



# ANNUAL ENVIRONMENTAL MANAGEMENT REPORT - 2012

## DRAYTON MINE

# Annual Environmental Management Report - 2012

<b>Name of Mine:</b>	ANGLO COAL (DRAYTON MANAGEMENT) PTY LTD
<b>Titles / Mining Leases:</b>	CL229, ML395, ML1531
<b>MOP Commencement Date:</b>	JANUARY 2012
<b>MOP Completion Date:</b>	DECEMBER 2017
<b>AEMR Commencement Date:</b>	JANUARY 2012
<b>AEMR Completion Date:</b>	DECEMBER 2012
<b>Name of Leaseholder:</b>	ANGLO COAL (DRAYTON MANAGEMENT) PTY LTD
<b>Name of mine operator (if different):</b>	
<b>Reporting Officer:</b>	JAMES BENSON
<b>Title:</b>	ENVIRONMENT COORDINATOR
<b>Signature:</b>	
<b>Date:</b>	28 / 3 / 2013

# CONTENTS

ABBREVIATIONS.....	IV
<b>EXECUTIVE SUMMARY.....</b>	<b>VII</b>
<b>1 INTRODUCTION.....</b>	<b>1</b>
1.1 CONSENTS, LEASES AND LICENCES.....	1
1.2 MINE CONTACTS.....	2
1.3 ACTIONS REQUIRED AT PREVIOUS AEMR REVIEW.....	2
<b>2 SUMMARY OF OPERATIONS.....</b>	<b>3</b>
2.1 EXPLORATION.....	3
2.2 LAND PREPARATION.....	3
2.3 CONSTRUCTION.....	3
2.4 MINING.....	3
2.5 MINERAL PROCESSING.....	6
2.6 WASTE MANAGEMENT.....	6
2.7 ORE AND PRODUCT STOCKPILES.....	7
2.8 WATER MANAGEMENT.....	7
2.9 HAZARDOUS MATERIAL MANAGEMENT.....	10
2.10 OTHER INFRASTRUCTURE MANAGEMENT.....	10
<b>3 ENVIRONMENTAL MANAGEMENT AND PERFORMANCE.....</b>	<b>11</b>
3.1 AIR QUALITY.....	11
3.2 EROSION AND SEDIMENT.....	19
3.3 SURFACE WATER POLLUTION.....	19
3.4 GROUND WATER POLLUTION.....	23
3.5 CONTAMINATED LAND.....	25
3.6 THREATENED FLORA.....	26
3.7 THREATENED FAUNA.....	26
3.8 WEEDS.....	26
3.9 BLASTING.....	28
3.10 OPERATIONAL NOISE.....	31
3.11 VISUAL AESTHETICS AND LIGHTING.....	36
3.12 ABORIGINAL HERITAGE.....	37
3.13 NATURAL HERITAGE.....	37
3.14 SPONTANEOUS COMBUSTION.....	37
3.15 BUSHFIRE.....	38
3.16 MINE SUBSIDENCE.....	38
3.17 HYDROCARBON CONTAMINATION.....	38
3.18 METHANE DRAINAGE / VENTILATION.....	39
3.19 PUBLIC SAFETY.....	39
3.20 OTHER ISSUES AND RISKS.....	39
3.21 METEOROLOGICAL MONITORING.....	40
<b>4 COMMUNITY RELATIONS.....</b>	<b>44</b>
4.1 ENVIRONMENTAL COMPLAINTS.....	44
4.2 COMMUNITY LIAISON.....	45
<b>5 REHABILITATION.....</b>	<b>46</b>
5.1 BUILDINGS.....	46
5.2 REHABILITATION OF DISTURBED LAND.....	46
5.3 REHABILITATION TRIALS AND RESEARCH.....	47
5.4 FURTHER DEVELOPMENT OF THE FINAL REHABILITATION PLAN.....	48
<b>6 ACTIVITIES PROPOSED FOR THE NEXT AEMR PERIOD.....</b>	<b>51</b>
6.1 ENVIRONMENTAL PERFORMANCE.....	51
<b>7 ADDITIONAL INFORMATION.....</b>	<b>52</b>

7.1	ANTIENE JOINT RAIL USER FACILITY .....	52
7.2	DAMS SAFETY COMMITTEE REQUIREMENTS.....	55

<b>APPENDICES.....</b>	<b>56</b>
APPENDIX A: CONSENTS, LEASES AND LICENSES.....	56
APPENDIX B: 2012 WATER SAMPLING RESULTS .....	58
APPENDIX C: 2012 DUST SAMPLING RESULTS .....	67
APPENDIX D: 2012 NOISE MONITORING RESULTS.....	80
APPENDIX E: 2012 BLAST MONITORING RESULTS.....	108
APPENDIX F: 2012 ENQUIRIES, CONCERNS AND COMPLAINTS .....	115
APPENDIX G: ANGLO AMERICAN SAFETY, HEALTH AND ENVIRONMENT RISK MATRIX .....	121
APPENDIX H: 2012 RAIL ACTIVITY STATEMENT .....	123

## Figures

Figure 1: Water Management Flow Diagram.....	8
Figure 2: Dust monitoring sites .....	14
Figure 3: Average Depositional Dust Gauge Results 2012.....	16
Figure 4: Long Term TSP from Lot 22 HVAS .....	16
Figure 5: TSP from Lot 22 HVAS 2012 .....	17
Figure 6: PM10 24Hr average 2012 .....	18
Figure 7: PM10 24Hr average Dec 2009 – Dec 2012 .....	18
Figure 8: Surface water monitoring sites .....	20
Figure 9: Ground water monitoring sites .....	24
Figure 10: Weed infestations targeted during 2012.....	27
Figure 11: Blast monitoring sites .....	29
Figure 12: Number of blasts by type.....	30
Figure 13: Attended and real-time noise monitoring sites .....	34
Figure 14: Annual rainfall history .....	41
Figure 15: Comparison of 2011 and 2012 monthly rainfall.....	41
Figure 16: Comparison - Average daily temperature per month .....	41
Figure 17: Comparison – 2011 and 2012 wind direction and duration.....	42
Figure 18: Community Complaints Associated with Drayton (2006 – 2012).....	45
Figure 19: Community Complaints by Type for the 2012 Reporting Period.....	45
Figure 20: Rehabilitation Areas .....	49

## Tables

Table 1: Mine Contacts.....	2
Table 2: Actions from the previous AEMR.....	2
Table 3: Production and waste schedule.....	5
Table 4: History of ROM Coal production and target.....	5
Table 5: Waste streams and end of 2012 volumes .....	6
Table 6: Stored Water – December 2012.....	8
Table 7: Mine water storage dams – Water source and usage .....	9
Table 8: Hazardous materials - Licence and registration details.....	10
Table 9: Summary of current dust controls and level of control applied .....	11
Table 10: Long term impact assessment criteria for deposited dust.....	12
Table 11: Long term impact assessment criteria for TSP .....	13
Table 12: Short and long term impact assessment criteria for PM10.....	13
Table 13: 2012 Average Dust Deposition Gauge Results .....	15
Table 14: Total Suspended Particulates 2012.....	16
Table 15: Monthly Averages Real Time Dust Monitoring - 2012.....	17
Table 16: Water Quality – Far East Tip (1895) Dam .....	21
Table 17: Water Quality – Dam 2081 .....	22
Table 18: Average Results of Water Quality Sampling for Remaining Dams .....	22
Table 19: Summary of Groundwater Levels .....	25
Table 20: Blasting and vibration criteria .....	28

Table 21: Blast Monitoring Summary .....	30
Table 22: Noise mitigation measures .....	31
Table 23: Noise Impact Assessment Criteria .....	32
Table 24: Annual summary of Attended Background Noise Levels .....	35
Table 25: Background Noise Levels compared to Long Term Averages .....	35
Table 26: BarnOwl® Monthly Average Noise Levels .....	36
Table 27: Environmental Risk Review .....	39
Table 28: Total Monthly Rainfall for 2012 .....	41
Table 29: 2012 Monthly temperature and average daily temperature .....	41
Table 30: Monthly wind velocity and duration (hours) .....	42
Table 31: Monthly wind direction and duration (hours) .....	43
Table 32: 2012 Workforce Shire of Origin .....	44
Table 33: Rehabilitation Summary .....	47
Table 34: Rail Related Noise Complaints Received in 2012 .....	52
Table 35: Train Noise Perceived during Attended Noise Monitoring .....	54
Table 36: Drayton's Consents, Leases and Licenses .....	56
Table 37: 2012 Surface Water Results .....	58
Table 38: 2012 Piezometer Results .....	63
Table 39: Depositional Dust Gauge Results .....	67
Table 40: TEOM Real Time PM10 Monitoring Results .....	72
Table 41: High Volume Air Sampler Results .....	78
Table 42: Attended Background Noise Monitoring Results .....	80
Table 43: Real Time Noise Monitoring .....	103
Table 44: Blast Monitoring Results .....	108
Table 45: List of Enquiries, Concerns and Complaints Received throughout 2012 .....	115
Table 46: Anglo American Risk Matrix .....	121

## Abbreviations

ACARP	Australia Coal Association Research Program
ADL	Ash Dam Levee
AEMR	Annual Environmental Management Report
AHMP	Aboriginal Heritage Management Plan
ANE	Ammonium Nitrate Emulsion
CCC	Community Consultative Committee
CHP	Coal Handling Plant
CL	Coal Lease
CTU	Coal Treatment Unit
dBA	Noise decibels (A-weighted)
dB	Noise decibels (linear)
Drayton	Anglo Coal (Drayton Management) Pty Limited
DRE	Division of Resource and Energy
DoPI	Department of Planning and Infrastructure
DSC	Dam Safety Committee
EA	Environmental Assessment
EC	Electrical Conductivity
EEC	Endangered Ecological Communities
EIP	Environmental Improvement Plan
EMC	Environmental Management Committee
EMP	Environmental Management Plan
EPL	Environmental Protection License
g/m <sup>2</sup> /mth	Grams per square metre per month

ha	Hectare
HLRF	Hunter Lowland Redgum Forest
HVAS	High Volume Air Sampler
LAeq(15 min)	Average noise energy over a 15 minute period
LGA	Local Government Area
m	Metres
Mbcm	Million bank cubic meters
MOP	Mine Operating Procedure
mg/L	Milligrams per litre
ML	Megalitre
ML	Mining Lease
mm	Millimetres
mm/s	mm/s Millimetres per second
MSC	Muswellbrook Shire Council
MSDS	Material Safety Data Sheet
Mtpa	Million tonnes per annum
m <sup>2</sup>	Square metres
m <sup>3</sup>	Cubic metres
NATA	National Association of Testing Authorities
NFR	Non-Filterable Residue
NSW	New South Wales
pH	Potential of hydrogen
PM <sub>10</sub>	Particulate matter with a diameter of less than 10 microns
PRP	Pollution Reduction Program
OEH	Office of Environment and Heritage
ROM	Run-of-Mine Coal
SHE	Safety, Health and Environment
SHE MS	Safety, Health and Environment Management System
SS	Suspended Solids
t	Tonnes
TEOM	Tapered Element Oscillating Microbalance
TDS	Total Dissolved Solids
TSP	Total Suspended Particulates
µS/cm	Microsiemens per centimetre
µg/m <sup>3</sup>	Micrograms per cubic metre
°C	Degrees Celsius

## Appendices

APPENDIX A	CONSENTS, LEASES AND LICENCES
APPENDIX B	2012 WATER SAMPLING RESULTS
APPENDIX C	2012 DUST SAMPLING RESULTS
APPENDIX D	2012 NOISE MONITORING RESULTS
APPENDIX E	2012 BLAST MONITORING RESULTS
APPENDIX F	2012 ENQUIRIES, CONCERNS AND COMPLAINTS
APPENDIX G	ANGLO AMERICAN SAFETY, HEALTH AND ENVIRONMENT RISK MATRIX
APPENDIX H	2012 RAIL ACTIVITY STATEMENTS

## Executive Summary

Drayton is an open cut mine located near the township of Muswellbrook in the Upper Hunter Valley of New South Wales (NSW). It has approval to mine until 2017 however, approval of the Drayton South Coal Project Environmental Assessment (Hansen Bailey 2012) would extend the mine life to approximately 2040.

This Annual Environmental Management Report (AEMR) details production, environmental management and community relations for the operation during the 2012 calendar year period, and outlines any changes from the current Mine Operation Plan (MOP).

### Operations during the Reporting Period

Drayton uses both dragline and truck and shovel to produce thermal coal for export markets. Run-of-Mine (ROM) product for the 2012 reporting period was 5,456,581 tonnes with a total prime waste and rehandle of 42.235 Million bank cubic meters (Mbcm). Mineral processing at Drayton is undertaken through the Drayton Coal Handling Plant (CHP). In 2012, 4.153 million tonnes of saleable coal was produced, all of which was exported via the port of Newcastle. Coarse reject produced was 903,055 tonnes and tailings disposal accumulated to 1,421,244 cubic metres.

