eucalypt*	-	-	-	-	-	-	-	-	-	-	-	-	*No longer present*	-	-	-
9	*Eucalypt*	-	-	-	-	-	-	-	-	-	-	-	-	*No longer present*	-	-	-
10	*Eucalypt*	-	-	-	-	-	-	-	-	-	-	-	-	*No longer present*	-	-	-
11	*Casuarina*	10	10.5	11	**11**	14	14	14	**16**	60	60	60	**60**	Generally healthy	Healthy	Healthy	**Healthy**
12	*Casuarina*	11	11	12	**11**	15	15	15	**15**	50	50	55	**55**	Generally healthy	Healthy	Healthy	**Healthy**
13	*Casuarina*	10	10.5	11	**11**	12	12	13	**15**	55	55	55	**55**	Generally healthy	Healthy	Healthy	**Healthy**

Tree No	Tree Type	Height (m)				DBH (cm)				Leaf density (%)				Tree Health			
		Apr 2013	Mar 2014	Mar 2015	Mar 2016	Apr 2013	Mar 2014	Mar 2015	Mar 2016	Apr 2013	Mar 2014	Mar 2015	Mar 2016	Apr 2013	Mar 2014	Mar 2015	Mar 2016
14	*Casuarina*	10	10	10.5	**9**[1]	21	21	21	**23**	55	60	60	**50**	Generally healthy	Healthy	Healthy	**Generally Healthy**
15	*Casuarina*	9.0	10	11	**11**	10	11	12	**12**	60	60	60	**60**	Generally healthy	Generally healthy	Generally healthy	**Healthy**
16	*Casuarina*	8.5	8.5	8.5	**8.5**	16	16	16	**15**	40	<40	<40	**<40**	Stressed	Very stressed	Very stressed	**Very Stressed**
17	*Casuarina*	9.0	9.0	10.0	**9**	14	15	15	**17**	50	55	60	**60**	Generally healthy	Healthy	Healthy	**Healthy**
18	*Eucalypt*	-	-	-	-	-	-	-	-	-	-	-	-	*No longer present*	-	-	-
19	*Eucalypt*	-	-	-	-	-	-	-	-	-	-	-	-	*No longer present*	-	-	-
20	*Eucalypt*	-	-	-	-	-	-	-	-	-	-	-	-	*No longer present*	-	-	-
21	*Casuarina*	9.0	10	10	**11**	13	14	14	**16**	55	60	60	**60**	Generally healthy	Generally healthy	Generally healthy	**Healthy**
22	*Casuarina*	6.0	7.0	8.0	**10**	9.5	11	11	**11**	55	55	60	**60**	Generally healthy	Generally healthy	Generally healthy	**Healthy**
23	*Casuarina*	8.0	9.5	10.0	**11**	11	12	12	**12**	60	60	60	**70**	Generally healthy	Generally healthy	Generally healthy	**Healthy**
24	*Casuarina*	5.0	6.0	7.0	**10**	10	11	11	**11**	60	70	65	**60**	Generally healthy	Generally healthy	Generally healthy	**Healthy**
25	*Casuarina*	6.5	7.0	8.0	**9.5**	10	11	11	**14**	50	65	60	**60**	Generally healthy	Generally healthy	Generally healthy	**Healthy**
26	*Casuarina*	-	-	-	-	-	-	-	-	-	-	-	-	*No longer present*	-	-	-
27	*Eucalypt*	-	-	-	-	-	-	-	-	-	-	-	-	*No longer present*	-	-	-

Tree No	Tree Type	Height (m)				DBH (cm)				Leaf density (%)				Tree Health			
		Apr 2013	Mar 2014	Mar 2015	Mar 2016	Apr 2013	Mar 2014	Mar 2015	Mar 2016	Apr 2013	Mar 2014	Mar 2015	Mar 2016	Apr 2013	Mar 2014	Mar 2015	Mar 2016
28	*Eucalypt*	-	-	-	-	-	-	-	-	-	-	-	-	*No longer present*	-	-	-
29	*Eucalypt*	-	-	-	-	-	-	-	-	-	-	-	-	*No longer present*	-	-	-
30	*Eucalypt*	-	-	-	-	-	-	-	-	-	-	-	-	*No longer present*	-	-	-
1A	*Eucalypt*	9.0	9.5	10.0	**12**	20	22	22	**23**	50	55	50	**50**	Generally healthy	Generally healthy	Generally healthy	**Generally Healthy**
2A	*Casuarina*	4.5	5.0	6.0	**6.5**	12	12	13	**16**	60	60	65	**65**	Stressed	Stressed	Generally healthy	**Healthy**
3A	*Eucalypt*	9.5	9.5	10.0	**10**	22	22	22	**23**	50	60	55	**60**	Generally healthy	Healthy	Generally healthy	**Healthy**
4A	*Casuarina*	7.5	7.5	8.5	**9**	10	11	15	**16**	55	55	60	**65**	Generally healthy	Generally healthy	Generally healthy	**Healthy**
5A	*Casuarina*	7.5	7.5	8.5	**9.5**	10	11	12	**15**	45	50	50	**55**	Generally healthy	Generally healthy	Generally healthy	**Healthy**
6A	*Eucalypt*	13	13	14	**14**[2]	22	22	22	**22**	40	40	40	**40**	Stressed	Stressed	Generally healthy	**Stressed**
7A	*Casuarina*	4.0	4.0	5.0	**4.5**	3	4	4	**6**	45	50	50	**55**	Generally healthy	Generally healthy	Generally healthy	**Healthy**
8A	*Eucalypt*	15	15.5	16	**16**[3]	18	18	18	**18**	45	45	45	**45**	Generally healthy	Generally healthy	Generally healthy	**Healthy**
9A	*Casuarina*	7.5	9.0	10.5	**10**	10	11	13	**15**	45	50	50	**55**	Generally healthy	Generally healthy	Generally healthy	**Healthy**
10A	*Casuarina*	6.0	7.0	8.5	**9.5**	9.5	10	10	**10**	45	50	55	**60**	Stressed	Generally healthy	Generally healthy	**Healthy**

Notes 1 – Reduced height from previous surveys, branches lying on ground

2 – Reported height 9 metres, review of photos and previous reports indicates height unchanged from previous survey

3 – Reported height 11.5 metres, review of photos and previous reports indicates height unchanged from previous survey

EASTERN SIDE OF THE NEW ENGLAND HIGHWAY

Table 2: Northern Section

Tree No	Tree Type	Height (m)				DBH (cm)				Leaf density (%)				Tree Health			
		Apr 2013	Mar 2014	Mar 2015	Mar 2016	Apr 2013	Mar 2014	Mar 2015	Mar 2016	Apr 2013	Mar 2014	Mar 2015	Mar 2016	Apr 2013	Mar 2014	Mar 2015	Mar 2016
1B	*Eucalypt*	12.0	12.5	14.0	**13**	17	17	18	**18**	55	55	50	**50**	Generally healthy	Generally healthy	Generally healthy	**Healthy**
2B	*Eucalypt*	10.0	11.5	12.5	**12.5**	11	11	11	**11.5**	45	55	55	**45**	Generally healthy	Healthy	Healthy	**Healthy**
3B	*Eucalypt*	12.5	12.5	14.5	**14.5**	21	21	22	**22**	60	60	60	**60**	Healthy	Healthy	Healthy	**Healthy**
4B	*Eucalypt*	6.5	7.0	7.0	**7**	8	8	8	**8**	40	<40	<40	**40**	Generally healthy	Stressed	Very Stressed	**Stressed**
5B	*Eucalypt*	11.5	11.5	12.5	**12.5**	15	15	15	**15.5**	50	50	50	**50**	Generally healthy	Generally healthy	Generally healthy	**Very Healthy**
6B	*Eucalypt*	3.0	3.5	3.5	**3.5**	2.5	3	4	**5**	40	40	<40	**40**	Stunted	Stressed	Stressed	**Stressed**
7B	-	-	-	-	-	-	-	-	-	-	-	-	-	*No longer present*	-	-	-
8B	*Eucalypt*	8.5	9.0	10.5	**12**	12	12	12	**12**	55	55	50	**50**	Generally healthy	Generally healthy	Generally healthy	**Healthy**
9B	*Eucalypt*	9.0	9.5	10.5	**9.5**	9.5	12	12	**12**	50	55	50	**50**	Generally healthy	Generally healthy	Generally healthy	**Healthy**
10B	*Eucalypt*	7.5	7.5	8.0	**8**	7	7	7	**7**	40	<40	<40	**40**	Stunted	Very stressed	Very Stressed	**Generally Healthy**

WEST OF THE NEW ENGLAND HWY

Table 3 Species count results – Sector 1 Plot 1

Power pole ID & GPS		AJ60227 56 H 301416 6434948
Photo No.		1.10
Bearing		260°

Species ID	GPS	Photo no.	Alive or dead	Height (cm)			Comments
				Oct-14	Oct 15	Oct 16	
A. decora	56 H 301411 6434948	-	Dead	68	80	-	Row 1
A. decora *	56 H 301410 6434951	-	Dead	54	-	-	Row 1
C. viminalis	56 H 301406 6434948	1.11	Alive	155	155	170	Row 2
C. viminalis	56 H 301407 6434946	-	Dead	110	125	-	Row 2
*Eucalyptus * (juvenile)*	56 H 301403 6434946	1.12	Alive	16	47	80	Row 3
C. cunninghamiana *	56 H 301402 6434950	-	Dead	60	-	-	Row 3
Eucalyptus (juvenile)	56 H 301399 6434946	1.13	Alive	295	340	400	Row 4
-	56 H 301394 6434942	-	Dead	-	-	-	Row 5
Eucalyptus (juvenile)	56 H 301392 6434948	1.14	Alive	160	155[1]	230	Row 5

1 – Some dieback apparent. Height measured to top of living branches which accounts for height decrease since last measurement in 2014.

WEST OF THE NEW ENGLAND HIGHWAY

Table 4 Species count results – Sector 1 Plot 2

Power pole ID & GPS		AJ60254 56 H 301408 6434987
Photo No.		2.20
Bearing		260°

Species ID	GPS	Photo no.	Alive or dead	Height (cm)			Comments
				Oct- 14	Oct 15	Oct 16	
-	56 H 301404 6434990	-	Dead	-	-	-	Row 1
-	56 H 301406 6434986	-	Dead	-	-	-	Row 1
C. viminalis	56 H 301403 6434987	-	Dead	-	-	-	Row 2
C. viminalis	56 H 301402 6434990	-	Dead	-	-	-	Row 2
C. cunninghamiana	56 H 301397 6434986	1.21	Alive	180	310	350	Row 3
C. cunninghamiana	56 H 301393 6434988	1.22	Alive	330	520	540	Row 4
*Eucalyptus * (juvenile)*	56 H 301388 6434985	-	Dead	34	84	-	Row 5
Eucalyptus (juvenile)	56 H 301387 6434989	1.23	Alive	250	440	580	Row 5

WEST OF THE NEW ENGLAND HIGHWAY

Table 5 Species count results – Sector 3 Plot 1

Power pole ID & GPS		AJ60250 56 H 301348 6435440
Photo No.		3.10
Bearing		270°

Species ID	GPS	Photo no.	Alive or dead	Height (cm)			Comments
				Oct-14	Oct 15	Oct 16	
C. viminalis	56 H 301368 6435439	3.11	Alive	105	133	180	Row 1
C. viminalis	56 H 301368 6435435	3.12	Alive	100	110	140	Row 1
C. viminalis	56 H 301365 6435436	3.13	Alive	150	150	160	Row 2
-	56 H 301360 6435437	-	Dead	-	-	-	Row 2
C. cunninghamiana	56 H 301360 6435437	3.14	Alive	450 (est)	530 (est)	700 (est)	Row 3
C. cunninghamiana	56 H 301355 6435439	3.15	Alive	450 (est)	580 (est)	740 (est)	Row 4
C. cunninghamiana	56 H 301350 6435440	3.16	Alive	300	480 (est)	540 (est)	Row 5

WEST OF THE NEW ENGLAND HIGHWAY

Table 6 Species count results – Sector 3 plot 2

Power pole ID & GPS		AJ60259 56 H 301354 6435632
Photo No.		3.20
Bearing		260°

Species ID	GPS	Photo no.	Alive or dead	Height (cm)			Comments
				Oct-14	Oct 15	Oct 16	
A. decora	56 H 301369 6435631	-	Dead	82	107	-	Row 1
A. decora	56 H 301367 6435628	3.21	Alive	70	108	130	Row 1
A. decora	56 H 301368 6435624	3.22	Alive	170	185	185	Row 1
C. viminalis	56 H 301365 6435626	3.23	Alive	200	210	290	Row 2
C. viminalis	56 H 301365 6435628	3.24	Alive	175	175	175	Row 2
C. viminalis	56 H 301365 6435628	3.24	Alive	175	175	175	Row 2
C. viminalis	56 H 301366 6435631	3.25	Alive	260	280	230[1]	Row 2
Eucalyptus (juvenile)	56 H 301359 6435629	3.26	Alive	380 (est)	460 (est)	530 (est)	Row 3
C. cunninghamiana	56 H 301354 6435627	3.27	Alive	400 (est)	560 (est)	650 (est)	Row 4
C. cunninghamiana	56 H 301349 6435628	3.28	Alive	170	215	270	Row 5

1 – Apparent loss of height may be due to loss of top branch

WEST OF THE NEW ENGLAND HIGHWAY

Table 7 Species count results – Sector 5 plot 1

Power pole ID & GPS		AJ60042 56 H 301345 6436281
Photo No.		5.10
Bearing		260°

Species ID	GPS	Photo no.	Alive or dead	Height (cm)			Comments
				Oct-14	Oct 15	Oct 16	
A. decora *	56 H 301340 6436278	-	Dead	-	-	-	Row 1
C. viminalis	56 H 301336 6436277	-	Dead	95	-	-	Row 2
C. viminalis *	56 H 301337 6436278	-	Dead	-	-	-	Row 2
Eucalyptus (juvenile)	56 H 301332 6436281	5.11	Alive	135	170	180	Row 3
C. cunninghamiana	56 H 301328 6436277	5.12	Alive	400 (est)	540 (est)	560 (est)	Row 4
C. cunninghamiana	56 H 301323 6436275	5.13	Alive	290	420 (est)	560 (est)	Row 5

WEST OF THE NEW ENGLAND HIGHWAY

Table 8 Species count results – Sector 5 plot 2

Power pole ID & GPS		AJ60040 56 H 301309 6436459
Photo No.		5.20
Bearing		260°

Species ID	GPS	Photo no.	Alive or dead	Height (cm)			Comments
				Oct-14	Oct 14	Oct 15	
C. viminalis	56 H 301306 6436459	5.21	Alive	190	220	240	Row 1
A. decora	56 H 301307 6436456	-	Dead	50	-	-	Row 1
C. viminalis	56 H 301303 6436456	5.22	Alive	220	275	300	Row 2
C. viminalis	56 H 301302 6436458	5.23	Alive	240	260	270	Row 2
C. viminalis	56 H 301299 6436456	5.24	Alive	230	240	280	Row 3
C. cunninghamiana	56 H 301294 6436453	5.25	Alive	600 (est)	900 (est)	920 (est)	Row 4
Eucalyptus (juvenile)	56 H 301293 6436458	5.26	Alive	380 (est)	580 (est)	790 (est)	Row 4
C. cunninghamiana	56 H 301289 6436454	5.27	Alive	600 (est)	1000 (est)	1090 (est)	Row 5

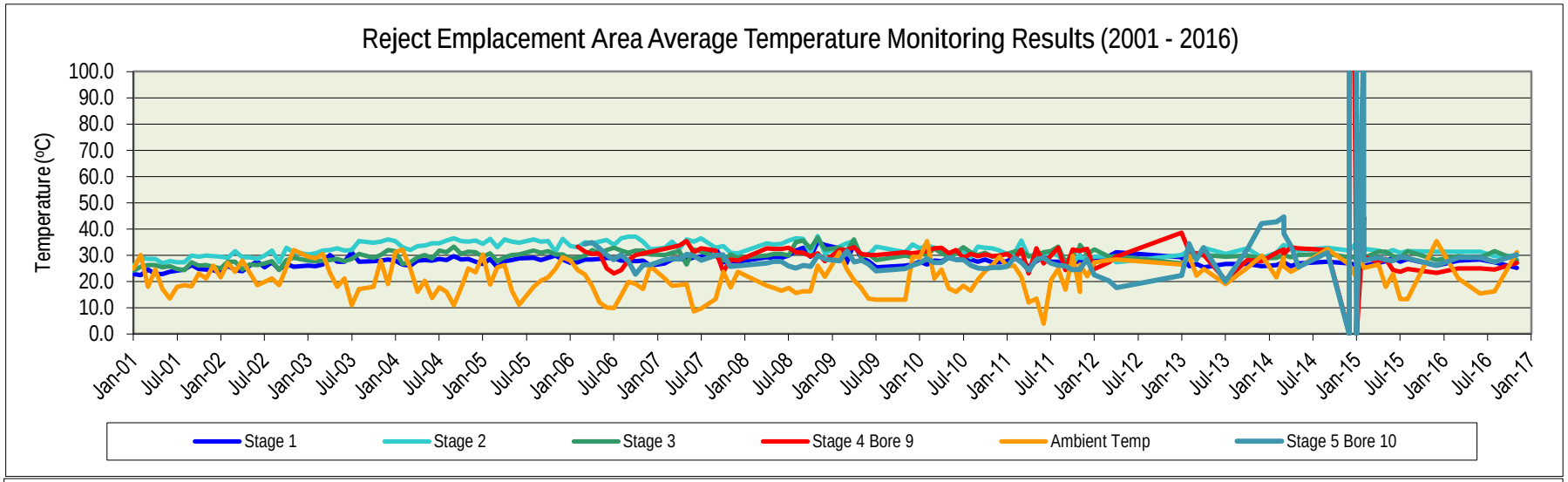
REA Temperature Monitoring Summary

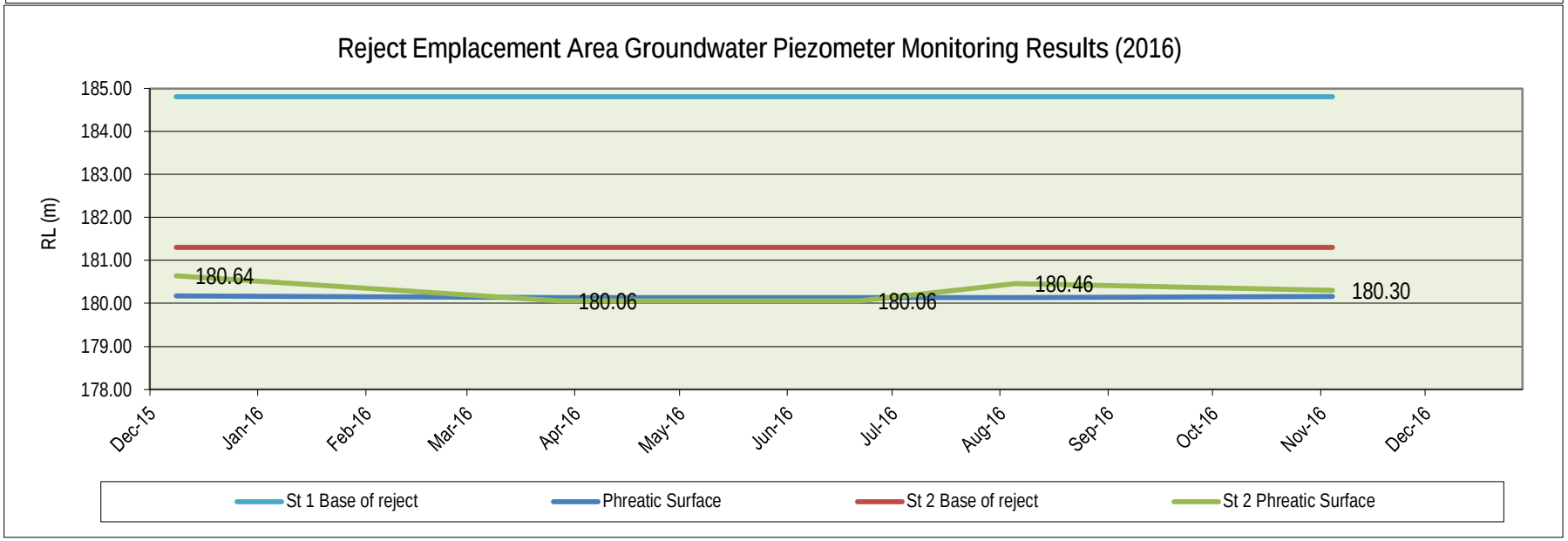
Appendix

H

AngloAmerican

Hansen Bailey
ENVIRONMENTAL CONSULTANTS


Reject Emplacement Area Average Temperature Monitoring Results (2001 - 2016)
Temperature (ºC)
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Jul-09
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
Jan-16
Jul-16
Jan-17
Stage 1
Stage 2
Stage 3
Stage 4 Bore 9
Ambient Temp
Stage 5 Bore 10


Reject Emplacement Area Groundwater Piezometer Monitoring Results (2016)
RL (m)
185.00
184.00
183.00
182.00
181.00
180.00
179.00
178.00
180.64
180.06
180.06
180.46
180.30
Dec-15
Jan-16
Feb-16
Mar-16
Apr-16
May-16
Jun-16
Jul-16
Aug-16
Sep-16
Oct-16
Nov-16
Dec-16
St 1 Base of reject
Phreatic Surface
St 2 Base of reject
St 2 Phreatic Surface

Water Balance Schematic

Appendix I

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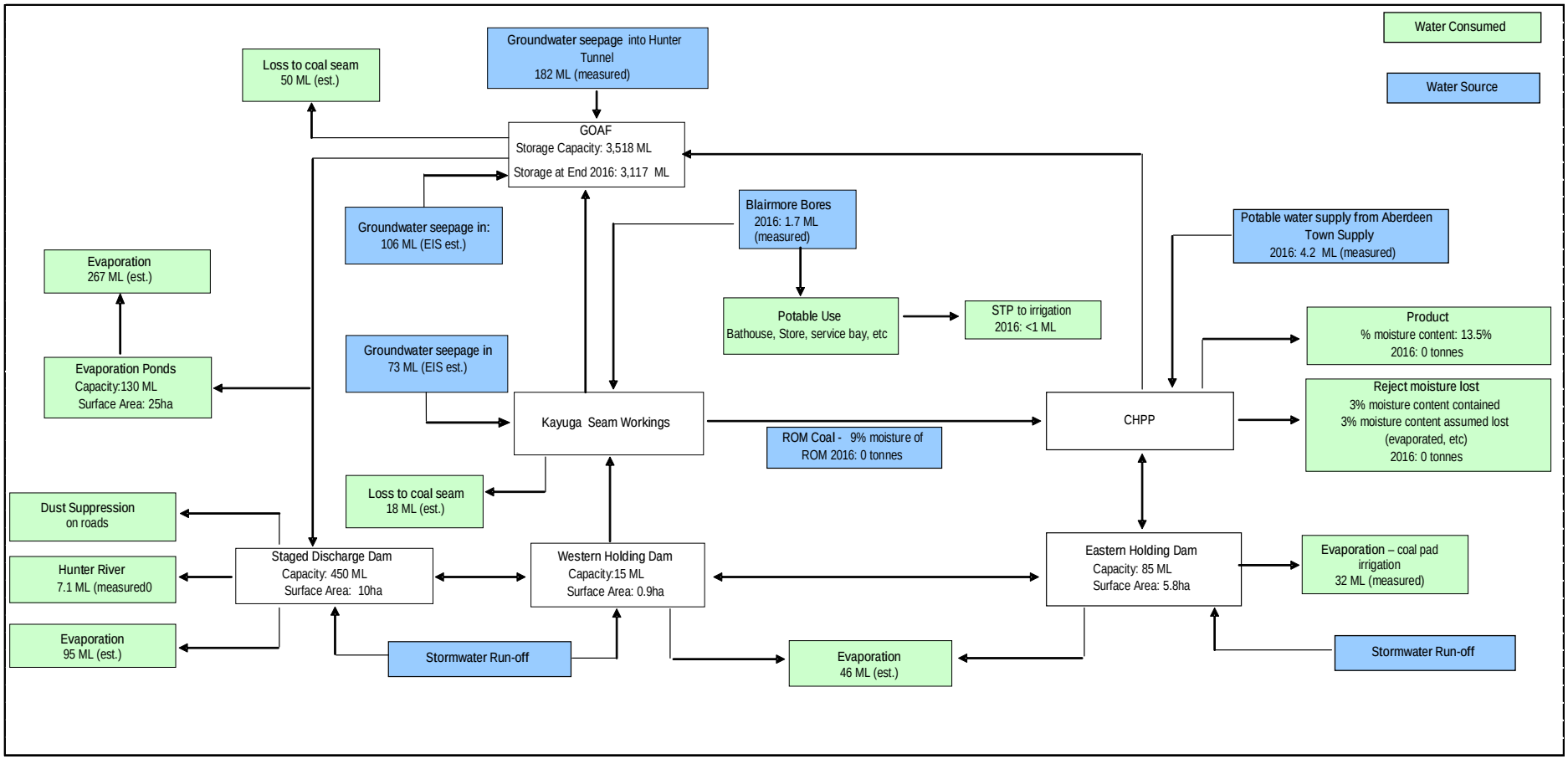
ENVIRONMENTAL CONSULTANTS

Water Balance Schematic



Independent Environmental Audit

Appendix

J

AngloAmerican

Hansen Bailey
ENVIRONMENTAL CONSULTANTS

Dartbrook 2016 Independent Environmental Audit

Report Number 630.11705

26 September 2016

Anglo Coal Dartbrook Mine

Stair Street

Kayuga NSW 2333

Version: Final

Dartbrook 2016 Independent Environmental Audit

PREPARED BY:

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DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
630.11705	Draft 1	20 September 2016	Jessica Coffey	Chris Jones	Chris Jones
630.11705	Final	26 September 2016	Chris Jones	Jessica Coffey	Chris Jones

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PHOTOS

1 INTRODUCTION

1.1 Background to Site

Anglo Coal (Dartbrook Management) Pty Ltd, a subsidiary of Anglo American Pty Ltd (Anglo American), manages Dartbrook Mine (Dartbrook), which is located 10 kilometres (km) north of Muswellbrook and 3 km south-west of Aberdeen in the Upper Hunter Valley of New South Wales (NSW).

Longwall mining operations commenced in the Wynn Seam in 1996 and ceased in May 2004. At this time the longwall was relocated from the Wynn Seam to the Kayuga Seam. Construction of mine access and development roadways for the Kayuga Seam commenced in 2001. Mining of the Kayuga seam ceased in October 2006 due to ongoing geological difficulties, and the mine was placed on Care and Maintenance from 1 January 2007.

Under Care and Maintenance, the operation generally consists of:

- The Hunter Tunnel, which with the Kayuga interseam drift, are the only areas of the underground mine that are still accessible and connect to the Eastern and Kayuga Western mine entrances;
- The western facilities (West Site), which are located west of the New England Highway and include the administration office, a small workshop, and Wynn and Kayuga mine entrances to the underground mine; and
- The eastern facilities (East Site), which are located east of the New England Highway and include the maintained Coal Handling and Preparation Plant (CHPP), rail load out facilities, cleared coal stockpiles and the rehabilitated Reject Emplacement Area (REA).

During Care and Maintenance, mining approvals, licences and permits have been retained. In late December 2015 the proposed sale of Dartbrook to Australian Pacific Coal was announced with exploration and conceptual studies currently progressing to explore options for resources using the existing infrastructure.

This audit report has been developed to satisfy the requirement of Schedule 2, Condition 8.1 of DA 231-07-2000). Photographs taken from the site inspection are shown in **Appendix A**. A copy of the full compliance spreadsheet is attached as **Appendix B**.

1.2 Key Site Contacts

Contact details for key personnel are provided in **Table 1** below.

Table 1 Contact Details for Key Mine Personnel

Name	Role	Telephone	Email
Doug Stewart	Safety, Health and Environmental Coordinator	02 6540 8852	doug.stewart@angloamerican.com

1.3 Audit Scope

The audit timeframe has been determined as the date of the previous audit inspection (20 August August 2013) until the date of the site inspection for this audit (12-13 July 2016). All conditions of the Development Consent were assessed, however several conditions were 'Not Triggered' during the audit period with the site remaining on care and maintenance.

The audit has been completed to meet the requirements of Schedule 2 Condition 8.1 of DA 231-07-2000. Condition 8.1 states:

> *Independent Environmental Audit*
>
> *(a) Every three years from the date of this consent until completion of mining in the DA area, or as otherwise directed by the Director-General, the Applicant shall conduct an environmental audit of the mining and infrastructure areas of the development in accordance with ISO 14010 - Guidelines and General Principles for Environmental Auditing, and ISO 14011 - Procedures for Environmental Auditing (or the current versions), and in accordance with any specifications required by the Director-General. Copies of the report shall be submitted by the Applicant to the Director-General, MSC, SSC, EPA, DLWC, DMR, NPWS and CCC within two weeks of the report's completion for comment.*
>
> *(b) The audit shall:*
>
> *(i) assess compliance with the requirements of this consent, licences and approvals;*
>
> *(ii) assess the development against the predictions made in the EIS;*
>
> *(iii) review the effectiveness of the environmental management of the mine, including any mitigation works;*
>
> *(iv) be carried out at the Applicant's expense; and*
>
> *(v) be conducted by a duly qualified independent person or team approved by the Director-General in consultation with MSC and SSC. Such approval shall not be unreasonably withheld.*
>
> *(c) The Director-General may, after considering any submission made by the relevant government agencies, MSC, SSC and CCC on the report, notify the Applicant of any requirements with regard to any recommendations in the report. The Applicant shall comply with those reasonable requirements within such time as the Director-General may require.*

The audit team assessed the following documentation:

- Development Consent DA 231-07-2000;
- Environment Protection Licence (EPL) 4885;
- Consolidated Coal Lease (CCL) 386;
- The predictions made in the Dartbrook Extended Environmental Impact Statement (HLA Envirosciences, 2000);
- Extraction limits of borehole licences;
- Requests/comments received during government agency consultation; and
- The non-compliances identified in the 2013 audit (Parsons Brinckerhoff, 2013).

1.4 Audit Methodology

SLR Consulting was endorsed by the Department of Planning and Environment on 30th June 2016 to undertake the Independent Environmental Audit of Dartbrook. The audit was undertaken on site by Chris Jones (Lead Auditor) and Jessica Coffey (Assistant Auditor) of SLR Consulting (SLR) on 12th and 13th July 2016 at the Dartbrook Office. Rod Masters (SLR Consulting Rehabilitation and Water Specialist) completed a site meeting and inspection on 3rd August 2016. Information was provided prior to, during, and following the audit.

The methodology for the Independent Environmental Audit consisted of the following key steps:

a. Introductory and close out meetings;

b. Reviewing key documents provided by Dartbrook prior to the audit;

c. Consultation with relevant government agencies;

d. Site inspections and discussions with key Dartbrook personnel at the main office and the CHPP;

e. Review of additional relevant documentation obtained while on site or provided by Dartbrook after the site visit; and

f. Dartbrook review and comment on the draft compliance spreadsheet.

Photographs taken during the site inspections are contained in **Appendix A**. A large amount of evidence was viewed (and collected) as part of the audit, including monitoring records, reports, and correspondence. While this key evidence has been referenced in **Table 4**, it has not been attached to this audit report.

The audit has been completed as per the *Independent Environmental Audit Guidelines* (DP&E October 2015).

1.4.1 Introductory and Close Out Meetings

Introductory and close out meetings were held for the audit. At these meetings the current status of the site was discussed as well as a general discussion about compliance and areas for improvement. **Table 2** lists those present at these meetings.

Table 2 Meeting Attendees

Name	Role	Comment
Doug Stewart	Dartbrook Safety, Health and Environmental Coordinator	Present at both meetings
Chris Jones	SLR Lead Auditor	Present at both meetings
Jessica Coffey	SLR Assistant Auditor	Present at both meetings

1.5 Consultation Requirements

Section 4.2 of the *Independent Environmental Audit Guidelines* (DP&E October 2015) requires the Lead Auditor to consult with relevant agencies and the community.

A summary of consultation for this audit is provided in **Table 3** below.

Table 3 Stakeholder Consultation for Audit

Regulatory Authority	Contact Details	Details of Consultation from SLR	Response	SLR Comment
Department of Planning and Environment (DP&E)	Chris Knight and Wayne Jones	Email sent 18 July 2016 requesting any additional comments/requirements for the audit.	Request that the audit focus on: • All requirements of the Consent and Management Plans; • Site water management and water balance requirements; and • A review of spontaneous combustion and performance of the emplacement area.	Comments addressed in Audit, refer "Agency Consultation" sheet (**Appendix B**).
Environment Protection Authority (EPA)	Natasha Ryan (EPA)	Email sent 18 July 2016 requesting any additional comments/requirements for the audit.	No response received.	Nil
Division of Resources and Energy (DRE)	Catherine Lewis	Email sent 18 July 2016 requesting any additional comments/requirements for the audit.	Request that the audit determine/assess: • Is the Mining Operations Plan (MOP) approved by DRE? • Has the MOP been prepared in consultation with the relevant agencies? • Is the rehabilitation strategy outlined in the MOP consistent with the Project Approval? • Have the rehabilitation objectives and completion criteria outlined in the MOP been developed in accordance with the final land(s) outlined in the Project Approval? • Has a rehabilitation monitoring program been developed and implemented to assess performance against the nominated objectives and completion criteria? • Has a rehabilitation care and maintenance program been developed and implemented based on the outcomes of monitoring program? • Are mining operations being conducted in accordance with the approved MOP? • Is rehabilitation progress consistent with the approved MOP as verified by site plans and a site inspection? • Are there any rehabilitation areas that appear to have failed or that have incurred an issue? • Note observations where rehabilitation procedures, practices and outcomes represent best industry practice?	Comments addressed in Audit, refer "Agency Consultation" sheet (**Appendix B**).