### Environmental Management and Performance

Environmental monitoring is a key component of Drayton's operation. Monitoring undertaken in 2012 included:

- Air Quality – Dust deposition achieved acceptable levels and total suspended particulates (TSP) and PM<sub>10</sub> levels were compliant with statutory limits.
- Erosion and Sediment – The oil pollution control dam was desilted in September. Sediment ponds were also desilted regularly throughout 2012.
- Surface Water – A lack of rainfall in the second half of the reporting period resulted in slightly more concentrated levels of electrical conductivity (EC), dissolved solids and metals occurring across all dams.
- Ground Water – With a couple of exceptions, water levels in piezometer to the south of the mine are generally steady, while those located in the northern areas continue to display a gradual decline.
- Contaminated Land – No significant land pollution events occurred in 2012.
- Flora and Fauna – In the latter half of 2012, wild dogs were sighted in areas south of the mine. Drayton staff attended the Mt Arthur Wild Dog Association meetings.
- Weeds – In 2012 the weed management program targeted Prickly Pear and African Boxthorn.
- Blasting – A total of 160 blasts were fired at Drayton in 2012. There was one exceedance of the overpressure (120 decibels (linear)) criteria on the 25 May.
- Noise – Compliance monitoring in March shows that the noise criteria were not exceeded at any receiver. During the September monitoring there were two, a minor and a moderate, exceedances of the evening criteria.
- Visual Aesthetics and Lighting – Trees were planted in areas that are visible to both the New England Highway and Thomas Mitchell Drive.
- Aboriginal and Natural Heritage – No surveys or salvage programmes were required in 2012.
- Spontaneous Combustion – At the end of 2012, approximately 1095m<sup>2</sup> of surface area was affected by spontaneous combustion. These areas are being managed through a process of active dumping and/or clay capping.
- Bushfire - Bushfire mitigation works were carried out in accordance with the Bushfire Management Plan.
- Hydrocarbon Contamination – Drayton's hydrocarbon tanks and storage areas are located such that any incidents will not lead to offsite discharge and impacts.
- Public Safety - There were no incidents of public safety concerns during 2012.
- Other Issue and Risks - Environmental risks associated with the Drayton Operations are recorded in Environmental Aspects and Impacts Register which forms the basis of the Environmental Improvement Plan (EIP).



- Meteorological Monitoring - Total annual rainfall was 610.4 millimetres. Temperatures were consistent with the previous year. Wind speeds generally remained between 0 and 4m/sec. The main wind directions were East – South East and West – North West.

### **Community Relations**

A total of 39 complaints were received during the 2012 reporting period. Of these the majority were general blast or noise related complaints. Drayton's Community Consultative Committee (CCC) and joint CCC meetings with Mount Arthur Coal were held to discuss environmental performance and community issues.

In 2012, Anglo American donated to the DeenCity Youth Group and the Aberdeen Community Caring Inc. Drayton also participated in the Bursting with Energy Expo and supported the Solar Boat Challenge organised by Muswellbrook Shire Council (MSC).

### **Rehabilitation**

During the 2012 reporting period, a total of 18.9 hectares (ha) of rehabilitation was completed comprising 12.2ha in January and 6.7ha in December. A further 21.8 hectares was bulk shaped and topsoiled ready for seeding during 2013. In addition, approximately 5400 native seedlings were planted on previously rehabilitated areas.

The Rehabilitation and Offset Management Plan outlines the objectives, methodology and monitoring of Drayton's rehabilitation areas in accordance with condition 39 of the project approval. The Drayton area was traditionally used for beef cattle grazing, so maintaining grazing capacity in pasture areas is a key objective. A second key objective is to maintain ecosystems and biodiversity through the establishment of trees native to the region.

No buildings were renovated or removed at Drayton in 2012.

During the reporting period, a rehabilitation trial was commenced to examine variables and to determine the methodology for recreating the Endangered Ecological Communities (EEC) noted during the Drayton South Environmental Assessment (EA). The trial was designed to assess the relative merit of several methodologies and species commonly found in each EEC.

### **Activities Proposed in the Next AEMR**

Drayton's environmental targets for the 2013 reporting period focus on:

- Dust mitigation;
- Dam and mine water management;
- Rehabilitation and final landforms;
- Minimising blasting and noise levels;
- Reduction in spontaneous combustion;
- Continuation of the Community Consultative Committees;
- Maintaining full compliance with environmental legislation and with ISO14000 systems; and
- Continued improvement of the waste management and the Environmental Management systems.

### **Additional Information**

In 2012 three noise related complaints were made in regards to train activity at the Antiene Joint Rail User facility. On two occasions, Drayton did not have any rail activity occurring during the times specified.

As required under consent condition 6.1 (e) Drayton provided DoPI with coal haulage reports at the appropriate time. Condition 6.1(b) states that, Coal transported along the Antiene Rail Spur is limited to twenty (20) million tonnes per annum. The Mt Arthur Coal operation have a more recent approval allowing 27 million tonnes to be railed on the Antiene Rail Spur. In 2012, 20,432,118 tonnes of coal was transported on the ARS. This comprised of 4,254,439 tonnes from Drayton and 16,177,679 tonnes from Mt Arthur Coal.

In 2012, at the Liddell Ash Dam Levee, one blast exceeding the limit of 30mm/sec and two blasts exceeding 20mm/sec were reported to the Dam Safety Committee.

# 1 INTRODUCTION

Drayton mine is located near the township of Muswellbrook in the Upper Hunter Valley of New South Wales. It is an open cut mine using both dragline and truck and shovel to produce thermal coal for export markets. Currently production is approximately five million tonnes per annum (Mtpa). Drayton commenced operation in 1983 and has approval to mine until 2017. Anglo American currently owns an 88.2 per cent share of the Drayton joint venture and operates the mine 24 hours a day and 7 days a week. Other joint venture partners include: Mitsui Coal Development (Australia) Pty Limited; Mitsui Mining Australia Pty Limited; Hyundai Australia Pty Limited; and Daesung Australia Limited. Drayton employs approximately 442 permanent employees and engages contractors to assist in some areas of the operation.

In August 2012, the draft Drayton South Coal Project Environmental Assessment (Hansen Bailey 2012) was submitted to government regulatory authorities for adequacy assessment. The Drayton South Project is located to the south of the current operations. If approved, Drayton South will use the Drayton workforce, equipment and infrastructure beyond 2017.

This Annual Environmental Management Report (AEMR) is required by Development Application 106-04-00, Project Approval 06\_0202, Coal Lease's 229 and 395 and Mining Lease (ML) 1531. The report covers both the Drayton Mining Operations and the Antiene Rail Spur. The report details production, environmental management and community relations for the operation during the 2012 calendar year period, and outlines any changes from the current Mine Operation Plan (MOP). The current MOP covers a seven-year period from the 1st January 2012.

The AMER has been developed in accordance with the NSW Department of Primary Industries – Mineral Resources 'Guidelines to the Mining, Rehabilitation and Environmental Management Process'. The report will be distributed to:

- NSW Trade and Investment – Division of Resource and Energy (DRE);
- Muswellbrook Shire Council (MSC);
- Office of Environment and Heritage (OEH) and Environment Protection Authority (EPA);
- Department of Planning and Infrastructure (DoPI);
- NSW Dam Safety Committee (DSC); and
- The Drayton Community Consultative Committee (CCC).

A copy of the AEMR is publicly available on the Drayton website <[www.angloamerican.com.au/our-operations/thermalcoal/drayton/environment.aspx](http://www.angloamerican.com.au/our-operations/thermalcoal/drayton/environment.aspx)>. Drayton wishes to accept any feedback on this report. If you have any comments on the content of this report, please refer them to:

Environment Coordinator

Anglo Coal (Drayton Management) Pty Ltd

PMB 9, Muswellbrook NSW 2333

## 1.1 Consents, Leases and Licences

There are a number of current approval and consent documents related to the Drayton mine operations. The key documents, and their subsequent approval dates, are listed below:

- Drayton operates in compliance with a development consent issued, 1<sup>st</sup> February 2008, under Section 75J of the *Environmental Planning and Assessment Act 1979*. Subsequent modifications were issued in 2009 to extend a further 8 hectares to the existing approval area and in 2012 for the construction of an explosive storage facility and placing tailings in the east pit.
- A development consent was issued in 2000 for the Antiene Joint Rail User Facility.
- Coal Lease (CL) 395 was granted on the 24<sup>th</sup> June 1992 by the Minister for Mineral Resources under the *Mining Act 1973*. This lease transferred part of Coal Lease 744, comprising approximately 14.5 ha, from the Bayswater Colliery to Drayton. This lease was renewed in 2008 and now extends to 2029.
- Section 100 and section 101 applications, relating to an emplacement area in regard to washery reject material, were granted in 2007. This approval remained in place for 2012.

- Drayton's Mining Operations Plan was renewed in 2012 and covers the period of 2012 to 2017.

A register of current approvals is maintained at Drayton and is updated and circulated as required. Refer to **Appendix A** for a full list of Drayton's consents, leases and licenses.

## 1.2 Mine Contacts

Contact details of the current Mine Manager and the Safety Health and Environment (SHE) Manager are given in Table 1 below.

**Table 1: Mine Contacts**

Position	Name	Contact Numbers
Mine Manager	Darren Pisters	Ph (02) 6542 0203 M 0417 618 876
Safety, Health & Environment Manager	Peter Forbes	Ph (02) 6542 0256 M 0427 752 397

### 1.2.1 Site Personnel Responsible For Mining, Rehabilitation and the Environment

The SHE Manager at Drayton is supported by the:

- Environment Coordinator
- Environment Officer
- Environment Graduate

An Environmental Management Committee (EMC) was instigated in 1995. The Committee members include the General Manager, the Senior Leadership Team and the Environment Coordinator, Officer and Graduate. The committee meets on a monthly basis to discuss environmental performance and community issues, and to provide the organisation with guidance on environmental management.

Other departments within the company are responsible for specific aspects of environmental management within their respective work areas under the advice of the SHE Department. Individual employees and contractors are accountable for their own environmental performance and have environmental requirements set within their position descriptions.

Drayton's Safety, Health and Environment Management System (SHE MS) is certified to both ISO 14001 for its environmental management practices and AS4801 for health and safety.

## 1.3 Actions required at Previous AEMR Review

The 2011 the Drayton AEMR review resulted in an agreed set of actions which are listed in Table 2 below.

**Table 2: Actions from the previous AEMR**

Action Required	Where dealt with in this AEMR
Times of blasting were not recorded.	Appendix E: 2012 Blast Monitoring Results
Air Quality Management Plan to be submitted in October 2012 includes upwind and downwind monitors.	Section 3.1.1 Air Quality
Desilting of the Oil Pollution Control Dam	Section 2.8.1 Water Management System
Times of noise monitoring included in the monitoring data	Refer to monitoring data in Appendix D
Analyse results against relevant EA predictions.	Relevant to each monitoring section

## 2 SUMMARY OF OPERATIONS

### 2.1 Exploration

2012 was a year of consolidation with regards to exploration drilling. All boreholes drilled were within CL 229 and ML 1531. Two 96mm HQ3 cored holes were completed, one of which was a re-drill from the 2011 drilling program in the South Pit east area.

Drilling in the East-North area was carried out as planned in the 2012-17 MOP. Eighty seven (87) rotary holes were drilled in this area, the majority of which were infill drilling to provide measured status with respect to Drayton's complex structural domain. Some rotary hole re-drills, that were unable to be completed in the previous year, were completed in the South Pit area. One HQ cored Gas hole was drilled in the South Pit area to improve aerial coverage for the Drayton gas data. Four piezometer holes were completed as part of the requirements from the strata management plan so as to enable development of a hydrological model for geotechnical work, these were also drilled in lease CL 229.

### 2.2 Land Preparation

Drayton owns the land contained within CL229 and CL395. The land in ML1531 is owned by Macquarie Generation and is leased to Drayton. Drayton has a long term agreement allowing for mining operations to occur under our current development consent.

Throughout the 2012 reporting period Drayton cleared approximately 30.93ha in preparation for mineral extraction activities, predominantly in the SPE, SPW, and NN areas.

Before any land is disturbed at Drayton a Permit to Disturb must be authorised by the Environment Department. A plan of the area to be disturbed along with supporting documentation is provided to the Environment Coordinator. The proposed disturbance area is pegged and clearly marked prior to any work commencing. If required, an inspection of the site is undertaken by a member of the Environment Department to identify any additional environmental issues that may need further management. Where required, due diligence works are undertaken to manage Aboriginal heritage matters. Topsoil is salvaged during the clearing process, along with the mulch that is generated during vegetation clearing, and is used directly on rehabilitation areas or stockpiled for future use.

Topsoil stockpiles are generally kept to less than three metres in height where possible, with large stockpiles not exceeding four metres in height. Sites for long-term stockpiles are selected so that double handling of topsoil can be avoided. Mechanical handling of topsoil is minimised to avoid soil structure deterioration. Long-term soil stockpiles are spread with pasture seed to prevent erosion and to prevent weed growth through competition. Long term topsoil stockpiles are located on the Great North Tip and the South Pit regions.

### 2.3 Construction

No major construction works occurred during the 2012 reporting period.

### 2.4 Mining

The current approvals have Drayton's long term mine annual production rate remaining around 5 million tonnes and decreasing to 3 million tonnes in about 2016-2017 however, upon completion of exploration program and review of mining options, this will ultimately change in the forthcoming years.

The mining operation advances north and south, with the bulk of remaining reserves being in the South Pit. This area contains complex geology including multiple faults and steeply dipping coal seams. The introduction of high capacity excavators and changes in economics has now made it feasible to mine this area.

As at 31<sup>st</sup> December 2012 the remaining total resources and reserves within the current mine plan is 24,439 million tonnes. Some of this tonnage will be mined within the term of the 2012-17 MOP. The major difference between

2011 and 2012 resource and reserve number is the mine layout loss: 61% of total mineable reserves determined by margin rank (including ATP reserves).

At the end of 2012, the estimated mine life for Drayton extends to 2015. The actual mine life is subject to economic conditions and may extend to 2017 under the current consent approval. The five-year term of the 2012-17 MOP provides time to resolve issues relating to final closure including options for the use of the final voids and infrastructure. Drayton surface facilities are planned to be retained for use as part of potential future mining operations at Drayton South. Approval of the Drayton South application would extend Drayton's mine life to approximately 2040.

#### **2.4.1 Changes in Mining Equipment and Method**

During 2012, there were several changes to the Drayton fleet with the addition of new equipment and disposal of older machines. Current major equipment consists of:

- BE 1370 Electric Dragline
- Two Hitachi EX 5500 Excavators
- Hitachi EX 3600 Excavator
- Hitachi EX 3500 Excavator
- One Le Tourneau L1100 Loader
- One Le Tourneau L1400 Loader
- 27 Caterpillar 789B / 789C Trucks
- One Svendala SKF50 Drill
- One Sandvik DK45S
- One Sandvik DR460
- One Atlas Copco PV235 Drill (only in last quarter of year)
- Two Cat 777D water carts
- One Cat 773B Water Cart
- 7 D11R track dozers
- Three D10T track dozers
- One 834 rubber tyre dozer
- One Tiger 690/Cat 854 rubber tyre dozer
- 3 Cat 16H graders
- One Cat 992 Front End Loader
- One Cat 637D scraper (Hire)

Additional hire equipment utilized from February to December 2012 is as follows:

- Four Cat 789C Trucks
- One D11R track dozer
- One D10T track dozer
- One Cat 16H Grader
- One Cat 777D Water Cart

#### **2.4.2 Overburden Handling**

Overburden and interburden is predominantly removed by the dragline and the excavators, with assistance where required from front-end loaders. Overburden, parting and coal thicker than two metres is blasted. All overburden and parting material is moved to tips located within the previously mined areas. Placement of this material follows the guidelines in Drayton's Spontaneous Combustion Management Plan. Detailed mining statistics for 2012 are shown in Table 3.

**Table 3: Production and waste schedule**

	Cumulative Production (m³)		
	Start of Reporting Period	End of reporting Period	End of Next Reporting Period (Estimated)
Topsoil stripped	829,800	922,590	
Topsoil used/spread	460, 640	477,640	503,640
Waste Rock (Mbcm) (approximate only)	607	649	688
Ore	N/A	N/A	N/A
Processing Waste *	N/A	N/A	N/A
Product (units Tonnes)	74.9MT	80.3MT	84.5MT

**2.4.3 ROM Production History and Forecast**

Run-of-Mine (ROM) product for the reporting period was 5,456,581 tonnes with a total prime waste and rehandle of 42.235 Million bank cubic meters (Mbcm). A comparison showing the ROM production at Drayton for the past reporting periods is provided in Table 4.

**Table 4: History of ROM Coal production and target**

Year	Production (Mt)
1985	1
1986	2
1987	3
1988	3
1989	3.55
1990	3.48
1991	3.96
1992	3.85
1993	3.97
1994	3.77
1995	3.85
1996	3.5
1997	4.2
1998	4.5
1999	4.8
2000	5.07
2001	5.23
2002	4.84
2003	5.04
2004	4.98
2005	4.73
2006	5.021
2007	4.691
2008	4.171
2009	4.821
2010	5.425
2011	5.312
2012	5.456
2013 (Target)	5.631

## 2.5 Mineral Processing

Drayton produces coal suitable for electricity generation, cement manufacture and industrial processes. It has high specific energy, low ash and medium sulphur levels. Mineral processing at Drayton is undertaken through the Drayton Coal Handling Plant (CHP). This facility comprises of a series of small washery, fines plant, crushers, two stackers, two bucket-wheel reclaimers and a series of overland conveyor belts. During 2011 a coal fines plant within the existing coal handling plant was commissioned. This plant has provided Drayton with greater scope to market its coal.

Rear dump coal trucks deliver ROM coal into a 400 tonne capacity ROM hopper. ROM coal is crushed and then washed in the coal preparation plant or bypassed straight to product. This decision is based on the expected quality of the feed coal reconciled with online ash analyser trends. The washed product is then sampled before reporting to the export coal stockpiles.

In 2012, 4.154 million tonnes of saleable coal was produced, all of which was exported. Export coal from Drayton is loaded onto rail at the Drayton Rail Loop, transported via the Antiene Rail Spur to the Main Northern Railway line and then to the Port of Newcastle for export.

During the reporting period tailings disposal was discontinued into the BW void with tailings now deposited into the ES void.

## 2.6 Waste Management

Drayton has an existing waste management system which incorporates waste reuse and recycling and addresses issues relevant to the management of waste. As predicted in the 2007 Environmental Assessment (EA), the original waste management system and sewage treatment plant has continued to be utilised for the project. There has been no significant change or additional demand for waste services as the respective number of employees has not significantly increased.

### 2.6.1 General Waste

Designated waste storage areas are in place across the site in accordance with EPA requirements. The waste storage areas have suitable containment systems in place for the type of waste being stored. A separate hazardous waste storage area is in place in order to minimise environmental harm. Spills that occur within these areas are contained within bunds which drain into Drayton's pollution control system. Remondis, previously Thiess Services, is currently contracted to dispose of all waste materials generated on site. Domestic rubbish generated on site is transported to and deposited in the Muswellbrook Waste Management Facility. Monthly inventories and reports ensure all waste movements are documented. Management strategies are in place for each of the major waste streams relevant to key work areas. These waste streams and the end of the 2012 reporting period waste volumes are outlined in Table 5.

**Table 5: Waste streams and end of 2012 volumes**

Waste Stream	Treatment and Disposal	Volume	Unit
<b>Metal</b>	Recycled off-site	434.76	tonne
<b>General Waste</b>	Off-site landfill	254.32	tonne
<b>Confidential document bins</b>		2.546	tonne
<b>Batteries</b>	Recycled off-site	21.45	tonne
<b>Empty 205L gallon drums</b>	Recycled off-site	28	each
<b>Empty 20L drums</b>	Recycled off-site	273	each
<b>Oil Filters</b>	Recycled / disposed of off-site	9,825	each
<b>Oil</b>	Recycled / disposed of off-site	452,460	litres
<b>Sewage</b>	On-site treatment and disposal	810, 640	litres

## 2.6.2 Recycling Initiatives

Drayton attempts to recycle or reuse specific waste streams to minimise the environmental effects of the product. Employees are encouraged to minimise their waste generation through regular updates on waste management and improved housekeeping strategies. Where possible waste items are recycled by original equipment manufacturers or certified contractors. Machine batteries, mobile phone and radio batteries, waste oil, grease, empty drums, aluminium cans and scrap metal are removed from site and recycled by Remondis. Empty resealable drums are available in the store for the collection and storage of waste grease. If reasonably uncontaminated, the grease is recycled, as well as the drums. Reimbursements are received for waste oil, batteries and metal waste streams. Used printer cartridges are returned to the manufacturer for recycling.

## 2.6.3 Sewerage Treatment / Disposal

Drayton's sewage treatment plant collects and treats on-site effluent. The treated effluent is then distributed into two settlement ponds. Overflow from the ponds is pumped to an area of rehabilitation on the East Tip. A number of septic tanks on site (i.e. those at the CHP and crib huts) are not connected to the onsite treatment station. Effluent from these tanks is collected by Remondis and pumped into the on-site treatment plant. During the 2012 reporting period 810.64kL of effluent was treated onsite.

## 2.6.4 Mineral Waste

As described in the 2012-17 MOP, the primary area for placement of waste materials is the mined out area of East Pit (Great North Tip). The Great North Tip extends over the ES, EN and NN strips as one active emplacement, albeit with several dumping faces at different levels. A similar arrangement will exist in the Rocky Knob and South Pit areas as mining progresses.

There are no further out-of-pit overburden emplacement areas proposed in the MOP other than as stated above, at Macquarie Generation's Liddell Ash Dam, which will require emplacement of waste material on their land to raise the level of the wall for ash disposal purposes.

## 2.7 Ore and Product Stockpiles

Drayton has four product coal stockpile pads each with a nominal capacity of 80,000 tonnes. Coal from varying areas of the pit is blended on the product pads to meet overall customer specifications. One stockpile pad is dedicated for the higher ash export market. The other three pads are used to provide different quality products to the low ash export market.

Export coal is stacked in piles of up to 40,000 tonnes. The reclaimer is transferred between stockpiles using a rail-mounted transfer car, which is located at the northern end of the stockpiles. Coal is typically not stored for longer than twelve weeks due to the risk of self-heating. Eight weeks after a stockpile is completed it is routinely monitored for spontaneous combustion with the stockpile re-circulated if the heating coal cannot be loaded onto a train before the temperature reaches critical levels.

Drayton operates a ROM stockpile pad adjacent to the feed hopper to the CHP. This stockpile is used to temporarily store coal hauled from the pit during times when the CHP is not available. It is also used to store coal that must be mined due to sequencing issues but is inappropriate for the product stocks being assembled. The ROM stockpile pad is generally divided into five different areas to accommodate five different qualities of coal. It has a capacity of some 200,500 tonnes in total. This level of inventory allows some coal to be available for processing during periods of rain and extreme fog, which may shut down coal hauling from the pit. It also facilitates the final blending of export cargoes by providing a ready source of different quality coals.

Coarse reject produced in 2012 was 903,055 tonnes. Tailings disposal accumulated to 1,421,244 cubic metres.

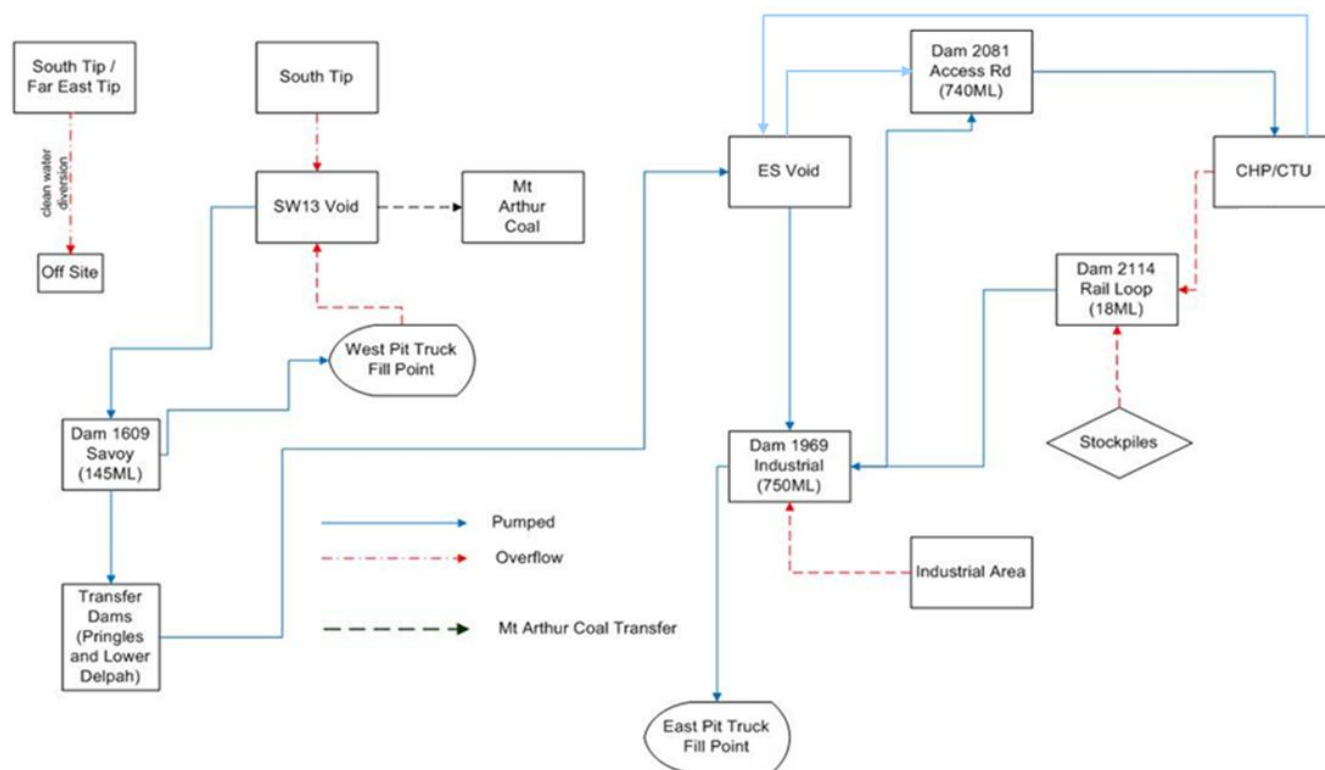
## 2.8 Water Management

### 2.8.1 Water Management System

As predicted in the EA Drayton's mine water management system has been expanded for the project, and while the volume of water managed through the system has increased, the water balance has remained substantially unchanged. Unlike many other mines in the Upper Hunter, the Drayton water management system is a closed system which sources all of its process water internally from within the existing mining operational area, rather than



direct extraction from the Hunter River. Potable water however, is supplied by pipeline from the MSC. The Drayton water management system consists of a series of on-site dams and in-pit water storage areas (see Figure 1).