Regulatory Authority	Contact Details	Details of Consultation from SLR	Response	SLR Comment
Department of Primary Industries – Water (DPI Water)	Richard Nevill	Email sent 18 July 2016 requesting any additional comments/requirements for the audit.	Request that the audit determine/assess: • Whether the project holds the required water entitlements, approvals and licenses; • Compliance with the conditions of any water licenses/approvals held; • Quantification of water flow into the Hunter Tunnel and extraction from the Wynn Goaf; • Confirmation that the relevant management plans adequately describe the water licensing requirements; • Confirmation that adequate records are kept to enable determination of the volume and source of water taken; • Clarification as to whether the operation is capturing and/or harvesting any clean water; • Determine if Anglo has calculated its maximum harvestable right under the *Water Management Act 2000*; • Determine if the capture of water is in excess of the harvestable right; • Identify any exemptions under the *Water Management (General) Regulation 2011* or *Harvestable Rights Order* apply to the capture of water; • Determine if sufficient quantity of entitlement held for licences under the water sharing plan or *Water Act.*	Comments addressed in Audit, refer "Agency Consultation" sheet (**Appendix B**).
Office of Environment and Heritage (OEH)	Manager	Email sent 18 July 2016 requesting any additional comments/requirements for the audit.	No response received.	Nil
Upper Hunter Shire Council (UHSC)	Paul Smith	Email sent 18 July 2016 requesting any additional comments/requirements for the audit.	No response received.	Nil
Muswellbrook Shire Council	Scott Brooks	Email sent 18 July 2016 requesting any additional comments/requirements for the audit.	No response received.	Nil

2 DOCUMENTS REVIEWED AND REFERENCED

Table 4 outlines the key documentation reviewed during the audit.

Table 4 Documents Reviewed During Audit

Document No.	Document Description	Date of Issue/Expiry	Approval Authority
Approval Documentation			
1	Dartbrook Extended Development Consent (DA 231-07-2000) (as modified)	Issued 29/08/2001 Expires 29/08/2022	DP&E
2	EPL 4885	30/11/2000	EPA
3	Authorisation 256	Expires 02/5/2015**	DRE
4	Coal Lease (CL) 386	30/12/1991 (Expires 19/12/2033)	DRE
5	Mining Lease 1381	Expires 23/10/2016	DRE
6	Mining Lease 1456	Expires 26/09/2020	DRE
7	Mining Lease 1497	6/12/01 (Expires 5/12/2022)	DRE
8	Exploration Licence 4574	Expires 07/04/2015**	DRE
9	Exploration License 4575 (Rossgole)	Expires 23/05/2016	DRE
10	Exploration License 5525 (Hanging Rock)	Expires 21/09/2016	DRE
11	*Anglo Coal Dartbrook Extended Mine Project Environmental Impact Statement* (HLA Envirosciences, 2000)	June 2000	DP&E
12	*Dartbrook Extended Coal Project Development Consent Modification Application Supporting Information* (Hansen Consulting, 2002)	27 May 2002	DP&E
13	*Dartbrook Extended Coal Project Development Consent Modification Application Supporting Information for an emergency tailings storage cell* (Hansen Consulting, 2003)	10 April 2003	DP&E
14	*Dartbrook Coal Mine: Statement of Environmental Effects for Modification to Rejects Disposal System* (Hansen Consulting)	9 March 2004	DP&E
15	*Dartbrook Mine Statement of Environmental Effects for New ROM Coal Stockpiles, Underground Tailings Disposal & Nitrogen Injection Plant* (Hansen Consulting, 2005)	12 August 2005	DP&E
Monitoring and Reporting			
16	Annual Review 2015	March 2016	DP&E
17	Annual Environmental Management Report 2014	March 2015	DP&E/DRE
18	Annual Environmental Management Report 2013	March 2014	DP&E/DRE
Specialist Reports			
19	Independent Environmental Audit Report	2013	DP&E

Document No.	Document Description	Date of Issue/Expiry	Approval Authority
	(October, 2013)		
Community			
20	CCC Meetings	2013 to Current	DP&E
21	Complaints Register	2013 to Current	DP&E
22	Community Newsletters	2013 to Current	DP&E
Management Plans			
23	MOP for Care and Maintenance	Accepted 18/12/2012 Expires 31/12/2017	DRE
24	Environmental Management Strategy	15/04/2002	DP&E
25	Complaints Handling Protocol	15/04/2002	DP&E
26	Archaeology and Cultural Heritage Management Plan	9/12/2002	DP&E
27	Blast Management Plan	9/12/2002	DP&E
28	Bushfire Management Plan	19/05/2011	DP&E
29	Land Management Plan	27/01/2002	DP&E
30	Landowner Communication and Consultation Plan	9/12/2002	DP&E
31	Vibration Management Plan	9/12/2002	DP&E
32	Waste Management Plan	9/12/2002	DP&E
33	Dust Management Plan*	10/06/2015	DP&E
34	Noise Management Plan	8/11/2007	DP&E
35	Erosion and Sediment Control Plan*	21/10/2014	DP&E
36	Flora and Fauna Management Plan	16/07/2011	DP&E
37	Landscape and Lighting Management Plan	13/07/2011	DP&E
38	Dartbrook Mine Closure Plan	9/10/2002	DP&E
39	Site Water Management Plan*	20/04/2015	DP&E
40	Soil Stripping Management Plan	11/06/2011	DP&E
41	Longwall Subsidence Management Plan (and relevant Private Property SMPs)	22/12/2003	DRE
Other Approvals			
42	Approval for an Emplacement Area (s126 approval)	13/03/1996	DRE
43	Stage 4 Reject Emplacement Approval C95/2265 (s126 approval)	02/01/2000	DRE
44	Approval for 14° slopes in the REA Stage 4 (s126 approval)	08/04/2004	DP&E
45	Application for Discontinuance of Use of Emplacement Areas (s101 approval)	Submitted 13/08/2007	DRE
46	Building Application to construct Tailings Filter Press at the CHPP	3/07/1996	Muswellbrook Shire Council
47	Notification to Work Cover for storage and handling of Dangerous Goods	10/11/2005	Work Cover – Dangerous Goods Licensing
48	Notification and Declaration to WorkCover that no dangerous goods stored or handled at Dartbrook	Submitted 13/12/2006	Work Cover – Dangerous Goods Licensing

Document No.	Document Description	Date of Issue/Expiry	Approval Authority
49	Suspension of Mining Operations for Care and Maintenance, 06/7016. For CL 386, Mining Lease 1381 & Mining Lease 1497	Suspension in effect as of 01/01/2007 to 31/12/2017	DP&E

* Management Plan updated and approved during the audit period.

** Application lodged with approval authority.

3 ASSESSMENT OF COMPLIANCE

The terms used in the audit to describe the level of compliance of the site with the relevant approval documentation are outlined in **Table 5** and **Table 6**. These are requirements of the DP&E *Independent Environmental Audit Guidelines* (October 2015).

Table 5 Compliance Assessment Criteria

Assessment	Criteria
Compliant	Where the auditor has collected sufficient verifiable evidence to demonstrate that the intent and all elements of the requirement of the regulatory approval have been complied with within the scope of the audit.
Not verified	Where the auditor has not been able to collect sufficient verifiable evidence to demonstrate that the intent and all elements of the requirement of the regulatory approval have been complied with within the scope of the audit. In the absence of sufficient verification the auditor may in some instances be able to verify by other means (visual inspection, personal communication, etc.) that a requirement has been met. In such a situation, the requirement should still be assessed as not verified. However, the auditor could note in the report that they have no reasons to believe that the operation is non-compliant with that requirement.
Non-compliant	Where the auditor has collected sufficient verifiable evidence to demonstrate that the intent of one or more specific elements of the regulatory approval have not been complied with within the scope of the audit.
Administrative non-compliance	A technical non-compliance with a regulatory approval that would not impact on performance and that is considered minor in nature (e.g. report submitted but not on the due date, failed monitor or late monitoring session). This would not apply to performance-related aspects (e.g. exceedance of a noise limit) or where a requirement had not been met at all (e.g. noise management plan not prepared and submitted for approval).
Not triggered	A regulatory approval requirement has an activation or timing trigger that had not been met at the time of the audit inspection, therefore a determination of compliance could not be made.
Observation	Observations are recorded where the audit identified issues of concern which do not strictly relate to the scope of the audit or assessment of compliance. Further observations are considered to be indicators of potential non-compliances or areas where performance may be improved.
Note	A statement or fact, where no assessment of compliance is required.

Table 6 Risk Levels for Non - Compliances

Risk level	Colour Code	Description
High		Non-compliance with potential for significant environmental con- sequences, regardless of the likelihood of occurrence
Medium		Non-compliance with: • potential for serious environmental consequences, but is unlikely to occur; or • potential for moderate environmental consequences, but is likely to occur
Low		Non-compliance with: • potential for moderate environmental consequences, but is unlikely to occur; or • potential for low environmental consequences, but is likely to occur
Administrative non-compliance		Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions)

4 APPROVALS AND DOCUMENTATION ASSESSED

4.1 Assessment Against Previous Audit Recommendations

A copy of the previous Independent Environmental Audit which was prepared by Parsons Brinkerhoff (2013) was used as a reference document during this 2016 audit. The Parsons Brinkerhoff audit report made several recommendations including:

- Ensure revised/updated management plans are submitted to the relevant government agencies within the required timeframe;
- Ensure copies of management plans are made publicly available following approval;
- Ensure a report on the surveillance of any prescribed dam for the purposes of reporting to the DSC is provided in AEMRs; and
- Ensure all notifications required for discharges under the Hunter River Salinity Trading Scheme occur within required timeframes.

The site generally received a high level of compliance in the previous audit report with all non - compliances being of a minor or administrative nature. It should be noted that Dartbrook completed most of the recommendations from the previous audit. Refer to **Appendix B** for a full assessment of previous recommendations.

4.2 EIS

The original Dartbrook EIS was prepared by Environsciences in 1990. A new EIS for the Extended Mine Project, titled the *Anglo Coal Dartbrook Extended Mine Project Environmental Impact Statement* (HLA Environsciences, 2000) was prepared in 2000, and there have since been seven consent modifications, of which, four have had supporting environmental assessments:

- Mod 1 - Dartbrook Extended Coal Project Development Consent Modification Application Supporting Information *to Accommodate Blasting Conditions* (Hansen Consulting, 2002).
- *Mod 2 - Dartbrook Extended Coal Project Development Consent Modification Application Supporting Information for an Emergency Tailings Storage Cell* (Hansen Consulting, 2003).
- *Mod 5 - Dartbrook Coal Mine: Statement of Environmental Effects for Modification to Rejects Disposal System* (Hansen Consulting).
- *Mod 6 - Dartbrook Mine Statement of Environmental Effects for New ROM Coal Stockpiles, Underground Tailings Disposal & Nitrogen Injection Plant* (Hansen Consulting, 2005).

The impact predictions in the EIS were for an operating site and are not applicable to the site being in care and maintenance. It is therefore difficult to compare EIS predictions to data for noise, dust and water during the audit period based on the site being in care and maintenance.

4.3 Development Consent

The Development Consent has been modified on six occasions:

- Original Development Consent (DA 231-07-2000). Approved 28 August 2001.
- Mod 1 – Modified Blasting Conditions. Approved 19 June 2002.
- Mod 2 - Emergency Tailings Storage Cell. Approved 16 June 2003.
- Mod 3 - Use of Dartbrook Road for Access to Mine Facilities. Approved 4 November 2003.
- Mod 4 - Continued use of Local Roads. Approved 30 March 2004.
- Mod 5 - Modification to Rejects Disposal System. Approved 04 May 2005.

- Mod 6 - New ROM Coal Stockpiles, Underground Tailings Disposal and Nitrogen Injection Plant. Approved 16 November 2005.
- Mod 7 - Minor amendment to application of conditions during Care & Maintenance. Approved 7 September 2006.

All conditions of the Development Consent were assessed, however several conditions were 'Not Triggered' during the audit period with the site remaining on care and maintenance. A summary of non - compliances and additional recommendations are outlined in **Section 5 and 6.**

4.4 Management Plans and Programs

The adequacy of management plans and programs required under the Development Consent were assessed for this audit. A list of the management plans reviewed for this audit is outlined in **Section 2**. A number of these management plans have been updated since the previous audit report (2013). The auditor reviewed both superseded and current management plans as both related to the audit. The management plans were of a good standard, with specialist environmental consultants assisting the site to prepare these management plans. Several of the management plans have not been updated since the site was previously operating (eg. Waste Management Plan) with Dartbrook committing to updating key environmental management plans if operations were to recommence. The current management plans are generally satisfactory for the site during the continued period of care and maintenance.

An assessment of the conditions of each management plan is covered within **Appendix B**.

The following management plans were updated and approved by the DP&E during the audit period and cover the care and maintenance status of the site:

- Dust Management Plan (24 November 2015);
- ESCP (21 October 2014); and
- Site Water Management Plan (20 April 2015).

The following other MP's were updated, however these are for internal use only:

- Mine Closure Plan (26 July 2014); and
- Environmental Monitoring Plan (22 Sept 2014).

4.5 Environment Protection Licence

EPL 4885 is administered by the EPA. All conditions of this approval were assessed for the audit.

A summary of non - compliances and additional recommendations are outlined in **Sections 5 and 6**.

4.6 Mining Leases

CCL 386 was assessed during the audit with this outlined in **Appendix B**.

A summary of non - compliances and additional recommendations relating to CCL 386 are outlined in **Sections 5 and 6**.

4.7 Water Licenses

Dartbrook currently has 18 surface water licences and 32 bore water licences. There are four Bore Licences at Dartbrook which are used for offsets for any Groundwater Take. Two licences relate to pumping water from the Hunter Tunnel into the Wynn Seam goaf and two licences refer to use for raw water sources for the Pit Top (West side). The extraction entitlements for the bores were assessed for the audit period.

A review of information provided indicated that Dartbrook met the extraction entitlements during the audit period.

5 SUMMARY OF NON COMPLIANCES – AUDIT FINDINGS

The following conditions in **Table 7** below have been classified as not compliant (including administrative non-compliances). The auditor has made additional comments and recommendations regarding these conditions.

Table 7 Summary of Non Compliances

Document	Condition No.	Condition	Compliance Status	Comment	Recommendation
DA 231-07-2000	3.2 (e)	The Applicant shall make copies of the environmental management plans in sub-clause (d) above available to relevant government agencies, MSC, SSC and the CCC and ensure that the plans are made publicly available within 14 days of approval by the Director-General.	Administrative Non-Compliance	No evidence of submission of Dust Management Plan to Muswellbrook Council, Upper Hunter Council and the CCC within 14 days of approval of Dust Management Plan. It is acknowledged agencies were consulted for updated management plans, but final plans should be sent to the required agencies and CCC. Only the MOP and SWMP are currently publically available on the website, and there are other management plans which are relevant to the operation which should be uploaded to the website.	It is recommended that the CCC is directed to the most recent site management plans. SLR believes key management plans should be put on the company website to make sure they are publically available.
DA 231-07-2000	6.1(a)	The Applicant shall, prior to the commencement of construction or Mining Operations, prepare a Dust Management Plan detailing air quality safeguards and procedures for dealing with dust emissions from the Dartbrook Underground Mine Extension to the satisfaction of the Director-General. The Dust Management Plan shall be prepared in consultation with the EPA, MSC and SSC.	Administrative Non-Compliance	Copy of 2014 Dust Management Plan provided. There is no evidence that consultation was completed for 2015 Dust Management Plan update apart from sending to DP&E for approval. During the field inspection it was observed that the former coal stockpile area has been partially rehabilitated with a pasture mix, however there are several areas that have poor ground cover.	All future updates to management plans should be completed in consultation with the relevant government agencies. Recommend soil testing on stockpile area to determine why some areas show minimal or no growth. Following tests, develop a plan to improve revegetation cover eg. Use of ameliorants, additional seeding.

Document	Condition No.	Condition	Compliance Status	Comment	Recommendation
DA 231-07-2000	8.1(a)	Every three years from the date of this consent until completion of mining in the DA area, or as otherwise directed by the Director-General, the Applicant shall conduct an environmental audit of the mining and infrastructure areas of the development in accordance with *ISO 14010 - Guidelines and General Principles for Environmental Auditing, and ISO 14011 - Procedures for Environmental Auditing* (or the current versions), and in accordance with any specifications required by the Director-General. Copies of the report shall be submitted by the Applicant to the Director-General, MSC, SSC, EPA, DLWC, DMR, NPWS and CCC within two weeks of the report's completion for comment.	Administrative Non-Compliance	Last audit completed in 2013 by Parsons Brinkerhoff. The audit was submitted to the DP&E on 23 October 2013. Evidence provided that the Audit Report was sent to the Muswellbrook Council DPI Water and OEH on 14 November 2013. This was three weeks after the report was submitted to the DP&E. No evidence of submission to Upper Hunter Council.	Ensure this audit report is submitted to the relevant government authorities and the CCC as per this condition (within 2 weeks of report being sent to the DP&E). The report was submitted three weeks after the reports completion.
EPL 4885	R1.1	The licensee must complete and supply to the EPA an Annual Return in the approved form comprising: a) a Statement of Compliance; and b) a Monitoring and Complaints Summary. At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.	Non-Compliance (Low Level Risk)	The 2014/15 Annual Return outlined only one sample was collected for TSS and pH, with there being a requirement of two samples (one for each day of discharge at LDP004). Further evidence was provided illustrating that sampling was completed for the 22 and 23 April 2015 discharge. It was determined that there was an error in the Annual Return for the 2014/2015 period.	Liaison with the EPA regarding whether a resubmission of the 2014-15 Annual Return is required to cover the error in the 2014/15 Annual Return regarding discharge reporting.
Previous non-compliance	DA 231-07-2000 3-2(e)	Ensure copies of management plans are made publicly available following approval by DP&I.	Administrative Non-Compliance	The site water management plan is the only revised plan that was uploaded to the website.	As per DA 231-07-2000, Condition 3.2 (e), recommend putting key management plans on the website.
Previous non-compliance	DA 231-07-2000 3-5(k)	Amend the Flora and Fauna Management Plan and/or Environmental Monitoring Program to specify a frequency for undertaking rehabilitation monitoring.	Administrative Non-Compliance	Recommendation not actioned during the audit term.	Based on discussions with site, the Flora and Fauna Management Plan is to be updated in 2016.

6 ADDITIONAL RECOMMENDED ACTIONS FOR COMPLIANT CONDITIONS

The following conditions in **Table 8** below have been classified compliant, not triggered or observations, but have had additional recommendations made to ensure compliance with the relevant approvals.

Table 8 Additional Recommended Actions For Compliant Conditions

Document	Condition No.	Condition	Compliance Status	Comment	Recommendation
DA 231-07-2000	2.1 (a)	No mining undertaken in accordance with this consent shall occur until the Applicant has submitted and had accepted by the DMR, a Mining Operations Plan (MOP) in accordance with current guidelines issued by DMR. The Plan covers mining operations for a period of up to seven years.	Complaint	No mining during Audit period. Site operates in Care and Maintenance under an approved Care and Maintenance MOP (2012-2017). Approval letter provided (18.12.12).	Recommended that next MOP be updated to the new MOP guidelines.
DA 231-07-2000	3.2 (f)	The management plans are to be revised, and updated as necessary, at least every 5 years or as otherwise directed by the Director-General in consultation with the relevant government agencies. The plans shall also be made publicly available at MSC and SSC within two weeks of approval by DUAP.	Observation	Only the MOP and SWMP are currently publically available on the website, and there are other management plans which are relevant to the operation which should be uploaded to the website.	As per DA 231-07-2000 Condition 3.2 (e), key management plans should be put on the company website as this is the easiest way to make all key documents publically available.
DA 231-07-2000	3.4	The Applicant shall prior to the commencement of construction or Mining Operations: (a) prepare an Archaeology and Cultural Management Plan to address Aboriginal and European cultural heritage issues. The Plan shall be prepared in consultation with the Upper Hunter Wonnarua Tribal Council, Wannaruah Local Aboriginal Land Council and NPWS, and to the satisfaction of the Director-General. The Plan shall include but not be limited to: (i) provision of management strategies for known Aboriginal heritage sites for all parts of the DA area not affected by mining;	Compliant	The 2015 Annual Review states that in 2013, Dartbrook applied for an Aboriginal Heritage Impact Permit (AHIP) to relocate a remnant scar tree log from the warehouse to Simpson Park adjacent to the existing reconciliation mural in Muswellbrook. OEH have advised that this AHIP is still active and in conjunction with the Muswellbrook Shire Council the scar tree is planned to be relocated in 2016.	In conjunction with the Muswellbrook Shire Council, relocate the scar tree. Update the ACHMP relating to the new location of the scar tree.

Document	Condition No.	Condition	Compliance Status	Comment	Recommendation
DA 231-07-2000	3.4 (d)	The Applicant is to consult regularly with the Upper Hunter Wonnarua Tribal Council and Wannaruah Local Aboriginal Land Council using consultation principles and strategies consistent with those outlined in the "*Guidelines for best practice community consultation in the NSW Mining and Extractive Industries*". The results of these consultations shall be documented in the AEMR.	Not Triggered	No construction or additional disturbance during the audit period.	Recommend 2011 management plan be sent to UHWTC and WLALC.
DA 231-07-2000	3.5(a)	The Applicant shall prior to commencement of construction or Mining Operations prepare and implement a Flora and Fauna Management Plan for the management of flora and fauna issues for the DA area. The Plan shall be prepared in consultation with NPWS and to the satisfaction of the Director-General	Compliant	2011 document sighted, however noted that only the original 2002 document was prepared in consultation with NPWS.	Recommend that when this plan is next updated it is sent to NPWS for consultation.
DA 231-07-2000	3.5(l)	(l) The Applicant shall prepare a detailed monitoring program for habitat areas within the DA area, including any wetlands and aquatic habitats, during the development and for a period after the completion of the development to be determined by the Director-General in consultation with NPWS. The monitoring program shall be included in the Flora and Fauna Management Plan (Condition 3.5(a)) and a summary of the results shall be provided in the AEMR.	Compliant	Annual ecological monitoring is undertaken, and documented in the Annual Review. Copy of River Red Gum Monitoring Reports (Umwelt) and Forestry Planation Monitoring report (Umwelt) provided.	Future updates to the Flora and Fauna Management Plan should include a timeframe for proposed rehabilitation. Monitoring commitments in the BAP should be incorporated into the Flora and Fauna Management Plan.

Document	Condition No.	Condition	Compliance Status	Comment	Recommendation
DA 231-07-2000	3.6(a)	The Applicant shall prepare an Erosion and Sediment Control Plan for the surface facilities and extension to the rejects emplacement area in consultation with the DLWC, taking account of the DLWC "Draft Guideline for Establishment of Stable Drainage Areas on Rehabilitated Mine sites" or its latest version, and to the satisfaction of DLWC and the Director-General. The Plan shall be prepared and implemented prior to the commencement of construction and/or the expansion of the rejects emplacement area.	Compliant	Field inspection found minimal erosion and sediment control issues, however some recommendations are provided.	1. Recommend that a small drainage line is constructed with water directed to the nearby dam at CHPP (see Photo 7). There is some evidence of erosion where the water is naturally draining to another location within the overall dirty water disturbance area. Drain needs to be approximately 40 metres long and a culvert may be required to drain water under the small access road to the nearest sediment dam. 2. Pit Top. There are some areas where sediment needs to be removed from drainage lines (see Photo 15). Some small nick points have occurred which requires some minor earthworks to ensure water is directed from drainage lines to sediment dams (see Photo 16).
DA 231-07-2000	3.6(b)	The Erosion and Sediment Control Plan shall include but not be limited to: (vi) measures to construct banks, channels and similar works to divert stormwater away from disturbed and contaminated land surfaces such as mine workings, coal handling areas and wastewater treatment facilities. All diversion banks, channels and points of discharge must be constructed or stabilised so as to minimise erosion and scouring;	Compliant	Field inspection found minimal erosion and sediment control issues, however some recommendations are provided. Erosion and sediment controls include the use of sediment dams and drainage lines.	See above recommendation. Update water management/ erosion figure with any changes to site drainage as previous updates are from 2011.
DA 231-07-2000	3.10(c)	The Applicant shall ensure that the agricultural capability of lands under its control within the mining lease area are at a level not less than the level at the date of this consent.	Compliant	Land not used for mining purposes is leased allowing agricultural practices to continue. REA grazing trial (9 March 2016) concluded that the area is in excellent condition and responding well to cattle grazing.	Prior to recommencement of operations, consider getting an independent Agricultural assessment completed to confirm the capacity of the land.

Document	Condition No.	Condition	Compliance Status	Comment	Recommendation
DA 231-07-2000	5.2(a)	Prior to the commencement of construction or Mining Operations, the Applicant shall prepare and implement a Waste Management Plan for the DA area in consultation with MSC and to the satisfaction of the Director-General.	Compliant	Minimal waste generated due to Care and Maintenance. Letter from Planning dated (07.09.2006) approved removing the requirement for an annual waste audit, and instead just report on waste in the Annual Review.	Recommend site update the Waste Management Plan as required if operations recommenced. Until then continue to outline waste management in the Annual Review.
DA 231-07-2000	6.2(a)	(a) The Applicant shall ensure the prompt and effective rehabilitation of all disturbed areas of the mine site to minimise the generation of wind erosion dust.	Compliant	Site inspection observed generally compliant. Some areas of poor ground cover establishment at CHPP former stockpile areas. See Photo 2.	Recommend soil testing on stockpile area to determine why some areas show minimal or no growth. Following tests, develop a plan to improve revegetation cover e.g. Use of ameliorants, additional seeding.
DA 231-07-2000	9.2(a)	The Applicant shall, throughout the life of the mine and for a period of at least three years after the completion of mining in the DA area, prepare and submit an Annual Environmental Management Report (AEMR) to the satisfaction of the Director-General and DMR. The AEMR shall review the performance of the mine against the Environmental Management Strategy and the relevant Mining Operations Plans, the conditions of this consent, and other licences and approvals relating to the mine. To enable ready comparison with the predictions made in the EIS, diagrams and tables, the report shall include, but not be limited to, the following matters: (viii) socio-economic impact of the development including the workforce characteristics of the previous year;	Compliant	Annual Reviews submitted each year during the audit period generally covers off on these requirements.	There is minimal information about socio - economic and workforce details. To be included in future Annual Reviews.

Document	Condition No.	Condition	Compliance Status	Comment	Recommendation
EPL 4885	P1.1	The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.	Compliant	All points monitored during the audit period. 2015 Annual Review outlines April 2015 discharge (22 and 23 April 2015).	There is not enough information in the 2015 Annual Review regarding the April 2015 discharge. This should have: • Dates of discharge; • Some more details about volumes (ie. Volumes over different days; and • Results of water quality testing for that discharge event compared against Hunter River Salinity Trading Scheme Criteria and EPL Criteria.
EPL 4885	O1.1	Licensed activities must be carried out in a competent manner. This includes: a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.	Compliant	In the field inspection around the pit top there was evidence that 'empty chemical containers' were not stored in a bund, rather a solid waste bin (See Photo 11).	Although it is unlikely that any chemicals would be leaving the bin area (no evidence from inspection), it would be best practice to ensure all chemical containers (empty or full) are stored within bunds. For flammable or combustible liquids, chemicals should be stored in accordance with Australian Standard AS 1940.

Document	Condition No.	Condition	Compliance Status	Comment	Recommendation
EPL 4885	O3.1	The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises	Compliant	Field inspection observed no major dust generation issues. Some areas of poor ground cover establishment at CHPP former stockpile areas. See Photo 2 from Main Report. No dust exceedances during the audit term.	Although dust has traditionally not been an issue during care and maintenance, temporary seeding of bare areas of former stockpile areas is recommended. Also recommend soil testing on stockpile area to determine why some areas show no growth. Following tests, develop a plan to improve revegetation cover eg. use of ameliorants, additional seeding, etc
EPL 4885	M2.2	Water and/ or Land Monitoring Requirements	Compliant	The 2014/15 Annual Return outlined only one sample was collected for TSS and pH, with there being a requirement of two samples (one for each day of discharge at LDP004). Further evidence was provided illustrating that sampling was completed for the 22 and 23 April 2015 discharge. It was determined that there was an error in reporting in the Annual Return for the 2014/2015 period, but sampling requirements met this condition.	Include more details of frequency and results in the Annual Review. Ensure that all results are recorded in future Annual Returns. There was not an error in sampling, but an error in reporting in the Annual Return.
EPL 4885	R1.5	The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').	Observation	EPL reporting period ends 30 Nov therefore Annual Return due 29 January each year. Date of receipt of Annual Returns noted on the EPA website. 2016 and 2015 Annual Returns provided before this date, however 2014 AR provided 31 Jan 2015.	The EPA considered this compliant (see EPA website). All Annual Returns should be provided to the EPA before the due date.
CCL386	1(c)	The MOP must be prepared in accordance with the ESG3: Mining Operations Plan (MOP) Guidelines September 2013 published on the Department's website at www.resources.nsw.gov.au/environment	Compliant	MOP was prepared in accordance with the Interim Mining Operations Plan (MOP) Guidelines (2012) current at time of submission. This condition has been updated after the current MOP was submitted.	Any future MOPs should be prepared in accordance with ESG3 (or latest version).

Document	Condition No.	Condition	Compliance Status	Comment	Recommendation
Previous non-compliance	DA 231-07-2000 2-1(d)	Ensure a copy of any future MOP's or amended MOP's are provided to relevant agencies within 14 days of acceptance by DRE.	Observation	Site did not recommence operations during the audit period and remained in care and maintenance.	Recommendation to send to these departments if there is a MOP variation or a new MOP.
Previous non-compliance	DA 231-07-2000 4-1(b)	Consider undertaking integrating annual isotopic groundwater sampling with incumbent water quality monitoring to investigate concerns raised by NOW. Consult with NOW regarding this approach prior to commissioning any additional investigations.	Observation	Water Management Plan updated in 2014 and 2015 however no reference to isotopic groundwater sampling. Recommendation not actioned during the audit term.	Recommend liaising with DPI Water to determine whether they believe isotopic groundwater sampling is required.

7 CONCLUSION

The following areas of good performance were noted during the audit:

- Overall the site had a high degree of compliance with key statutory approvals which were assessed as part of the Independent Environmental Audit.
- The majority of non - compliances were related to administrative non – compliance which is minor in nature.
- With the site being on care and maintenance, environmental risk for some aspects has decreased. The key areas of ongoing environmental management include the management of surface water, biodiversity and rehabilitation.
- The site has been well maintained during the period of care and maintenance, with record keeping at the site being of a high standard.
- SLR's rehabilitation specialist, Rod Masters completed a site inspection regarding rehabilitation and surface water with this including a review of rehabilitation within the former REA. The inspection noted the rehabilitation was of high quality, with minimal areas of erosion and a good ground cover consisting of a mix of pasture and legume species.
- There were no environmental incidents or community complaints during the audit period.
- High degree of compliance with environmental monitoring and reporting.

From the non-compliances identified, the following areas were assessed as areas of potential improvement during the audit:

- SLR believe key management plans should be put on the company website to make sure they are publically available;
- All future updates to management plans should be completed in consultation with the relevant government agencies;
- SLR recommends soil testing on stockpile area to determine why some areas show minimal or no growth. Following tests, develop a plan to improve revegetation cover e.g. use of ameliorants, additional seeding; and
- All recommendations in this audit report relate to small continual improvements for the site.

APPENDIX A – SITE PHOTOGRAPHS

CHPP Area

Photo 1 CHPP has remained in care and maintenance

Photo 2 Bare Area at Former CHPP Stockpile

Photo 3 Galenia is a minor issue around the CHPP Area

Photo 4 Prickly Pear is a minor issue around the CHPP

Photo 5 Rehabilitated Former Reject Emplacement Area.

Photo 6 Cattle Grazing in Rehabilitation REA. High quality rehabilitation

Photo 7 Minor shaping of drainage line required to direct water to sediment dam.