**Figure 1: Water Management Flow Diagram**

The total storage capacity of the water management system was 6,444ML at the end of the 2012 reporting period. This consisted of 1,684ML capacity in dams and 4,700ML in the voids. The Far East Tip Dam (Dam 1895) has a capacity of approximately 130ML however; it has no connection with mining activities and is not included in the overall site storage capacity. This dam exists principally for the prevention of discharge and to control runoff (clean water) from the Far East Tip, a rehabilitated, out of pit overburden dump.

The Oil Pollution Control Dam which collects runoff from the workshop area was desilted in September 2012. The material removed from the dam was placed in Drayton’s bioremediation area for material contaminated by hydrocarbons.

**Table 6: Stored Water – December 2012**

		Volumes held (ML)		
		Start of Reporting Period	End of Reporting Period	Storage Capacity
Clean Water		0.05	0.05	0.05
Mine Water:	Savoy (1609) Dam	74	79	145
	Industrial (1969) Dam	418	401	750
	Access Road (2081) Dam	430	395	740
	Rail Loop (2114) Dam	0	0	18
SW13 Void		163	0	1,000
ES Void		0	2,577	4,500
Controlled discharge water (salinity trading scheme)		Nil	Nil	Nil
Contaminated Water		Nil	Nil	Nil

## 2.8.2 Water Sources

Drayton is situated in the headwaters of three creek catchments, namely Ramrod Creek, Bayswater Creek and Saddlers Creek. There is no major stream flowing through the mine that requires diversion. In the West Pit, one tributary of Saddlers Creek enters and exits the lease without intersecting the mining operation. This creek is located within the Drayton/Mt Arthur Coal sublease agreement area.

All runoff from disturbed areas is intercepted by dams or by the respective pits. All final tips have associated catchment dams that allow runoff to be collected and suspended solids to settle. Water that enters the pit areas is pumped to pit water storage dams allowing this water then to be utilized for mining activities. During the 2012 reporting period approximately 1,181ML of runoff from rainfall was captured onsite. Any potentially contaminated rainfall runoff from the workshop area is diverted to the Oil Pollution Control Dam. The Oil Pollution Control Dam has an oil/water separator in place which removes oil residue from the water runoff prior to it being transferred into the Industrial Dam.

Drayton currently has several Water Licences issued by the NSW Office of Water. Most relate to piezometers which are for monitoring purposes only. One allows groundwater extraction of up to 985ML per annum from the mining operations due to ground water inflow. Calculated groundwater inflow to active workings in North Pit, East Pit and South Pit does not exceed 955ML per annum. Pit water extracted from Drayton's operation is a combination of both ground water and surface runoff from the areas within the pit during periods of rainfall

## 2.8.3 Water Consumption

During 2012, total mine water consumption was approximately 2,291ML. Of the total consumption, 510ML consisted of industrial usage mainly through washdown in the workshop and truck wash bays and approximately 600ML was sprayed onto haul roads for dust suppression purposes. Approximately 1181ML was used by the CHP to process coal through the Coal Treatment Unit (CTU), for washdown and in CHP dust suppression systems. Some of the CHP water consumed was pumped to the ES void in tailings slurry from the CTU. As the tailings settles, a proportion of this water is recovered from the ES void and recycled back into the mine water system via the Access Road Dam where it can be reused. Of the 2,291ML, approximately 517ML of mine water was recycled therefore, the overall usage for the period was 1,548ML.

During the 2012 reporting period Drayton used 10.33ML of potable water for drinking, showering and toilets within the mining operation areas. Table 6 below outlines the main water storages, the source of their water supply and where the water is consumed.

**Table 7: Mine water storage dams – Water source and usage**

Reference No.	Dam Names	Supply Source	Water Use
1969	Industrial Dam	Runoff from rehabilitated area, industrial areas and East Pit	Haul road dust suppression, industrial wash down water and supply to Access Road Dam
2081	Access Road Dam	Runoff from undisturbed and rehabilitated land and pumping in from Industrial Dam	Industrial areas, CHP and fire system
2114	Rail Loop Dam	Runoff from CHP, coal stockpile area and fine rejects settling ponds, and direct pumping from Access Road Dam	Transfer to Industrial Dam
1609	Savoy Dam	Runoff from undisturbed and rehabilitated land, SW Void transfer point	Mine water storage or transfer to tanker fill stations
ES Void	East Pit South Void	Tailings and water storage	Water extracted and transferred to Access Road Dam
SW13 Void	West Pit Void	This storage is key buffer storage for wet weather, a source of water in dry weather and contains a large volume of water which is otherwise unaccounted for in the system.	Key storage for Drayton and Mt Arthur Coal. This location will be available for both Drayton and Mt Arthur Coal to extract water from during the life of the mine.

Historically, Drayton's water balance has remained in surplus. Throughout drought periods, water storage levels have previously dropped however, adequate water storage supplies still remained sufficient for normal mining operations to occur without adverse impacts on operations. At the end of the month water storage levels in dams and voids are surveyed. At the end of 2012, approximately 925ML was being stored in established dams and 2,577ML in pit voids. This equates to approximately 55% of available dam storage capacity and approximately 47% of available void storage capacity.

Drayton does not possess a discharge licence however, it has a water sharing arrangement which allows it to transfer up to 600ML of excess mine water to the neighbouring Mt Arthur Coal mine.

## 2.9 Hazardous Material Management

Drayton Mine holds a Dangerous Goods Licence issued by WorkCover for the storage of diesel, acetylene, liquefied petroleum gases, detonators, boosters, detonating cord and combustible liquids. This is an annual licence which is renewed in February. Drayton also hold licences issued by the OEH for keeping radioactive devices used in the Coal Scan and the dense medium feed, both located within the CHP. The applicable licences and registrations are listed in Table 8 below.

**Table 8: Hazardous materials - Licence and registration details**

Licence / Registration Description	Issuing Authority	Expiry Date
<b>Licence for the Keeping of Dangerous Goods – hydrocarbons, and combustible liquids</b>	Work Cover New South Wales	March 2013
<b>Radiation Control Certificate: CPP Dense Medium Feed</b>	OEH	June 2013
<b>Radiation Control Certificate: Crushed Coal Conveyor</b>	OEH	February 2014

Fuel containment during the 2012 reporting period consisted of a series of above ground storage tanks. The major containment for diesel is in a Class C1 above ground tank with a capacity of 860,000 litres. There are also three other above ground tanks located around the mine. Each being Class C1, one has a capacity of 27,000 litres and two tanks with 110,000 litre capacities.

All dangerous goods are stored in accordance with the appropriate legislation and standards. Regular inspections of the storage sites are undertaken to ensure compliance.

Orica Explosives operate an ammonium nitrate emulsion (ANE) storage on the mine site. They hold a Dangerous Goods licence issued by Work Cover for 80 tonnes of ANE and 60000L of diesel or canola oil.

All chemicals that are used, or are proposed to be used on site, are checked and approved for their safety and environmental effects by the SHE Department. For each chemical a material safety data Sheet (MSDS) is maintained in a central register, the Chemalert Database.

All contractors working with chemicals must carry the relevant MSDS when using the chemical, and must follow any instructions given by the SHE Department with regard to personal protective equipment and handling requirements.

The Chemalert Database is also used to log environmental hazards associated with the use of each chemical, and the necessary measures to control these hazards.

## 2.10 Other Infrastructure Management

The Antiene Joint Rail User facility has specific conditions of consent. These conditions are detailed in **Section 7.1** of this report.

## 3 ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

Environmental monitoring is a key component of Drayton's operation. Monitoring undertaken includes air quality, surface and ground water quality, blasting, noise and meteorology. All monitoring follows the appropriate Australian Standard, with collection of samples by site personnel with the analysis of water and dust samples performed by an independent laboratory.

### 3.1 Air Quality

#### 3.1.1 Management System

In 2011 the OEH developed a Pollution Reduction Program (PRP) to be included in Environmental Protection Licences (EPL) for each coal mine in NSW. The amendments to the EPL required Drayton to conduct site-specific Best Management Practices and prepare a report on the practicability of implementing additional measures to reduce emissions of particulate matter. The Drayton PRP report was submitted to the OEH by June 2012.

Throughout the 2012 reporting period there were a number of sources of air emissions from Drayton's mining operations. These were primarily fugitive sources, such as windblown dust, blasting, CHP activities, vehicles travelling on unpaved roads, loading and unloading of trucks, the operation of dragline and other equipment and general mining activities. The dust control measures currently employed at Drayton were identified in the PRP report and are summarised in Table 9.

**Table 9: Summary of current dust controls and level of control applied**

Mining Activity	Control Measure currently in place	Level of control applied (%)
Drilling	Water injection while drilling	70
	Skirts on drill vehicles	Not quantified
Hauling	Water sprays	80
	Use of larger vehicles	Not quantified
Wind erosion - Exposed areas & overburden emplacement area	Water applied to 10% of the area	50
	Rehabilitation goals	Not quantified
	Vegetative wind breaks	30
	Water sprays	50
Grading roads	Grader speed reduction from 16 km/h to 8 km/h	Not quantified
Wind erosion and maintenance – Coal stockpiles	Some coal bypasses stockpiles	Not quantified
	Reduced pile height	Not quantified
Bulldozers on overburden	Minimise travel speeds and distance – Restricted to 2nd gear on haul roads	Not quantified
	Travel routes kept moist	Not quantified
Blasting	Delay shot to avoid unfavorable weather conditions	Not quantified
	Minimise area blasted	Not quantified
Dragline	Minimise drop height	Not quantified
	Modify activities in windy conditions	Not quantified
	Minimise site casting	Not quantified

Loading and dumping overburden	Modify activities in windy conditions	30
	Minimise drop height from 3 m to 1.5 m	50
Dumping ROM coal to ROM hopper	One side of hopper covered and the other three sides sprays when dumping is triggered	Not quantified
Conveyors and transfers	Water applied at transfers	Not quantified
	Belt cleaning and spillage minimisation	40
	Wind shielding – roof or side wall	50
	Application of water at transfers	Not quantified
Train and truck load out and transportation	Limit load size to ensure coal is below sidewalls	Not quantified
	Maintain a consistent profile.	Not quantified

On the 20<sup>th</sup> December 2011, a trial of aerial seeding was conducted on the spoils in areas where spoils are expected to be inactive for a period of several months, and in areas with very steep grades along haul roads. The purpose of the trial was to assess this best practice management technique for effective dust control on temporarily inactive spoil materials. Germination and establishment of cover was assessed through visual monitoring during 2012. The trial is expected to help determine the best areas and types of spoil materials where this temporary dust control measure can be effective. Aerial seeding will occur again in 2013 to reduce dust off exposed areas.

In 2013, Drayton will install a new dust management system where upwind and downwind real time monitors provide feedback to a software package that assesses Drayton's dust contribution. This system will trigger actions for employees if dust levels increase. This has been outlined in Drayton's Air Quality Management and Monitoring Plan supplied to the Department of Planning and Infrastructure.

Predictive weather modelling will be used throughout 2013 to provide a forecast for dust enhancing weather and trigger preparatory actions prior to dusty conditions.

### 3.1.2 Monitoring System

Specific requirements relating to air quality monitoring are detailed in EPL 1323 and Development Approval 06\_0202. As required by section M2.1 of the EPL, the Drayton air quality monitoring program monitored depositional matter, Total Suspended Particulates (TSP) and particulate matter less than 10 micrometers in diameter (PM<sub>10</sub>). Using the results from the monitoring program, Drayton is able to determine compliance with the licence conditions.

#### Deposited Dust

Dust depositional gauges have been in operation for the duration of the life of the mine. The eight depositional gauges used for compliance are situated to the north of the lease boundary, and in the vicinity of the residential areas around the mine (see Figure 2).

The dust gauges and measurement conform to 'AS3580.10.1 - 2003 - Methods 10.1 - Determination of Particulates - Deposited matter - Gravimetric Method'. Samples are collected, in accordance with AS 2724.5(1987), at the beginning of each calendar month. The samples are analysed by an National Association of Testing Authorities (NATA) certified laboratory for total solids, insoluble solids, ash residue and combustible matter. A field observational assessment is also noted as to possible contamination of samples. To determine compliance the depositional dust results are compared to the licence conditions outlined in Table 10.

**Table 10: Long term impact assessment criteria for deposited dust**

Pollutant	Averaging Period	Maximum Increase in Deposited Dust Levels	Maximum Total Deposited Dust Level
Deposited Dust	Annual	2 g/m <sup>2</sup> /month	4 g/m <sup>2</sup> /month

#### Total Suspended Particulates

Drayton operates two high volume air samplers (HVAS) at locations indicated in Figure 2 below. The Met Station monitor is located onsite in the CHP area and used to indicate TSP levels onsite. The Lot 22 monitor is located offsite, within the Antiene rural sub division close to residential premises, and is used for compliance purposes. Both monitors were calibrated every two months throughout the 2012 reporting period.

Drayton's TSP sampling program follows the OEH guidelines of a six-day rotational cycle. The HVAS and measurement also conform to 'AS 2724.3 – 1984: *Particulate Matter – Determination of Total Suspended Particulates (TSP), High Volume Sampler Gravimetric Method*'. Compliance is determined by comparing the results from the HVAS sampling to the licence conditions outlined in Table 11.

**Table 11: Long term impact assessment criteria for TSP**

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90 µg/m <sup>3</sup>

### PM10

Commissioned in late 2009, Drayton's Tapered Element Oscillating Microbalance (TEOM) continuously monitors PM<sub>10</sub>. This monitor is located between Drayton's mining operations and the near neighbours boundaries (refer to figure 3) and used to indicate real time dust levels between the operation and near residents. The TEOM was calibrated, in accordance with AS3580.9.8-2008 and the *TEOM Service Manual*, in May and September 2012. It is required that dust levels at neighbouring residences fall below the criteria outlined in Table 12 in order to be compliant with licence conditions.

**Table 12: Short and long term impact assessment criteria for PM10**

Pollutant	Averaging period	Criterion
Particulate matter <10µm (PM <sub>10</sub> )	24 hour	50 µg/m <sup>3</sup>
Particulate matter <10µm (PM <sub>10</sub> )	Annual	30 µg/m <sup>3</sup>



Figure 2: Dust monitoring sites

### 3.1.3 Results

Dust fallout, suspended dust and real time dust were all measured in accordance with the requirements of the OEH Development Consent conditions and the appropriate Australian Standards. The results from the air quality monitoring program are reviewed monthly, reported internally to site management, and reported annually in the AEMR.

#### Deposited Dust

The 2012 dust deposition levels displayed acceptable levels which generally fell below the maximum criteria outlined in Table 10. Most of the depositional dust levels remained similar to long term averages except for gauge 2197 and 2208. The 2012 average insoluble solids for gauge 2197 were significantly higher and gauge 2208 was significantly lower than the long-term average (see Table 13).

**Table 13: 2012 Average Dust Deposition Gauge Results**

Site Number	Insoluble Solids (g/m <sup>2</sup> .month)	Combustible Matter (g/m <sup>2</sup> .month)	Ash (g/m <sup>2</sup> .month)	No of Samples	Long Term Average (Insoluble Solids)	
					g/m <sup>2</sup> .month	Period
2130	2.3	0.6	1.8	12	1.90	May99 – Dec12
2157	2.0	0.7	1.3	12	2.08	Oct82 – Dec12
2175	1.6	0.4	1.1	12	1.75	Dec86 – Dec12
2197	3.9	1.4	2.5	12	2.72	Dec86 – Dec12
2208	1.7	0.4	1.2	12	2.34	Dec86 – Dec12
2230	2.4	0.8	1.6	12	2.37	Dec86 – Dec12
2235	2.2	0.7	1.5	12	1.95	Jan85 – Dec12
2247	2.0	0.8	1.3	12	1.64	Oct82 – Dec12

Note: Deposited dust is assessed as insoluble solids as defined by 'AS/NZS 3580.10.1.2003: Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method'.

When compared to the previous reporting period four out of the eight gauges displayed a decrease in average insoluble solids. In 2012 the overall average insoluble level across all eight gauges was 2.26 g/m<sup>2</sup>. This was a decrease of 0.14 g/m<sup>2</sup> compared to the 2011 average insoluble level of 2.40g/m<sup>2</sup>.

Figure 3 summarises the year's results of total solids, insoluble solids, ash and combustible matter in the eight compliance gauges. Out of the eight gauges, gauge 2197, to the west of the Antiene area, had the highest average result levels. Due to the nature of Dust Deposition Gauges, contamination of samples by bird droppings, insects and vegetation is a common occurrence. Details relating to each individual gauge on a monthly basis are outlined in **Appendix C**.



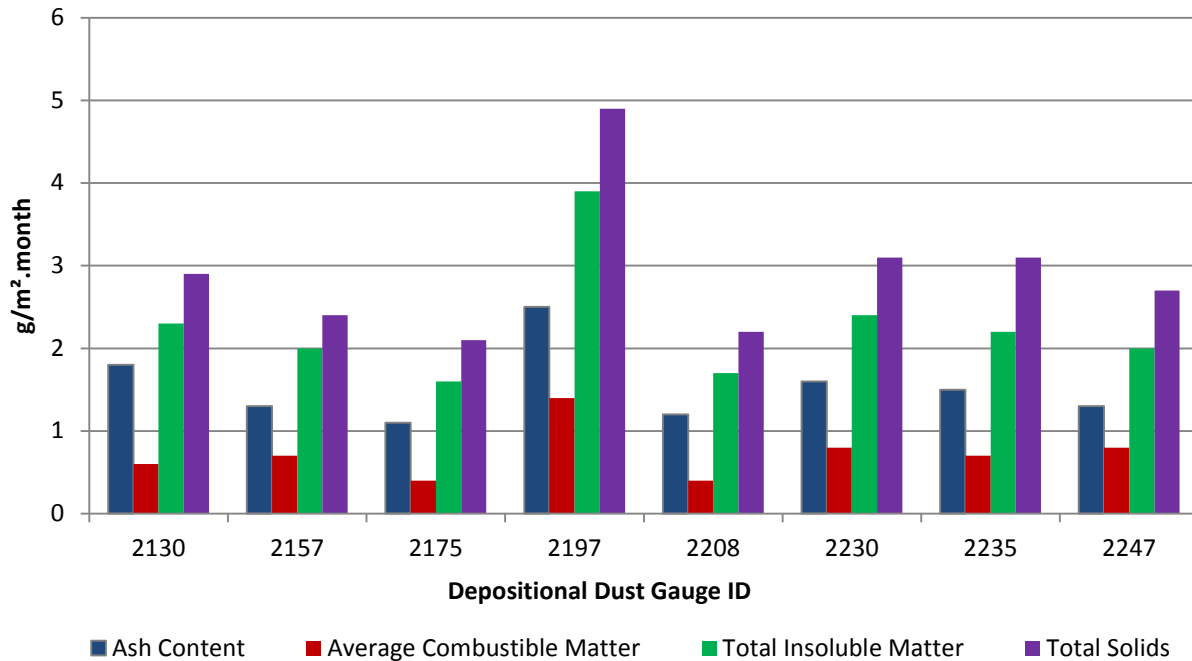


Figure 3: Average Depositional Dust Gauge Results 2012

### Total Suspended Particulates

The 2012 annual mean TSP for the Antiene station increased by  $16\mu\text{g}/\text{m}^3$  in comparison to 2011 however, the 2012 figure was well below the annual mean limit of  $90\mu\text{g}/\text{m}^3$  (see Figure 4). The complete results for the reporting period are in **Appendix C** and the summarised results are in Table 14.

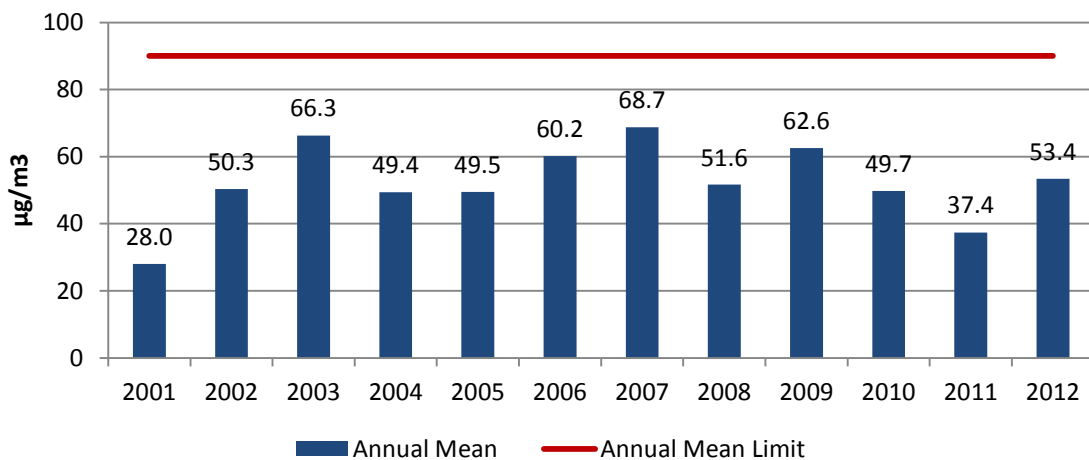
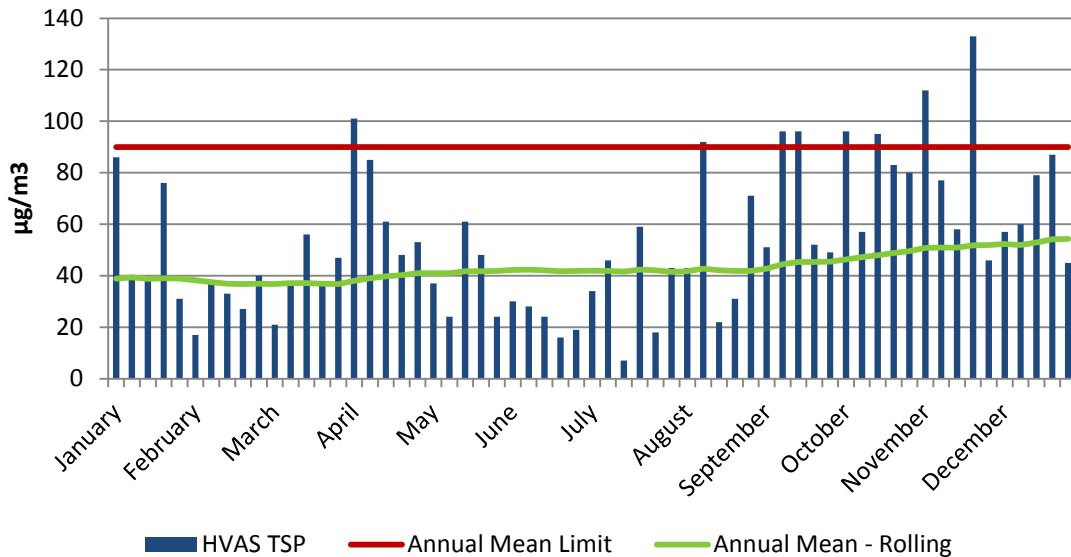


Figure 4: Long Term TSP from Lot 22 HVAS

Table 14: Total Suspended Particulates 2012

Location	Yearly Average ( $\mu\text{g}/\text{m}^3$ )	Range ( $\mu\text{g}/\text{m}^3$ )	No. Samples	Long Term Average ( $\mu\text{g}/\text{m}^3$ )
Lot 22 Antiene	53.39	7 - 133	61	53.21 (2001 – 2012)

Figure 5 indicates that TSP levels increased during the second half of 2012. This increase coincides with decreased rainfall and an increase in average wind speeds in this half of the year.



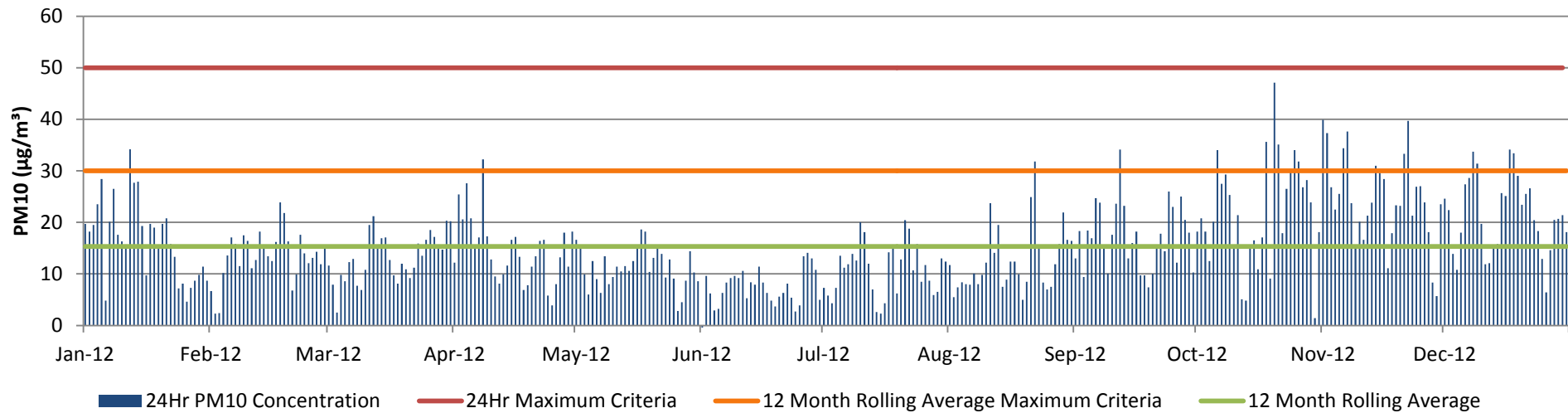
**Figure 5: TSP from Lot 22 HVAS 2012**

**PM<sub>10</sub>**

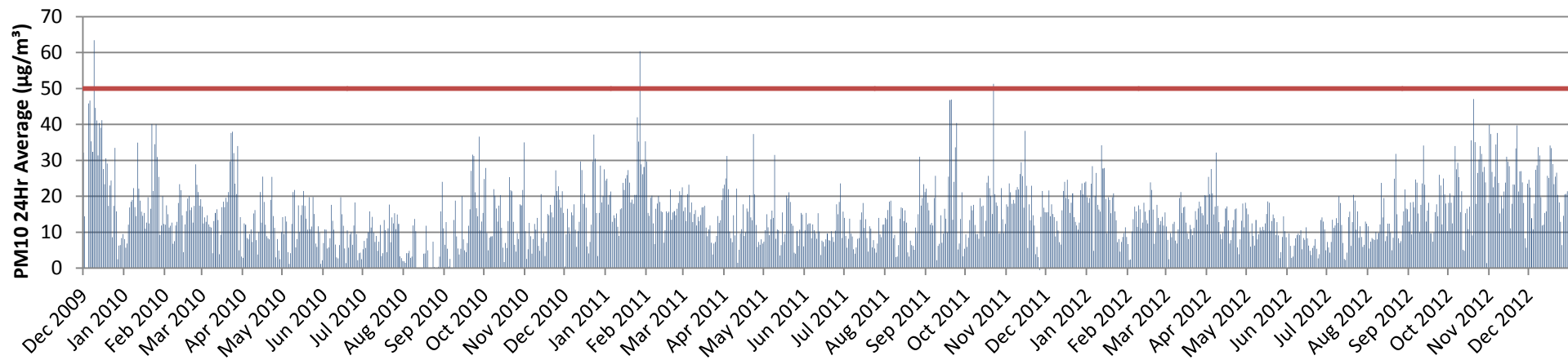
The real time dust monitoring results indicate that the 2012 PM<sub>10</sub> levels in the Antiene area were in compliance with statutory limits. Like the TSP levels PM<sub>10</sub> increased in the second half of the year. Daily average PM<sub>10</sub> results are presented in **Appendix C** and summarised in Figure 6. Monthly PM<sub>10</sub> averages are detailed in Table 15. Figure 7 shows the historical data since the TEOM's commissioning in 2009.