Photo 8 Eastern Dam is the main sediment storage at CHPP

Pit Top

Photo 9 Ventilation Facility at Pit Top

Photo 10 Old Underground Tank at the Pit Top. If not required remove from site

Photo 11 Empty oil and lubricant drums stored within a solid waste bin (not bunded)

Photo 12 Water Sprays in Operation

Photo 13 Kayuga Boxcut and Entries

Photo 14 Former Underground Infrastructure at the Pit Top

Photo 15 Some minor erosion repairs required around the Pit Top

Photo 16 Sedimentation in Drains around Pit Top to be Removed

Photo 17 Evidence of Feral Dogs around Pit Top

Photo 18 Evaporation Ponds

Photo 19 Licenced Discharge Point

River Red Gums and Previous Underground Mining Area

Photo 20 Cattle Grazing within Mining Lease Area

Photo 21 River Red Gum Planting Area

Photo 22 Natural Regeneration of River Red Gums

APPENDIX B – COMPLIANCE SPREADSHEET

Development Consent DA 231-07-2000

Condition Number	Condition	Compliance Status	Evidence	Recommendation
Schedule 2				
1. General				
1	There is an obligation on the Applicant to prevent and minimise harm to the environment throughout the life of the project. This requires that all practicable measures are to be taken to prevent and minimise harm that may result from the construction, operation and, where relevant, decommissioning of the development.	Compliant	This is a general condition. The site has been in Care and Maintenance for the entire period of the audit. Generally the site has been well maintained to minimise any harm to the environment.	
1.1	**1.1 Adherence to terms of DA, EIS, etc.** (a) The development is to be carried out generally in accordance with Development Application No. 231-07-2000, and the EIS dated June 2000, prepared by HLA EnviroSciences Pty Ltd, and the following documentation: (i) 1The following documents supplied to the EPA in relation to the development: • Odour Analysis of Ventilation Air from the No.1 Ventilation Shaft at Dartbrook Mine, Office Memorandum, David Rollings, HLA Envirosciences Pty Ltd to Colin Phillips, HLA Envirosciences Pty Ltd, (dated 11th May 2000); • Laboratory Results from The Odour Unit Pty Ltd to HLA Envirosciences Pty Ltd, (dated 29th March 2000); • Stack Emissions Testing Dartbrook Coal Pty Ltd, Dartbrook, NSW, April 2000, dated 1st May 2000, prepared by HLA Envirosciences Pty Ltd on behalf of Dartbrook Coal Pty Ltd; • Analysis of Gaseous Discharges from Dartbrook Mine Operations and additionally, Ambient Air Samples from Selected Background Sites, Office Memorandum from Ken Ferguson/Dr Jim Orr, HLA Envirosciences Pty Ltd to Colin Phillips, HLA Envirosciences Pty Ltd, (dated 3 March 2000); • Dartbrook Ventilation Odour, Facsimile from Nigel Holmes, Holmes Air Sciences to Andrew Kerr, Shell Coal, (dated 28 September 2000); (ii) Additional information provided by the Applicant to the NPWS in relation to archaeology and flora and fauna matters, during the assessment of DA 231-07-2000; (iii) Anglo Coal Dartbrook Extended Mine Project Commission of Inquiry, Primary Submission (Dartbrook Coal, dated March 2001); (iv) Anglo Coal Dartbrook Extended Mine Project Commission of Inquiry, Submission in Reply (Dartbrook Coal, dated May 2001); and (v) Dartbrook Underground Coal Mine Project Environmental Impact Statement, prepared by Envirosciences Pty Limited, November 1990; (vi) Development Application No. 53-10-98, dated 12 October 1998, accompanying Statement of Environmental Effects dated October 1998 prepared by Dartbrook Coal Pty Limited and in accordance with the development consent to construct a 450ML Discharge Dam and Pipeline issued by the Minister of Urban Affairs and Planning to Dartbrook Coal Pty Limited on 5 March 1999; (vii) The information titled 'Dartbrook Extended Coal Project Development Consent Modification Application Supporting Information' prepared in support of a Section 96(1A) application for the Dartbrook Coal Mine, dated 27 May 2002, prepared by Hansen Consulting; (viii) The information on the emergency tailings storage cell in the document titled "Dartbrook Extended Coal Project Development Consent Modification Application Supporting Information", dated 10 April 2003, prepared by Hansen Consulting; (ix) The information titled "Dartbrook Coal Mine: Statement of Environmental Effects for Modification to Rejects Disposal System", dated 9 March 2004, prepared by Hansen Consulting; and (x) The information titled "Dartbrook Mine Statement of Environmental Effects for New ROM Coal Stockpiles, Underground Tailings Disposal & Nitrogen Injection Plant", dated 12 August 2005 and prepared by Hansen Consulting. If there is any inconsistency between the above, either the conditions of this consent or the most recent document shall prevail to the extent of the inconsistency.	Compliant	SLR have reviewed the key aspects of the EIS and noted "comparisons against predictions" made in the Annual Reviews. It is noted that EIS' and modifications have been prepared for the site to be operating. The site has been in Care and Maintenance for the entire audit period, therefore it is difficult and sometimes not possible to compare against the predictions made. The key statutory document at the site is the MOP which outlines proposed activities during Care and Maintenance.	
	(b) In accordance with section 80A(5) of the Environmental Planning and Assessment Act 1979 and clause 97 of the Environmental Planning and Assessment Regulation 2000, the Applicant shall, surrender to the Minister of Urban Affairs and Planning, the development consent for the Dartbrook Underground Mine (Authorisation 256) issued by the then Minister for Planning to Shell Company of Australia Ltd and Austen & Butta Limited and Bellambi Coal Company Pty Ltd and Dartbrook Coal Pty Limited on 2 December 1991, and the following development consents for Dartbrook Mine issued by the Minister for Urban Affairs and Planning or Muswellbrook Council by the 30 June 2005, or such other later date agreed by the Director-General: (i) Amendment of a Development Consent (issued on 2 December 1991 by the Minister for Planning), dated 9 July 1997; and (ii) Modification to a Development Consent (issued on 2 December 1991 by the Minister for Planning), dated 21 September 1999. This consent will apply to all facilities and activities subject to these previous consents from the date they are relinquished.	Compliant	Sighted during previous audit. Outside the audit period.	
	(c) If, at any time, the Director-General is aware of environmental impacts from the proposal that pose serious environmental concerns due to the failure of environmental management measures in place to ameliorate the impacts, the Director-General may order the Applicant to cease the activities causing those impacts until those concerns have been addressed to the satisfaction of the Director-General.	Not Triggered	Based on documentation review and discussions with site this was not triggered during the audit period.	
	(d) If any licence conditions are breached the applicant shall comply with any modification to the work as specified by the relevant agency. Note: Conditions of this consent relating to the matters of air quality, noise management and proponents obligations (Conditions 6.1, 6.4 and 11.1, 11.2, 11.3 respectively) shall prevail over the conditions related to these matters in the existing consents for Dartbrook Mine as listed under Condition 1.1(b).	Not Triggered	No modifications to operations requested by any agencies during the audit term.	
1.2	**1.2 Period of Approval/Project Commencement** (a) This approval is for a period of 21 years from the date of granting of a mining lease pursuant to this consent. (b) At least two weeks prior to the commencement of construction and Mining Operations respectively or within such period as agreed by the Director-General, the Applicant shall submit for the approval of the Director-General a compliance report detailing compliance with all the relevant conditions that apply prior to the commencement of construction and Mining Operations. (c) Date of commencement of construction and Mining Operations is to be notified in writing to the Director-General, DMR, MSC and SSC at least two weeks prior to commencement of construction and Mining Operations respectively.	Compliant	Approval valid within audit term. Compliance for construction times outside audit period and verified during previous audits.	
1.3	**1.3 Dispute Resolution** In the event that the Applicant, MSC, SSC or a Government agency, other than the Department of Urban Affairs and Planning, cannot agree on the specification or requirements applicable under this consent, the matter shall be referred by either party to the Director-General or if not resolved, to the Minister for Urban Affairs and Planning, whose determination of the disagreement shall be final and binding on the parties.	Not Triggered	Not triggered during the audit term. As the site is on Care and Maintenance there have been no disputes.	
1.4	**1.4 Security Deposits and Bonds** Security deposits and bonds will be paid as required by DMR under mining lease approval conditions.	Compliant	Details of security deposits being paid were noted on mining lease searches provided by Anglo's tenure specialist Nathan Brown (A256, CL386, EL4574, EL4575, EL5525, ML1381, ML1456, ML 1497).	
2. Mine Management				
2.1	**2.1 Mine Management Plan, Operations and Methods** (a) No mining undertaken in accordance with this consent shall occur until the Applicant has submitted and had accepted by the DMR, a Mining Operations Plan (MOP) in accordance with current guidelines issued by DMR. The Plan covers mining operations for a period of up to seven years.	Compliant	No mining during Audit period. Site operates in Care and Maintenance under an approved Care and Maintenance MOP (2012-2017). Approval letter provided (18.12.12).	Recommended that next MOP be updated to the new MOP guidelines.
	(b) The MOP shall: (i) be prepared in accordance with DMR Guidelines for the Preparation of Mining Operations Plans (Document 08060002.GUI or its most recent equivalent); (ii) demonstrate consistency with the conditions of this consent and any other statutory approvals; (iii) demonstrate consistency with the Environmental Management Plans for the project site; (iv) provide the basis for implementing mining operations, environmental management, and ongoing monitoring; (v) include a mine rehabilitation and land use management plan; and (vi) identify a schedule of proposed mine development for the period covered by the plan and include: • the area proposed to be impacted by mining activity and resource recovery mining methods and remediation measures, • areas of environmental, heritage or archaeological sensitivity and mechanisms for appropriately minimising impact, • water management, and • proposals to appropriately minimise surface impacts.	Compliant	The current Care and Maintenance MOP was prepared in accordance with relevant guideline at time of submission, and is generally consistent with the DA, and the EMS. Approval letter provided (18.12.12).	
	(c) In preparing the Mine Operations Plan, the Applicant shall consult with affected service authorities and make arrangements satisfactory to those authorities for the protection or relocation of those services.	Compliant	Consultation undertaken with affected service providers during operations, however none required during audit period due to site being on Care and Maintenance.	

	(d) A copy of the MOP, excluding commercial in confidence information, shall be forwarded to MSC, SSC and the Director-General within 14 days of acceptance by DMR.	Compliant	DRE approval letter provided (18.12.12). Evidence of submission to agencies is outside the term of this audit, however MSC and SSC were provided copies of the approved MOP.	
	(e) At least two years prior to the cessation of mining operations the Applicant shall investigate, determine and report, taking account of the potential community benefits, on a final strategy for the future use of the mine site, weirs, dams and any other infrastructure in consultation with DUAP, DLWC, MSC and SSC for approval of DMR and the Director-General.	Not Triggered	Site is on Care and Maintenance, with operations to potentially recommence in the future. Mine Closure Plan (2014) includes a conceptual assessment of socio-economic aspects of closure. The site also has an approved MOP. A final mine closure plan is not yet necessary until a decision is made regarding the future of the site. This condition has not yet been triggered.	
2.2	**2.2 Spontaneous Combustion** The Applicant shall prepare, prior to the commencement of mining operations, a Spontaneous Combustion Management Plan to the satisfaction of DMR.	Compliant	Copy of Spon Comb Management Plan sighted (dated 2006). Prior to 2013 therefore outside of audit scope. Note there is a letter from the Department of Planning from 7 September 2006 approving proposed actions from the 6 July 2006 letter from Dartbrook. This included: *"continuing to operate under existing environmental management plans without reviewing. Propose to modify these management plans should any activities recommence".*	
2.3	**2.3 Limits on Production or Hours of Operation** (a) Run of Mine coal production shall generally not exceed 6 Mtpa. The Applicant must notify the Director-General, MSC and SSC prior to any short term increase in production above this level. (b) Heavy earth moving equipment shall not operate on the rejects emplacement area, and coal rejects shall not be hauled to the rejects replacement area, between the hours of 6.00pm and 7.00am, except in an emergency, and as agreed by the Director-General. (c) The haulage of coal between stockpiles and the CHPP within the East Site shall be limited to the daytime period (7am-6pm Monday to Saturday and 8am-6pm on Sundays and Public Holidays) only.	Compliant	Site was not fully operational during the audit term and was on care and maintenance.	
3. Land and Site Environmental Management				
3.1	**3.1 Appointment of Environmental Officer** (a) The Environmental Officer employed by Dartbrook Mine shall: (i) be responsible for the preparation of the environmental management plans (refer Condition 3.2); (ii) be responsible for considering and advising on matters specified in the conditions of this consent and compliance with such matters; (iii) be responsible for receiving and responding to complaints in accordance with Condition 10.2(a); (iv) facilitate an environmental induction and training program for all persons involved with construction activities, mining and rehabilitation/remedial activities; and (v) have the authority to require reasonable steps to be taken to avoid or minimise unintended or adverse environmental impacts and failing the effectiveness of such steps, to stop work immediately if an adverse impact on the environment is likely to occur.	Compliant	Doug Stewart (Carbon Based) has been Safety, Health and Environmental Coordinator since July 2009.	
	(b) The Applicant shall notify the Director-General, DMR, EPA, NPWS, DLWC, MSC, SSC and CCC (refer condition 10.1) of the name and contact details of the Environmental Officer if it has not already done so and of any changes to that appointment. Any new appointment of the Environmental Officer is to receive prior approval by the Director-General. Such approval shall not be unreasonably withheld.	Not Triggered	No change in environmental officer for the site during the audit term. Compliance verified during previous audits.	
3.2	**3.2 Environmental Management Strategies and Plans** (a) The Applicant shall prepare an Environmental Management Strategy providing a strategic context for the environmental management plans [refer condition 3.2(d)]. The Environmental Management Strategy shall be prepared in consultation with the EPA, DLWC, DUAP, NPWS, SSC, MSC, DMR and the Community Consultative Committee (refer condition 10.1) and to the satisfaction of the Director-General, prior to commencement of construction. The Strategy shall be provided to the Director-General no later than the time the first Environmental Management Plan under sub clause (d) below and MOP are submitted.	Compliant	EMS provided, dated (2011). Section 1.3 outlines consultation during preparation of EMS. It states: *"The Draft EMS documents were also provided to DP&I, OEH, NOW, NPWS, UHSC, MSC, and DME for review and comment. Where necessary, amendments to the draft EMS were made in response to comments from the review agencies."*	
	(b) The Environmental Management Strategy shall include, but not be limited to: (i) statutory and other obligations which the Applicant is required to fulfil during construction and mining, including all approvals and consultations and agreements required from authorities and other stakeholders, and key legislation and policies; (ii) definition of the role, responsibility, authority, accountability and reporting of personnel relevant to environmental management, including the Environmental Officer; (iii) overall environmental management objectives and performance outcomes, during construction, mining and decommissioning of the mine, for each of the key environmental elements for which management plans are required under this consent; (iv) overall ecological and community objectives for the project, and a strategy for the restoration and management of the areas affected by mining operations, including elements such as wetlands and other habitat areas, creek lines and drainage channels, within the context of those objectives; (v) identification of cumulative environmental impacts and procedures for dealing with these at each stage of the development; (vi) overall objectives and strategies to protect economic productivity within the area affected by mining; (vii) steps to be taken to ensure that all approvals, plans, and procedures are being complied with; (viii) processes for conflict resolution in relation to the environmental management of the project; and (ix) documentation of the results of consultations undertaken in the development of the Environmental Management Strategy.	Compliant	EMS approved by Planning prior to 2013 (prior to audit period). The EMS generally covers these sections, with Section 1.2 outlining a checklist. i. s2.2 ii. S2.3 Iii S3 iv S3 v. S4 vii. S3 Viii. S2.7 Ix. S1.3 Updates on general environmental performance are outlined in the AEMR/ Annual Review.	
	(c) The Applicant shall make copies of the Environmental Management Strategy available to MSC, SSC, EPA, DLWC, NPWS, DMR, MSB and the CCC within fourteen days of approval by the Director-General.	Compliant	EMS provided, dated (2011). Prior to 2013 therefore outside of audit scope. Compliance verified during previous audit.	
	(d) The Applicant shall prepare the following environmental management plans: • Property Subsidence Management Plans (refer condition 3.3) • Archaeology and Cultural Management Plan (refer condition 3.4) • Flora and Fauna Management Plan (refer condition 3.5) • Erosion and Sediment Control Plan (refer condition 3.6(a)) • Soil Stripping Management Plan (refer condition 3.6(c)) • Landscape Management Plan (refer condition 3.8) • Bushfire Management Plan (refer condition 3.9) • Land Management Plan (refer condition 3.10(a)) • Site Water Management Plan (refer condition 4.1) • Waste Management Plan (refer condition 5.2(a)) • Dust Management Plan (refer condition 6.1(a)) • Blast Management Plan (refer condition 6.3(a)) • Road Closure Management Plan (refer to condition 6.3(j)) • Noise Management Plan (refer condition 6.4.2(a)) • Construction Noise Management Plan (refer condition 6.4.2(c)) • Lighting Management Plan (refer condition 6.5) • Vibration Management Plan (refer to condition 6.6(b)) These environmental management plans may also form part of the overall Site Management Plan and/or Mining Operations Plan.	Compliant	The then Department of Planning approved the site to operate under existing management plans during the care and maintenance period. Copies of all management plans sighted except for: • Road Closure Management Plan. • Noise Management Plan. • Construction Noise Management Plan. Deemed not applicable due to Care and Maintenance. The following management plans were updated and approved during the audit period: * Dust Management Plan (24 November 2015); * ESCP (21 October 2014); and * Site Water Management Plan (20 April 2015). The following other Management Plans were updated, but these are for internal use only: * Mine Closure Plan (26 July 2014); * Environmental Monitoring Plan (22 Sept 2014).	

	(e) The Applicant shall make copies of the environmental management plans in sub-clause (d) above available to relevant government agencies, MSC, SSC and the CCC and ensure that the plans are made publicly available within 14 days of approval by the Director-General.	Administrative Non-Compliance	In a letter dated 07/09/06 DP&I agreed that the site could operate in accordance with the existing approved management plans until operations recommenced. The following management plans were updated and approved by the DP&E during the audit period: * Dust Management Plan (24 October 2014); * ESCP (21 October 2014); and * Site Water Management Plan (15 September 2015). The following other management plans were updated, but these are for internal use only: * Mine Closure Plan (26 July 2014); * Environmental Monitoring Plan (22 Sept 2014). A copy of the Water Management Plan (email 18 September 2015) was provided to EPA, Muswellbrook Council, and to Upper Hunter Council. also provided to DPI Water. No evidence of CCC submission within 14 days. A copy of the Erosion and Sediment Control Plan (email 20 May 2014) was provided to Muswellbrook Council and Upper Hunter Council, but no evidence of submission to the CCC within 14 days of approval. **No evidence of submission of Dust Management Plan to Muswellbrook Council, Upper Hunter Council and the CCC within 14 days of approval of Dust Management Plan.**	It is acknowledged agencies were consulted for updated management plans, but final plans should be sent to the required agencies and CCC. It is recommended that the CCC are directed to the most recent site management plans. SLR believe key management plans should be put on the company website to make sure they are publically available. Only the MOP and SWMP are currently publically available on the website, and there are other management plans which are relevant to the operation which should be uploaded to the website.
	(f) The management plans are to be revised, and updated as necessary, at least every 5 years or as otherwise directed by the Director-General in consultation with the relevant government agencies. They will reflect changing environmental requirements or changes in technology/operational practices. Changes shall be made and approved in the same manner as the initial environmental management plan. The plans shall also be made publicly available at MSC and SSC within two weeks of approval by DUAP.	Observation	In a letter dated 07/09/06 DP&I agreed that the site could operate in accordance with the existing approved management plans until operations recommenced. The following management plans were updated and approved by the DP&E during the audit period:: * Dust Management Plan (24 October 2014); * ESCP (21 October 2014); and * Site Water Management Plan (15 September 2015). Evidence that management plans for Water MP, Erosion and Sediment Control and Bushfire Management Plan were sent to Upper Hunter Council and Muswellbrook Council. They would therefore be publically available on request. No evidence that the updated Dust Management Plan was sent to these two councils. The following other Management Plans were updated, but these are for internal use only: * Mine Closure Plan (26 July 2014); * Environmental Monitoring Plan (22 Sept 2014).	Key management plans should be put on the company website as this is the easiest way to make all key documents publically available. Only the MOP and SWMP are currently publically available on the website, and there are other management plans which are relevant to the operation which should be uploaded to the website.
3.3	**3.3 Property Subsidence Management Plans** (a) The Applicant shall prepare and implement a "Landowner Communication and Consultation Plan" relating to longwall extraction throughout the DA area, within six months of the date of this consent. The Plan shall be approved by the Director-General and the final approved plan made available for public inspection. The Plan shall include but be limited to the matters listed in Condition 3.3(n).	Compliant	Plan sighted (dated 2002). Plan available at Dartbrook Office. No requirement to update during audit period.	
	(b) The Applicant shall prepare a Property Subsidence Management Plan to the satisfaction of the Director-General of DMR (or delegate) for each property title to be affected by subsidence from a longwall panel or groups of longwall panels, for which an application for secondary workings approval under s.138 of the*Coal Mines Regulation Act 1982* is being prepared.	Compliant	Subsidence inspections are completed annually by a contract surveyor. No evidence of subsidence impacts during the audit period (mining ceased in 2006) (as per correspondence from Doug Stewart).	
	(c) At least two (2) years prior to the extraction of coal by longwall mining referred to in subclause (b) above or other mining methods requiring approval under s.138 of the Coal Mines Regulation Act, 1982, the Applicant will advise each landowners within the area covered by the s.138 application referred to in subclause (b) of: (i) The plans for future mining activities and the specific impacts (based on best available information) affecting each property; and (ii) Requirements regarding landowner consultation arrangements and offers of assistance to meet landowner legal and associated costs for determining landowner rights under law and the conditions of consent and reaching property agreements and valuations, as detailed in Condition 3.3(g).	Not Triggered	Not triggered during the audit period.	
	(d) The relevant Property Subsidence Management Plans shall be completed prior to seeking approval under s.138 of the Coal Mines Regulation Act 1982 for the secondary workings referred to in subclause (b) above.	Not Triggered	Compliance verified during previous audit. There was no mining during the audit period.	
	(e) Each Property Subsidence Management Plan shall demonstrate consistency with the relevant MOP and the Environmental Management Strategy.	Not Triggered	Compliance verified during previous audit. There was no mining during the audit period.	
	(f) In preparing Property Subsidence Management Plans the Applicant shall: (i) consult with each affected landowner throughout the preparation process and take their views into account. This consultation shall include discussions on integrating any proposed mitigation works with the management of the property as a whole; (ii) update geological data (i.e. geological structures, seam thickness, coal quality) based on current knowledge; (iii) review, and if necessary update, the mine plan based on current geological knowledge; (iv) review and revise as necessary, subsidence predictions taking into account the results of any relevant subsidence monitoring that has been undertaken; (v) ensure that, with the consent of the owner and in consultation with MSB, a structural inspection is conducted of each structure and a report prepared on the structural integrity of all buildings in their entirety (including roofs, ceilings, openings, foundations and household sewage treatment and disposal systems); (vi) assess current agricultural utilisation, agricultural improvements and the underlying agricultural suitability of the relevant property; (vii) review current utilisation of the land for business purposes (other than agriculture), including the value of improvements and the business; (viii) ensure that inspections, surveys and assessments referred to in subclauses (v), (vi) and (vii) are carried out, at the expense of the Applicant, by an independent and technically qualified person, selected in consultation with the relevant property owner, and a copy of any report, certified by the person who undertook the work, supplied to the relevant property owner within fourteen days of receipt of same; (ix) support the continuation of agricultural activities and where practicable, improve the opportunity for sustained agriculture where any surface remedial works can be used to improve such productivity.	Not Triggered	Compliance verified during previous audit. There was no mining during the audit period.	

	(g) In preparing the individual Property Subsidence Management Plans the Applicant shall also: (i) advise affected landowners of any potential impacts of the proposed mining and review and discuss implementation procedures; (ii) provide a copy of the draft Property Subsidence Management Plan to the relevant landowner; (iii) identify dwellings that are likely to be subject to damage beyond safe, serviceable and repairable criteria as a result of the development; (iv) identify structures and surface improvements that are likely to be subject to significant damage as a result of the development; (v) identify agricultural or other business values that are likely to be affected by the development; (vi) convene an on-site meeting with the landowner to review the draft Property Subsidence Management Plan including, where applicable, MSB technical officers with respect to dwellings that are predicted to be damaged beyond safe, serviceable and repairable criteria; (vii) investigate feasible mitigation measures that can be implemented to reduce subsidence impacts to the satisfaction of the landowner and in consultation with MSB; (viii) investigate other options if subsidence impacts cannot be reduced satisfactorily, such as compensation, acquisition, temporary relocation, or any other form of agreement with the landowner; (ix) identify areas of likely compensable loss as defined by the Mining Act 1992, and either reach agreement with the landowner in regard to likely compensable loss, or determine suitable mitigation measures to minimise compensable loss; and (x) provide a copy of each Property Subsidence Management Plan to the relevant landowner.	Not Triggered	Compliance verified during previous audit. There was no mining during the audit period.	
	(h) In implementing the terms of any Property Subsidence Management Plan the Applicant shall: (i) review, based on information available at the time, the potential impacts of the proposed mining on ecologically sensitive areas, archaeological resources and heritage resources and take these into consideration in any refinement of the mine plan and design of appropriate mitigation measures. Works should be designed where possible to avoid areas of ecological and archaeological sensitivity unless works are being specifically undertaken to conserve these areas; and (ii) determine in consultation with the landowner, DLWC, MSC and SSC, appropriate drainage mitigation measures and earthworks, consistent with the relevant environmental management plans. Where it is indicated that drainage works are required to be undertaken on other land to mitigate remnant ponding on the property which is the subject of the Property Subsidence Management Plan, the Applicant shall seek to reach an agreement with the owner(s) of that land prior to carrying out such works. In determining appropriate drainage mitigation works, the Applicant shall take into consideration environmental, archaeological and heritage aspects of areas where mitigation works are proposed. The Applican shall pay any reasonable costs for landowners to obtain legal and other advice on Property Subsidence Management Plans.	Not Triggered	Compliance verified during previous audit. There was no mining during the audit period.	
	Longwall Subsidence Management Plans (i) The Applicant shall prepare a Longwall Subsidence Management Plan to the satisfaction of the Director-General of DMR (or delegate) for each longwall panel or group of panels for which an application for secondary workings approval under s. 138 of the Coal Mines Regulation Act 1982 is being prepared.	Not Triggered	Plan sighted, however not relevant during audit period as no mining undertaken since 2006.	
	(j) The Longwall Subsidence Management Plan shall be completed prior to an approval under s.138 of the Coal Mine Regulation Act 1982 for secondary workings. Each Longwall Subsidence Management Plan shall be consistent with the conditions of this consent, the Environmental Management Strategy and any relevant management plans.	Not Triggered	Compliance verified during previous audit. There was no mining during the audit period.	
	(k) The Applicant shall ensure that the terms and details of each relevant Property Subsidence Management Plan are incorporated into any Longwall Subsidence Management Plan for that part of the development which may affect that property. Subsidence Monitoring	Not Triggered	Compliance verified during previous audit. There was no mining during the audit period.	
	(l) The Applicant shall undertake a detailed and ongoing monitoring program of subsidence resulting from mining to the satisfaction of the Director-General and in consultation with DLWC and DMR throughout the life of the mine and for a period of at least five years after the completion of mining, or other such period as determined by the Director-General in consultation with DLWC and DMR. Monitoring shall include the following: (i) a survey of affected stream channel systems; (ii) monitoring of groundwater levels and quality; (iii) monitoring of remedial measures; and (iv) a comparison of predicted impacts with actual impacts, including mapping of subsidence profiles. The Applicant shall include information on monitoring conducted and the interpreted results in the AEMR.	Compliant	Subsidence inspections are completed annually by a contract surveyor. No evidence of subsidence impacts during the audit period (mining ceased in 2006) (as per correspondence from Doug Stewart). Letter from Planning dated (07.09.2006) approved reducing subsidence monitoring due to limited subsidence impacts observed.	
	Notification of Landowners (m) The Applicant shall notify each relevant landowner in writing: (i) of its intention to commence header roads under a property. Such notification to be made at least 14 days prior to commencement of such works; and (ii) of its intention to proceed with an application in accordance with s138 of the Coal Mine Regulation Act, 1982. Such notification is to be made at least one month prior to an application under s138 of the Coal Mine Regulation Act 1982 for land within EL 4575 or EL 5525 or A256 not owned or under licence to the Applicant.	Not Triggered	Compliance verified during previous audit. There was no mining during the audit period.	
	(n) The notification referred to in subclause (m) shall provide a timetable and information on at least the following: (i) landowner consultation arrangements; (ii) the proposed mine plan; (iii) arrangements for consultation in preparing a Property Subsidence Management Plan; (iv) landowner rights under law and the conditions of this development consent; and (v) offers of assistance from the Applicant to meet reasonable landowner legal and associated costs for reaching property agreement and valuations (if required). Compensation	Not Triggered	Compliance verified during previous audit. There was no mining during the audit period.	
	(o) The Applicant shall compensate landowners for compensable loss in accordance with the provisions of the Mining Act, 1992. Compensable loss is defined in that Act. Subsidence Effects	Not Triggered	Compliance verified during previous audit. There was no mining during the audit period.	
	(p) The Applicant shall ensure that any impact due to surface subsidence within the Crown road system is restored and safeguarded to the extent that public access is not compromised.	Not Triggered	Compliance verified during previous audit. There was no mining during the audit period.	
	(q) The Applicant must monitor and remediate any erosion or provide stabilising structures in any areas that have significant risk of destabilisation occurring as a result of longwall panel mining, in accordance with DLWC guidelines, to the satisfaction of DLWC, for any streams that are affected by subsidence.	Not Triggered	Compliance verified during previous audit. There was no mining during the audit period.	
3.4	**Heritage Assessment, Management and Monitoring** Assessment and Management The Applicant shall prior to the commencement of construction or Mining Operations: (a) prepare an Archaeology and Cultural Management Plan to address Aboriginal and European cultural heritage issues. The Plan shall be prepared in consultation with the Upper Hunter Wonnarua Tribal Council, Wannaruah Local Aboriginal Land Council and NPWS, and to the satisfaction of the Director-General. The Plan shall include but not be limited to: (i) provision of management strategies for known Aboriginal heritage sites for all parts of the DA area not affected by mining; (ii) identification of any future salvage, excavation and monitoring programs for any known heritage/archaeological sites within the DA area, prior to and during construction; (iii) set out management procedures and protocols for issues relating to Aboriginal heritage for all stages of the development (induction of employees on archaeological and heritage issues; training of field crews, Upper Hunter Wonnarua Tribal Council and Wannaruah Local Aboriginal Land Council participation; staging of works; salvage etc); (iv) details of a program for salvaging known Aboriginal sites; (v) details of consultation undertaken with the Upper Hunter Wonnarua Tribal Council and Wannaruah Local Aboriginal Land Council in the preparation of this Plan; (vi) details of the measures to fully document, in accordance with the NSW Heritage Council guidelines, any non-indigenous heritage sites that will be required to be removed as a result of the development; (vii) details of proposed monitoring that will be undertaken in the areas adjacent to the non-indigenous heritage sites identified within the DA area during their excavation and removal to identify any further cultural material that may exist; (viii) details of the methods to dispose of the excavated non-indigenous heritage sites in a manner approved by the NSW Heritage Council, and following consultation with MSC and the Muswellbrook and Upper Hunter Historical Society; (ix) details of how public access to the Kayuga Cemetery shall be maintained at all times; and (x) details of the measures to mitigate any potential impacts resulting from the mine on the heritage homesteads Old Kayuga, New Kayuga, Riverview, the McIntyre family cemetery, Kayuga Cemetery and the Kayuga Estate and details of any maintenance procedures proposed to preserve their heritage value in accordance with the NSW Heritage Council requirements.	Compliant	ACHMP sighted (version dated 10.08.2011). Prior to 2013. Although there were no updates during the audit period, the management plan was still reviewed for compliance. Key requirements are covered within Section 2 of the Management Plan. Note, several conditions relate to excavation and clearance, with there being no additional disturbance during the audit period. No evidence of any impacts to heritage. The 2015 Annual Review states: *In 2013, Dartbrook applied for an Aboriginal Heritage Impact Permit (AHIP) to relocate a remanent scar tree log from the warehouse to Simpson Park adjacent to the existing reconciliation mural in Muswellbrook. OEH have advised that this AHIP is still active and in conjunction with the Muswellbrook Shire Council the scar tree is planned to be relocated in 2016.* No additional disturbance during the audit period.	In conjunction with the Muswellbrook Shire Council, relocate the scar tree. Update the ACHMP relating to the new location of the scar tree.
	(b) Within six months of the commencement of construction or Mining Operations, the Applicant shall make a $50,000 contribution towards the establishment of a trust fund set up by the Department of Urban Affairs and Planning through the Public Trustee. The funds are to be used for a regional study of Aboriginal sites and other cultural heritage projects as defined by the Trust Deed.	Not Triggered	This is a once-off requirement that has been verified as part of previous audits.	