**Table 15: Monthly Averages Real Time Dust Monitoring - 2012**

Month	Average (µg/m <sup>3</sup> )
January	16.73
February	13.47
March	13.13
April	14.60
May	11.20
June	06.62
July	10.82
August	12.52
September	17.17
October	21.88
November	24.56
December	21.35



**Figure 6: PM10 24Hr average 2012**



**Figure 7: PM10 24Hr average Dec 2009 – Dec 2012**

## 3.2 Erosion and Sediment

During the 2012 reporting period, erosion and sediment control at Drayton was managed in accordance with the site Water Management Plan and the 2012-17 MOP. The control measures implemented throughout the year included:

- Dust suppression measures;
- Limiting the number of roads and tracks established;
- Limiting the extent of disturbance ahead of mining operations;
- Sediment traps and catch drains in the runoff zones from industrial areas;
- Collection of surface runoff in established dams downstream of disturbed areas;
- Progressive rehabilitation of disturbed areas as soon as practicable; and
- Diversion banks on rehabilitated land designed at 0.5% - 1% grade and are spaced to minimise down slope flows.

Water from washdown bays is collected in a series of sumps that are desilted on a regular basis. Any overflow from these sumps goes into the oil pollution control dam. The oil pollution control dam was desilted in September 2012.

The rail loop dam, which collects runoff from the CHP area has been designed so runoff water travels through a series of sediment ponds prior to entering the dam. These sediment ponds were also desilted regularly throughout 2012.

Drayton does not possess a licence to discharge water off site so sediment is not dislodged from mining areas to subsequently enter streams leading off site.

## 3.3 Surface Water Pollution

### 3.3.1 Management System

Drayton maintains a Water Management Plan, which addresses surface water management and monitoring. As part of water management on site the site water balance is recalculated each month using the surveyed storage levels, meter readings and rainfall volumes recorded by the onsite meteorological station. This information is provided to site managers at the monthly EMC meetings to enable effective surface water management through regular assessment of the current storage capacity and monthly water usage requirements.

Since all mine water is contained within the internal mine water management system and is not discharged off site, downstream management is minimal.

### 3.3.2 Monitoring System

As part of the surface water monitoring plan, monthly surface water monitoring was undertaken at nine locations including:

- On-site dams;
- Dams located along the creeks on site; or
- In the creeks themselves when sufficient water was available.

These monitoring locations are illustrated in Figure 8. Most of these dams are mine water dams with the exceptions being dams 2090 and 2221.



Figure 8: Surface water monitoring sites

Bayswater Creek and Ramrod Creek were selected to represent the main drainage basins that leave the Drayton site and the structures located on each. Bayswater Creek flows south eastward from the Drayton boundary. It is monitored on a monthly basis from dam 1895 located at the Far East Tip. This dam has a total storage capacity of 130ML and collects runoff water from non-mining related areas.

The Access Road Dam (2081) is located on a tributary of Ramrod Creek, leading off the site to the northeast. It has a storage volume of 750ML and is used to supply water to the CHP and the workshop area. Dam 2081 is a prescribed dam regulated by the DSC and undergoes periodic inspections as required by the DSC.

Since Drayton is located at the headwaters of streams, surface water flows in Bayswater and Ramrod creek rarely occur. However, should excessive rainfall occur that leads to surface runoff in streams, the creeks are sampled as per the normal regime of monitoring, with the same suite of analytes as normally sampled.

Analysis undertaken on the samples collected from the main drainage basins and on-site dams include:

- pH
- Electrical Conductivity (EC)
- Total Dissolved Solids (TDS)
- Suspended Solids (SS)
- Bicarbonates
- Soluble Ions (Sodium, Magnesium, Chloride, Sulphate, Calcium and Potassium)

### 3.3.3 Results

During the reporting period Drayton received the 610.4mm of rain, the majority of which fell during the first half of the year. Water levels in the main dams remained stable throughout 2012 and water quality monitoring continued as in previous years.

Ongoing monitoring of the Far East Tip Dam (1895) has revealed that the water quality in this dam has an alkaline pH and higher than traditional background salinity levels. This reflects natural saline conditions typical of upper Hunter catchments. The results of water quality sampling from the Dam 1895 are provided in Table 16.

**Table 16: Water Quality – Far East Tip (1895) Dam**

Date	EC µS/cm	pH	TDS mg/L	NFR mg/L	Sodium mg/L	Magnesium mg/L	Chloride mg/L	Sulphate mg/L
Jan 12	3610	8.3	2490	5	529	177	484	890
Feb 12	3520	8.4	2500	<5	569	198	475	885
Mar 12	3560	8.1	2500	6	652	188	473	1020
Apr 12	3700	8.3	2500	8	592	202	518	981
May 12	3890	8.3	2670	10	595	211	524	998
Jun 12	3940	8.3	2790	10	644	215	546	968
Jul 12	4000	8.4	2990	5	612	212	576	1020
Aug 12	4300	8.5	2930	13	695	216	575	968
Sep 12	4480	8.5	3150	5	732	250	630	1460
Oct 12	4780	8.6	3220	6	677	237	628	1320
Nov 12	4800	8.7	3230	6	815	286	685	1300
Dec 12	5120	8.7	3370	10	838	275	698	1360
<b>Average</b>	4142	8.4	2862	8	663	222	568	1098

Note: NFR is non-filterable residue.

During the reporting period Drayton began returning water recovered from the ES Void tailings storage to the Access Road Dam. The Access Road Dam (2081) has a high turnover of water which is pumped from the Industrial Dam (1969) or the ES Void. During the second half of the reporting period Dam 2081 experienced a slight increase in EC, TDS and metals consistent with the decrease in rainfall. The results of water quality sampling from the Access Road Dam are provided in Table 17.

**Table 17: Water Quality – Dam 2081**

Date	EC µS/cm	pH	TDS mg/L	NFR mg/L	Sodium mg/L	Magnesium mg/L	Chloride mg/L	Sulphate mg/L
Jan 12	5180	8.2	4300	20	525	347	654	2000
Feb 12	5470	8.3	4770	24	615	402	682	2160
Mar 12	5030	8.3	4200	28	624	340	623	2220
Apr 12	5400	7.6	4450	8	558	377	697	2270
May 12	5550	8.4	4640	86	578	398	691	2300
Jun 12	5830	7.9	5060	27	630	439	787	2420
Jul 12	5820	8.0	5440	6	588	444	748	2780
Aug 12	6180	8.1	5330	22	648	429	724	2450
Sep 12	6500	7.9	5350	11	642	473	768	3320
Oct 12	7020	8.0	5840	8	619	514	746	3440
Nov 12	7180	8.0	6430	4	681	567	842	3330
Dec 12	7450	8.0	6370	6	700	538	759	3840
<b>Average</b>	6051	8.1	5182	21	617	439	730	2711

Most dams are mine water dams with the exceptions being dams 2090 and 2221. Dam 2221 is located off site in the Antiene rural sub division area. This dam has no connection to mining activity and is monitored for background purposes only. Dam 2221 was traditionally a small farm dam however its sole purpose now is to supply water to native animals. Dams 2090 and 2221 had significantly lower EC, TDS and metal concentrations than the mine water dams.

The decreased rainfall and long dry periods in the second half of the year resulted in higher concentration levels of EC, TDS and metals occurring across all dams. Dam 2114, located within the Drayton rail loop, collects surface runoff from the CHP and returns water to the internal water management system. Water quality in this dam generally remained stable throughout 2012. A summary of the results of the water quality sampling is presented in Table 18. The complete data is provided in **Appendix B**.

**Table 18: Average Results of Water Quality Sampling for Remaining Dams**

Dam	EC µS/cm	pH	TDS mg/L	NFR mg/L	Sodium mg/L	Magnesium mg/L	Chloride mg/L	Sulphate mg/L	No. Samples
1609	7140	8.0	6472	11	678	580	718	3831	12
1969	5890	8.1	4756	34	656	399	790	2273	12
2090	717	7.7	400	43	60	30	88	24	9
2109	4043	7.7	2932	19	575	197	631	1353	12
2114	5849	8.2	4994	19	612	402	864	2429	12
2221	2119	8.3	1318	20	335	72	380	414	12

## **3.4 Ground Water Pollution**

### **3.4.1 Management System**

In the absence of a high-quality aquifer in the vicinity of Drayton, there is limited reliance on the groundwater resources. Groundwater at Drayton is extracted only through infiltration to mine voids however, it was predicted that the Permian coal seam aquifer would be impacted by Drayton's operations. As a result piezometers were established during the exploration-drilling program, and subsequently throughout the mining process as further exploration drilling was carried out. Some piezometers have been destroyed as the mining has progressed.

### **3.4.2 Monitoring System**

Drayton has an established ground water monitoring plan which addresses both standing water levels and water quality. As part of this plan, monthly standing water levels are monitored at piezometers located around the current mining operation as well as offsite locations. The handheld water quality meter is calibrated each month prior to sampling.

At the end of 2012, 11 piezometers were being monitored on a monthly basis. A water level indicating instrument was used to determine the standing water level in the piezometers. Some piezometers could not be sampled on each monitoring occasion due to insufficient water or obstructions. The locations of the piezometers monitored are illustrated in





Figure 9: Ground water monitoring sites

### 3.4.3 Results

A summary of the 2012 and long-term piezometer groundwater levels is presented in Table 19. The complete results from the 2012 groundwater monitoring program are shown in Table 38. Throughout 2012 piezometers F1162 and F1164 were over 100m deep and were therefore too deep to obtain a sample with the 100m bailer. Piezometer F1024 did not have enough water for a sample in April and has been dry since. In August F1167 was unable to be sampled.

**Table 19: Summary of Groundwater Levels**

Location	Average Depth 2012 (m)	Long Term Average Depth (m)	Years of Data Available	No Samples in 2012
F1024	178.63	201.89	1982 – 2012	3
F1162	-	156.48	1982 – 2012	0
F1163	177.47	177.61	1982 – 2012	12
F1164	-	165.46	1982 – 2012	0
F1167	172.42	184.27	1982 – 2012	11
F1168	166.28	188.68	1982 – 2012	12
W1102	178.56	178.17	1982 – 2012	12
R4220	195.24	210.52	2005 – 2012	12
R4224	128.23	154.05	2005 – 2012	12
R4241	184.27	183.33	2005 – 2012	12
R4243	227.71	229.47	2005 – 2012	12

Note: All measurements adjusted with Relative Levels.

Piezometer levels from monitoring locations to the south of the mine are generally steady with the exception of piezometer R4220 which has continued a steadily dropping trend since 2009. This piezometer exhibited a sharp drop in water level between monitoring in August and September 2012. Throughout the reporting period, mining disturbance has encroached slowly towards the monitoring location and is now in close proximity to the piezometer. Piezometer R4224 has been steadily decreasing since 2008 although experienced a slight increase in 2012. Between monitoring in November and December 2012, R4224 experienced a significant increase in water level. All other piezometers to the south of the mining area have remained steady throughout the reporting period.

With the exception of F1167, piezometers located in the northern areas of the mining lease continue to have displayed a gradual decline. Piezometer F1024 contained no water after May 2012 and the water levels in F1162 and F1164 were too deep to sample during the reporting period. This gradual decline in groundwater levels to the north of the mining area has been a continuing trend over several years however, strong rainfall throughout 2011 lead to the recharging of groundwater levels in the Antiene area. Throughout the first half of 2012, F1167 piezometer water level remained steady although began a slight decline in the dryer second half of the year. This piezometer, located in the Antiene area, illustrates the complexity and resilience of groundwater conditions in the general vicinity of the mine.

## 3.5 Contaminated Land

No significant land pollution events occurred during the 2012 reporting period. Contaminated material removed from sumps around the workshop, washdown bays and lube bay was placed in the designated contaminated material cells.

### 3.6 Threatened Flora

A flora assessment was undertaken for the EA. The area consisted of grazing lands, rehabilitated grasslands and small tracts of regrowth and rehabilitated woodlands. An area of 1.3ha was discovered to contain Hunter Lowland Redgum Forest (HLRF), which is an endangered ecological community (EEC) as listed under the *Threatened Species Conservation Act 1995*. The EA Assessment of Significance determined that the Project is not expected to have a significant impact on this community.

An offset area has been established in agreement with the DoPI to offset the destruction of the HLRF. This area is located in two parcels, an area in the south western corner of CL229 and an area adjacent to the main access road into the mine. No threatened vegetation communities were identified in 2012.

### 3.7 Threatened Fauna

A fauna assessment was also undertaken as part of the EA process. A total of 96 species were recorded during the field investigations. Ten threatened fauna species were discovered and are listed under either the *Threatened Species Conservation Act 1995* or the *Environmental Protection and Biodiversity Conservation Act 1999*. The EA concluded that the project will not have a significant impact on any species as most were not found within the area affected by mining but rather in an adjoining wildlife refuge.

#### 3.7.1 Drayton Wildlife Refuge

In 1987 the Drayton Wildlife Refuge was gazetted. It allows for planned land use of all areas of the Drayton land holding, whilst still respecting wildlife values. In the Drayton EA it was predicted that the 'Natural Zone' of the Drayton Wildlife Refuge would not be impacted by the Project and that the management of this area will compensate for the impacts of the project on flora and fauna. Besides providing a buffer zone between residents and the mine, the Drayton Wildlife Refuge continues to provide remnant woodland for natural ecosystems.

#### 3.7.2 Feral Animal Control

Feral animals, such as cats, dogs, rabbits and foxes, have occasionally been identified at Drayton. Control strategies undertaken include the use of poison baits to control these animal populations. Drayton implements a coordinated feral animal control program with neighbouring property holders. This integrated approach is designed to maximise effectiveness of control for target species across a broad area.

In the latter half of 2012, Drayton employees reported several wild dog sightings in areas south of the mine. A baiting program, planned to occur in 2012 in conjunction with the local regulatory authorities was not undertaken. Two Drayton employees completed the Livestock Health and Pest Authority 1080/Pindone Authorised User training in September 2012. Mt Arthur Wild Dog Association meetings were attended by Drayton staff in 2012 with a view to integrating future control measures with the group.

### 3.8 Weeds

An ongoing weed management program continued throughout 2012. Weeds including Prickly Pear and African Boxthorn were targeted. This program will continue for 2013 and beyond. Throughout 2012 Prickly Pear was removed along the access road, within the southern offset area and on the Great North Tip. Prickly Pear continues to be the dominant weed in and around Drayton. Areas targeted for weed control in 2012 are shown in Figure 10 below.



**Figure 10: Weed infestations targeted during 2012**

## 3.9 Blasting

### 3.9.1 Management System

Blasting is permitted under Drayton's Project Approval between the hours of 0900 and 1700 Monday to Saturday (EST) and 0900 – 1800 Monday to Saturday (DST). Both the mining lease conditions and noise approval conditions include requirements for the monitoring and control of blasting impacts (see Table 20) at any residence on privately-owned land. A maximum of 2 blasts per day can be carried out with a limit of 8 blasts per week averaged over a 12 month period.

**Table 20: Blasting and vibration criteria**

Airblast Overpressure Level		Peak Particle Velocity (Ground Vibration)	
(dB(L)in Peak)	Allowable Exceedance	mm/sec	Allowable Exceedance
115	5% of the total number of blasts over a period of 12 months	5	5% of the total number of blasts over a period of 12 months
120	0%	10	0%

Procedures have been implemented to ensure Drayton minimises the impact of blasting on near neighbours and operates within licence and project approval conditions. They include the following:

- Loading blasts according to Drill and Blast Engineer's design with attention given to factors such as:
  - charge weight per delay;
  - loading pattern of holes;
  - stemming used;
  - firing sequence and direction;
  - maximum instantaneous charge; and
  - type of blast.
- Accountability for blasting compliance lies primarily with the Mining Operations Department;
- Meteorological conditions are considered when firing shots;
- Waveforms of both air blast and vibration are available for all blasts;
- Implementing an NN Strategy for blasting in the north pit;
- Implementing a road closure process for closing Thomas Mitchell Drive during blasting in the north pit (within 500m of the road);
- Implementing electronic detonation on most blasts in the NN area; and
- Designing blasts to remain below internal limits and well below regulatory limits.

Drayton is also involved in a continuing research project, funded by the Australian Coal Association Research Program (ACARP), in regards to the identification of specific weather conditions relating to blasting activity. This is a joint research project involving a number of Upper Hunter mining companies. This project is referred to as the SODAR project.

### 3.9.2 Monitoring System

Drayton utilises an internet based blast monitoring system which gives access to immediate blasting information for all blasts. The blast monitoring units also allow additional monitoring to be undertaken in specific locations as required. The units operate between approved blasting hours and automatically trigger once a vibration or overpressure event is recorded. During the 2012 reporting period, all blast monitors were calibrated. In September a new blast monitor was installed at the Ash Dam Levee as requested by the DSC. There are now two monitors at the Ash Dam, one on the toe, and one on the crest of the wall. The locations of the five blast monitoring units are shown in Figure 11.



Figure 11: Blast monitoring sites

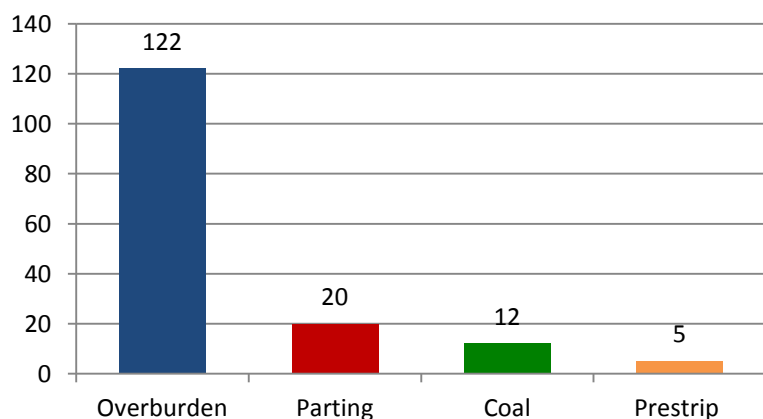
### 3.9.3 Results

A total of 160 blasts were fired at Drayton during 2012. The monitoring results of these blasts are summarised in Table 21 and displayed in Appendix E.

**Table 21: Blast Monitoring Summary**

Location	Antiene	DeBoer	Sharman
<b>EN</b>			
Av Air blast dB(L)	95.80	96.70	96.57
Range dB(L)	86.40 – 104.80	90.80 – 103.30	92.30 – 100.50
Av Vibration mm/sec	0.08	0.16	0.11
Range mm/sec	0.02 – 0.11	0.05 – 0.30	0.03 – 0.22
<b>NN Area</b>			
Av Air blast dB(L)	99.86	99.73	99.01
Range dB(L)	83.80 – 119.00	79.80 – 121.19	86.10 – 117.40
Av Vibration mm/sec	0.94	0.42	0.21
Range mm/sec	0.02 – 3.33	0.05 – 1.39	0.02 – 1.25
<b>SPE Area</b>			
Av Air blast dB(L)	88.26	93.69	94.63
Range dB(L)	71.70 – 110.10	73.10 – 111.4	78.20 – 110.50
Av Vibration mm/sec	0.05	0.14	0.08
Range mm/sec	0.01 – 0.13	0.02 – 0.42	0.01 – 0.22
<b>SPW Area</b>			
Av Air blast dB(L)	88.70	95.20	95.09
Range dB(L)	70.30 – 104.20	76.90 – 117.10	84.80 – 110.80
Av Vibration mm/sec	0.04	0.09	0.05
Range mm/sec	0.00 – 0.13	0.00 – 0.31	0.00 – 0.15

Figure 12 shows that the majority of the blasts occurring in 2012 were overburden shots. Just under a quarter of the remaining shots were either parting, coal or prestrip shots.



**Figure 12: Number of blasts by type**

Drayton's EPL1323 outlines blasting limits of 5mm/s and 115dBI for 5 per cent of blasts for ground vibration and overpressure respectively. During 2012, neither of these limits was exceeded. Additionally, all monitoring results were below the maximum limit for ground vibration (10 millimetres per second) however, there was one exceedance of the overpressure (120 decibels (linear)) criteria.

On Friday 25th May 2012 at 15:25, an overburden shot, fired in the North Pit, resulted in an overpressure reading of 121.17db at the Deboer Monitor. An investigation revealed that a hole, most likely the first hole in the initiation sequence, vented close to the surface and this resulted in the high overpressure reading. Two earlier patterns on the same bench were fired previously under similar conditions to the south of this shot with predicted results. An investigation concluded that the strength of the burden material above the stemming collar in this hole may have been compromised due to a bench drain next to the hole. The incident was reported and an incident report sent to the OEH and to the DoPI. Two complaints were received as a result of the blast.

Throughout 2012 a total of 27 blast related enquiries were received, seven of which did not relate to Drayton blast. The majority of the complaints and/or enquiries were in regards to blast being felt and three were in relation to the closure of Thomas Mitchel Drive. All enquiries were investigated and responded to with enquirers given details of monitoring data recorded for the blast. Details of all enquiries received during 2012 are contained in **Section 4.1** of this report.

## 3.10 Operational Noise

### 3.10.1 Management System

Drayton has implemented a number of noise management controls including mine planning, operational and engineering measures, and a real-time monitoring system. The mitigation measures outlined in Table 22 were applied during the 2012 reporting period and revised as appropriate.

**Table 22: Noise mitigation measures**

Mitigation Measure	Status
One loading unit would work in the North Pit during the evening or night.	Pit has now advanced to this area. Mine planning ensures compliance with this condition.
North and East Pit overburden trucks would dump in shielded locations during evening and night	Tip edges shielded as part of normal operations
North Pit pre-strip haul roads would be shielded by pit walls or a berm in the direction of residences during evening and night.	Haul roads have been located below pit level in the North Pit area.
Loading units within the North Pit pre-strip would be located in a shielded area below the natural surface during the evening and night.	Loading units are operated below natural surface in the NN area during evening and night operations.
Coal haul road from the South Pit would be realigned to the lowest possible elevation, with minimal long straight sections of road directly in line with a residence and effective shielding with earth berms along the sides of the road where possible.	No change in haul routes required as yet.
Proposed ROM stockpile south of the workshop would have a 5m wall or equivalent berm on the northern side and returned along part of the eastern and western sides to minimise noise from loaders and trucks.	New ROM stockpile not constructed as yet.
A 4m berm and/or wall would be constructed along the eastern side of the coal haul road from ROM stockpile to meet the existing ROM hopper wall	New ROM stockpile not constructed as yet.
A sound power level limit of 103 dB(A) each for three new reclaimers and one ROM coal stacker	No new reclaimers or stackers have been commissioned as yet.
Steel sheeting would be installed on the northern face of the secondary crusher building after the removal of the rotary breaker and installation of the new screen and crusher.	Not completed as yet, however noise monitoring has not reflected any increase in noise emissions even without sheeting.



Upgraded exhaust mufflers on some trucks with the exception of the South Pit overburden fleet. Mufflers altered on trucks within fleet.

### 3.10.2 Monitoring System

The EPL and approval criteria (outlined in Table 23) for Drayton's noise monitoring sites is measured in LAeq (15 min), which is the average noise energy over a 15 minute period. Drayton undertakes a combination of attended monitoring, independent monitoring and real time monitoring in order to assess mine noise levels against these criteria.

**Table 23: Noise Impact Assessment Criteria**

Land Number	Day	Evening	Night	
	L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)	L <sub>A1</sub> (1min)
34	35	35	36	45
29	35	35	36	47
31	35	35	37	47
33, 86	35	35	38	45
32	35	35	40	47
71, 75	35	35	41	47
70	35	36	41	47
76 *	35	36	42	47
28	35	37	40	47
69	35	37	41	47
13	36	36	35	45
12	36	36	36	47
25	36	37	37	47
26	36	37	38	47
27 *	36	37	39	47
72 *	36	37	42	47
17	37	38	36	47
21, 22 *	38	38	38	45
18	38	39	38	47
20, 61	39	40	39	45
14	40	39	38	47
19	40	40	39	47
16 *	41	41	39	47
23	35	35	35	47
<b>All other privately-owned land</b>	35	35	35	45

\*Attended noise monitoring residence

## Attended Monitoring

Attended noise monitoring is undertaken on a monthly basis at five residences (see Figure 13 below) that are typical noise receptors from the mining operation. Parameters measured at the attended monitoring locations include Leq, LAmax, LA1, LA10, LA50 and LA90 being measured over a 15 minute period. The Rion sound level meter, used to carry out the attended noise monitoring, was calibrated in May 2012. During each monitoring period, all noise is quantified and characterised. Throughout the 2012 reporting period, attended monitoring was conducted at various times of the day, evening and night to assess noise emissions throughout a 24 hour period.

## Independent Monitoring

Independent noise monitoring is undertaken to quantify the overall noise levels at the nearby residences and determine the contribution from Drayton's operations. The monitoring is carried out on a quarterly basis by an acoustic engineer who incorporates attended monitoring data into a site model to provide a compliance report. Calibration of the sound level meter used in the monitoring was confirmed with a Sound Level Calibrator prior to and at the completion of measurements.