	(c) If, during the course of construction of any surface facilities or mining activities, the Applicant becomes aware of any heritage or archaeological sites not previously identified, all work likely to affect the site shall cease immediately and the relevant authorities consulted about an appropriate course of action prior to recommencement of work. The relevant authorities may include NPWS, the NSW Heritage Office, the Upper Hunter Wonnarua Tribal Council and Wannaruah Local Aboriginal Land Council. Any necessary permits or consents shall be obtained and complied with prior to recommencement of work.	Not Triggered	No construction or additional disturbance during the audit period.	
	(d) The Applicant is to consult regularly with the Upper Hunter Wonnarua Tribal Council and Wannaruah Local Aboriginal Land Council using consultation principles and strategies consistent with those outlined in the "Guidelines for best practice community consultation in the NSW Mining and Extractive Industries". The results of these consultations shall be documented in the AEMR.	Not Triggered	No construction or additional disturbance during the audit period.	Recommend 2011 management plan be sent to UHWTC and WLALC.
	(e) Any proposed works that will affect non-indigenous heritage items, (including the items listed in Section 3.9.2 of the EIS) including demolition of the items, will require an approval under section 139 of the Heritage Act 1977 and an application for an excavation permit under section 140 of the Heritage Act 1977 to disturb the relics will be required. This may also require additional approvals from MSC if the items are listed on the Heritage Schedule of the Local Environmental Plan.	Not Triggered	No construction or additional disturbance during the audit period.	
	(f) The Applicant shall engage an appropriately qualified person to prepare an oral history of the mining lease prior to the dispersal of local residents. This will include an investigation of: • all buildings and sites within the lease area; • • areas that will be affected by the mine; • the former Dartbrook authorisation area; and • the Kayuga cemetery. The investigation will be carried out in consultation with a member of the Muswellbrook and Upper Hunter Historical Society, who is to be allowed reasonable access to the Applicant's properties for the purposes of assessing European archaeological features. The report shall be made available to the Muswellbrook and Upper Hunter Historical Society, MSC and the Director-General.	Compliant	Noted in ACHMP that this was completed in 2010. Letter showing submission to MSC in 2012. Prior to 2013 therefore outside of audit scope.	
	(g) The Applicant shall monitor the effectiveness of the measures outlined in the Archaeology and Cultural Management Plan [Condition 3.4(a)]. A summary of monitoring results shal be included in the AEMR.	Not Triggered	No monitoring undertaken during audit period. Section 6.11 of Annual Reviews outlines heritage performance however.	
	(h) The Applicant shall prepare a monitoring program of known indigenous heritage sites identified within the DA area, during the period of construction and mining operations. The monitoring program shall be included in the Archaeology and Cultural Heritage Management Plan (Condition 3.4 (a)) and a summary of results will be included in the AEMR. The program shall: (i) 3monitor all known archaeological sites 12 months after undermining for the effects of subsidence and report on the results of these inspections in the Archaeology and Cultural Heritage Management Plan; (ii) 4monitor the construction of sediment and erosion control works to identify new archaeology sites; (iii) 5monitor locations in the subsidence area in order to assess the impacts of subsidence on the land surface, in areas that the Applicant has identified as being potentially affected by the following processes: • erosion; • rilling; • knickpoint initiation; and • areas prone to pooling.	Not Triggered	No monitoring undertaken or required during audit period.	
	Flora and Fauna Assessment, Management and Monitoring Assessment and Management (a) The Applicant shall prior to commencement of construction or Mining Operations prepare and implement a Flora and Fauna Management Plan for the management of flora and fauna issues for the DA area. The Plan is specifically required to outline procedures for clearing or disturbing vegetation and other habitat types, along with measures for habitat reinstatement and management. The Plan shall be prepared in consultation with NPWS and to the satisfaction of the Director-General. The Plan shall be prepared by an appropriately qualified and experienced ecologist. The ecologist shall be responsible for providing advice to minimise potential impacts upon threatened and protected fauna species that may utilise the site and to provide expert advice on the regeneration and reconstruction of flora and fauna habitat on mined areas. The Plan shall include but not be limited to: (i) details of strategic vegetation management, outlining timeframes for clearing and re-vegetation activities and a map illustrating the Plan. The Plan should aim to maximise scope fo new vegetation to establish and restore ecological integrity; (ii) details of the schedule for clearing activities incorporating seasonal habitat requirements for species such as bats and other mammals, with the objective of avoiding incidents during sensitive hibernation and breeding periods; (iii) details of methods of how medium to large tree hollows (defined as being greater than 20 centimetres in diameter) and nests removed during construction are salvaged and replaced in adjacent vegetation; and (iv) details of management measures to be applied if threatened species identified in the EIS are found on site.	Compliant	2011 document sighted, however noted that only the original 2002 document was prepared in consultation with NPWS. Letter of approval dated Nov 2011. No updates during this audit period. Key requirements of this sub condition outlined in Section 3.3 of the MP. Management and monitoring outlined in AEMR's, Annual Reviews and ecological monitoring reports.	Recommend that when this plan is next updated it is sent to NPWS for consultation.
	(b) If threatened species, not identified in the EIS, are identified on the site during construction or operation of the coal mine, the Applicant shall cease any work immediately which could adversely impact on the species, pending investigation and negotiation of ameliorative measures. The Applicant shall advise the NPWS and engage a suitable qualified person to investigate, and identify appropriate amelioration measures.	Not Triggered	No construction/clearing during the audit period. No new species identified.	
	(c) The Applicant shall ensure that the construction and operation of ventilation shafts shall not require the clearing of trees, where practicable.	Not Triggered	No vent shafts constructed during the audit period.	
	(e) The Applicant shall ensure that any vegetated areas cleared for construction purposes and not utilised in the Mining Operations are restored at least to its original condition.	Not Triggered	No former construction areas been rehabilitated during the audit period.	
	(f) The Applicant shall use locally endemic species for revegetation purposes.	Not Triggered	No rehabilitation undertaken during the reporting period.	
	(g) The Applicant shall during the life of the mine and until the revegetated areas are established to the satisfaction of the DMR, maintain revegetated areas. Maintenance shall include, where necessary, but not be limited to: • replanting failed or unsatisfactory areas • repairing erosion problems • fire management – fire suppression or fire encouragement • pest and weed control • control of feral animal populations • maintain and repair fencing • fertiliser application • application of lime or gypsum to control pH and improve soil structure.	Compliant	Annual Review summarises rehab maintenance activities undertaken. Assessed during field inspection. Areas of rehabilitation were assessed by Rod Masters (SLR). The site inspection included a review of the previous underground mining area and the River Red Gum Area. The inspection indicated the previous underground mining area is affectively managed for grazing, with no subsidence reported during the audit period. Rod Masters from SLR completed a site inspection regarding rehabilitation and surface water with this including a review of rehabilitation within the former REA. The inspection noted the rehabilitation was of high quality, with minimal areas of erosion and a good ground cover consisting of a mix of pasture and legume species.	
	(h) As well as the requirements under subclause (g), the efforts and progress of the Flora and Fauna Management Plan shall be documented in the Annual Environmental Management Report in accordance with the Department of Mineral Resource's Guidelines to the Mining, Rehabilitation and Environmental Management Process (March 1998) or its latest version.	Compliant	Flora and fauna management summarised in AEMR. Outlined in Section 6.7 and 6.8 of the Annual Review. In 2015 both the River Red Gum area and the Native Forest Plantation were surveyed by Umwelt as part of the ongoing two yearly monitoring of these areas. Both areas were found to be progressing satisfactorily.	
	(i) Measures to control invasion of weeds as a result of construction activities shall be addressed and managed.	Not Triggered	No construction/clearing during the audit period.	
	(j) The Applicant shall not clear vegetation in advance of the immediate area required for use during construction or operation of the rejects emplacement area.	Not Triggered	No construction/clearing during the audit period in relation to the REA.	

	Monitoring (k) The restoration works shall be monitored by the environmental officer. The results of the monitoring and the effectiveness of the restoration shall be reported as part of the Annual Environmental Management Report.	Compliant	Rehabilitation monitoring summarised in FFMP (Section 4.4) and progress reported on in AEMR/Annual Review. REA rehabilitation monitoring reports provided, which show good results. Landscape Management Plan specifies annual rehabilitation monitoring. Ron Connolly at Dartbrook undertakes rehabilitation inspections. A summary of rehabilitation monitoring results for the River Red Gum area, grazing and forestry trials are shown in Section 8.4 of the most recent AEMR/Annual Review.	
	(l) The Applicant shall prepare a detailed monitoring program for habitat areas within the DA area, including any wetlands and aquatic habitats, during the development and for a period after the completion of the development to be determined by the Director-General in consultation with NPWS. The monitoring program shall be included in the Flora and Fauna Management Plan (Condition 3.5(a)) and a summary of the results shall be provided in the AEMR. The program shall: (i) monitor impacts attributable to the development and include monitoring of the success of any restoration or reconstruction works. The Applicant shall carry out any further works required by the Director-General and DMR as a result of the monitoring; (ii) establish an ongoing monitoring program of the existing and proposed revegetated areas to assess their floristics and structure and to propose contingency measures for improvements to revegetation if required; and (iii) establish an ongoing monitoring program in the rejects emplacement area, of fauna species diversity and abundance and the effectiveness of reconstructed ecosystems in providing fauna habitat and contingency measures should impacts be identified as occurring. Note: The information obtained from the monitoring shall be used to guide future revegetation efforts on the mine site.	Compliant	Annual ecological monitoring is undertaken, and documented in the Annual Review. Copy of River Red Gum Monitoring Reports (Umwelt) and Forestry Planation Monitoring report (Umwelt) provided. Section 3.3 of the Plan outlines monitoring.	Future updates to the Flora and Fauna Management Plan should include a timeframe for proposed rehabilitation. Monitoring commitments in the BAP should be incorporated into the Flora and Fauna Management Plan.
3.6	**Prevention of Soil Erosion** (a) The Applicant shall prepare an Erosion and Sediment Control Plan for the surface facilities and extension to the rejects emplacement area in consultation with the DLWC, taking account of the DLWC "Draft Guideline for Establishment of Stable Drainage Areas on Rehabilitated Mine sites" or its latest version, and to the satisfaction of DLWC and the Director-General. The Plan shall be prepared and implemented prior to the commencement of construction and/or the expansion of the rejects emplacement area.	Compliant	2014 ESCP provided, as well as approval letter from DP&E dated 12.11.2014. Evidence of submission to DRE, and DP&E. Field inspection found minimal erosion and sediment control issues, however some recommendations are provided.	CHPP: Recommend that a small drainage line is constructed with water directed to the nearby dam at CHPP (see Photo 7 of the Main Report). There is some evidence of erosion where the water is naturally draining to another location within the overall dirty water disturbance area. Drain needs to be approximately 40 metres long and a culvert may be required to drain water under the small access road to the nearest sediment dam. Pit Top: There are some areas where sediment needs to be removed from drainage lines (see Photo 15 of Main Report). Some small nick points have occurred which require some minor earthworks to ensure water is directed from drainage lines to sediment dams (see Photo 16 of Main Report).
	(b) The Erosion and Sediment Control Plan shall include but not be limited to: (i) details of temporary and permanent erosion and sediment control systems to be used during both construction and/or the expansion of the rejects emplacement area, including earthworks associated with landscaping; (ii) details of soil salinity management where relevant; (iii) measures that will be employed to minimise soil erosion and the discharge of sediment and other pollutants to lands and/or waters during construction and/or the expansion of the rejects emplacement area. The Plan should be prepared in accordance with the requirements for such plans outlined in Managing Urban Stormwater: Soils and Construction (available from the Department of Housing) or its latest version; (iv) the consideration of the location and purpose of structures in the erosion and sediment control plan to maximise similarities between pre-development and post-development drainage networks with reference to catchment areas, drainage densities and discharge characteristics; (v) consideration and management of erosion and sedimentation of affected surface watercourses/waterbodies, including creek lines within the DA areas; (vi) measures to construct banks, channels and similar works to divert stormwater away from disturbed and contaminated land surfaces such as mine workings, coal handling areas and wastewater treatment facilities. All diversion banks, channels and points of discharge must be constructed or stabilised so as to minimise erosion and scouring; and (vii) a program for reporting on the effectiveness of the erosion and sediment control systems and performance against objectives contained in the approved Erosion and Sediment Control Management Plan, and EIS.	Compliant	2014 ESCP provided, as well as approval letter from DP&E dated 12.11.2014. Evidence of submission to DRE, and DP&E. Key requirements of this condition covered within the Management Plan, including Section 1.3 - Management Plan requirements and Section 2 of the Management Plan. Document outlines key controls for erosion and sediment control. Field inspection found minimal erosion and sediment control issues, however some recommendations are provided. Erosion and sediment controls include the use of sediment dams and drainage lines. Key Blue Book design drawings are included as an Appendix to the ESC Plan. Key figures are included within the ESC Plan.	See above recommendation. Update water management/erosion figure with any changes to site drainage as previous updates are from 2011.
	(c) The Applicant shall also prepare a Soil Stripping Management Plan for the expansion of the rejects emplacement area, prior to the commencement of construction of the reject emplacement area, to the requirements of DMR and DLWC that shall include, but not be limited to: (i) details to ensure the maximum retrieval of suitable topdressing material and appropriate management of topsoil stockpiles including immediate revegetation to protect from soil erosion and to control potential weed problems; (ii) details of the management of soil stockpiles, soil stripping techniques and scheduling; (iii) control of weed infestation on topsoil stockpile material; (iii) details of estimated quantities of suitable topdressing material required for subsequent respreading on rehabilitated land; and (iv) a program for reporting on the effectiveness of the soil stripping methods and performance against objectives contained in the soil stripping management plan, and EIS.	Compliant	Copy of 2011 Soil Stripping Management Plan provided. No soil stripping during the audit period. No topsoil stockpiles. Section 2 and 3 cover these requirements, however no planned implementation during next audit period.	
	(d) The company is to re-establish a post-mining drainage system which is comparable to the drainage density and discharge characteristics of the pre-mining land for each affected drainage line discharging from the area of the mining development. The design and implementation of the post-mining drainage system is to be prepared prior to the cessation of mining and to the satisfaction of DLWC.	Not Triggered	The site is in Care and Maintenance and has not reached mine closure and final landform establishment yet. Rod Masters from SLR completed a site inspection regarding rehabilitation and surface water with this including a review of rehabilitation within the former REA. The inspection noted the rehabilitation was of high quality, with minimal areas of erosion and a good ground cover consisting of a mix of pasture and legume species.	
	(e) The Applicant shall install a flexible drop structure in Sandy Creek or its tributaries and undertake such other measures as required by DLWC when headward erosion of the creek bed becomes evident.	Not Triggered	This area is inspected annually - no action required during audit term. Underground mining was not carried out under this creek.	
	(f) The Applicant shall implement soil erosion mitigation measures at ventilation shafts to the satisfaction of DLWC, including a sedimentation structure to collect runoff from disturbed areas.	Compliant	Vent shaft 1 inspected. No ESC issued identified. Area is flat, with disturbed area forming part of the dirty water management system.	
3.7	**Site Rehabilitation Management** The Applicant shall carry out rehabilitation of all mine areas, including decommissioned gas and water substation sites, in accordance with the requirements of any Mining Lease granted by the Minister for Mineral Resources and ensure the progressive rehabilitation of the area is also to the satisfaction of DMR and DLWC. The rehabilitation shall also have regard to the latest version of the Synoptic Plan: – Integrated Landscapes for Coal Mine Rehabilitation in the Hunter Valley of NSW.	Compliant	Copies of mining leases provided. No rehab works undertaken during audit period. Site inspection found that rehab areas are being managed well. REA rehab reports show that rehab is progressing well. Rod Masters from SLR completed a site inspection regarding rehabilitation and surface water with this including a review of rehabilitation within the former REA. The inspection noted the rehabilitation was of high quality, with minimal areas of erosion. There was evidence of species diversity through legumes and other natives grasses.	

3.8	**Visual Amenity and Landscaping** (a) A Landscape Management Plan shall be prepared by the Applicant and approved by the Director-General prior to commencement of construction. The Plan shall be prepared in consultation with DMR, MSC and SSC. In preparation of the plan, regard shall be given to the Aberdeen Sheet of DMR's Synoptic Plan: Integrated Landscapes for Coal Mine Rehabilitation in the Hunter Valley of NSW. The Landscape Management Plan shall be appended to the Mining Operations Plan (Condition 2.1) and shall include, but not be limited to, the following: i) An on-site landscaping strategy detailing design and proposed planting of trees and shrubs and/or the construction of mounding or bunding: 1) adjacent to the Dam and Ventilation Shaft No.1 where screening of new infrastructure is required from Dartbrook Road. 2) screening of new infrastructure, where required, from other public roads including Kayuga, and Dartbrook and Coal Creek Roads; 3) around the Drift Access to reduce lighting effects; 4) in areas of the eastern facilities site where replanting of existing screening is required. This shall include, where necessary, the construction of a suitably screened bund wall on the northern and southern ends of the CHPP to reduce visual effects on nearby residences at Aberdeen and nearby rural properties; 5) as part of the rehabilitation of the Rejects Emplacement Area; 6) along sections of the new access road to the mine site; 7) along sections of the New England Highway; and 8) at any other areas identified as necessary by MSC or SSC for the maintenance of satisfactory visual amenity, and as agreed by the Director-General. ii) Appropriate erosion control and sediment control practices for earthworks associated with the landscaping. iii) Details of visual appearance of new buildings, structures, facilities or works (including paint colours, screenings and specifications). New buildings and structures (including the Nitrogen Injection Plant) shall be designed and constructed so as to present a neat and orderly appearance and to blend as far as practicable with the surrounding landscape. iv) Details, specifications and staged work programs to be undertaken, maintenance and monitoring of all landscape works and maintenance of building materials and cladding. v) Details of a monitoring program to assess the effectiveness of visual impact mitigation measures. The program will be developed in consultation with MSC and SSC and be prepared to the satisfaction of the Director-General; vi) Reporting of monitoring results in the AEMR and to MSC, SSC and the CCC. Monitoring results would specifically identify any remedial works required; vii) Details of contingency measures to be applied in the case that proposed visual mitigation measures are not successful; viii) the process of incorporating vegetation screening and fauna protection corridors into the proposed visual and landscaping works, where practicable; ix) use of indigenous species; x) details of predicted visual impacts from the proposed rejects emplacement area on residences not owned by the Applicant, SSC land and Aberdeen. The predicted visual impacts shall be in the form of a montage and transects showing clear sightlines from the viewer to the proposed rejects emplacement area; xi) details of an off-site landscape strategy which will detail proposed off-site mitigation measures and include the: 1) identification of those properties to be offered off-site visual enhancement works, in accordance with predicted adverse visual impacts; 2) details of consultation with the relevant landowners; and 3) details of the procedure to be followed to design and implement appropriate off-site vegetation screening if requested by landowners identified under 1 above; and xii) consideration of the visual impact and adequacy of associated mitigating measures on the Aberdeen property of SCC, with recommendations for any additional measures including consideration of buffer land, as applicable. This consideration shall be undertaken by an independent qualified person(s) appointed by the Director-General, in consultation with SCC and Applicant, and paid for by the Applicant.	Compliant	Copy of Landscape Management Plan provided, document states it was prepared in consultation with relevant agencies and in accordance with the Synoptic Plan. Approved prior to 2013. Landscape Management Plan outlines visual and landscaping management and covers the key requirements of this condition. Section 1.3 of Management Plan outlines key requirements. Locations of landscape strategy is outlined in Section 2. Monitoring program outlined in Section 3 and 4 of the Management Plan. Visual management and monitoring is outlined in Section 6.10 of the Annual Review with additional maintenance recommended to continually improve screening. Field inspection found that visual amenity and landscaping was satisfactory. There have been no complaints during the audit period regarding visual, landscaping or lighting. Rehabilitation of the former REA has reduced the visual impact of the operation.	
	(b) In the event that a landowner other than those identified in subclause (a)(xi) above, considers that his/her residence is visually impacted by the proposal, greater than predicted in the Landscape Management Plan once the proposal is operational, the Applicant shall, upon the receipt of a written request, consult the landowner, discuss their concerns and, if necessary, possible mitigation.	Not Triggered	Not triggered during the audit period.	
	(c) Should the Applicant and/or landowner dispute the level of adverse impact or any proposed mitigation measures from subclause (a)(xi) or (b) above, then either party may refer the matter to the Director-General in consultation with MSC and/or SSC. If the matter cannot be resolved within 21 days, the matter shall be referred to the Independent Dispute Resolution Process. The decision of the Independent Dispute Resolution Process shall be final, as agreed by the Director-General.	Not Triggered	Not triggered during the audit period.	
	(d) Notwithstanding subclauses (b) and (c) above, the Applicant shall fund and undertake an independent review of the visual impact of the proposed rejects emplacement area on SSC's land, every five years from the commencement of mining operations, unless otherwise agreed by the Director-General. The independent review shall be undertaken by an independent Landscape Expert appointed by the Director-General in consultation with SSC and the Applicant. The independent Landscape Expert shall determine whether the actual visual impact of the rejects emplacement area on SSC's land is greater than that predicted in the Landscape Management Plan. If the independent Landscape Expert determines that the impact on SSC's land is greater than that predicted in the Landscape Management Plan, the independent Landscape Expert shall make recommendations to mitigate the impact.	Not Triggered	Suspended by DP&E while on Care and Maintenance. DP&E email 01/12/2005.	
	(e) If either party disputes the determination and recommendations of the independent Landscape Expert in subclause (d) above, either party may refer the matter to the Director-General for final determination.	Not Triggered	Not applicable as per above.	
3.9	**Bushfire and other Fire Controls** The Applicant shall: (a) provide adequate fire protection works, fire fighting equipment and hazard reduction measures with particular attention to boundaries of adjoining landholdings;	Compliant	Fire protection works, fire fighting equipment and hazard reduction measures are summarised in Annual Reviews. Fire fighting equipment observed around the site during field inspection. Water supply available for fire fighting purposes.	
	(b) submit an annual report on fire management activities to the Muswellbrook Fire Management Committee; and	Compliant	Included in the Annual Review. Distributed to MSC, FRS and MFMC.	
	(c) prepare a Bushfire Management Plan for all its holdings contained in the DA area, prior to commencement of mining operations, to the satisfaction of MSC, SSC and the Rural Fire Service.	Compliant	2011 Bushfire Management Plan sighted, document states it was prepared in accordance with MSC, SSC and RFS.	
3.10	**Land Management** (a) The Applicant shall, prior to commencement of construction or Mining Operations update the current Dartbrook Mine Land Management Plan for the areas of the proposed surface facilities, and its holdings in the DA area, to provide for proper land management in consultation with DLWC, MSC, and to the satisfaction of the Director-General. The plan shall include, but not be limited to: (i) pastures and remnant vegetation management; (ii) prevention and rehabilitation of land degradation; (iv) assessment of the potential for commercial harvesting of standing timber removed from the site; (v) eradication of vermin and noxious weeds as required by the Rural Lands Protection Board, the Upper Hunter Weeds Authority, the Prickly Pear Authority and other relevant authorities; and, (vi) feral animal control.	Not Triggered	No construction or mining activities undertaken during audit period. Operating under approved Landscape Management Plan. Land Management Plan covers requirements in this condition.	
	(b) The Applicant shall minimise the removal of trees and other vegetation from the proposed surface facilities area, and restrict any clearance to the areas occupied by mine activity, buildings and paved surfaces, and those areas necessary for fire control in accordance with MSC requirements.	Not Triggered	No construction or mining activities undertaken during audit period.	
	(c) The Applicant shall ensure that the agricultural capability of lands under its control within the mining lease area are at a level not less than the level at the date of this consent.	Compliant	Land not used for mining purposes is leased allowing agricultural practices to continue. REA grazing trial (9 March 2016) concluded that the area is in excellent condition and responding well to cattle grazing.	Prior to recommencement of operations, consider getting an independent Agricultural assessment completed to confirm the capacity of the land.
	(d) The Applicant shall maintain a minimum 50 metre wide buffer strip between the southern rejects emplacement area and the adjacent land owned by Mr and Mrs L Wilkinson. Surface drains and an access road may be constructed within the 50 metre wide strip.	Not Triggered	The land is now owned by Dartbrook. No change to the area was required or made during audit period due to Care and Maintenance activities.	
4.0 Water Management and Monitoring				

4.1	**Surface & Ground Water Management Plans** The Applicant shall: (a) prior to the commencement of Mining Operations, prepare a Site Water Management Plan for the DA area, in consultation with DLWC, MSC and to the satisfaction of the Director-General, which shall include, but not be limited to, the following matters: (i) management of the quality and quantity of surface and ground water within the areas covered by the water management plans; (ii) management of stormwater and general surface runoff diversion to ensure separate effective management of clean and dirty water; including details of temporary surface drainage works to minimise the flow of surface water onto the rejects emplacement area and details of drainage works to direct runoff from the active rejects emplacement areas to onsite storage dams; (iii) measures to prevent the degradation of downstream surface water quality below the pre-mining ANZECC beneficial water use classification due to mining operations, particularly in the Hunter River; (iv) measures to determine whether any groundwater from the Hunter River alluvium aquifers is captured by the mine including a response plan in the event that monitoring shows evidence of a dilution o salinity or change in water chemistry, or increase in inflow rate that may indicate leakage from the alluvium to the Hunter Tunnel; (v) measures to be implemented in the event that the continued operation of the Hunter Tunnel leads to a significant increase in groundwater salinity in the alluvial aquifer system; (vi) contingency plans for managing adverse impacts of the development on surface and groundwater quality which shall include: 1) contingency arrangements to manage excess saline water if the storage of the mine water management system is exceeded; and 2) contingency measures to manage any impacts identified by monitoring that the management strategies have failed to predict or control, particularly relating to groundwaters associated with the alluvial aquifer of the Hunter River, in consultation with DLWC. (vii) details of a dispute resolution process to resolve issues where deepening and/or increased operational costs of licensed bores where the water table has been lowered by mining activities, is disputed between the Applicant and affected landowner; (viii) measures to ensure that waters of poorer quality are effectively segregated and reused on the site. (ix) details of a strategy for the decommissioning of water management structures, including dirty water dams and clean water diversion dams; (x) measures to isolate heavily contaminated waters, including waters containing oil and grease, or other pollutants, operation chemical residues or other criteria, to avoid mixing with reuse or discharge waters; (xi) measures for assessing chemical water quality impacts of the mining operation above and below the mine site; (xii) projection of potential groundwater changes during mining (short term) and post-mining (long term) with particular attention given to the affect of changes to groundwater quality and mobilisation of salts including downgradient of the rejects emplacement area; (xiii) details of consultation with landholders who use water from the proposed longwall mining area and adjacent area and those parts of Dart Brook and Sandy Creek alluvia immediately adjacent to the mining areas, in relation to their requirements for and the availability of, water and shall consider those water uses in the formulation of the management plan; (xiv) details of a surface water and groundwater monitoring program (refer to clause 4.2(a)(ii); and (xv) a program for reporting on the effectiveness of the water management systems and performance against objectives contained in the approved site water management plans, and EIS.	Compliant	SWMP sighted (dated 20 April 2015), and approval letter provided. Submission letter to Planning and DRE sighted. Evidence of consultation with DLWC (DPI Water) and MSC as part of 2015 update was sighted. Emails from 17 September 2015. Key aspects covered within MP i. throughout ii. S2-4 iii. S2.2 iv.S2.2 v. S2.2 and 5.2 vi.S2.2 and 5.2 vii.S5.2 viii. S5.2 ix. No decomissioning as site is in care and maint. x.S2.2 xi. S4 xii S2.2 xiii. S5.4 xiv. S4 xv. S6 Minimal surface/groundwater issues identified during audit inspection. There were some small areas at the pit top and the CHPP where erosion and sediment control could be improved, however these are minor issues only. See Condition 3.6 for recommendation regarding erosion and sediment control. Water management seperated into clean and dirty water. AEMRs and Annual Reviews cover water management. Monitoring results are outlined in the Annual Review.	
	(b) The Applicant shall undertake annual assessments of the accuracy of the groundwater model predictions outlined in the EIS compared with monitored groundwater impacts in consultation with DLWC. Details of the assessments shall be reported in the AEMR and the scope of the assessment shall be determined in consultation with DLWC. Should the assessment identify significant differences between the EIS model predictions and monitored impacts, the Applicant shall revise the assessment of the potential impacts on groundwater systems in consultation with DLWC and implement any further mitigation measures in consultation with DLWC.	Compliant	Assessment completed and summarised in Annual Reviews. 2015 Annual Review stated: *In conclusion, the review of monitoring data for groundwater levels during the reporting period showed results were generally consistent with the predictions made in the Dartbrook EIS and in agreement with similar assessments undertaken by AGE in previous years.*	
	(c) In the event that the development adversely affects groundwater users, the Applicant shall in consultation with DLWC, liaise with the users to provide a replacement water supply of similar quality and quantity to that affected, until such time as the development ceases to impact on the users' water supply.	Not Triggered	No impacts to other groundwater users.	
	(d) 7The Applicant shall obtain a licence from DLWC under: (i) Part 2 of the Water Act 1912, for the drainage diversion channels (Changing the course of a river); (ii) Part 5 of the Water Act 1912 for the bores and wells which intersect the groundwater table, including monitoring bores and the excavations which intersect the groundwater table.	Compliant	Licence summary provided in Annual Review.	
	(e) 8The construction or mining operations shall not damage or interfere with: • vegetation outside the area of operation; • the stability of adjacent or nearby streams; or • the quality of water in the stream or watercourse except as authorised by the EPA.	Not Triggered	No construction or mining undertaken during the reporting period.	
	(f) 9The Applicant shall ensure that soil and/or vegetation material to be removed from the area of operations shall be disposed of to an appropriate site where it will not re-enter the watercourses or drainage systems.	Not Triggered	No clearing during audit period.	
	(g) 10The Applicant shall be responsible for any excavation or soil removal undertaken by any other person at the mine site.	Not Triggered	No excavation or soil removal undertaken during audit period.	
	(h) The Applicant shall ensure that all drainage diversion works at the mine site shall minimise adverse impacts, in consultation with DLWC. This shall include: (i) sufficient flow detention measures to provide flow rates at non-erosive velocities prior to re-entry into the natural drainage system; (ii) provision of adequate scour protection to ensure that where flows re-enter natural drainage lines from the diversion drains, adverse erosion impacts do not occur; (iii) designing all diversion systems to provide stability for the long-term for permanent diversions or for the designed life for temporary diversions; (iv) undertaking a pre-construction survey, by a suitably qualified person, of the channel site and adjacent banks showing design channel profile on cross-sections; (v) undertaking engineering hydraulic calculations by a suitably qualified person and assessment of scour potential of the channel to meet design flood capacity. This should be related to flow velocities, stability of design bed material type and bed slopes and profiles; (vi) revegetating the banks of the new channel using suitable species immediately following excavation; (vii) rehabilitating using locally grown species transplanted and embedded into erosion matting where required in areas of high scour rates. The diversion system may require time for appropriate revegetation prior to its connection to divert water; (viii) ensuring the sizes of any culverts are determined by a suitably qualified person; (ix) ensuring the flows or hydraulic levels upstream and downstream of any culverts shall not hinder the passage of fish and aquatic animals where appropriate. Any culverts must be constructed so that they comply with NSW Fisheries Policy and Guidelines for culvert construction. (x) preventing erosion of the bed and banks upstream and downstream of any culvert with suitable scour protection as recommended by a suitably qualified person.	Not Triggered	No construction/changes to drainage during the audit period.	
	Surface and Groundwater Monitoring (a) The Applicant shall: (i) construct and locate surface and groundwater monitoring positions, as identified in the Site Water Management Plan (Condition 4.1(a)) in consultation with DLWC, and to the satisfaction of the Director-General, at least three months prior to the commencement of mining operations; (ii) prepare a detailed monitoring program in respect of ground and surface water quality and quantity, including water in and around the DA area during mining works and post mine operations in consultation with DLWC which shall form part of the Site Water Management Plan. The monitoring program shall have the capacity to collect sufficient data to adequately assess: 1) the impact on groundwater levels on neighbouring properties and in the locality, and to identify any water quality impacts; 2) the impact of the development on groundwaters associated with the alluvial aquifer of the Hunter River including the ongoing monitoring of the volume and quality of water inflows into the Hunter Tunnel; 3) regional groundwater levels and water quality including the extension of the regional groundwater monitoring network to include bores RDH508-511; and 4) any concerns or complaints from surrounding landholders on groundwater matters, and any ensuing actions, which shall be recorded and be available to DLWC. (iii) report on the monitoring results and raw data in the AEMR on the following matters: 1) a basic statistical analysis (mean, range, variance, standard deviation) of the results for the parameters measured in individual bores / wells and as a subset of the aquifer; 2) an interpretation of the water quality results and changes in time for water quality and water levels (supported with graphs, contour plots showing changes in aquifer pressure levels); 3) an interpretation of the water balance identifying the volume of water and comparing this to predictions made in the EIS or the previous AEMR; and 4) provide an electronic copy of the data forwarded to DLWC. (iv) 12The Applicant must consult with the DLWC and submit the Groundwater and Surface Water Monitoring Program in subclause (a)(ii) to the EPA when an application for a licence variation is submitted.	Compliant	Surface water and groundwater monitoring results summarised in the Annual Reviews. Surface water and groundwater results are summarised in Section 6.5 and 6.6 of the Annual Review. Results indicated variations and fluctuations at monitoring locations, but none associated with the site. Evidence to supplied to the auditor indicates monitoring has been completed in accordance with frequency required. 2015 Annual Review stated: <u>Groundwater</u> *In conclusion, the review of monitoring data for groundwater levels during the reporting period showed results were generally consistent with the predictions made in the Dartbrook EIS and in agreement with similar assessments undertaken by AGE in previous years.*	

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<tr><td colspan="2">5. Rejects Emplacement Area and Waste Management</td><td></td><td></td><td></td></tr>
<tr><td></td><td>Rejects Emplacement Area
(a) The Applicant shall:
(i) Ensure the construction, operation and decommissioning of the rejects replacement area meets relevant geotechnical factors of safety and long-term stability criteria, suitable for a permanent feature of the landscape;
(ii) Unless otherwise agreed to by the Department of Primary Industries, ensure the design of the rejects emplacement area addresses:
• the need for subsurface drainage;
• compaction of rejects within the emplacement to achieve a target of 95 percent standard compaction, and at all times achieve a 90 percent standard compaction;
• temperate control and monitoring using thermo-couples within the emplacement; and
(iii) Prepare and implement a surveillance program to monitor the geotechnical stability of the rejects emplacement area, including periodic geotechnical analysis of the reject material to ensure it continues to meet relevant design criteria,
to the satisfaction of the Department of Primary Industries.</td><td>Compliant</td><td>Annual Review states an annual geotechnical inspection of the REA is undertaken. Letter from Planning dated (07.09.2006) approved removing the requirement for extensive REA surveillance, and instead, approved managing the REA through the MOP process. Letter from Doug Stewart to DRE dated 12.12.14 regarding elevated temp levels in REA exceeding TARP triggers. REA grazing trial (9 March 2016) concluded that the area is in excellent condition and responding well to cattle grazing.

A review of the REA by Rod Masters at SLR indicated high quality rehabilitation.</td><td></td></tr>
<tr><td>5.1</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>(b) Prior to the emplacement of rejects in the southern and northern rejects emplacement areas, and for any subsequent modifications to the design of these emplacement areas, the Applicant shall:
(i) Commission a suitably qualified, experienced and independent geotechnical expert, whose appointment has been approved by the Director-General, to review the detailed design (and surveillance program) for the southern and northern rejects emplacement areas to verify each design meets relevant geotechnical factors of safety and long-term stability criteria;
(ii) Implement all reasonable and feasible recommendations made by the independent geotechnical expert to improve the detailed design or the surveillance program for the southern and northern rejects emplacement areas; and
(iii) Provide a copy of the independent geotechnical expert's report to the Department of Primary Industries and the Director-General, to the satisfaction of the Department of Primary Industries.</td><td>Not Triggered</td><td>Undertaken as part of original REA construction. No reject emplacement during the reporting period. A review of the REA by Rod Masters at SLR indicated excellent landform shaping in regards to surface water management</td><td></td></tr>
<tr><td></td><td>(c) Prior to emplacement of rejects in the southern rejects emplacement area, the Applicant shall prepare and implement a revised Rehabilitation Strategy for all rejects emplacement areas at the mine, to the satisfaction of the Department of Primary Industries</td><td>Not Triggered</td><td>Not applicable in audit period due to Care and Maintenance Operations. No REA Extensions during in audit period. REA grazing trial (9 March 2016) concluded that the area is in excellent condition and responding well to cattle grazing.</td><td></td></tr>
<tr><td>5.2</td><td>Waste
(a) Prior to the commencement of construction or Mining Operations, the Applicant shall prepare and implement a Waste Management Plan for the DA area in consultation with MSC and to the satisfaction of the Director-General. The Plan shall include, but not be limited to:
(i) details of measures to facilitate waste management on site;
(i) details of compliance with the Applicant's obligations under the Protection of the Environment Operations Act (1997);
(ii) identification of all types and quantities of waste materials produced at the mine site during construction, commissioning and operation;
(iii) programs aimed at minimising the production of waste at the mine site through the implementation of operational and management measures;
(iv) details of the potential reuse and recycling avenues for waste materials produced at the mine site, including collection and handling procedures;
(v) details of appropriate disposal routes in the event that reuse and recycling avenues are not available or are not practicable; and
(vi) programs for involving and encouraging employees and contractors to minimise waste production at the mine site and reuse / recycling where appropriate.</td><td>Compliant</td><td>2002 Waste Management Plan sighted (operations). No evidence of consultation with MSC or DP&E sighted. Minimal waste generated due to Care and Maintenance. Waste separation bins observed at CHPP during site inspection.
Letter from Planning dated (07.09.2006) approved removing the requirement for an annual waste audit, and instead just report on waste in the Annual Review.

Aspects covered within the Management Plan, including:
i. S2 and 3
ii.S2 and 3
iii.App A
iv.S3.1
v.S3.1 and App A
viS3.1 and App A</td><td>Recommend site update the Waste Management Plan as required if operations recommenced. Until then continue to outline waste management in the Annual Review.</td></tr>
<tr><td></td><td>(b) The Applicant shall dispose of all solid waste and putrescible matter from the site to the satisfaction of MSC or EPA, as relevant.</td><td>Compliant</td><td>Waste management summarised in Annual Review and sent to MSC and EPA. No solid or putrescible waste management issues observed during site inspection.</td><td></td></tr>
<tr><td></td><td>(c) The Applicant shall dispose of all treated sewage and sullage to the satisfaction of MSC and in accordance with the EPA Licence.</td><td>Compliant</td><td>Doug Stewart advised sewage treated in the Sewage Treatment Plant with treated liquids irrigated as approved by the EPL. Monitoring as per the EPL.</td><td></td></tr>
<tr><td>5.3</td><td>Tailings Disposal
(a) The Applicant shall not use tailing dams for the disposal of fine coal rejects, other than in emergency situations when the ratio of fine to coarse rejects are not within the specifications for the waste plant.</td><td>Not Triggered</td><td>No tailings disposal during the audit period. Site in Care and Maintenance.</td><td></td></tr>
<tr><td></td><td>(b) The Applicant shall prepare a report to the Director-General every five years, or as otherwise agreed by the Director-General, reporting on the feasibility of using goaf areas of the Dartbrook Extended Mine, other than that described in the "Dartbrook Mine Statement of Environmental Effects for New ROM Coal Stockpiles, Underground Tailings Disposal & Nitrogen Injection Plant", dated 12 August 2005 and prepared by Hansen Consulting, for rejects disposal.</td><td>Not Triggered</td><td>No tailings disposal during the audit period. Site in Care and Maintenance.</td><td></td></tr>
<tr><td colspan="2">6. Air Quality, Noise and Light Management and Monitoring</td><td></td><td></td><td></td></tr>
<tr><td>6.1</td><td>Air Quality Management and Monitoring
<u>Air Quality Standards/Goals</u>
(a1) The Applicant shall comply with the air quality standards/goals listed in Tables 1 and 2:
Table 1: Health based air quality standards/goals
<table><tr><th>Dust Type</th><th>Standard/Goal</th><th>Source Agency</th></tr><tr><td>Total suspended particulate (TSP) matter</td><td>90 µg/m³ (annual average)</td><td>NHMRC[1]</td></tr></table>[1] National Health and Medical Research Council.
Table 2: NSW EPA amenity based air quality standards/goals
<table><tr><th rowspan="2">Existing dust fallout level (g/m²/month)</th><th colspan="2">Maximum acceptable increase over existing deposition levels (g/m²/month)</th></tr><tr><th>Residential</th><th>Other</th></tr><tr><td>2</td><td>2</td><td>2</td></tr><tr><td>3</td><td>1</td><td>2</td></tr><tr><td>4</td><td>0</td><td>1</td></tr></table></td><td>Compliant</td><td>Air quality monitoring results summarised in Annual Review. No exceedances with the standards/goals (in this condition) for TSP and depositional dust during the audit period. This is expected as the site in on Care and Maintenance.</td><td></td></tr>
</table>

	Dust Management Plan (a) The Applicant shall, prior to the commencement of construction or Mining Operations, prepare a Dust Management Plan detailing air quality safeguards and procedures for dealing with dust emissions from the Dartbrook Underground Mine Extension to the satisfaction of the Director-General. The Dust Management Plan shall be prepared in consultation with the EPA, MSC and SSC. The Plan shall include, but not be limited to, details of: (i) the identification of dust affected properties in accordance with the relevant air quality standards/goals in Tables 1 and 2; (ii) reporting of the dust emissions from the Mine in comparison to all of the air quality standards and goals provided in Tables 1 and 2. (iii) specification of the procedures for the dust monitoring program for the purpose of undertaking independent dust investigations; (iv) outline the procedure to notify property owners and occupiers likely to be affected by dust from the mine in excess of standards/goals detailed in Tables 1 and 2; (v) measures to reduce the potential for wind erosion from exposed surfaces; (vi) methods for making dust monitoring data publicly available, such as the placement of monitoring details and results on the internet; (vii) measures to manage and mitigate short term episodic events including investigations into the relationships between short-term variations in dust levels (particularly TSP and dust deposition) and levels of complaints and annoyance, with a view to reviewing the monitoring approaches and criteria for acceptable levels of impact; (viii) the establishment of a protocol for handling dust complaints that include recording, investigating, reporting and acting on complaints, including where complaints are received and it is demonstrated dust levels are below the criteria contained in this consent; (ix) appropriate mechanisms for community consultation; (x) outlining proactive/predictive and reactive mitigation measures to be employed to minimise dust emissions; (xi) outlining mitigation measures to be employed to minimise dust emissions including dust from rejects emplacement area in dry and windy conditions; (xii) equipment to be available and used to control dust generation; (xiii) methods to determine when and how the mine operation is to be modified to minimise the potential for dust emissions, particularly from surface activities if the relevant criteria are exceeded; (xiv) identification of longer term strategies directed towards mitigating dust levels that exceed the air quality standards/goals in Tables 1 and 2; (xv) details of locations for dust monitoring and deposition gauges at the residential areas and frequency of monitoring, as agreed with the EPA; (xvi) a program to continue baseline monitoring undertaken prior to development consent; and (xvii) Monitoring and reporting protocol for PM10 (particulate matter less than 10 microns) and a comparison with the: • National Environment Protection Council PM10 goal of 50 ìg/m3 (24 hour average); and • EPA PM10 goal of 50 ìg/m3 (annual average).	Administrative Non-Compliance	Copy of 2014 Dust Management Plan provided. Evidence of submission to, and approval (24 November 2015) from DP&E provided. It is acknowledged that the original Dust Management Plan was prepared in consultation with EPA, MSC and Upper Hunter Council. There is no evidence that consultation was completed for 2015 Dust Management Plan update apart from sending to DP&E for approval. Dust MP requirements outlined in following sections: i) no dust affected properties; ii) S8 iii. S6.3 iv. S7 v. S4 vi.S8 vii. S5.3 viii.S7 ix. S7 x.S7 and 8 xi.S5 xii.S5 xiii. S7 xiv. Dust levels are low. S7 of MP xv.S4 xvi. S4 xvii S8 Air quality monitoring indicates that dust is generally being managed effectively (site is on care and maintenance), with minimal sources of dust from the site. **Implementation:** During the field inspection it was observed that the former coal stockpile area has been partially rehabilitated with a pasture mix, however there are several areas that have poor ground cover. Dust results have been low during the audit period.	All future updates to management plans should be completed in consultation with the relevant government agencies. Recommend soil testing on stockpile area to determine why some areas show minimal or no growth. Following tests, develop a plan to improve revegetation cover eg. Use of ameliorants, additional seeding.
	Air Quality and Dust Monitoring (b) The Applicant shall: (i) undertake monitoring at locations described in the Dust Management Plan (Condition 6.1(a)); (ii) establish dust deposition, total suspended particulate (TSP) and PM10 monitoring locations for the mine operations, including sites for monitoring impacts of dust at the nearest non-mined owned residences, and locations as may be determined to be necessary by the Director-General and in accordance with the Dust Management Plan referred to in Condition 6.1(a); (iii) provide quarterly reporting on the performance of the control measures and of the monitoring system detailed in the EIS and conditions of this consent, unless otherwise agreed by the Director-General. The reports shall be provided to the Director-General, CCC and MSC; and (iv) provide all results and analysis of air quality monitoring in the AEMR including a determination of the dust deposition rate in g/m2/month, which shall be plotted in the AEMR.	Compliant	Dust monitoring implemented, and results summarised in the Annual Review and distributed to relevant stakeholders as part of Annual Review submission. Letter from Planning dated (07.09.2006) approved Annual Review reporting instead of quarterly reporting.	
	(c) In the event that a landowner or occupier considers that dust from the project at their dwelling or over more than 25% of their vacant land is in excess of the criteria in Tables 1 and 2, and the Director-General is satisfied that an investigation is required, the Applicant shall upon the receipt of a written request: (i) consult with the landowner or occupants affected to determine their concerns; (ii) make arrangements for, and bear the costs of appropriate independent dust investigations in accordance with the Dust Management Plan, (which may involve an audit of the mine's monitoring program) and to the satisfaction of the Director-General, to quantify the impact and determine the source of any effect of Dartbrook Mine; (iii) modify the mining activity or take other steps in accordance with the Dust Management Plan if exceedances are demonstrated to result from the mine related activity. This shall include: 1) introduction of additional controls, either of dust generation from individual sources on the site or on site operations or modify operations to ensure that the dust criteria are achieved; and/or, 2) enter into an agreement with the landowner or provide such forms of benefit or amelioration of the impact of dust as may be agreed between the parties as providing acceptable compensation for the dust levels experienced. (iv) conduct follow up investigations to the satisfaction of the Director-General, where necessary. Note: Vacant land in this condition means the whole of the lot in a current plan registered at the Land Titles Office as at the date of this consent that does not have a dwelling situated on the lot and is permitted to have a dwelling on that lot.	Not Triggered	Not triggered during audit period. Site in Care and Maintenance.	
	(d) If the independent dust investigations in sub-clause (c) above confirm that dust levels are in excess of the criteria in Tables 1 and 2 above, and if the measures in sub-clause (c)(iii) (1) above do not reduce the dust levels below the criteria in Tables 1 and 2, or if agreement in accordance with sub-clause (c)(iii) (2) above cannot be reached, the Applicant shall at the written request of the owner acquire the relevant property. Acquisition shall be in accordance with the procedures set out in Condition 11.3.	Not Triggered	Not triggered during audit period. Site in Care and Maintenance.	
	(e) If a landowner disputes any dust mitigation or other measures proposed by the Applicant in accordance with subclause (c)(iii)(2), the matter shall be referred by either the Applicant or landowner to the Director-General in consultation with MSC and SSC. If the matter cannot be resolved within 21 days, the matter shall be referred to the Independent Dispute Resolution Process.	Not Triggered	Not triggered during audit period. Site in Care and Maintenance.	
	(f) Further independent investigations shall cease if the Director-General is satisfied that the criteria in Tables 1 and 2 are not being exceeded and are unlikely to be exceeded in the future.	Not Triggered	Not triggered during audit period. Site in Care and Maintenance.	
	Odour Monitoring (g) 14 The Applicant must not cause or permit the emission of offensive odours from the premises and must comply with section 129 of the Protection of the Environment Operations Act 1997.	Compliant	All gas drainage boreholes and plants that were previously utilised during operation have been decommissioned during Care and Maintenance. Letter sighted dated 14.04.14 requesting approval to seal gas boreholes. Approval letter dated 11.09.2014. No blasting under Care and Maintenance operations.	
	(h) 15 Prior to construction of each ventilation air discharge vent (ventilation shaft), the Applicant must submit a report to the EPA, which demonstrates, to the satisfaction of the EPA, that the new ventilation air discharge vents are located and designed in a manner that will not cause offensive odour impacts.	Not Triggered	No vent shafts constructed during audit period.	
	(i) 16 Within 90 days of commissioning each new ventilation air discharge vent (ventilation shaft), the Applicant must submit a report to the EPA, which includes the following site specific source emission test results: • Concentration of odour (OU/m3); • Emission rate of odour (OU/s); • Concentrations and emission rates of all other relevant air pollutants; • Volumetric flow rate (m3/s); • Discharge velocity (m/s); and • Temperature (°C). If the above parameters are outside the range used in the dispersion modelling study of each ventilation air discharge vent (ventilation shaft), then the odour impacts must be assessed once more and the results submitted to the EPA.	Not Triggered	No vent shafts constructed during audit period.	
	(j) 17 The location of sampling points and source emissions sampling and analysis must be conducted strictly in accordance with the "Approved Methods for Sampling and Analysis o Air Pollutants in New South Wales", NSW EPA, December 1999.	Not Triggered	Ventilation Shaft No. 1 is the only site still emitting. Tube bundles are used for monitoring. Management and performance is reported in the Annual Review.	

6.2	**Dust Suppression and Control** (a) The Applicant shall ensure the prompt and effective rehabilitation of all disturbed areas of the mine site to minimise the generation of wind erosion dust.	Compliant	Site inspection observed generally compliant. Some areas of poor ground cover establishment at CHPP former stockpile areas. See Photo 2 in Main Report.	Recommend soil testing on stockpile area to determine why some areas show minimal or no growth. Following tests, develop a plan to improve revegetation cover eg. Use of ameliorants, additional seeding.
	(b) The Applicant shall keep the surface of the coal stockpiles and any unsealed roads sufficiently damp to minimise the emission of wind blown or traffic generated dust.	Compliant	No coal stockpiled. Roads are rarely used as site is in Care and Maintenance. Due to Care and Maintenance a water cart is not considered necessary.	
6.3	**Blast Management and Monitoring** <u>Blasting Overpressure</u> (a) 18 The overpressure level from blasting operations on the premises must not: • exceed 115dB (Linear Peak) for more than 5% of the total number of blasts over a period of 12 months; and • exceed 120dB (Linear Peak) at any time, at any residence or noise sensitive location (such as a school or hospital) that is not owned by the Applicant or subject to a private agreement between the owner of the residence or noise sensitive location and the Applicant as to an alternative overpressure level.	Not Triggered	No blasting during the audit period.	
	<u>Ground Vibration</u> (b) 19 Ground vibration peak particle velocity from the blasting operations must not: • exceed 5mm/s for more than 5% of the total number of blasts over a period of 12 months; and exceed 10mm/s at any time, • at any residence or noise sensitive location (such as a school or hospital) that is not owned by the Applicant, or subject to a private agreement between the owner of the residence, or noise sensitive location and the Applicant, as to an alternative vibration level.	Not Triggered	No blasting during the audit period.	
	<u>Time and Frequency of Blasting</u> (c) 20 Blasting operations may only take place between 9 am and 5 pm Monday to Friday inclusive;	Not Triggered	No blasting during the audit period.	
	(d) 21 Blasting at the premises is limited to 1 blast on each day on which blasting is permitted; and	Not Triggered	No blasting during the audit period.	
	(e) 22 The hours of operation for blasting operations specified in this condition may be varied if the EPA, having regard to the effect that the proposed variation would have on the amenity of the residents in the locality, gives written consent to the variation.	Not Triggered	No blasting during the audit period.	
	<u>Blast Management Plan</u> (f) The Applicant shall prepare and implement a Blast Management Plan to the satisfaction of the Director-General, prior to the commencement of any blasting. The Plan must include, but need not be limited to, the following matters: • compliance standards; • mitigation measures; • remedial action; • monitoring methods and program; • monitoring program for flyrock distribution; • measures to be undertaken to demonstrate that Dartbrook Mine is achieving best practice in minimising both air blast overpressure and ground vibration levels; • measures to protect underground utilities (e.g.: rising mains, subsurface telecommunication and electric cables), native fauna and livestock nearby; • procedures for the notification of neighbours prior to detonation of each blast; and • measures to ensure no damage by flyrock to people, property, livestock and powerlines.	Compliant	Blast Management Plan (2002) sighted. No approval letter/consultation letters sighted. No blasting during audit period. Correspondence between Dartbrook and DoP (now DP&E) proposing and approving respectively, the mines program of "*continuing to operate under existing management plans without reviewing. Propose to modify these Management Plans should any activities recommence.*"	
	(g) The Applicant shall as a minimum for large-scale blasts (with a maximum instantaneous charge greater than 20kg), advise residents within three (3) kilometres of blasting locations on a monthly basis and of any changes to monthly programs. For small-scale construction blasts (with a maximum instantaneous charge not greater than 20kg), the Applicant shall as a minimum advise residents within one (1) kilometre of blasting locations.	Not Triggered	No blasting during the audit period.	
	(h) Upon written request of the owner of any dwelling located within three (3) kilometres of large-scale blasting locations (with a maximum instantaneous charge greater than 20kg), or within one (1) kilometre of small-scale construction blasting locations (with a maximum instantaneous charge not greater than 20 kg), the Applicant shall arrange at its own costs, for the inspection by a technically qualified person agreed to by both parties, to record the material condition of any structure on such a property within 14 days of receipt of the request. The Applicant shall supply a copy of any inspection report, certified by the person who undertook the inspection, to the relevant property owner within fourteen (14) days of receipt of the report.	Not Triggered	No blasting during the audit period.	
	(i) The Applicant shall ensure that blasting shall not take place within 500 metres of a public road while such road is open to traffic. Roads shall not be closed for blasting purposes during the times that school buses use the road.	Not Triggered	No blasting during the audit period.	
	(j) The Applicant shall prepare a Road Closure Management Plan to the satisfaction of the Director-General, and in consultation with MSC and SSC prior to the commencement of any blasting within 500 metres of a public road. The Plan shall include, but not be limited to, the following matters: (i) details of the proposed safety management measures during the period of the road closure and blast; (ii) details of the procedures for closing Dartbrook Road and the period which the road will be closed during blasting activities; (iii) methods for ensuring the safety of road users and the general public during the blast period; (iv) strategies for informing road users and the local community of the proposed road closure; (v) details of the procedures for permitting the passage of emergency vehicles during the road closure. This shall also include details of the proposed methods for sufficiently notifying emergency service providers of the proposed times and period of the road closures; (vi) methods for clearing the road of any debris resulting from a blast; and (vii) details of the disruptions that are likely to occur during the closure period.	Not Triggered	No blasting during the audit period. Management Plan exists, but no was not enacted.	
	(k) Notwithstanding subclause (j) above, if blasting is proposed within 500 metres of the New England Highway, The Applicant shall prepare a Road Closure Management Plan to the satisfaction of the Director-General, and in consultation with RTA, MSC and SSC, prior to the commencement of any blasting within 500 metres of the New England Highway. The Plan shall include, but not be limited to, the matters in subclause(j) above.	Not Triggered	No blasting during the audit period.	
	<u>Blast Monitoring</u> (l) The applicant must monitor ground vibration and overpressure of all blasts.	Not Triggered	No blasting during the audit period.	
	(m) Ground vibration or the overpressure must be measured at noise sensitive sites (e.g.. residences, hospitals, schools etc), selected in consultation with the EPA.	Not Triggered	No blasting during the audit period.	
6.4	**Noise Control** **6.4.1 Noise Levels** <u>Intrusive Noise Criteria</u> (a) The Applicant shall undertake management measures as outlined in the Noise Management Plan at dwellings where the noise target criteria in Table 3 below is predicted to be exceeded, or is exceeded during mining operations. **Table 3: Intrusive Noise Criteria for Dartbrook Mine $L_{eq\ (15\ minute)}$** Location as identified in the EIS[1] — Intrusive Criteria[2,3] [Day / Evening / Night][4] $L_{eq\ (15\ minute)}$ East site receivers — 50/50/41 dB(A) West site receivers — 40/40/35 dB(A) Aberdeen — 49/42/40 dB(A) 1 For the locations of East site and West receivers refer to Schedule A. 2 These criteria apply for winds up to 3 metres per second and Pascall Stability Classes of A, B,.C, D, E, and F. 3 All measured or predicted noise levels to be rounded to the nearest decibel. 4 Daytime (between the hours of 7am and 6pm); evening (between 6pm and 10pm) and night time (between 10 pm and 7 am).	Not Triggered	On 10 May 2012, the DP&E granted approval for Dartbrook not to undertake noise monitoring while under Care and Maintenance. The Care and Maintenance strategy involves low level equipment and machinery operation for maintenance activities only.	

	Noise Acquisition Criteria (b) The acquisition zone for Dartbrook Mine is defined by predicted or demonstrated exceedance of noise levels (caused by Dartbrook Mine) at any non-mined owned dwellings of the dB(A) (Leq (15 minute)) noise limits shown in Table 4 below. **Table 4: Noise Acquisition Criteria for Dartbrook Mine $L_{eq\ (15\ minute)}$** Location as identified in the EIS[1] — Dartbrook Mine Acquisition Criteria[2,3] [Day / Evening / Night][4] $L_{eq\ (15\ minute)}$ East site receivers — greater than 55/55/46 dB(A) West site receivers — greater than 45/45/40 dB(A) Aberdeen — greater than 54/47/45 dB(A) 1 For the locations of East site and West site receivers refer to Schedule A. 2 These criteria apply for winds up to 3 metres per second and Pascall Stability Classes of A, B,.C, D, E, and F. 3 All measured or predicted noise levels to be rounded to the nearest decibel. 4 Daytime (between the hours of 7am and 6pm); evening (between 6pm and 10pm) and night time (between 10 pm and 7 am).	Not Triggered	Not required during Care and Maintenance	
	(c) The properties in Table 5 are predicted to experience noise levels greater than the acquisition levels identified in Table 4 from Dartbrook Mine, and shall be acquired by the Applicant if requested by the landowner in accordance with Condition 11.3. **Table 5: Dwellings Predicted to be Within the Intrusive Noise Acquisition Zone** Property Owner (as stated in the EIS) Knight Day Gordon	Not Triggered	Not required during Care and Maintenance	
	(d) In the event that a landowner or occupier of a non-mine owned property, excluding those properties listed in Table 5 (refer also sub clause (l) below), considers that noise from the project once operational at their dwelling is in excess of: • the noise levels depicted in Tables 3 or 4 above; or • that a landowner considers that the noise levels depicted in Table 4 is being exceeded over more than 25% of their vacant land, and the Director-General is satisfied that an investigation is required, the Applicant shall upon the receipt of a written request: (i) consult with the landowner or occupants affected to determine their concerns; (ii) make arrangements for, and bear the costs of, in consultation with the owners of other mine operations in the vicinity where necessary, appropriate independent noise investigations in accordance with the noise management plan, and to the satisfaction of the Director-General, to quantify the impact and determine the source of the effect; (iii) modify the Dartbrook Mine operations or take other steps in accordance with a noise reduction plan prepared as part of the noise management plan, if exceedances are demonstrated to result from Dartbrook Mine. This shall include: • introduction of feasible and reasonable additional controls, either on noise emission from individual sources on the site or on site operations or modify operations, to ensure that the criteria in Table 3 are achieved, as far as possible; and/or • with the agreement of the landowner, undertaking of noise control at the dwelling to achieve acceptable internal noise levels; and/or • entering into an agreement with the landowner or provide such other forms of benefit or amelioration of the impact of noise as may be agreed between the parties, as providing acceptable compensation for the noise levels experienced; (iv) conduct follow up investigations to the satisfaction of the Director-General, where necessary. Note: Vacant land in this condition means the whole of the lot in a current plan registered at the Land Titles Office as at the date of this consent that does not have a dwelling situated on the lot and is permitted to have a dwelling on that lot.	Not Triggered	Not required during Care and Maintenance	
	(e) If the independent noise investigations in sub-clause (d) above confirm that noise limits in Table 4 are being exceeded by Dartbrook Mine and the measures in Condition 6.4.1 (d) (iii) do not reduce the noise levels below the criteria in Table 4, the Applicant shall at the written request of the landowner acquire the relevant property. Acquisition shall be in accordance with the procedures set out in Condition 11.3.	Not Triggered	Not required during Care and Maintenance	
	(f) If continued complaints and noise investigations confirm that noise limits in Table 3 are being exceeded, but are less than the noise levels in Table 4, the Applicant shall continue to negotiate with the landowner until a resolution to the satisfaction of the Director-General is reached.	Not Triggered	Not required during Care and Maintenance	
	(g) If a landowner disputes any noise mitigation or other measures proposed by the Applicant in accordance with sub-clause (d) above, the matter shall be referred by either the Applicant or landowner to the Director-General in consultation with MSC and SSC. If the matter cannot be resolved within 21 days, the matter shall be referred to the Independent Dispute Resolution Process.	Not Triggered	Not required during Care and Maintenance	
	(h) Further independent investigations shall cease if the Director-General is satisfied that the relevant criteria in Tables 3 and 4 are not being exceeded and are unlikely to be exceeded in the future.	Not Triggered	Not required during Care and Maintenance	
	(i) The Applicant shall, after commencement of the mine extensions, undertake monitoring of affected residences to verify noise predictions, including management and acquisition zones to the requirements of the Director-General. Any alterations to predictions, management and acquisition zones, shall be provided to the affected resident(s) and to the Community Consultative Committee together with necessary action in accordance with this Condition.	Not Triggered	Not required during Care and Maintenance	
	(j) 24EPA Applicable Noise Limits for EPA licence purposes (refer to Schedule B)	Not Triggered	Not required during Care and Maintenance	
	(k) For the purpose of noise measurement for subclause (j) above and this consent in general, the LAeq noise level must be measured or computed at the most affected area within 30 metres of the residence or at the boundary, if the boundary is closer than 30 metres to the residence, over a period/s of 15 minutes using "FAST" response on the sound level meter.	Not Triggered	Not required during Care and Maintenance	
	(l) In the event a resident is identified in the acquisition zone by either subclause (c) or (e) above and does not wish to request acquisition, the Applicant shall: (a) take feasible and reasonable measures to minimise noise levels in the event of complaints from the resident in the acquisition zone; and (b) if requested to instigate noise mitigation measures in lieu of acquisition, shall consider the feasibility of such measures and instigate those measures at its discretion in consultation with the resident, unless otherwise agreed by the Director-General. Note: Vacant land in this condition means the whole of the lot in a current plan registered at the Land Titles Office as at the date of this consent that does not have a dwelling situated on the lot and is permitted to have a dwelling on that lot.	Not Triggered	Not required during Care and Maintenance	
	6.4.2 Noise Management Plan (a) The Applicant shall prior to commencement of mining operations, prepare and implement a Noise Management Plan for Dartbrook Mine, to the satisfaction of the Director-General. The EPA, MSC and SSC should also be consulted prior to the finalisation of the Management Plan. The Plan shall: (i) include details of the conduct of noise investigations at three monthly intervals, unless otherwise agreed by the Director-General, to evaluate, assess and report the L eq (15 minute) noise emission levels due to the normal operations of Dartbrook Mine; (ii) detail proposed methodologies including determining survey intervals; weather conditions and seasonal variations; selecting variations, locations, periods and times of measurements; (iii) detail management measures where the Intrusive criteria in Table 3 of this consent is predicted to be exceeded, or is exceeded during mining operations; (iv) outline the design of any noise monitoring and modelling or other studies including the means for determining the noise levels emitted by the Dartbrook Mine operations;	Not Triggered	As site is on care and maintenance, noise sources are during daytime only and are very minor. The Care and Maintenance strategy involves low level equipment and machinery operation for maintenance activities only.	

	(v) detail a monitoring program, mitigation measures, remedial action and measures demonstrating that Dartbrook Mine is achieving best practice in minimising low frequency noise, irrespective of set standards; (vi) particularly focus on the management of night time noise (10.00pm – 7.00am) for each year of operation; (vii) redefine both the noise acquisition and management zones for Dartbrook Mine on a yearly basis, unless otherwise agreed by the Director-General. This review shall draw upon the noise monitoring results obtained during the previous year and incorporate noise modelling to provide a forward plan of predicted noise levels for the year ahead to the satisfaction of the Director-General, and as otherwise agreed by the Director General; (viii) 25specify the procedures for a noise monitoring program for the purpose of undertaking independent noise investigations; (ix) 26outline the procedure to notify property owners and occupiers likely to be affected by noise from the operations; (x) establish a protocol for handling noise complaints that includes recording, investigating, reporting and acting on complaints, including where complaints are received and it is demonstrated that noise levels are below the criteria contained in this consent; (xi) record appropriate mechanisms for community consultation; (xii) outline proactive/predictive and reactive mitigation measures to be employed on the site to limit noise emissions; (xiii) identify longer term strategies directed towards mitigating noise levels that exceed the noise target levels in Table 3; (xiv) outline measures to be used to reduce the impact of intermittent, low frequency and tonal noise (including truck reversing alarms); (xv) 27specify measures to be taken to document any higher level of impacts or patterns of temperature inversions, and detail actions to quantify and ameliorate enhanced impacts if they lead to exceedance of the relevant noise criteria; and (xvi) 28survey and investigate noise reduction measures from plant and equipment at the conclusion of the first 12 months of coal processing operations and set targets for noise reduction taking into consideration valid noise complaints in the previous year. The Report shall also include remedial measures, to achieve compliance with the noise criteria in this consent.	Not Triggered	On 10 May 2012, the DP&E granted approval for Dartbrook not to undertake noise monitoring while under Care and Maintenance. The Care and Maintenance strategy involves low level equipment and machinery operation for maintenance activities only.	
	(b) 29 The night-time section of the Noise Management Plan shall be prepared prior to the commencement of any night-time operations.	Not Triggered	Not required during Care and Maintenance	
	(c) Prior to the commencement of construction, the Applicant must prepare, and subsequently implement, a Construction Noise Management Plan to the satisfaction of the Director-General. 31The Plan must include, but need not be limited to, the following matters: • compliance standards; • community consultation; • complaints handling monitoring/system; • site contact person to follow up complaints; • mitigation measures; • the design/orientation of the proposed mitigation methods demonstrating best practice; • construction times; • contingency measures where noise complaints are received; • monitoring methods and program.	Not Triggered	Not required during Care and Maintenance	
	(d) The Applicant shall also: (i) make copies of the Noise Management and Construction Noise Management Plans available to the EPA, MSC, SSC and CCC within fourteen days of approval by DUAP, or as otherwise agreed to by the Director-General; and (ii) include a summary of noise monitoring results in the AEMR.	Not Triggered	Not required during Care and Maintenance	
	(e) The Applicant shall ensure that the design, construction and operation of Dartbrook Extended shall not create amenity problem(s) associated with low frequency noise. The Applicant shall, in consultation with the EPA, investigate the cause of any low frequency noise causing amenity problems associated with Dartbrook and report to the Director-General the result of any such investigation and practical mitigation measures that can be adopted to eliminate such problem.	Not Triggered	Not required during Care and Maintenance	
	(f) The Applicant shall ensure that construction activity does not result in noise emissions likely, in the opinion of the EPA, to cause annoyance at residences not owned by the Applicant, having regard to the volume, impact or tone of the noise.	Not Triggered	Not required during Care and Maintenance	
6.5	**Lighting Emissions** (a) The Applicant shall, prior to commencement of construction, prepare a Lighting Management Plan in consultation with MSC, SSC and to the satisfaction of the Director-General. The Plan shall include details of the implementation of visual controls to screen, direct or manage all on-site lighting from mine related activities in respect of residences and roadways. The Plan shall include, but not be limited to: i) details of the planting of vegetation screens along Dartbrook Road, to screen potential lighting impacts; ii) details of the tree screen on the north side of the access road at the corner north of the Dam to screen potential lighting impacts; iii) details of the tree and shrub screening around the Drift Access to reduce potential lighting impacts; iv) details of technical measures and work practices necessary to minimise the spillage of light from areas to be illuminated, and to minimise the total night time glow from the mine; v) details of the construction or placement of visual screens to screen lighting impacts; vi) details of the proposed process and measures to address complaints that may be received from residents or road users impacted by lighting from the mine site; and vii) details of any other effective operating practices to manage potential lighting impacts.	Compliant	2011 Lighting Plan sighted. Minimal lighting issues as the site is in Care and Maintenance and minimal lighting at night. Field inspection identified some visual screening/bunding around the site. No complaints received in relation to lighting. Letter from Planning dated (07.09.2006) approved reducing tree screening monitoring from 2-3 times per year to once per year.	
	(b) The Applicant shall report on the effectiveness of the lighting emission controls in the AEMR.	Compliant	Lighting has been summarised in the Annual Reviews.	
	(c) The Applicant shall ensure that on-site lighting does not directly emit light into the line of sight of nearby dwellings. The light emitted from any direct flood lighting and any vehicle headlights shall be directed away from dwellings and public roads.	Compliant	Minimal lighting issues as the site is in Care and Maintenance.	
	(d) The Applicant shall ensure that light emitted from locomotive headlights whilst a locomotive is on or moving off the rail loop shall be screened from dwellings to the satisfaction of MSC or as otherwise agreed by the Director-General.	Not Triggered	No rail movements in Care and Maintenance.	
6.6	**Vibration from Mine Operations** (a) Ground vibration peak particle velocity from the rail loop and/or CHPP facility must not: • exceed 2.82 mm/s at any time, at any residence or noise sensitive location (such as a school or hospital) that is not owned by the Applicant, or subject to a private agreement between the owner of the residence, or noise sensitive location and the Applicant, as to an alternative vibration level.	Not Triggered	No rail movements in Care and Maintenance. CHPP is only run sporadically for maintenance purposes.	
	(b) Prior to the commencement of mining operations, the Applicant shall prepare and implement a Vibration Management Plan to the satisfaction of the Director-General which will include, but need not be limited to, the following matters: • compliance standards; • monitoring program; • mitigation measures; • remedial action in an event of exceedance of criteria in subclause 6.6(a) above; • monitoring methods and program; and • measures to be undertaken to demonstrate that Dartbrook Mine is achieving best practice in minimising vibration levels from the rail loop and/or CHPP, irrespective of set standards.	Compliant	2002 Vibration Management Plan sighted. No vibration issues as no train movements and CHPP not operating during audit period. Vibration Management Plan Section 4.2 states that *"due to the absence of any detectable ground vibration from Dartbrook CHPP and Rail Loop at the closest residences, a regular ground vibration monitoring program is not proposed. Monitoring will be undertaken if necessary in response to complaints."* The Management Plan was approved by DOP 9/12/02.	
	(c) The Applicant shall also: (i) make copies of the Vibration Management Plan available to the EPA, MSC, SSC and CCC within fourteen days of approval, or as otherwise agreed to be the Director-General; and (ii) include a summary of vibration monitoring results in the AEMR.	Compliant	Prior to 2013 therefore outside of audit scope. Also noted that vibration monitoring not required during Care and Maintenance	
7. Transport and Utilities				
7.1	**Rail Transport** (a) All coal shall be transported from the CHPP by rail unless otherwise agreed by the Director-General and MSC.	Not Triggered	Not applicable in Care and Maintenance.	
7.2	**Road Transport** (a) The Applicant shall give prior written notice to MSC and SSC of the date of the commencement of the haulage of coal from the western site to the eastern site.	Not Triggered	Not applicable in Care and Maintenance.	
	(b) No coal shall be transported from the western site facilities to the CHPP by road haulage after twenty-one months from the start of mining operations.	Not Triggered	Not applicable in Care and Maintenance.	
	(c) The Applicant shall restrict road haulage of coal from the western site to the eastern site, to the hours of 7.00 am and 6.00 pm, Mondays to Fridays inclusive.	Not Triggered	Not applicable in Care and Maintenance.	
	(d) The Applicant shall not road haul coal on Saturday, Sunday and Public Holidays.	Not Triggered	Not applicable in Care and Maintenance.	
	(e) The Applicant shall not load coal onto trucks before 7.00 am on any day, except under emergency circumstances when short haulage to the emergency stockpile at the access slot is necessary and with notification of MSC and the Director-General as soon as practicable.	Not Triggered	Not applicable in Care and Maintenance.	

	(f) The Applicant shall ensure that: (i) All traffic associated with the construction of the Kayuga Mine, with the exception of employees approved by the Dartbrook General Manager and living in the local area most directly accessed by local roads; access the Kayuga Mine surface facilities via the New England Highway, Western Access Road, Stair Street, Kayuga Road and Dartbrook Road, until the completion of contract mine construction activities when all portable construction workers' amenities, workshop and store shall be removed. Approved employees may access the mine via local public roads and Stair Street; (ii) All mine personnel (including contractors) access the Dartbrook Mine facilities via the New England Highway and the Western Access Road, with the exception of employees approved by the Dartbrook General Manager and living in the local area most directly accessed by local roads. These employees can access the mine via local public roads and Stair Street; (iii) A list of approved employees under Conditions 7.2(f)(i) & (ii) be maintained by the Applicant, and made available to the Department upon request; (iv) Kayuga Road, from the Hunter River bridge to the Castlerock Road intersection, is not used to access the mine or mine satellite surface facilities. Limited use of local roads by mine related traffic for access to mine satellite surface facilities is permitted, with internal access roads to be utilised where practicable; and (v) The section of Kayuga Road between Stair Street and Dartbrook Road, and the section of Dartbrook Road between Kayuga Road and the entrance to the Kayuga Mine surface facilities, be maintained in consultation with MSC and to the satisfaction of the Director-General.	Not Triggered	Not applicable in Care and Maintenance.	
	(g) The Applicant shall submit all designs and specifications associated with the proposed access road and Blairmore Lane Underpass to MSC or SSC for approval, prior to the commencement of work. The proposed western access road shall be sealed in accordance with the requirements of MSC or SSC.	Not Triggered	Not applicable in Care and Maintenance.	
	(h) The Applicant shall provide advance signposting indicating "Trucks Turning" on the New England Highway, in both directions and shall be displayed during the eighteen month period of coal haulage activities across the New England Highway.	Not Triggered	Not applicable in Care and Maintenance.	
	(i) The Applicant shall ensure that no coal spillage associated with the road haulage of coal occurs on the New England Highway. In the case that coal is spilled onto the Highway, the Applicant shall bear all costs and liability associated with any incident or related clean up activities associated with the spill.	Not Triggered	Not applicable in Care and Maintenance.	
	(j) The Applicant shall ensure that any damage beyond normal wear and tear to the New England Highway, associated with the movement of coal from the mining operations to the CHPP, is repaired at the Applicant's expense and to the satisfaction of the RTA.	Not Triggered	Not applicable in Care and Maintenance.	
7.5	**Road Closures** (a) The Applicant shall maintain signs and give at least 24 hours notice of temporary road closures during construction. The location and wording of the signs are to be approved by MSC. A protocol is to be established in consultation with the emergency services during road closures. Notification shall also be provided to relevant emergency services via fax seven (7) days prior to the road closure.	Not Triggered	Not applicable in Care and Maintenance.	
7.6	**Provision of Utility Services** Refer Mining Operations Plan (Condition 2.1(c)).	Not Triggered	Not applicable in Care and Maintenance.	
7.7	**Road and Rail Works** The Applicant shall: (a) Install the pipeline crossings of Ely and Heir Streets (both undeveloped roads) to the satisfaction of Muswellbrook Council;	Not Triggered	Not applicable in Care and Maintenance.	
	(b) Install pipelines under the Main Northern Rail Line to the satisfaction of the Australian Rail Track Corporation; and	Not Triggered	Not applicable in Care and Maintenance.	
	(c) Prior to the commencement of any construction within the road reserve of the New England Highway the Applicant shall prepare and subsequently implement a Traffic Management Plan in accordance with the RTA's Traffic Control at Worksites guidelines, to the satisfaction of Muswellbrook Council and the RTA. The Plan must: (i) describes the schedule of the proposed road works; (ii) describe the measures that would be implemented to minimise traffic impacts associated with the construction of the proposed development; and (iii) include a Traffic Control Plan that describes the measures that would be implemented to control construction traffic access to the classified road network.	Not Triggered	Not applicable in Care and Maintenance.	
	(d) Bore pipelines under the New England Highway to the satisfaction of the RTA. Notes: (a) there will be no access from the New England Highway to the work site; the boring/ crossing locations shall be perpendicular to the New England Highway road reserve at a location which offers the shortest length possible, unless otherwise approved by the RTA; (b) the location of the pipeline crossing shall be in accordance with the RTA guideline and take into account the location of utilities another infrastructure; (c) the crossing shall be constructed to Australian Standards and allow for future widening requirements of the New England Highway; (d) the crossing shall be installed through trenchless technology unless otherwise approved by the RTA; (e) the crossings shall maintain a minimum vertical buffer of 1.5 metres between the pipeline and the highway within the road reserve; (f) where steel casings are not used a trace wire shall be provided to assist with the future location of the pipeline; (g) pipes installed under the road shall be sleeved and grouted; (h) permanent markers shall be provided at the entry and exist point of the road reserve; (i) any access points and values shall be located outside of the road reserve; and (j) all areas within the road reserve that are disturbed by the development shall be restored to their original condition to the satisfaction of the RTA.	Not Triggered	Not applicable in Care and Maintenance.	
8. Monitoring/Auditing				
	(a) In addition to the requirements contained elsewhere in this consent, the Director-General may, at any time in consultation with the relevant government authorities and Applicant, require the monitoring programs in Conditions 3, 4 and 6 to be revised/updated to reflect changing environmental circumstances or changes in technology/operational practices. Changes shall be made and approved in the same manner as the initial monitoring programs. All monitoring programs shall also be made publicly available at MSC within two weeks of approval by the Director-General.	Not Triggered	No requirement during audit period.	
	(b) All sampling strategies and protocols undertaken as part of any monitoring program shall include a quality assurance/quality control plan and shall be included in the relevant environmental management plan. Only accredited laboratories shall be used for laboratory analysis.	Compliant	Required as part of the Environmental Monitoring Contract with AECOM. Included in the Water Management Plan. Results from samples taken by AECOM are analysed by ALS, which is a NATA Accredited Laboratory 825.	
8.1	**Third Party Monitoring/Auditing** Independent Environmental Audit (a) Every three years from the date of this consent until completion of mining in the DA area, or as otherwise directed by the Director-General, the Applicant shall conduct an environmental audit of the mining and infrastructure areas of the development in accordance with ISO 14010 - Guidelines and General Principles for Environmental Auditing, and ISO 14011 - Procedures for Environmental Auditing (or the current versions), and in accordance with any specifications required by the Director-General. Copies of the report shall be submitted by the Applicant to the Director-General, MSC, SSC, EPA, DLWC, DMR, NPWS and CCC within two weeks of the report's completion for comment.	Administrative Non-Compliance	Last audit completed in 2013 by Parsons Brinkerhoff. The audit was submitted to the DP&E on 23 October 2013. Evidence provided that the Audit Report was sent to the Muswellbrook Council DPI Water and OEH on 14 November 2013. This was three weeks after the report was submitted to the DP&E. No evidence of submission to Upper Hunter Council. The report was discussed at the CCC meeting on 25 November 2013 (based on powerpoint presentation). There were no requests from the CCC for copies of the audit report. Approval letter from DP&E dated 6.11.2013.	Ensure this audit report is submitted to the relevant government authorities and the CCC as per this condition (within 2 weeks of report being sent to the DP&E). The report was submitted three weeks after reports completion.
	(b) The audit shall: (i) assess compliance with the requirements of this consent, licences and approvals; (ii) assess the development against the predictions made in the EIS; (iii) review the effectiveness of the environmental management of the mine, including any mitigation works; (iv) be carried out at the Applicant's expense; and (v) be conducted by a duly qualified independent person or team approved by the Director-General in consultation with MSC and SSC. Such approval shall not be unreasonably withheld.	Compliant	2013 audit assessed the required aspects. DP&E approved Parsons Brinkerhoff for Regulatory Audit in a letter dated 18/07/2013. SLR was approved by the DP&E in a letter dated 30/06/2016 for this audit. For the 2016 audit, SLR consulted with MSC and Upper Hunter Shire Council with this being a requirement of the DP&E Audit Guidelines. Evidence from a CCC meeting in 2013 noted the proposed audit was discussed with representatives from the CCC, Muswellbrook Council and Upper Hunter Council present. Letter from Planning dated (07.09.2006) approved re-defining the audit scope to exclude the assessment against EIS predictions.	

	(c) The Director-General may, after considering any submission made by the relevant government agencies, MSC, SSC and CCC on the report, notify the Applicant of any requirements with regard to any recommendations in the report. The Applicant shall comply with those reasonable requirements within such time as the Director-General may require.	Compliant	No additional requirements provided by DP&E or Muswellbrook Council regarding the 2013 audit. CCC were not provided a copy of the previous audit report, but It has been acknowledged that report was discussed at the 25 November 2013 CCC meeting and no issues were raised (evidence from powerpoint presentation).	
8.2	**Meteorological Station(s)** (a) The Applicant shall continue to maintain and operate a meteorological station in accordance with the requirements of AS 2922 1987 "Ambient Air Guide for Siting of Sampling Units" or its updated version or as directed by the EPA. The Meteorological station(s) must be capable of recording wind direction and speed, temperature and sigma theta and be operated in accordance with the requirements of AS 2923-1987 "Ambient Air Guide Horizontal Wind for Air Quality Application", or subsequent relevant standards. The Applicant shal analyse and document the meteorological data on a monthly basis to adequately characterise the site.	Compliant	Two meteorological sites currently exist at Dartbrook (Met01 and Met02). Meteorological reports are compiled by Carbon Based Environmental on a monthly basis. Section 6.2 of Annual Review outlines meteorological summary.	
9. Reporting				
9.1	**Reports on Operations** (a) The Applicant shall report on mine operations in accordance with the mine operations plan (refer to Condition 2.1).	Compliant	MOP - Continuation of Care and Maintenance (January 2013 - December 2017), which was accepted by the DPI-Minerals 18/12/2012; which describes the activities and risk mitigation measures while the operation is on Care and Maintenance. Refer to the Annual Review for actions carried out each reporting year.	
9.2	**Environmental Reporting** <u>Annual Environmental Management Report (AEMR)</u> (a) The Applicant shall, throughout the life of the mine and for a period of at least three years after the completion of mining in the DA area, prepare and submit an Annual Environmental Management Report (AEMR) to the satisfaction of the Director-General and DMR. The AEMR shall review the performance of the mine against the Environmental Management Strategy and the relevant Mining Operations Plans, the conditions of this consent, and other licences and approvals relating to the mine. To enable ready comparison with the predictions made in the EIS, diagrams and tables, the report shall include, but not be limited to, the following matters: (i) an annual compliance audit of the performance of the project against conditions of this consent and statutory approvals; (ii) a review of the effectiveness of the environmental management of the mine in terms of EPA, DLWC, DMR, MSC and SSC requirements; (iii) results of all environmental monitoring required under this consent or other approvals, including interpretations and discussion by a suitably qualified person; (iv) identify trends in monitoring results over the life of the mine; (v) an assessment of any changes to agricultural land suitability resulting from the mining operations; (vi) a listing of any variations obtained to approvals applicable to the subject area during the previous year; (vii) subsidence during the preceding twelve months; (viii) socio-economic impact of the development including the workforce characteristics of the previous year; (ix) the outcome of the water budget for the year, the quantity of water used from water storages and details of discharge of any water from the site; (x) rehabilitation report; (xi) environmental management targets and strategies for the next year, taking into account identified trends in monitoring results; and (xii) a report on the surveillance of any prescribed dam on the site to the satisfaction of the DSC.	Compliant	Annual Reviews submitted each year during the audit period generally covers off on these requirements. Evidence of approval letters of Annual Reviews during the audit period. AEMR/Annual Review outlines, management, monitoring and reporting during the year. There is no specific rehabilitation report, but there is a section on rehabilitation. It is noted the 2015 Annual Review has been completed as per the DP&E Annual Review Guidelines.	There is minimal information about socio - economic and workforce details. To be included in future Annual Reviews.
	(b) In preparing the AEMR, the Applicant shall: (i) consult with the Director-General and DMR during preparation of each report for any additional requirements; (ii) comply with any requirements of the Director-General or other relevant government agency; and (iii) ensure that the first report is completed and submitted within twelve months of this consent, or at a date determined by the Director-General in consultation with the DMR and the <u>EPA. Reporting on the Dartbrook Extended Project may be included with the AEMR for the existing Dartbrook development consent.</u>	Compliant	No evidence of specific consultation pre-submission. However the DP&E and DRE have provided comment during the previous AEMR/Annual Reviews. See Section 5 of the 2015 Annual Review. The auditor believes this constitutes consultation.	
	(c) The Applicant shall ensure that copies of each AEMR are submitted at the same time to the Director-General, DMR, EPA, DLWC, NPWS, MSC, SSC and CCC, and made available for public information at MSC within fourteen days of submission to these authorities and made available to any landowner within the vicinity of the development upon request.	Compliant	Distribution lists for 2013 and 2014 AEMRs provided. Cover letters provided for submission of 2015 Annual Review to RFS, OEH/NPWS, Muswellbrook Library, UHSC, Fire Management Committee, DECC/EPA, DRE, DP&E, MSC, Aberdeen Library, Scone High School, Scone Library, NSW Office of Water.	
10. Community Consultation/Obligations				
10.1	**Community Consultative Committee** The Applicant shall: (i) ensure the continuation of the existing Dartbrook Mine Community Consultative Committee and ensure that a meeting is held prior to the submission of the Environmental Management Strategy (Condition 3.2). The Committee shall continue to be chaired by MSC and shall have regard to MSCs Code of Conduct for CCCs. Representatives from relevant government agencies or other individuals may be invited to attend meetings as required by the Chairperson. The Committee may make comments and recommendations about the implementation of the development and environmental management plans, monitor compliance with conditions of this consent and other matters relevant to the operation of the mine during the term of the consent. The Applicant shall ensure that the Committee has reasonable access to the necessary plans for such purposes. The Applicant shall consider the recommendations and comments of the Committee and provide a response to the Committee and Director-General.	Compliant	Dartbrook Community Consultative Committee meetings were undertaken during the audit period. Minutes available on Dartbrook website. Letter from Planning dated (07.09.2006) approved cutting back the CCC meetings from 6 to 3 times per year.	
	(ii) The Applicant shall, at its own expense: 1) ensure two (2) representatives attend all meetings of the Committee; 2) provide to the Committee regular information on the progress of work and monitoring results; 3) promptly provide to the Committee such other information as the Chair of the Committee may reasonably request concerning the environmental performance of the development; 4) provide access for site inspections by the Committee following reasonable prior notice; and 5) provide meeting facilities for the Committee, and take minutes of Committee meetings. These minutes shall be available for public inspection at MSC and SSC within 14 days of the meeting.	Compliant	Dartbrook Community Consultative Committee meetings were undertaken during the audit period. Minutes available on Dartbrook website. Letter from Planning dated (07.09.2006) approved reducing the number of company representatives on the CCC from 2 to 1.	
	(iii) If required by the Committee, the Applicant shall establish a trust fund or other funding arrangement that may be agreed between the Applicant and Committee, to be managed by the Chair of the Committee to facilitate the functioning of the Committee, and pay $2000 per annum to the fund or other arrangement, for the duration of mining in the DA area, or as otherwise directed by the Director-General. The monies are to be used only if required for the engagement of consultants to interpret technical information and the like. The annual payment shall be indexed according to the Consumer Price Index (CPI) at the time of payment. The first payment shall be made by the date of the first Committee meeting. A record of the finances of the trust fund during each year shall be provided to the Director-General and Applicant by the Chair on each anniversary of the first payment. Any unspent monies shall be returned to the Applicant each year.	Not Triggered	Not triggered during the audit period.	
10.2	**Community Consultation** <u>Complaints</u> (a) The Environmental Officer employed by the mine (refer condition 3.1) shall be responsible: (i) for establishing and maintaining a system for recording complaints received with respect to construction works and mine operations on a dedicated and publicly advertised telephone line, 24 hours per day 7 days per week, entering complaints or comments in an up to date log book, or other suitable data base, and ensuring that an initial response is provided to the complainant within 24 hours. The complaints protocol shall be prepared and implemented to the satisfaction of the Director-General prior to commencement of construction or Mining Operations; and (ii) for providing a report of complaints received with respect to the construction and operation of the mine, every six months throughout the life of the project to the Director-General, MSC, SSC, EPA, DMR, and CCC, or as otherwise agreed by the Director-General. A summary of this report shall be included in the AEMR (condition 9.2(a)).	Compliant	No complaints during the audit period. This is noted in the Annual Reviews. A complaints phone is kept by the Environmental Officer. Letter from Planning dated (07.09.2006) approved cutting back the 24h complaints line to a pager system that is responded to on weekdays., as well as removing the requirement for 6-monthly complaints reporting (now just included in Annual Review).	
	(b) The Applicant must nominate at least two persons (and their telephone numbers) who will be available to the EPA on a 24 hours basis, and who have authority to provide information and to implement such measures as may be necessary from time to time to address a pollution incident or to prevent pollution from continuing as directed by an authorised officer of the EPA.	Compliant	Annual Reviews list contacts, and document is submitted to the EPA annually. Letter from Planning dated (07.09.2006) approved reducing the number of EPA contacts from 2 to 1, who would be available via a pager system.	
11. Proponents Obligations				
11.1	**Cumulative Impact Management** (a) In the event that the cumulative impact of noise or dust contributed by the operation of the Dartbrook Mine and any future mining activities, at dwellings, or vacant land (as described in Condition 6.1 and 6.4), in the vicinity of the operation, is in excess of the noise or dust acquisition criteria contained in these conditions of consent, the Applicant shall negotiate with the other companies and landowner to determine appropriate arrangements to reasonably contribute to the management of the identified cumulative impacts to the satisfaction of the Director-General in proportion to their contributions to the impact.	Not Triggered	No noise or dust issues in Care and Maintenance.	

	(b) If agreement on appropriate contributions towards mitigation measures/acquisition cannot be reached from negotiations undertaken in accordance with subclause (a), then the matter is to be referred to the Director-General in consultation with MSC and SSC by either the Applicant or landowner. If the matter is not resolved within 21 days of the referral, the matter will be referred to an Independent Dispute Resolution Process as determined by the Director-General, and resolved as determined by the Director-General. The Independent Dispute Resolution Process shall determine the responsibilities of each of the mining companies in accordance with subclause (a) above and actions to be undertaken. The decision of the Independent Dispute Resolution Process shall be final, as determined by the Director-General.	Not Triggered	No noise or dust issues in Care and Maintenance.	
11.2	**Compensation and Land Acquisition and as a Result of Subsidence** Note: Compensation and other measures for subsidence impacts, are also available under the provisions of the Mining Act 1992 and the Mine Subsidence Compensation Act 1961. (A) Compensation and Acquisition – Significant Structural Damage to Dwellings (a) Where a dwelling within the DA area is, or is likely to be (as identified in the Property Subsidence Management Plan referred to in Condition 3.3(g)(iii)), subject to damage beyond the safe, serviceable and repairable criteria as a result of the development, the landowner, after receiving notification from the Applicant in accordance with Condition 3.3(m)(ii), may request the Applicant in writing to: (i) carry out such works as agreed by the landowner to remedy or mitigate any damage; or (ii) compensate the landowner for such effects; or as a last resort and failing all other measures, (iii) acquire the whole of the property, or such part of the property requested by the landowner where subdivision is approved.	Not Triggered	No mining during audit period. No requests for acquisition. Subsidence inspections completed annually.	
	(b) The Applicant shall comply with any such request for compensation or acquisition in accordance with Conditions 11.2(C) and (D). If necessary to confirm the impact, the Applicant shall, at the request of the landowner in writing, conduct a follow-up structural inspection to one carried out under Condition 3.3(f)(v). Any inspection or assessment under this Condition shall be conducted as if it were conducted under the relevant part of Condition 3.3(f)(viii).	Not Triggered	No mining during audit period. No requests for acquisition. Subsidence inspections completed annually.	
	(c) Any disputes relating to compensation may be referred by either party to: • the Mining Warden at any time in accordance with the provisions of the Mining Act; or • the Mine Subsidence Board at any time in accordance with the provisions of the Mine Subsidence Compensation Act 1961.	Not Triggered	No mining during audit period. No requests for acquisition. Subsidence inspections completed annually.	
	(d) Any disputes relating to land acquisition (except those relating to valuation matters) may be referred by either party to the Director-General for consideration and advice if no agreement is reached within three months of receipt by the Applicant of the written request.	Not Triggered	No mining during audit period. No requests for acquisition. Subsidence inspections completed annually.	
	(B) Compensation and Acquisition – Land Capability Impacts (a) Where a landowner suffers, or is likely to suffer a loss of land capability or agricultural productivity (as identified in the Property Subsidence Management Plan referred to in Condition 3.3(g)), as a result of the development, the landowner, after receiving notification from the Applicant in accordance with Condition 3.3(m)(ii), may request the Applicant in writing to: (i) carry out such works as agreed by the landowner to rectify the problem; or (ii) compensate the landowner for such effects; or, as a last resort and failing all other measures, (iii) acquire the whole of the property, or such part of the property requested by the landowner where subdivision is approved.	Not Triggered	No mining during audit period. No requests for acquisition. Subsidence inspections completed annually.	
	(b) Any disputes relating to compensation may be referred by either party to the Mining Warden at any time in accordance with the provisions of the Mining Act.	Not Triggered	No mining during audit period. No requests for acquisition. Subsidence inspections completed annually.	
	(c) Any disputes relating to acquisition (except those relating to valuation matters) may be referred by either party to the Director-General for consideration and advice if no agreement is reached within three months of receipt by the Applicant of the written request.	Not Triggered	No mining during audit period. No requests for acquisition. Subsidence inspections completed annually.	
	(d) If the matter is referred to the Director-General in accordance with subclause (c) above, the Director-General shall appoint an Independent Expert, in consultation with the Applicant and the landowner and in accordance with the "Evaluation Process for Land Acquisition due to Land Capability Impacts caused by Subsidence" (refer to Schedule C). The Applicant shall bear the costs of engaging the Independent Expert.	Not Triggered	No mining during audit period. No requests for acquisition. Subsidence inspections completed annually.	
	(e) The Independent Expert shall determine the level and extent of loss or impacts, and recommend whether acquisition is required, and in doing so, shall consider the following matters: • the level of predicted or actual subsidence; • the level of land capability and/or agricultural productivity as unaffected by underground mining; • the assessment of agricultural utilisation, agricultural improvements and the underlying agricultural productivity of the relevant property prior to mining operations, as determined in the relevant Property Subsidence Management Plan (in accordance with Condition 3.3(f)(vi)); • the impact of subsidence on the land capability and agricultural productivity of the land; • the nature and extent of feasible mitigation measures; and • previous issues considered by the Mining Warden in any compensation considerations under the Mining Act. A recommendation for acquisition of a property may only be made by the Independent Expert where the Expert is satisfied that after consideration of feasible mitigation measures the impact of subsidence is such as to significantly adversely affect the existing and future land capability and/or agricultural productivity.	Not Triggered	No mining during audit period. No requests for acquisition. Subsidence inspections completed annually.	
	(f) Where it is determined by the Director-General that a property is eligible for acquisition, and acquisition is requested by the landowner, the Applicant shall comply with any such request in accordance with Conditions 11.2(C)-(D).	Not Triggered	No mining during audit period. No requests for acquisition. Subsidence inspections completed annually.	
	(C) Acquisition – Procedure (a) Upon receipt of a written request to purchase property in accordance with any part of condition 11.2, the Applicant shall negotiate and purchase the whole of the property (unless the request specifically requests acquisition of only part of the property and subdivision has already been approved) within six months of receipt of the request. The Applicant shall pay the landowner an acquisition price resulting from proper consideration of: (i) a sum not less than the current market value of the owner's interest in the land at the date of this consent, as if the land was unaffected by Dartbrook Mine, having regard to: • the existing use and permissible use of the land in accordance with the applicable planning instruments at the date of the written request; and • the presence of improvements on the land and/or any Council approved building or structure which although substantially commenced at the date of the request is completed subsequent to that date. (ii) the owner's reasonable compensation for disturbance allowance and relocation within the Singleton, Scone or Muswellbrook Local Government Areas, or within such other location as may be determined by the Director-General in exceptional circumstances; (iii) the owner's reasonable costs for obtaining legal advice and expert witnesses for the purposes of determining the acquisition price for the land and the terms upon which it is to be acquired; and (iv) the purchase price determined by reference to points (i), (ii) and (iii) shall be reduced by the amount of any compensation awarded to a landowner pursuant to the Mining Act, 1992 or other legislation providing for compensation in relation to coal mining but limited to compensation for dwellings, structures and other fixed improvements on the land, unless otherwise determined by the Director-General in consultation with the DMR or MSB.	Not Triggered	No acquisitions during audit period.	
	(b) An offer by the Applicant to purchase a property under the conditions of this consent shall remain open to the landowner for the following periods from the date of the offer: (i) for damage to a dwelling beyond the safe, serviceable and repairable criteria (Condition 11.2(A)), three years after completion of mining of longwall panels that affect the property; and (ii) for land capability and/or agricultural productivity impacts (Condition 11.2(B)), five years after completion of mining of longwall panels that affect the property.	Not Triggered	No acquisitions during audit period.	
	(c) Notwithstanding any other Condition of this consent, the landowner and the Applicant may enter into any other agreed arrangement regarding compensation; or the Applicant may upon request of the landowner, acquire any property affected by the project during the course of this consent on terms agreed to between the Applicant and the landowner.	Not Triggered	No acquisitions during audit period.	
	(D) Independent Valuation (a) In the event that the Applicant and the landowner cannot agree within three months upon the acquisition price of the land and/or the terms upon which it is to be acquired under the terms of this consent, then either party may refer the matter to the Director-General who shall request an independent valuation to determine the acquisition price. The independent valuer shall consider any submissions from the landowner and the Applicant in determining the acquisition price.	Not Triggered	No acquisitions during audit period.	
	(b) If the independent valuer requires guidance on any contentious legal, planning or other issues, the independent valuer shall refer the matter to the Director-General, who, if satisfied that there is a need for a qualified panel, shall arrange for the constitution of the panel. The panel shall consist of: (i) the appointed independent valuer; (ii) the Director-General; and/or (iii) the President of the Law Society of NSW or nominee. The qualified panel shall, on the advice of the valuer, determine the issue referred to it and advise the valuer.	Not Triggered	No acquisitions during audit period.	
	(c) The Applicant shall bear the costs of any independent valuation or survey assessment requested by the Director-General.	Not Triggered	No acquisitions during audit period.	
	(d) The Applicant shall, within fourteen days of receipt of a valuation by the independent valuer, offer in writing to acquire the relevant land at a price not less than the said valuation.	Not Triggered	No acquisitions during audit period.	

11.3	**Land Acquisition as a Result of Excessive Noise and/or Dust** *Note: In Condition 11.3 (a)-(h) "land" means the whole of a lot in a current plan registered at the Land Titles Office as at the date of this consent.* (a) The owner of any dwelling, or vacant land (as described in Condition 6.1 and 6.4) located in areas that exceed noise and/or air quality acquisition criteria established in accordance with conditions 6.1 and 6.4 of this consent, may request the Applicant in writing to purchase the whole of that property.	Not Triggered	No acquisitions during audit period.	
.	(b) The Applicant shall negotiate and purchase a property, as identified in sub-clause (a) above, within six (6) months of a written request from the affected land owner.	Not Triggered	No acquisitions during audit period.	
	(c) In respect of a request to purchase land arising under this condition, the Applicant shall pay the landowners an acquisition price which shall take into account and provide payment for: (i) a sum not less than the current market value of the owner's interest in the land at the date of this consent, as if the land was unaffected by Dartbrook Mine, having regard to: • the existing use and permissible use of the land in accordance with the applicable planning instruments at the date of the written request; and • the presence of improvements on the land and/or any Council approved building or structure which although substantially commenced at the date of request is completed subsequent to that date. (ii) the owner's reasonable compensation for disturbance allowance and relocation costs within the Singleton, Scone or Muswellbrook Local Government Area, or within such other location as may be determined by the Director-General in exceptional circumstances; (iii) the owner's reasonable costs for obtaining legal advice and expert witnesses for the purposes of determining the acquisition price of the land and the terms upon which it is to be acquired. Notwithstanding any other condition of this consent, the landowner and the Applicant may, upon request of the landowner, acquire any property affected by the project during the course of this consent on terms agreed to between the Applicant and the landowner.	Not Triggered	No acquisitions during audit period.	
	(d) In the event that the Applicant and any owner referred to in this condition cannot agree within the time limit upon the acquisition price of the land and/or the terms upon which it is to be acquired, then: (i) either party may refer the matter to the Director-General, who shall request the President of the Australian Institute of Valuers and Land Economists to appoint a qualified independent valuer or Fellow of the Institute, who shall determine, after consideration of any submissions from the owners, a fair and reasonable acquisition price for the land as described in sub-clause (b) and/or terms upon which it is to be acquired; (ii) in the event of a dispute regarding outstanding matters that cannot be resolved, the independent valuer shall refer the matter to the Director-General, recommending the appointment of a qualified panel. The Director-General, if satisfied that there is need for a qualified panel, shall arrange for the constitution of the panel. The panel shall consist of: 1) the appointed independent valuer, 2) the Director-General or nominee, and 3) the President of the Law Society of NSW or nominee. The qualified panel shall determine a fair and reasonable acquisition price as described in sub-clause (b) above and/or the terms upon which the property is to be acquired.	Not Triggered	No acquisitions during audit period.	
	(e) The Applicant shall bear the costs of any valuation or survey assessment requested by the independent valuer, panel, or the Director-General and the costs of determination referred to in sub clauses (b) and (c).	Not Triggered	No acquisitions during audit period.	
	(f) Upon receipt of a determination pursuant to sub-clauses (b) and (c), the Applicant shall, within 14 days, offer in writing to acquire the relevant land at a price not less than the determination. Should the Applicant's offer to acquire not be accepted by the owner within six (6) months of the date of such offer, the Applicant's obligations to purchase the property shall cease, unless otherwise agreed by the Director-General.	Not Triggered	No acquisitions during audit period.	
	(g) In the event that the Applicant and the landowner agree that only part of the land is to be transferred to the Applicant, the Applicant shall pay all reasonable costs associated with obtaining Council approval to any plan of subdivision and registration of the plan at the Office of the Registrar-General.	Not Triggered	No acquisitions during audit period.	
	(h) The provisions of this condition do not apply to a landowner who is the holder of an authority under the Mining Act, 1992.	Not Triggered	No acquisitions during audit period.	
11.4	**Contributions to Council** (a) Community Enhancement – MSC Prior to the commencement of mining operations or within such other time as agreed by the Director-General, the Applicant shall negotiate an agreed outcome with MSC for an appropriate level of contribution (financial or in-kind) and as applicable, towards mitigating any cumulative social and/or community impacts as the result of the proposed development. Should such negotiated outcome not be reached, the Applicant shall abide with the reasonable requirements of the Director-General concerning community enhancement contribution in light of an independent investigation to establish community enhancement need as the result of the cumulative impact of the proposed development. The investigation to be carried out by an independent person(s) to be appointed by the Director-General in consultation with the Applicant and MSC, and paid for by the Applicant. The independent investigation to be based on the principles of nexus and reasonableness as to relevant cumulative social and/or community impacts.	Compliant	Prior to 2013 therefore outside of audit scope. Site remains on Care and Maintenance.	
	(b) S.94 Contribution – SSC Unless otherwise agreed between the Applicant and SSC, the Applicant shall comply with the reasonable requirements of the Director-General for an appropriate contribution (financial or in kind) under S.94 of the Environmental Planning and Assessment Act (EP&A Act) as the result of the proposed development. The Director-General's reasonable requirements, if any, will be based on the outcome of an independent evaluation as to whether the proposed development will result in the need fo any community or related infrastructure requirements as per the provisions of S.94 of the EP&A Act, with emphasis on establishing a nexus as to impacts. The independent evaluation is to be undertaken by an independent person(s) to be appointed by the Director-General, in consultation with the Applicant and SSC, and paid for by the Applicant.	Compliant	Prior to 2013 therefore outside of audit scope. Compliance verified during previous audits.	
12. Further Approvals and Agreements				
12.1	**Statutory Requirements** (a) The Applicant shall ensure that all statutory requirements including but not restricted to those set down by the Local Government Act 1993, Protection of the Environment Administration Act 1991, Protection of the Environment Operations Act 1997, Rivers and Foreshores Improvement Act 1948, Water Act 1912, National Parks and Wildlife Act 1974, and all other relevant legislation, Regulations, Australian Standards, Codes, Guidelines and Notices, Conditions, Directions, Notices and Requirements issued pursuant to statutory powers by the MSC, EPA, DMR, NPWS, DLWC, RTA, NSW Agriculture, and NSW Fisheries, are fully met.	Note	Verification of all statutory requirements applicable to sites is outside the scope of this audit, however no non-compliance with relevant legislation and guidelines were identified during this audit, other than those noted.	
	(b) Structural Adequacy Detailed plans and specifications relating to the design and construction of each structural element associated with the proposed development are to be submitted to the Principal Certifying Authority prior to the construction of each particular building or structure. Such plans and specifications must be accompanied by certification provided by a practicing professional structural engineer or an accredited certifier certifying the structural adequacy of the proposed building design and compliance with the Building Code of Australia.	Not Triggered	No new construction during the audit period.	
	(c) Verification of Construction Upon completion of building works and prior to the issue of an occupation certificate, a certificate/s prepared by a suitably qualified person or a compliance certificate/s issued by an accredited certifier, is to be submitted to the Principal Certifying Authority certifying that the following building components, where relevant, have been completed in accordance with approved plans and specifications: (i) footings; (ii) concrete structures, including ground floor and any subsequent floors, retaining walls and columns; (iii) framing and roof structure; (iv) fire protection coverings to building elements required to comply with the Building Code of Australia; and (v) mechanical ventilation. The certificate/s shall demonstrate at what stage of construction inspections were undertaken.	Not Triggered	No new construction during the audit period.	
12.2	**Approvals within a Mine Subsidence District** (a) 32The Applicant shall seek the approval of the Mine Subsidence Board for the construction of any improvements, including those related to the mine buildings and associated works, any relocation or diversion of infrastructure or existing improvements, prior to undertaking the works.	Not Triggered	No MSB approval required during the audit period.	
13 Revision of Management Plans				
	(a) Prior to the commencement of any construction associated with the development described in the "Dartbrook Mine Statement of Environmental Effects for New ROM Coal Stockpiles, Underground Tailings Disposal & Nitrogen Injection Plant", dated 12 August 2005, the Applicant shall update its Erosion and Sediment Control Plan to take into account that development.	Compliant	No construction during the audit period. ESCP was updated in 2014. Approval letter from DP&E provided.	
	(b) By the end of February 2006, the Applicant shall review, and if necessary update its: • Site Water Management Plan; • Site Water Balance; • Dust Management Plan; and • Noise Management Plan, to take into account the development described in the "Dartbrook Mine Statement of Environmental Effects for New ROM Coal Stockpiles, Underground Tailings Disposal & Nitrogen Injection Plant", dated 12 August 2005, to the satisfaction of the Director-General.	Compliant	Compliance with this condition was verified as pert of the 2010 audit. Some new management plans have been updated during the audit period with these outlined in Condition 3.2.	

EPL 74885

Condition Number	Condition	Compliance Status	Evidence	Recommendation
1. Administrative Conditions				
A1. What the licence authorise and regulates				
A1.1	What the licence authorises and regulates A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation. Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition. **Scheduled Activity** / **Fee Based Activity** / **Scale** Mining for Coal / Mining for coal / 0 - 500000 T produced	Compliant	The site has been on Care and Maintenance during the entire audit period. Annual production limits not exceeded.	
A2. Premises or plant to which this licence applies				
A2.1	The licence applies to the following premises: **Premises Details** DARTBROOK COAL MINE STAIR STREET MUSWELLBROOK NSW 2333 AS SHOWN ON A PLAN TITLED "ENVIRONMENT PROTECTION LICENCE PREMISES AREA" DATED 27 NOVEMBER 2001	Compliant	No works undertaken offsite.	
A3. Other Activities				
A3.1	Other activities A3.1 This licence applies to all other activities carried on at the premises, including: **Ancillary Activity** Coal Works Reject disposal (bi-product of coal processing) into designated reject area Sewage Treatment Systems	Compliant	No activities outside this scope occurred during the audit period. The site has been on Care and Maintenance since 2007. No mining or reject disposal.	
A4. Information supplied to the EPA				
A4.1	Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence. In this condition the reference to "the licence application" includes a reference to: a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence	Compliant	No works beyond the scope of the EPL were undertaken during the audit period.	
2. Discharges to Air and Water and Applications to Land				
P1. Location of monitoring/discharge points and areas				
P1.1	The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.	Compliant		
P1.2	The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.	Compliant		
	EPA Identification no. / **Type of Monitoring Point** / **Type of Discharge Point** / **Location Description** 2 / Discharge to waters / Discharge to waters / The 1200mm concrete discharge pipeline on the Hunter River bank adjacent to the Hunter River Bridge as shown on diagram titled "Dartbrook Mine Plan showing location of monitoring points along the Discharge Pipeline" Dated 27/3/03 3 / Groundwater monitoring / / At locations representative of where any predicted groundwater impacts caused by the mining operation may occur. 4 / Discharge water flow and quality monitoring / Discharge water flow and quality monitoring / In the bypass line from the 1200mm concrete main line as shown on diagram titled "Dartbrook Mine Plan showing location of monitoring points along the Discharge Pipeline" Dated 27/3/03. 5 / Irrigation area soil quality monitoring / / Irrigation Area - Paddocks 1-4, Western site as shown in Annual Environmental Management Report 2007, Surface Water Monitoring Sites, Fig 4	Compliant	All points monitored during the audit period. 2015 Annual Review outlines April 2015 discharge (22 and 23 April 2015). 6.8ML was discharged under the salinity trading scheme in 2015 according to Hunter River Salinity Trading Scheme letter	There is not enough information in the 2015 Annual Review regarding the April 2015 discharge. This should have: * Dates of discharge; * Some more details about volumes (ie. Volumes over different days; * Results of water quality testing for that discharge event compared against Hunter River Salinity Trading Scheme Criteria and EPL Criteria. All the Annual Review states is that: 6.84135 ML was discharged under the Hunter River Salinity Trading Scheme in April 2015 in accordance with the conditions of EPL 4885.
3. Limit Conditions				
L1. Pollution of waters				

L1.1	Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.	Compliant	No non-compliances with the POEO Act during the audit term. No determination of environmental harm.	
L2 Concentration limits				.
L2.1	For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.	Compliant	No EPL non-compliances during the audit period.	
L2.2	Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.	Compliant	No EPL non-compliances during the audit period.	
L2.3	To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\s.	Compliant	No EPL non-compliances during the audit period.	
L2.4	Water and/or Land Concentration Limits **POINT 4** **Pollutant** / **Units of Measure** / **50 percentile concentration limit** / **90 percentile concentration limit** / **3DGM concentration limit** / **100 percentile concentration limit** pH / pH / / / / 6.5-9.5 Total suspended solids / milligrams per litre / / / / 120	Compliant	No EPL non-compliances during the audit period. 2014-15 Annual Return outlines data for Discharge Point 4.	
L3 Volume and mass limits				
L3.1	For each discharge point or utilisation area specified below (by a point number), the volume/mass of: a) liquids discharged to water; or; b) solids or liquids applied to the area; must not exceed the volume/mass limit specified for that discharge point or area. **Point** / **Unit of Measure** / **Volume/Mass Limit** 4 / kilolitres per day / 30000	Compliant	2015 Annual Review outlines that in April 2015 6.8ML (6800 KL) was discharged under the salinity trading scheme in 2015. This was discharged over two days, therefore well under limits.	
L4 Blasting				
L4.1	The air blast overpressure level from blasting operations in or on the premises must not exceed: (a) 115 dB (Lin Peak) for more than 5% of the total number of blasts during each reporting period; and (b) 120 dB (Lin Peak) at any time. At any residence or noise sensitive location that is not owned by the licensee or subject of a private agreement between the owner of the residence or noise sensitive location and the licensee as to an alternative overpressure level.	Not Triggered	No blasting during the audit period.	
L4.2	L4.2 The ground vibration peak velocity from blasting operations carried out in or on the premises must not exceed: (a) 5mm/s for more than 5% of the total number of blasts carried out on the premises during each reporting period; and (b) 10mm/s at any time. At any residence or noise sensitive location that is not owned by the licensee or subject of a private agreement between the owner of the residence or noise sensitive location and the licensee as to an alternative ground vibration level.	Not Triggered	No blasting during the audit period.	
L4.3	L4.3 Blasting in or on the premises must only be carried out between 0900 hours and 1700 hours, Monday to Saturday. Blasting in or on the premises must not take place on Sundays or Public Holidays without the prior approval of the EPA.	Not Triggered	No blasting during the audit period.	
L4.4	L4.4 Blasting at the premises is limited to 1 blast on each day on which blasting is permitted.	Not Triggered	No blasting during the audit period.	
L5 Potentially offensive odour				
L5.1	The licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises. Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.	Compliant	Odour monitoring has ceased under Care and Maintenance phase of operations. All gas drainage boreholes and plants that were previously utilised to extract gas from the mine goaf have been decommissioned. Gas drainage and ventilation (potential odour sources) management is reported in the Annual Review (Section 6.17). There was no blasting during the audit term. There were no complaints during the audit term.	
4. Operating Conditions				
O1 Activities must be carried out in a competent manner				
O1.1	Licensed activities must be carried out in a competent manner. This includes: a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.	Compliant	The Annual Review states that contractors have undertaken waste management at Dartbrook for the entire audit period. Contractors are licensed for Non-thermal treatment of general waste, Recovery of general waste, Waste storage – Hazardous, restricted solid, liquid, clinical and related waste and Asbestos waste and Other types of waste (EPL 12297).	In the field inspection around the pit top there was evidence that 'empty chemical containers were not stored in a bund, rather a solid waste bin (See Photo 11 in Main Report). Although it is unlikely that any chemicals would be leaving the bin area (no evidence from inspection), it would be best practice to ensure all chemical containers (empty or full) are stored within bunds. For flammable or combustible liquids, chemicals should be stored in accordance with Australian Standard AS 1940.
O2. Maintenance of plant and equipment				
O2.1	All plant and equipment installed at the premises or used in connection with the licensed activity: a) must be maintained in a proper and efficient condition; and b) must be operated in a proper and efficient manner	Compliant	No plant/equipment utilised on site other than light vehicles and occasional running of CHPP for maintenance purposes.	
O3. Dust				
O3.1	The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises	Compliant	Field inspection observed no major dust generation issues. Some areas of poor ground cover establishment at CHPP former stockpile areas. See Photo 2 from Main Report. No dust exceedances during the audit term.	Although dust has traditionally not been an issue during care and maintenance, temporary seeding of bare areas of former stockpile areas is recommended. Also recommend soil testing on stockpile area to determine why some areas show no growth. Following tests, develop a plan to improve revegetation cover eg. use of ameliorants, additional seeding, etc.
O3.2	All trafficable areas, coal storage areas and vehicle manoeuvring areas in or on the premises must be maintained, at all times, in a condition that will minimise the generation, or emission from the premises, of wind-blown or traffic generated dust.	Compliant	Field inspection observed no major dust generation issues. No dust exceedances during the audit term.	
O3.3	Activities occurring in or on the premises must be carried out in a manner that will minimise the generation, or emission from the premises, of wind-blown or traffic generated dust.	Compliant	Field inspection observed no major dust generation issues. No dust exceedances during the audit term.	

<table>
<tr><td>O3.4</td><td>O3.4 Trucks transporting coal from the premises must be covered immediately after loading to prevent wind blown emissions and spillage. The covering must be maintained until immediately before unloading the trucks.</td><td>Not Triggered</td><td>No coal transport during audit period.</td><td></td></tr>
<tr><td>O3.5</td><td>O3.5 The tailgates of all haulage trucks leaving the premises must be securely fixed prior to loading or immediately after unloading to prevent loss of material.</td><td>Not Triggered</td><td>No trucks leaving the premises during audit period.</td><td></td></tr>
<tr><td colspan="5">O4. Processes and Management</td></tr>
<tr><td>O4.1</td><td>O4.1 Irrigation of wastewater must not be carried out if soil moisture conditions are such that surface runoff or ponding is likely to occur.</td><td>Not Triggered</td><td>Due to reduced manning levels (Care and Maintenance) there is insufficient liquid generation to require irrigation.</td><td></td></tr>
<tr><td>O4.2</td><td>O4.2 No irrigation, application or storage of sewage effluent or sludge must be undertaken within 50 metres of any water course, or on any other area except the defined irrigation area.</td><td>Not Triggered</td><td>Due to reduced manning levels (Care and Maintenance) there is insufficient liquid generation to require irrigation.</td><td></td></tr>
<tr><td>O4.3</td><td>O4.3 All runoff from the stockpiles and tailings cells and the area utilised for the operation of the stockpiles and tailings cells must be directed to the saline water management system.</td><td>Compliant</td><td>Site inspection verified runoff from stockpile areas is captured in the Eastern Holding Dam at the CHPP. Former rejects emplacement area has been rehabilitated, with water management in this area in accordance with the site water management system.</td><td></td></tr>
<tr><td colspan="5">5. Monitoring and Recording Conditions</td></tr>
<tr><td colspan="5">M1. Monitoring records</td></tr>
<tr><td>M1.1</td><td>The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.</td><td>Compliant</td><td>EPL Annual Returns sighted for the period.</td><td></td></tr>
<tr><td>M1.2</td><td>All records required to be kept by this licence must be:
a) in a legible form, or in a form that can readily be reduced to a legible form;
b) kept for at least 4 years after the monitoring or event to which they relate took place; and
c) produced in a legible form to any authorised officer of the EPA who asks to see them.</td><td>Compliant</td><td>EPL Annual Returns sighted for the period. Sighted monitoring records. Summary of monitoring outlined in Annual Reviews.</td><td></td></tr>
<tr><td>M1.3</td><td>The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
a) the date(s) on which the sample was taken;
b) the time(s) at which the sample was collected;
c) the point at which the sample was taken; and
d) the name of the person who collected the sample.</td><td>Compliant</td><td>EPL Annual Returns sighted for the period. Raw monitoring results sighted with specialists completing monitoring for dust and water.</td><td></td></tr>
<tr><td colspan="5">M2. Requirement to monitor concentration of pollutants discharged</td></tr>
<tr><td>M2.1</td><td>For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:</td><td>Compliant</td><td>All monitoring points sampled during the audit period (last 3 annual returns sighted).</td><td></td></tr>
<tr><td>M2.2</td><td>Water and/ or Land Monitoring Requirements</td><td></td><td></td><td></td></tr>
<tr><td>Point 3</td><td>-<table><tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr><tr><td>Depth</td><td>metres</td><td>Quarterly</td><td>Grab sample</td></tr><tr><td>pH</td><td>pH</td><td>Quarterly</td><td>Grab sample</td></tr><tr><td>Salinity</td><td>microsiemens per centimetre</td><td>Quarterly</td><td>Grab sample</td></tr></table></td><td>Compliant</td><td rowspan="2">Monitoring results outlined in the Annual Review and Annual Return. This condition requires discharge sampling for EC (continuous), pH (daily during discharge) and TSS (daily during discharge) at LDP004. The Hunter River Salinity Trading Scheme cover letter outlines EC sampling as per these requirements for the discharge on 22 and 23 April 2015.

The 2014/15 Annual Return outlined only one sample was collected for TSS and pH, with there being a requirement of two samples (one for each day of discharge at LDP004). Further evidence was provided illustrating that sampling was completed for the 22 and 23 April 2015 discharge.

It was determined that there was an error in the Annual Return for the 2014/2015 period.

For LDP005, it should be noted that due to reduced manning levels (Care and Maintenance) there is insufficient liquid generation to require irrigation. (previously controlled automatically by CiTect system and system functionality maintained).</td><td rowspan="2">Include more details of frequency and results in the Annual Review. Ensure that all results are recorded in future Annual Returns. There was not an error in sampling, but an error in reporting in the Annual Return.</td></tr>
<tr><td>Point 4</td><td>-<table><tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr><tr><td>Conductivity</td><td>microsiemens per centimetre</td><td>Continuous during discharge</td><td>A probe designed to measure the range 0 to 10,000 uS/cm</td></tr><tr><td>pH</td><td>pH</td><td>Daily during any discharge</td><td>Grab sample</td></tr><tr><td>Total suspended solids</td><td>milligrams per litre</td><td>Daily during any discharge</td><td>Grab sample</td></tr></table></td><td>Compliant</td></tr>
<tr><td>Point 5</td><td><table><tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr><tr><td>Available phosphorus</td><td>milligrams per kilogram</td><td>Yearly</td><td>Composite sample prepared from area profile samples</td></tr><tr><td>Conductivity</td><td>microsiemens per centimetre</td><td>Yearly</td><td>Composite sample prepared from area profile samples</td></tr><tr><td>Exchangeable sodium percentage</td><td>milligrams per kilogram</td><td>Yearly</td><td>Composite sample prepared from area profile samples</td></tr><tr><td>Nitrate</td><td>milligrams per kilogram</td><td>Yearly</td><td>Composite sample prepared from area profile samples</td></tr><tr><td>Nitrogen (total)</td><td>milligrams per kilogram</td><td>Yearly</td><td>Composite sample prepared from area profile samples</td></tr><tr><td>pH</td><td>pH</td><td>Yearly</td><td>Composite sample prepared from area profile samples</td></tr><tr><td>Phosphorus (total)</td><td>milligrams per kilogram</td><td>Yearly</td><td>Composite sample prepared from area profile samples</td></tr></table></td><td>Compliant</td><td></td></tr>
<tr><td colspan="5">M3. Testing methods - concentration limits</td></tr>
<tr><td>M3.1</td><td>Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.</td><td>Compliant</td><td>Sampling undertaken by independent contractor (AECOM). Copy of May 2015 monthly monitoring report provided, which states that all sampling and analysis is carried out in accordance with EPA approved methods with reference to the relevant Australian Standards.</td><td></td></tr>
</table>

M3.2	The location of sampling points and source emissions sampling and analysis must be conducted strictly in accordance with the "Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales" (EPA, December 1999).	Compliant	Sampling undertaken by independent contractor (AECOM). Copy of May 2015 monthly monitoring report provided, which states that all sampling and analysis is carried out in accordance with EPA approved methods with reference to the relevant Australian Standards.	
M3.3	Clause 18 (1), (1A) and (2) of the Protection of the Environment Operations (General) Regulation 2009 requires that monitoring of actual loads of assessable pollutants listed in L2.2 must be carried out in accordance with the testing method set out in the relevant load calculation protocol for the fee-based activity classification listed in condition A1.1.	Compliant	Sampling undertaken by independent contractor (AECOM). Copy of May 2015 monthly monitoring report provided, which states that all sampling and analysis is carried out in accordance with EPA approved methods with reference to the relevant Australian Standards.	
M4. Recording of pollution complaints				
M4.1	The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.	Not Triggered	No complaints received during the audit period.	
M4.2	The record must include details of the following: a) the date and time of the complaint; b) the method by which the complaint was made; c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect; d) the nature of the complaint; e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and f) if no action was taken by the licensee, the reasons why no action was taken.	Not Triggered		
M4.3	The record of a complaint must be kept for at least 4 years after the complaint was made.	Not Triggered		
M4.4	The record must be produced to any authorised officer of the EPA who asks to see them.	Not Triggered		
M5. Telephone complaints line				
M5.1	The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.	Compliant	Letter (06/07/06) from Dartbrook to the DoP regarding suspension of mining operations at Dartbrook and the upcoming Care and Maintenance status of the mine proposed "A pager system responded to on week days." Responding letter (07/09/06) from DoP stating that the department has approved the mine's program of proposed actions regarding Care and Maintenance.	
M5.2	The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.	Compliant	Number available in white pages (confirmed by SLR).	
M5.3	The preceding two conditions do not apply until 3 months after the date of the issue of this licence.	Note		
M6 Requirement to monitor volume or mass				
M6.1	For each discharge point or utilisation area specified below, the licensee must monitor: a) the volume of liquids discharged to water or applied to the area; b) the mass of solids applied to the area; c) the mass of pollutants emitted to the air; at the frequency and using the method and units of measure, specified below. POINT 4 Frequency: Continuous during discharge; Unit of Measure: megalitres per day; Sampling Method: Magnetic flow meter	Compliant	All required sampling was undertaken during audit period (EPL annual returns sighted). Discharge volume monitoring occurred for LDP004 when discharge occurred on 22 and 23 April 2015	
M7 Blasting				
M7.1	To determine compliance with condition(s) L5.1 and L5.2 a) Airblast overpressure and ground vibration levels must be measured at the nearest residence or noise sensitive location that is most likely to be most affected by the blast and that is not owned by the licensee or subject of a private agreement between the owner of the residence or noise sensitive location and the licensee for all blasts carried out in or on the premises; and b) Instrumentation used to measure the airblast overpressure and ground vibration levels must meet the requirements of Australian Standard 2187.2 of 1993.	Not Triggered	No blasting during audit period.	
M8 Other monitoring and recording conditions				
M8.1	The Licensee must continuously operate and maintain communication equipment which makes the conductivity and flow measurements, taken at Point 4 available to the "service provider" within one hour of those measurements being taken and makes them available in the format specified in the "Hunter River Salinity Trading Scheme Discharge Point Site Equipment" as published by the Department of Land and Water Conservation on 7 May 2002.	Compliant	The 2015 discharge events were reported to the EPA. No site records of evidence of 1h upload time available, however Doug Stewart from Dartbrook advised that State Water carries out this role for the EPA, and that there is real time radio linkage for discharge rate, conductivity and pH to State Water.	
M8.2	The licensee must ensure that all monitoring data is within a margin of error of 5% for conductivity measurements and 10% for discharge flow measurement.	Compliant	Doug Stewart advised annual calibration of the discharge equipment is undertaken to allow accurate monitoring by Endress Hauser.	
M8.3	The licensee must mark monitoring point(s) 2, with a sign which clearly indicates the name of the licensee, whether the monitoring point is up or down stream of the discharge point (s) and that it is a monitoring point for the Hunter River Trading Scheme.	Compliant	Doug Stewart noted there is signage for point 2 and 4 with required information in place.	
6. Reporting Conditions				
R1. Annual Return documents				

R1.1	The licensee must complete and supply to the EPA an Annual Return in the approved form comprising: a) a Statement of Compliance; and b) a Monitoring and Complaints Summary. At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.	Non-Compliant (Low Level Risk)	Annual Returns sighted, with these signed and containing the information required by this condition. The 2014/15 Annual Return outlined only one sample was collected for TSS and pH, with there being a requirement of two samples (one for each day of discharge at LDP004). Further evidence was provided illustrating that sampling was completed for the 22 and 23 April 2015 discharge. It was determined that there was an error in the Annual Return for the 2014/2015 period.	Liaison with the EPA regarding whether a resubmission of the 2014-15 Annual Return is required to cover the error in the 2014/15 Annual Return regarding discharge reporting.
R1.2	An Annual Return must be prepared in respect of each reporting period, except as provided below.	Compliant	Annual Returns sighted, with these signed and containing the required information.	
Note	The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.	Note		
R1.3	Where this licence is transferred from the licensee to a new licensee: a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.	Not Triggered	No licence transfer during audit period.	
Note	An application to transfer a licence must be made in the approved form for this purpose.	Not Triggered	No licence transfer during audit period.	
R1.4	Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on: a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.	Not Triggered	Licence not surrendered during audit period.	
R1.5	The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').	Observation	EPL reporting period ends 30 Nov therefore Annual Return due 29 January each year. Date of receipt of Annual Returns noted on the EPA website. 2016 and 2015 Annual Returns provided before this date, however 2014 AR provided 31 Jan 2015.	The EPA considered this compliant (see EPA website). All Annual Returns should be provided to the EPA before the due date.
R1.6	The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.	Compliant	Annual Returns sighted.	
R1.7	Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by: a) the licence holder; or b) by a person approved in writing by the EPA to sign on behalf of the licence holder.	Compliant	Annual Returns sighted.	
R1.8	A person who has been given written approval to certify a certificate of compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review of this licence.	Note		
R2. Notification of environmental harm				
Note	The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.	Not Triggered	No incidents threatening or causing material harm during the audit period.	
R2.1	Notifications must be made by telephoning the Environment Line service on 131 555.	Not Triggered		
R2.2	The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.	Not Triggered		
R3. Written Report				
R3.1	Where an authorised officer of the EPA suspects on reasonable grounds that: a) where this licence applies to premises, an event has occurred at the premises; or b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.	Not Triggered	No incidents during the audit period.	
R3.2	The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.	Not Triggered		
R3.3	The request may require a report which includes any or all of the following information: a) the cause, time and duration of the event; b) the type, volume and concentration of every pollutant discharged as a result of the event; c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event; d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort; e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants; f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and g) any other relevant matters.	Not Triggered		

R3.4	The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.	Not Triggered		
Reporting of Exceedances of Blasting Limits				
R3.5	The licensee must report any exceedance of the licence blasting limits to the regional office of the EPA as soon as practicable after the exceedance becomes known to the licensee or to one of the licensee's employees or agents.	Not Triggered	No blasting during the reporting period.	
Hunter River Salinity Trading Scheme Reporting				
R3.6	The licensee must compile a written report of the activities under the Scheme for each scheme year. The scheme year shall run from 1 July to 30 June each year. The written report must be submitted to the EPA's regional office within 60 days after the end of each scheme year and be in a form and manner approved by the EPA. The information will be used by the EPA to compile an annual scheme report	Compliant	Hunter River Salinity Trading Scheme Reports provided. Annual Reviews note that there were nil discharges under Hunter River Salinity Trading Scheme during 2013 or 2014, however there were 2 in 2015 (22-23/04/2015).	
7. General Conditions				
G1. Copy of licence kept at the premises or plant				
G1.1	A copy of this licence must be kept at the premises to which the licence applies.	Compliant	Copy available on-site. Also available online.	
G1.2	The licence must be produced to any authorised officer of the EPA who asks to see it.	Not Triggered		
G1.3	The licence must be available for inspection by any employee or agent of the licensee working at the premises.	Compliant		
8. Special Conditions				
E1 Hunter River Salinity Trading Scheme				
E1.1	This licence authorises the discharge of saline water into the Hunter River Catchment from an authorised discharge point (or points), in accordance with the Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2009.	Compliant	There were two Hunter River Salinity Trading Scheme discharges during the audit period (22 and 23 April 2016). Salinity results provided for these discharge events.	
E1.2	For the purposes of Clauses 23 and 29 of the Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002 the licensee must apply the conversion factor of 0.6.	Note		
E1.3	Saline water, as defined in the Regulation, must not be discharged from the premises except through Discharge Point 2.	Note		
E1.4	During the licensee's next discharge under the rules of the Hunter River Salinity Trading Scheme (the Scheme) the licensee must monitor salinity levels at least at the following location, provided it is safe to do so: - at the nearest downstream irrigation offtake point. As far as practicable it should be timed to coincide with the peak flow of discharge water. The results of this monitoring must be reported to the Regional Manager within 30 days of being collected. The report should detail the exact location, time and method of monitoring. Note: - a handheld salinity probe is considered an adequate method of undertaking the monitoring, - this monitoring can be carried out in conjunction with other discharging participants in the Scheme.	Compliant	There is real time radio linkage for discharge rate, conductivity and pH to State Water.	
E2. Discontinuation of Mining				
Note	The EPA understands that the licensee has ceased coal mining activities at the premises. It is the EPA's intention to include a Pollution Reduction Program requiring the licensee to conduct a site specific determination of best management practices to reduce particulate emissions from coal mining activities, if coal mining recommences.	Not Triggered	No mining during the audit period.	
E2.1	The licensee must notify the EPA's Manager, Hunter Region in writing prior to mining or handling any coal on the premises.	Not Triggered	No mining during the audit period.	

CCL 386

*It is noted that in a letter dated 30.10.2015 DRE approved an application for suspension of mining operations within CCL386, ML1381, ML1456, ML1497, until 31 Dec 2017.

Condition Number	Condition	Compliance Status	Evidence	Recommendation
1 (a)	**1. Notice to Landholders** (a) Within a period of three months from the date of renewal of this mining lease, the lease holder must serve on each landholder a notice in writing indicating that this mining lease has been renewed and whether the lease includes the surface. A plan identifying each landholder and individual land parcel subject to the lease area, and a description of the lease area must accompany the notice.	Compliant	CCL386 reviewed during the audit period (5 Dec 2014). Anglo American's tenure specialist Nathan Brown noted in an email (dated 21.07.16) that Anglo's records indicate that the land within the mining leases (including CL 386) is Anglo owned, and there are no private land owners, therefore no notice required.	
1(b)	(b) If there are ten or more landholders, the lease holder may serve the notice by publication in a newspaper circulating in the region where the lease area is situated. The notice must indicate that this mining lease has been renewed; state whether the lease includes the surface and must contain a plan and description of the lease area. If a notice is made under condition 1 (b), compliance with condition 1 (a) is not required.	Not Triggered	Not applicable (no private landholders within CCL boundary).	
2	**2. Rehabilitation** Any disturbance resulting from the activities carried out under this mining lease must be rehabilitated to the satisfaction of the Minister.	Compliant	No disturbance during audit period. Rehabilitation maintenance undertaken during audit. Site inspection noted no issues with existing rehabilitation on site.	
3(a)	**3. Mining Operations Plan and Annual Rehabilitation Report** (a) The lease holder must comply with an approved Mining Operations Plan (MOP) in carrying out any significant surface disturbing activities, including mining operations, mining purposes and prospecting. The lease holder must apply to the Minister for approval of a MOP. An approved MOP must be in place prior to commencing any significant surface disturbing activities, including mining operations, mining purposes and prospecting.	Compliant	The site operates in accordance with an approved Care and Maintenance MOP (sighted). The current MOP was prepared in November 2012 which is prior to this audit period. No mining activities undertaken during audit period, however activities generally completed in accordance with the MOP.	
(b)	(b) The MOP must identify the post mining land use and set out a detailed rehabilitation strategy which: (i) identifies areas that will be disturbed; (ii) details the staging of specific mining operations, mining purposes and prospecting; (iii) identifies how the mine will be managed and rehabilitated to achieve the post mining land use; (iv) identifies how mining operations, mining purposes and prospecting will be carried out in order to prevent and or minimise harm to the environment; and (v) reflects the conditions of approval under: • the Environmental Planning and Assessment Act 1979; • the Protection of the Environment Operations Act 1997; and • any other approvals relevant to the development including the conditions of this mining lease.	Compliant	No proposed disturbance during MOP period. Care and Maintenance MOP identifies the proposed post-mining land use and rehabilitation strategy.	
(c)	(c) The MOP must be prepared in accordance with the *ESG3: Mining Operations Plan (MOP) Guidelines September 2013* published on the Department's website at www.resources.nsw.gov.au/environment	Compliant	MOP was prepared in accordance with the *Interim Mining Operations Plan (MOP) Guidelines (2012)* current at time of submission. This condition has been updated after the current MOP was submitted.	Any future MOPs should be prepared in accordance with ESG3 (or latest version).
(d)	(d) The lease holder may apply to the Minister to amend an approved MOP at any time.	Not Triggered	No MOP amendments during the audit term.	
(e)	(e) It is not a breach of this condition if: (i) the operations which, but for this condition 3(e) would be a breach of condition 3(a), were necessary to comply with a lawful order or direction given under the Environmental Planning and Assessment Act 1979, the Protection of the Environment Operations Act 1997, the Mine Health and Safety Act 2004 I Coal Mine Health and Safety Act 2002 and Mine Health and Safety Regulation 2007 I Coal Mine Health and Safety Regulation 2006 or the Work Health and Safety Act 2011; and (ii) the Minister had been notified in writing of the terms of the order or direction prior to the operations constituting the breach being carried out.	Not Triggered	No breaches during the audit period.	
(f)	(f) The lease holder must prepare a Rehabilitation Report to the satisfaction of the Minister. The report must: (i) provide a detailed review of the progress of rehabilitation against the performance measures and criteria established in the approved MOP; (ii) be submitted annually on the grant anniversary date (or at such other times as agreed by the Minister); and (iii) be prepared in accordance with any relevant annual reporting guidelines published on the Department's website at www.resources.nsw.gov.au/environment. Note: The Rehabilitation Report replaces the Annual Environmental Management Report.	Compliant	Addressed in Annual Review, which is submitted to DRE annually. Section 8 of the 2015 Annual Review. Covered in previous 2013 and 2014 AEMR's.	
4(a)	**4. Compliance Report** (a) The lease holder must submit a Compliance Report to the satisfaction of the Minister. The report must be prepared in accordance with any relevant guidelines or requirements published by the Minister for compliance reporting.	Compliant	Anglo American's tenure specialist Nathan Brown noted in an email (dated 21.07.16) that compliance Reports were superseded or replaced by the AEMR following amendments to the Mining Regulation 2010 in February 2012. AEMRs/Annual Reviews submitted during the audit period were undertaken in accordance with the relevant guideline.	
(b)	(b) The Compliance Report must include: (i) the extent to which the conditions of this mining lease or any provisions of the Act or the regulations applicable to activities under this mining lease, have or have not been complied with; (ii) particulars of any non-compliance with any such conditions or provisions, (iii) the reasons for any such non-compliance; (iv) any action taken, or to be taken, to prevent any recurrence, or to mitigate the effects, of that non-compliance.	Compliant	AEMRs/Annual Reviews submitted during the audit period covered off on all of these aspects.	
(c)	(c) The Compliance Report must be lodged with the Department annually on the grant anniversary date for the life of this mining lease.	Compliant	AEMRs/Annual Reviews submitted by the due date stipulated by DP&E for the project approval.	
(d)	(d) In addition to annual lodgement under condition 4(c) above, a Compliance Report: (i) must accompany any application to renew this mining lease under the Act; (ii) must accompany any application to transfer this mining lease under the Act; and (iii) must accompany any application to cancel, or to partially cancel, this mining lease under the Act.	Compliant	Now covered off by the Annual Review.	
(e)	(e) Despite the submission of any Compliance Report under (c) or (d) above, the titleholder must lodge a Compliance Report with the Department at any date or dates otherwise required by the Minister.	Not Triggered	No additional compliance reports requested by the Minister.	
(f)	(f) A Compliance Report must be submitted one month prior to the expiry of this mining lease, where the licence holder is not seeking to renew or cancel this mining lease.	Not Triggered	CCL was not expired during the audit term.	

5(a)	**5. Environmental Incident Report** (a) The lease holder must notify the Department of all: (i) breaches of the conditions of this mining lease or breaches of the Act causing or threatening material harm to the environment; and (ii) breaches of environmental protection legislation causing or threatening material harm to the environment (as defined in the Protection of the Environment Administration Act 1991), arising in connection with significant surface disturbing activities, including mining operations, mining purposes and prospecting operations, under this mining lease. The notification must be given immediately after the lease holder becomes aware of the breach. Note. Refer to www. resources. NSW. gov. au/environment for notification contact details.	Not Triggered	No environmental incidents during the audit period.	
(b)	(b) The lease holder must submit an Environmental Incident Report to the Department within seven (7) days of all breaches referred to in condition 5(a)(i) and (ii). The Environmental Incident Report must include: (i) the details of the mining lease; (ii) contact details for the lease holder; (iii) a map identifying the location of the incident and where material harm to the environment has or is likely to occur; (iv) a description of the nature of the incident or breach, likely causes and consequences; (v) a timetable showing actions taken or planned to address the incident and to prevent future incidents or breaches referred to in 5(a). (vi) a summary of all previous incidents or breaches which have occurred in the previous 12 months relating to significant surface disturbing activities, including mining operations, mining purposes and prospecting operations under this mining lease. Note. The lease holder should have regard to any relevant Director General's guidelines in the preparation of an Environmental Incident Report. Refer to www.resources.nsw.gov.aulenvironment for further details.	Not Triggered	No environmental incidents during the audit period.	
(c)	(c) In addition to the requirements set out in conditions 5(a) and (b), the lease holder must immediately advise the Department of any notification made under section 148 of the Protection of the Environment Operations Act 1997 arising in connection with significant surface disturbing activities including mining operations, mining purposes and prospecting operations, under this mining lease.	Not Triggered	No requirement for POEO notifications made during the audit period.	
6(a)	**6. Extraction Plan** (a) In this condition: (i) approved Extraction Plan means a plan, being: A. an extraction plan or subsidence management plan approved in accordance with the conditions of a relevant development consent and provided to the Secretary; or B. a subsidence management plan relating to the mining operations subject to this lease: I. submitted to the Secretary on or before 31 December 2014; and II. approved by the Secretary. (ii) relevant development consent means a development consent or project approval issued under the Environmental Planning & Assessment Act 1979 relating to the mining operations subject to this lease.	Not Triggered	No mining operations undertaken during the audit period. No Extraction Plan required.	
(b)	(b) The lease holder must not undertake any underground mining operations that may cause subsidence except in accordance with an approved Extraction Plan.	Not Triggered	No mining operations undertaken during the audit period. No Extraction Plan required.	
(c)	(c) The lease holder must ensure that the approved Extraction Plan provides for the effective management of risks associated with any subsidence resulting from mining operations carried out under this lease.	Not Triggered	No mining operations undertaken during the audit period. No Extraction Plan required.	
(d)	(d) The lease holder must notify the Secretary within 48 hours of any: (i) incident caused by subsidence which has a potential to expose any person to health and safety risks; (ii) significant deviation from the predicted nature, magnitude, distribution, timing and duration of subsidence effects, and of the potential impacts and consequences of those deviations on built features and the health and safety of any person; or (iii) significant failure or malfunction of a monitoring device or risk control measure set out in the approved Extraction Plan addressing: A built features; B. public safety; or C. subsidence monitoring.	Not Triggered	No mining operations undertaken during the audit period. No Extraction Plan required.	
7	**7. Resource Recovery** The lease holder must optimise recovery of the minerals that are the subject of this mining lease to the extent economically feasible.	Not Triggered	No mining operations undertaken during the audit period.	
8	**8. Group Security** The lease holder is required to provide and maintain a security deposit to secure funding for the fulfilment of obligations of all or any kind under the mining lease, including obligations of all or any kind under the mining lease that may arise in the future. The amount of the security deposit to be provided as a group security has been assessed by the Minister at $9,195,000. The leases covered by the group security include: Coal Lease 386 (Act 1973) and Mining Lease No's 1381, 1456 & 1497 (Act 1992).	Compliant	Details of security deposits being paid were noted on mining lease searches provided by Anglo American's tenure specialist Nathan Brown (email dated 21.07.16) (A256, CL386, EL4574, EL4575, EL5525, ML1381, ML1456, ML 1497). The searches show the security required; the security held; and the details of the security – e.g. NAB Certificate (bank guarantee). Advised that the DRE hasn't revised or increased any of the securities. Noted that the security for the mining leases (CL 386, ML 1381, ML 1456 and ML 1497) is a combined security of $7,017,000. The securities for each of the exploration authorisations (A 256, EL 4574, EL 4575 and EL 5525) are all levied and held separately – i.e. against each respective tenure.	
9	**9. Cooperation Agreement** The lease holder must make every reasonable attempt, and be able to demonstrate its attempts, to enter into a cooperation agreement with the holder(s) of any overlapping title(s). The cooperation agreement should address but not be limited to issues such as: • access arrangements • operational interaction procedures • dispute resolution • information exchange • well location • timing of drilling • potential resource extraction conflicts; and • rehabilitation issues.	Not Triggered	Anglo American's tenure specialist Nathan Brown noted in an email (dated 21.07.16) that Anglo's records indicate that there are no Cooperation agreements in place. No mining undertaken during audit period.	
Note	**SPECIAL CONDITIONS** Note: The standard conditions apply to all mining leases. The Division of Resources & Energy (DRE) reserves the right to impose special conditions, based on individual circumstances, where appropriate.	Note	Noted.	

10	**10. Barriers** Unless with the consent of the Minister first had and obtained and subject to such conditions as he may impose the registered holder shall not work or cause to be worked any seam of coal by underground methods within the subject area within the barrier defined as follows:- *The land within the zone beneath and adjacent to The Main Northern Railway enclosed by an angle of draw of 35 degrees from the vertical plane of the boundary parallel to and thirty (30) metres horizontally distant from either side of the railway lands, such angle of draw being measured outwards from the point on the vertical plane of the said boundary at the surface or at the level of the horizontal plane of the railway track, whichever may be the higher, to the floor of the coal seam in which mining operations are being carried out.*	Not Triggered	No mining undertaken during the audit period.	
	Exploration Reporting Note: Exploration Reports (Geological and Geophysical) The lease holder must lodge reports to the satisfaction of the Minister in accordance with section 163C of the Mining Act 1992 and in accordance with clause 57 of the Mining Regulation 2010. Reports must be prepared in accordance with Exploration Reporting: A guide for reporting on exploration and prospecting in New South Wales (Department of Trade and Investment; Regional Infrastructure and Services 2010).	Not Triggered	No exploration undertaken during the audit period.	

EIS (2000)

Aspect	Compliance Status	Evidence	Recommendation
Air Quality	Compliant	A comparison of the total annual average PM10 dust concentrations with the levels predicted in the EIS and subsequent modifications is summarised in each Annual Review (2013-2015). These comparisons shows that during 2015 most of the sites were below the predictions made in the EIS and subsequent modifications. It should also be noted that the site isn't operating and elevated dust levels in the area cannot be solely attributed to site operations. EIS predictions related to an operating site, not a Care and Maintenance operation.	No recommendation
Groundwater	Compliant	An annual assessment of the accuracy of the groundwater model predictions contained in the Dartbrook EIS is undertaken by comparing the results of actual monitoring with predictions under the model. In 2015, this assessment was carried out by Australasian Groundwater and Environmental Consultants Pty Ltd (AGE). In conclusion, the review of monitoring data for groundwater levels during the reporting period showed results were generally consistent with the predictions made in the Dartbrook EIS and in agreement with similar assessments undertaken by AGE in previous years. It is noted that no mining is undertaken during the audit period. EIS predictions related to an operating site, not a Care and Maintenance operation.	No recommendation
Gas Drainage	Not verified	Greenhouse gas volumes cannot be compared to the predictions made in the EIS, because of the changes in the mine area that is being ventilated during the Care and Maintenance phase of operations.	No recommendation

Agency Consultation

Request	Comment/Discussion
DRE (Catherine Lewis)	
Is there a current Mining Operations Plan (MOP) in place and has it been approved by DRE?	Yes a current MOP (2012-2017) exists and was approved by DRE in a letter dated (18.12.12).
Has the MOP been prepared in consultation with the relevant agencies as outlined in the Project Approval?	MOP was prepared and approved in 2012 which is outside the scope of the audit (12 August 2013-12 July 2016). Section 1.4 of the MOP states that it was prepared in consultation with government agencies.
Is the rehabilitation strategy as outlined in the MOP consistent with the Project Approval in terms of progressive rehabilitation schedule; and proposed final land use(s)?	This is outside the scope of the audit. The MOP was developed and approved by DRE in 2012. No rehabilitation strategy or rehabilitation schedule or final land use stipulated in the DA. There has been no additional rehabilitation during the audit period with the site remaining on Care and Maintenance.
Has the rehabilitation objectives and completion criteria as outlined in the MOP been developed in accordance with the proposed final land(s) as outlined in the Project Approval?	This is outside the scope of the audit. The MOP was developed and approved by DRE in 2012. No proposed final landform stipulated in the DA.
Has a rehabilitation monitoring program been developed and implemented to assess performance against the nominated objectives and completion criteria? – verified by reviewing monitoring reports and rehabilitation inspection records.	MOP outlines the rehabilitation program whilst the site is in Care and Maintenance. Rehabilitation monitoring outlined in the Annual Review and is completed monthly. Rehabilitation monitoring has been completed as part of the Rehabilitation grazing trial in 2015/16. Rod Masters from SLR completed a site inspection regarding rehabilitation and surface water including a review of rehabilitation within the former REA. The inspection noted the rehabilitation was of high quality, with minimal areas of erosion and a good ground cover consisting of a mix of pasture and legume species.
Has a rehabilitation care and maintenance program been developed and implemented based on the outcomes of monitoring program? – verified by reviewing Annual Rehabilitation Programs or similar documentation.	MOP outlines the rehabilitation program while the site is in Care and Maintenance. Rehabilitation maintenance including weed management and feral animals management outlined in the Annual Review.
Are mining operations being conducted in accordance with the approved MOP (production, mining sequence etc.), including within the designated MOP approval boundary? – to be verified by site plans and site inspection.	No mining operations during the audit period. Site has been on Care and Maintenance since 2007.
Is rehabilitation progress consistent with the approved MOP as verified by site plans and a site inspection? This should include an evaluation against rehabilitation targets and whether the final landform is being developed in accordance with conceptual final landform in Project Approval.	Rehabilitation progress was observed to be consistent with the approved Care and Maintenance MOP. As mining ceased in 2006 and all mining operations were underground, there are minimal rehab areas to assess. The REA was observed to be rehabilitated in accordance with the MOP. Inspection by Rod Masters and SLR indicated rehabilitation in the former REA is progressing well. No subsidence issues noted. River Red Gum rehabilitation area showed success.
Based on a visual inspection, are there any rehabilitation areas that appear to have failed or that have incurred an issue that may result in a delay in achieving the successful rehabilitation?	Site inspection did not identify any rehabilitation areas that have failed. Some disturbed areas such as the former CHPP stockpile were recommended for rehab seeding as a form of temporary stabilisation.
In addition to the above, the audit should note observations where rehabilitation procedures, practices and outcomes represent best industry practice.	Recommendations for best practice for aspects such as hydrocarbon storage, temporary stabilisation and erosion and sediment control were made and are noted in the audit report. The Sustainable Cattle Grazing Trial commenced in 2015 and indicates successful management of grazing within rehabilitated pasture areas.
DP&E (Chris Knight)	

I would like to request that the audit focusses on all requirements of the Consent and Management Plans regardless if the site is in care and maintenance. As a note “Care and maintenance” does not remove any condition or requirement which has not been approved by the Department.	The audit has addressed all the requirements of the consent. Key aspects and the implementation of management plans have been assessed. Several management plans are less relevant with the site being on care and maintenance. Any requirements within the audit period ((12 August 2013-12 July 2016) have been assessed, regardless of the Care and Maintenance status of the site.
Focus should also include site water management and water balance requirements.	Rod Masters from SLR has assisted with the audit as a specialist to assess rehabilitation and water management. Site water management and water balance conditions in the DA, EPL, and CCL have been assessed. The site inspection found no serious issues in relation to water management/water balance. SLR has recommended some minor erosion and sediment control maintenance.
DP&E (Wayne Jones)	
It would be great to include a review of spontaneous combustion and performance of the emplacement area to the rear of the washery.	Conditions of the DA, EPL, CCL relating to spontaneous combustion and the REA have been assessed. The site inspection found no evidence of spontaneous combustion and no issues were observed with the REA. Temperature in the former REA is monitored and reported in Annual Reviews. Rehabilitation of the former REA has shown excellent results.
Richard Nevill (DPI Water)	
Assessment as to whether the project holds the required water entitlements, approvals and licenses under the Water Management Act 2000 or Water Act 1912 (as applicable)	The site holds several surface and groundwater licences. All water take was undertaken in accordance with a licence during the audit period, as reported in the Annual Reviews.
Compliance with the conditions of any water licenses/approvals held.	Copies of water licences not provided. Compliance against these licences was beyond the scope of this audit. There are four Bore Licences at Dartbrook which are used for offsets for any Groundwater Take. Two licences relate to pumping water from the Hunter Tunnel into the Wynn Seam goaf and two licences refer to use for raw water sources for the Pit Top (West side) These are outlined in the 2015 Annual Review: 20BL 166121 - 25ML Entitlement 20BL 169122 - 25ML Entitlement 20BL 169015 - 30 ML Entitlement 20BL 169016 - 150 ML Entitlement 2015 Annual Review indicates Dartbrook were below these limits. The data was in the 2013 and 14 AEMR's however it was difficult to find, however site records indicate the entitlement limit was met. Improvement in 2015 Annual Review reporting.
Quantification of water flow into the Hunter Tunnel from the various water sources and extraction from the Wynn Goaf.	Groundwater flow into the Hunter Tunnel is recorded in the Annual Reviews. Data regarding water extraction in the Wynn seam goaf was provided, with Dartbrook below the entitlements.
Do the relevant management plans adequately describe the water licensing requirements under the Water Management Act 2001 Water Act 1912, and compliance with these requirements?	Section 2.4 of the SWMP outlines the licences issued under the WM Act 2001 and Water Act 1912. Compliance with water licence allocation limits are provided in the 2015 Annual Review however not in the 2013 or 2014 documents. No other water licencing compliance data provided.
Are adequate records kept to enable determination of the volume and source of surface and groundwater taken?	A summary of water take is provided in the 2015 Annual Review (all within limits). Water balance provided in 2013 and 2014 Annual Reviews, however doesn’t specify source. No other records provided.

Is the operation capturing and/or harvesting any clean water?	No reference to water harvesting in the SWMP or Annual Reviews. Information regarding cleanwater management is outlined in Section 2.2.1 and 2.2.2 of the Annual Review. Based on discussions at site, separate clean water management system does not harvest water.
Has the proponent calculated its maximum harvestable right under the Water Management Act 2000?	No reference to maximum harvestable rights in the SWMP or Annual Reviews. All dams constructed prior to 2000. The strategy is to divert clean water and avoid contamination. Clean water dams generally have a pipe outlet to maximise sediment control and avoid capturing the clean water.
Is the capture of water in excess of the harvestable right?	Unable to determine - maximum harvestable rights unknown. Dams were generally constructed prior to harvestable rights requirement.
Do any exemptions under the Water Management (General) Regulation 2011 or Harvestable Rights Order (gazetted 31 March 2006) apply to the capture of water?	Unable to determine - maximum harvestable rights unknown. Dams were generally constructed prior to harvestable rights requirement.
If necessary, does the proponent hold water access licences in the correct water sources nominated by the water supply work approval under the relevant water sharing plan (for the take of surface water or alluvial groundwater), or licences under part 5 of the Water Act 1912 (for the take of groundwater from non-alluvial aquifers), and do they hold sufficient quantity of entitlement under these licenses?	Water licences stored at site. Water licenses are divided into Hunter River and Dartbrook Water Sharing Plans under the appropriate acts. Licences listed in the
Natasha Ryan (EPA)	
No feedback received as yet.	
Paul Smith (UHSC)	
No feedback received as yet.	
Manager (OEH)	
No feedback received as yet.	
Scott Brooks (Muswellbrook Council)	
No feedback received as yet.	

2013 Audit Non-Compliances - Assessment Against Recommendations

Reference	Non-Compliance/Observation (2013 Report)	2013 Recommendation	Compliance Status	2016 Comment/Discussion
Non-Compliances				
DA 231-07-2000 2-1(d)	No evidence of the 2013-17 MOP being sent to MSC, UHSC or DP&I was identified during the audit.	1. Provide a copy of the approved 2013-17 MOP to MSC, UHSC and DP&I. 2. Ensure a copy of any future MOP's or amended MOP's are provided to relevant agencies within 14 days of acceptance by DRE.	Observation	Site did not recommence operations during the audit period and remained in care and maintenance. Recommendation to send to these departments if there is a MOP variation or a new MOP. Evidence that MOP was provided to key agencies on 13 November 201
DA 231-07-2000 3-2(e)	No evidence of management plans revised during the audit period being sent to MSC, UHSC or DP&I was identified. Evidence was found to show that approved management plans have previously been sent to Muswellbrook Shire Library and provided to the CCC.	1. Ensure copies of revised management plans are provided to MSC, UHSC and the CCC following approval by DP&I. 2. Ensure copies of management plans are made publicly available following approval by DP&I.	Administrative Non-Compliance	1. Some submission letters provided, refer to various specific conditions for each management plan. The following management plans were updated and approved by the DP&E during the audit period: * Dust Management Plan (24 October 2014); * ESCP (21 October 2014); and * Site Water Management Plan (15 September 2015). Evidence of provision of DMP, ESCP to MSC, UHSC or the CCC following approval by DP&E was not provided. Evidence of Water MP distribution provided. There was evidence that management plans were discussed at CCC meetings, but not provided. The following other MP's were updated, but these are for internal use only: * Mine Closure Plan (26 July 2014); * Environmental Monitoring Plan (22 Sept 2014). It is understood that as these are internal documents they do not need to be submitted to DP&E for approval. 2. The site water management plan is the only revised plan that was uploaded to the website. Recommend putting key MP's on the website. It is understood that the MCP and the EMP are internal documents only and do not need to be made publically available.
DA 231-07-2000 3-2(f)	No evidence of DP&I approval for revised Bushfire Management Plan was found during the audit	Obtain approval from DP&I for revised Bushfire Management Plan.	Observation	Evidence that the management plan was again sent to the DP&E and both councils 29 November 2013.
DA 231-07-2000 3-9(c)	Sighted. Bushfire Management Plan (Rev 5: 19/05/11). This was revised in 2011; however, no evidence was found during the audit that the revised plan was sent to MSC, UHSC and the RFS.	Ensure revised management plans are provided to relevant agencies for comment.	Observation	Evidence that the management plan was again sent to the DP&E and both councils 29 November 2013.
DA 231-07-2000 8(b)	Quality assurance/control strategies or protocols were not found to be described in relevant management plans (e.g. Dust Management Plan and Water Management Plan) and therefore compliance with this condition could not be demonstrated.	Revise all management plans requiring monitoring to include QA/QC protocols. As Dartbro is currently operating under care and maintenance and this noncompliance is an administrative issue that will not affect environmental performance, it is recommended that this action is taken when the management plans are revised during preparation for recommencement of operation.	Not Triggered	Site did not recommence operations during the audit period. Recommendation not triggered.
DA 231-07-2000 9-2(a)xii	A report on dam surveillance undertaken for the purposes of informing the Dam Safety Committee (DSC) is not included in any of the AEMRs. The AEMRs provide detailed information about dams under the control of Dartbrook, but do not include DSC surveillance inspections. The compliance checklist included as Appendix K of the 2012 AEMR states (for this condition) 'See latest report submitted in December 2011'. This report or a summary of the findings is not provided in the AEMR and therefore compliance with this condition cannot be demonstrated.	Ensure a report on the surveillance of any prescribed dam for the purposes of reporting to the DSC is provided in future AEMRs.	Compliant	Annual Reviews submitted each year during the audit period cover off on these requirements.
EPL 4885 E1.4	No evidence of the 2012 Hunter River Salinity Trading Scheme discharge being reported within days to the EPA was found during the audit, hence compliance with this requirement could not be demonstrated.	Ensure all notifications required for discharges under the Hunter River Salinity Trading Scheme occur within required timeframes.	Compliant	There is real time radio linkage for discharge rate, conductivity and pH to State Water.
Observations				
DA 231-07-2000 3-2(e)	As a minimum, this satisfies the requirements for management plans to be publicly available. However, it is considered appropriate for the plans to be made available on the internet and this should be considered if the site becomes operational again.	Make management plans and other relevant documents available on the internet once the site recommences operations.	Not Triggered	Site did not recommence operations during the audit period. Recommendation not triggered.
DA 231-07-2000 3-5(k)	Flora and Fauna Management Plan was revised following the 2010 audit to include a 'Rehabilitation Monitoring Checklist'. It was noted that inspection of rehabilitated areas or completion of the checklist is not mentioned in the Environmental Monitoring Program and no frequency for undertaking the audit is described in the Flora and Fauna Management Plan. Following the site component of the audit, a copy of the checklist, as completed on 30 August 2013, was provided to the auditor. The Safety, Health and Environmental Coordinator stated that the checklist is used to undertake inspections of rehabilitation areas approximately every three months.	Amend the Flora and Fauna Management Plan and/or Environmental Monitoring Program to specify a frequency for undertaking rehabilitation monitoring.	Administrative Non-Compliance	Recommendation not actioned during the audit term. Based on discussions with site, the Flora and Fauna MP is to be updated in 2016.

DA 231-07-2000 4-1(b)	Sighted correspondence addressed to the Dartbrook from NOW dated 2 October 2009 recommending that groundwater investigations commissioned by Anglo American should further consider the source of Hunter River Tunnel inflows. Subsequently, further correspondence sighted as received by Anglo American from NOW in 2012 reintroduced concerns in this regard. It was stated by the Safety, Health and Environmental Coordinator that meetings had been held with Fergus Hancock and Hemantha de Silva of NOW in 2012 and 2013 respectively, at the request of Dartbrook Management to address rationalisation of the groundwater monitoring network and sources of inflows into the Hunter Tunnel. These meetings did not result in a resolution for either issue. It was stated that Hemantha de Silva has requested that Dartbrook Management convert its existing groundwater monitoring network data into a format that can be input to NOW's database. Dartbrook Management is currently in the process of undertaking this.	Consider undertaking integrating annual isotopic groundwater sampling with incumbent wa quality monitoring to investigate concerns raised by NOW. Consult with NOW regarding this approach prior to commissioning any additional investigations.	Observation	Water Management Plan updated in 2014 and 2015 however no reference to isotopic groundwater sampling. Recommendation not actioned during the audit term. Recommend liaising with DPI Water to determine whether they believe isotopic groundwater sampling is required.
EPL 4885 M8.1	Sighted real-time flow data from discharge point 2 (Dartbrook's discharge to the Hunter River). Safety, Health and Environment Coordinator reported that this equipment is currently malfunctioning and is reporting that the site is discharging many megalitres of water per day. The discharge point was observed to be dry on the same day that the system was observed to be providing a false discharge reading. Safety, Health and Environment Coordinator stated that the flow metres have been inspected and have found to be functioning correctly and that the fault is with the telemetry equipment either transmitting or receiving the data. This issue is occurring at the interface between Dartbrook's and NOW's networks and the audit found evidence that Dartbrook has taken action to rectify the issu although actions is required from NOW to rectify the problem.	Continue investigations towards restoring Hunter River Salinity Trading Scheme flow reporting systems in consultation with NOW with a view to rectifying errors as quickly as possible.	Compliant	No Hunter River Salinity Trading Scheme reporting errors found during the audit term.
EPL 4885 M8.2	Refer to audit requirement M8.1. Telemetry equipment was found to be providing false readings.	Continue investigations towards restoring Hunter River Salinity Trading Scheme flow reporting systems in consultation with NOW with a view to rectifying errors as quickly as possible.	Compliant	No Hunter River Salinity Trading Scheme reporting errors found during the audit term.
Exploration activities (EL4574, EL4575)	Aboriginal stakeholders were not involved with the assessment of exploration sites, despite this being flagged as required by the Anglo Coal permit process.	Ensure internal approval procedures are reviewed and are properly understood by those preparing and approving them. If involvement of Aboriginal stakeholders is required, refer to consultation procedures listed the best practice guidelines.	Not Triggered	No exploration during audit period. Recommendation not triggered.
Exploration activities (EL4574, EL4575)	No evidence could be found to show that a SDN was submitted for 12 exploration sites drilled during the audit period.	Ensure notification and approval requirements listed in the relevant exploration licence are followed prior to commencing any exploration activities.	Not Triggered	No exploration during audit period. Recommendation not triggered.

APPENDIX C – AUDIT CERTIFICATION FORM

Independent Audit Certification Form	
Development Name	Dartbrook
Development Consent No.	DA 231-07-2000
Description of Development	Underground coal mine in care and maintenance
Development Address	Stair Street, Kayuga NSW 2333
Operator	Anglo American Coal
Operator Address	Stair Street, Kayuga NSW 2333
Independent Audit	
Title of Audit	Dartbrook 2016 Independent Environmental Audit
I certify that I have undertaken the independent audit and prepared the contents of the attached independent audit report and to the best of my knowledge: *The audit has been undertaken in accordance with relevant approval condition(s) and in accordance with the auditing standard AS/NZS ISO 19011:2014 and Post Approval Guidelines – Independent Audits* *The findings of the audit are reported truthfully, accurately and completely;* *I have exercised due diligence and professional judgement in conducting the audit;* *I have acted professionally, in an unbiased manner and did not allow undue influence to limit or over-ride objectivity in conducting the audit;* *I am not related to any owner or operator of the development as an employer, business partner, employee, sharing a common employer, having a contractual arrangement outside the audit, spouse, partner, sibling, parent, or child;* *I do not have any pecuniary interest in the audited development, including where there is a reasonable likelihood or expectation of financial gain or loss to me or to a person to whom I am closely related (i.e. immediate family);* *Neither I nor my employer have provided consultancy services for the audited development that were subject to this audit except as otherwise declared to the lead regulator prior to the audit; and* *I have not accepted, nor intend to accept any inducement, commission, gift or any other benefit (apart from fair payment) from any owner or operator of the development, their employees or any interested party. I have not knowingly allowed, nor intend to allow my colleagues to do so.* *Note.* *The Independent Audit is an 'environmental audit' for the purposes of section 122B(2) of the Environ- mental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, $1 million and for an individual, $250,000.* *The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or $22,000, or both).*	
Signature	
Name of Lead / Principal Auditor	Chris Jones
Address	10 Kings Road, New Lambton NSW 2305, Australia
Email Address	cjones@slrconsulting.com
Auditor Certification (if relevant)	Associate Environmental Auditor
Date:	20 September 2016

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