Drayton's Project Approval details noise impact assessment criteria for 28 specific residential locations (see Table 22 above). For logistic reasons it is not reasonable to carry out attended noise monitoring at all of the listed locations during the one monitoring survey. As such, the approach taken was to monitor the noise at eight representative residential locations and determine, by noise modelling, the noise level at all of the other locations required in the Project Approval. Noise measurement locations for the attended noise survey are listed below:

- Doherty
- Collins (Monitored in March only)
- Kerr (Monitored in June, September and December)
- Wilson\*
- Smith\*
- Skinner
- Robertson
- Sharman
- Horder

\* Additional locations contained in EPL 1323 but not in the Project Approval.

Three sets of measurements were made over the "circuit", one during the day time period (before 6 pm), one during the evening period (from 6 pm – 10 pm) and one at night (after 10 pm).

## Real Time Monitoring

Real-time noise monitoring involves the use of a BarnOwl® noise monitoring system. Multiple microphones allow the BarnOwl® to distinguish the direction of noise sources. This is particularly important when assessing and managing cumulative noise impacts.

The BarnOwl® system facilitates production of graphical and numerical data as well as recording and maintaining noise emission files on a five minute basis. The BarnOwl® has been installed at Lot 9 Antiene, approximately 150m from the Drayton rail spur, and in close proximity to the mine's near neighbors (see Figure 13). This station enables proactive management to minimise noise emissions from the site.



Figure 13: Attended and real-time noise monitoring sites

### 3.10.3 Results

#### Attended Monitoring

Attended monitoring results include all noise recorded during a 15-minute period. At the Robertson and Horder residences the 2012 average background noise level was higher than the long-term average. At the Doherty and DeBoer residences the average background noise level was lower. At the Halloran residence Leq was higher but L90 was lower than the long-term average. These results include noise from all sources including highway traffic, birds, insects, dogs, wind, rain and domestic noise. Table 24 and Table 25 provide data from all sources.

**Table 24: Annual summary of Attended Background Noise Levels**

Residence	Absolute Max. dB(A)	Average Leq dB(A)	Average L10 dB(A)	Average L90 dB(A)	Total Number of Records
Doherty	69.8	37.4	39.3	31.5	28
Robertson	77.4	47.9	51.0	36.7	29
Horder	83.4	43.3	43.4	36.4	28
Halloran	73.2	40.0	41.6	32.6	28
De Boer	80.4	38.5	40.0	33.1	29

**Table 25: Background Noise Levels compared to Long Term Averages**

Residence	Long Term Average		
	Leq dB(A)	L90 dB(A)	Period
Doherty	37.81	32.69	May 03 – Dec 12
Robertson	45.58	36.54	Oct 07 – Dec 12
Horder	42.16	35.91	Jun 08 – Dec 12
Halloran	39.12	33.08	Mar 04 – Dec 12
De Boer	40.78	34.61	Feb 10 – Dec 12

The de Boer residence is located north east of the mine and approximately 500m from the New England Highway. Major noise influences at this location consist of highway traffic, insects and birds. Attended noise monitoring indicates that noise from rail movements can be audible from this residence.

The Doherty residence is located on Balmoral Road. Attended noise monitoring at this residence indicates that the major influences on noise levels are insects, birds and traffic on New England Highway and Thomas Mitchell Drive. Drayton and other mining operations can be audible from this residence.

The Halloran residence is also located on Pamger Drive. Several large native trees surround this site and are frequented by a variety of native birds such as cockatoos, king parrots, galahs and rosellas. This influences ambient background noise levels significantly. Other influences include traffic from the New England Highway and Pamger Dr, wind, rail noise and mining operations.

The Robertson residence is the closest residence to the mining operation. This location is influenced predominantly by traffic on Thomas Mitchell Drive and rail noise with mining related noise also audible during attended noise monitoring. This residence is within a modelled acquisition zone.

The Horder residence, is located east of the mine and west of the New England Highway. Attended noise monitoring at this location commonly detects traffic, birds and wind through the trees. Mine related noise is occasionally audible at this location however the noise is generally not intrusive. This residence also falls into a modelled acquisition zone.

## Independent Monitoring

In 2012 the May 2011 – April 2012 noise compliance assessment report was submitted to the EPA with the Annual Return as set out in Condition R1 of the EPL. Additionally, under the Condition M8.1 very six months noise must be monitored from the premises to determine compliance with the noise limits, the independent monitoring for fills this requirement. The results of independent monitoring in March 2012 show that the noise criteria (LAeq and LA1(1minute)) were not exceeded at any receiver during the monitoring. During the independent monitoring in September however, the evening criteria were exceeded at two locations. The first exceedance was at the Horder premises at 8:39pm. This was a moderate exceedance which occurred when wind speeds were above the 3m/s (10.5 km/h) upper limit for the noise criteria to be applicable. The second exceedance was at the Sharman premises at 8:58pm. This was a minor exceedance which also occurred when wind speed were above the upper limit for the noise criteria to be applicable.

## Real Time Monitoring

A total of 20 noise related complaints were made during the 2012 reporting period. The audio recordings from the BarnOwl® are used to confirm the source of the noise when elevated levels occur. Noise exceedances are determined as valid after meteorological conditions are checked to ensure the elevated result is not due to excessive wind or rain. For a summary of the 2012 BarnOwl® data see Table 26, for the complete dataset see Appendix D.

**Table 26: BarnOwl® Monthly Average Noise Levels**

Month	Day dB(A)	Evening dB(A)	Night dB(A)
January	34.10	34.24	34.98
February	34.70	33.27	33.16
March	34.83	34.19	34.50
April	35.34	35.23	35.67
May	36.13	36.12	37.29
June	36.97	36.94	37.63
July	36.88	37.73	39.10
August	36.43	38.42	38.57
September	33.57	35.21	37.39
October	33.01	34.13	36.24
November	31.92	33.16	33.99
December	31.42	32.43	33.35

The BarnOwl® experienced power outages for several days around mid- April and also in May. Data corruption also occurred for several days in mid-August. Consequently, no valid results were obtained during this time.

## 3.11 Visual Aesthetics and Lighting

As predicted in the EA assessments Drayton's operations have a low visual impact as a result of judicious clearing during initial construction. Remnants of the initial woodland have been retained around and throughout the site by careful layout of infrastructure and clearing of the minimum area required. Mature trees provide effective screening of areas such as the CHP, Rail Loadout facilities and general administration area.

Tree planting continues to be a component of rehabilitation programmes. In the future these plantings will provide additional screening of mining activities as well as a corridor for wildlife movement between refuge and offset areas. During 2007, some 2,060 native tree seedlings were planted along Thomas Mitchell Drive to act as visual barrier for future mining developments. The seedlings were successfully established and now provide a screened barrier for travellers along Thomas Mitchell Drive. Further tree plantings occurred throughout 2012 (refer to section

5). Trees were planted in areas that are visible to both the New England Highway and Thomas Mitchell Drive to provide future relief from linear rehabilitated contours.

Mobile lighting was actively managed during 2012 to prevent impact on both Thomas Mitchell Drive and the New England Highway. Potential impacts from lighting plants located on high dumps are an issue discussed by managers at monthly EMC meetings. These lights, essential for night-time operations, are carefully positioned to prevent glare from impacting drivers.

Future rehabilitation design work at Drayton will be conducted using new modelling software that provides not only more sustainable landforms, but also more natural topography of rehabilitated areas. This design work is in response to a request from the MSC.

### **3.12 Aboriginal Heritage**

Drayton maintains an Aboriginal Heritage Management Plan (AHMP) in accordance with the development consent. The AHMP provides a set of operational procedures that guides Drayton in the management of Aboriginal cultural heritage issues within the mine development context.

The EA predicted that 29 of the 39 Aboriginal sites identified would likely be impacted on by the project. The Aboriginal heritage sites consisted of isolated artefacts and areas where transient communities may have travelled. Of the 39 sites located within the Open Cut and Services Corridor development zone, 13 sites were conserved as part of the Drayton Mine Extension area development. In 2009 the remaining 26 sites were subject to various mitigation salvage procedures prior to impact from mining development. The majority of these sites are considered to be of low scientific significance, however Ramrod Creek R3 is considered to be of medium-high scientific significance following salvage works on a local level.

As indicated in the 2012-17 MOP, no additional surveys or salvage programmes were required in 2012.

### **3.13 Natural Heritage**

No natural heritage sites have been identified on the mine site or on land under the control of Drayton.

#### **3.13.1 Non-Aboriginal Heritage**

The EA field survey identified five non-Aboriginal heritage sites within the EA boundary, none of which were statutory listed. One of these sites was determined to be of high local significance. It was predicted in the EA that this site would not be impacted by mining activities however a physical barrier was installed around the site to prevent accidental damage and maintain its heritage value.

### **3.14 Spontaneous Combustion**

Drayton, along with other open cut coal mines mining the Greta Coal Measures, experiences spontaneous combustion problems within spoil, coal stockpiles and coal seams. As a result, a Spontaneous Combustion Management Plan is followed on site in order to meet both statutory and company requirements. This plan indicates the causes of spontaneous combustion, determines accountabilities for its management, lists remediation work to prevent recurrences, and specifies monitoring and reporting requirements. Drayton also completes six monthly reports to the OEH regarding spontaneous combustion management.

Throughout the 2012 reporting period, mining activities were concentrated within South Pit East, South Pit West and the North Pit. The spontaneous combustion activity during this period has been limited to the southern pits. Carbonaceous material from the South Pit was selectively dumped on the lower faces of the expanding Great North Tip area, in an attempt to bury high risk material and reduce exposure time. This work has been occurring for several years and is selectively controlling spontaneous combustion.

Throughout the 2012 period, Drayton was subject to regular inspections from the DoPI compliance officers focusing on Spontaneous Combustion and dust emissions on each inspection. During these inspections, areas of spontaneous combustion were discussed and plans formulated to address areas where remediation work is able to be undertaken during the normal process of mining.

Spontaneous combustion activity within the North Pit was minimal with a small flare up late in the year. This coincided with minimal mining in the north pit during this time. All occurrences of spontaneous combustion between April and December were of minor intensity with an active clay capping program focusing on areas of highest intensity and area affected. Clay from the prestripping of new areas to the south was stockpiled for use on spontaneous combustion outbreaks and future rehabilitation purposes. A small area of land was rehabilitated on the southern end of the Great North Tip.

At the end of the reporting period, it was estimated that approximately 1095m<sup>2</sup> of surface area were visibly affected by spontaneous combustion. The areas that continued to burn at the end of the reporting period are being managed through a process of active dumping and/or clay capping.

### **3.15 Bushfire**

During the 2012 reporting period, bushfire mitigation works were carried out in accordance with the Bushfire Management Plan. As part of the management plan mine equipment such as water carts, graders and dozers were available for on-site fires. The risk of on-site bush fires was managed through a system of peripheral roads that act as firebreaks. Additionally, weeds and grasses growing around electrical substations and fuel storages were kept to a minimum. An inspection was carried out to assess the status of the Drayton property boundary and neighbouring properties regarding the potential for bushfires. Plans were then made to address any areas of significant risk.

### **3.16 Mine Subsidence**

Subsidence is not an issue at Drayton as it is an open cut coal mine with no underground workings or highwall mining.

### **3.17 Hydrocarbon Contamination**

Drayton has various hydrocarbon (diesel, oils, etc.) storages. The primary diesel tank, with a capacity of 860,000 litres, is located near the workshop. Additionally, there is an in pit fuel facility, with above ground diesel storage tanks with a 247,000 litre capacity.

All bulk storage tanks and containers of hydrocarbons are stored within appropriate bunding and kept in a neat and tidy condition. Contamination is kept at a minimum, with any moderate spillages being reported internally through Drayton's incident reporting system. Tanks and storage areas are located such that any incidents will not lead to offsite discharge and impacts. Concrete and earthen bunds were inspected throughout the reporting period for structural integrity and cleanliness. After rainfall events, rainwater was removed from bunds to ensure sufficient storage capacity in the bund in the event of a spill.

In addition to the permanent bunded areas, portable bunds are used for transient storage or transportation of oils and fuels around the site. Various spill kits and/or bins containing oil absorbent material are located around the site in areas where there is highest potential for a spill to occur. Site personnel are made aware of the locations of these spill kits and absorbent material bins in their work area. The contents of the spill kits and the oil absorbent material bins are checked on a regular basis. Materials contaminated by hydrocarbons are put into oily rag bins that are located next to all spill kits and throughout the workshop areas.

Drayton continued the operation of its oil pollution control dam throughout 2012. This dam is located below the main workshop, vehicle wash down bays and lube facilities. Any runoff from the industrial area reports to this dam via an oil separator that removes contaminants from the water. From the Oil Pollution Control Dam, water passes through a second oil separator before flowing into the Industrial Dam for reuse on site. Oils, grease and other contaminants are collected in storage tanks which are serviced by a waste contractor on a regular basis. This system is inspected on a weekly basis.

### 3.18 Methane Drainage / Ventilation

Methane drainage and ventilation is not an issue at Drayton as it is an open cut coal mine with no underground workings.

### 3.19 Public Safety

Public and workplace safety is a major consideration in achieving the Anglo American corporate goal of zero harm. Drayton offers no access to the public of any mine working areas. Signage around the mining lease boundary fences has been erected notifying the public not to enter the mine site. This signage was updated and increased during 2012. Boundary gates are kept locked except for the main entrance and construction pad. A boom gate system on key access routes restricts on-site access to employees and inducted contractors. Contract security is in place during weekends and public holidays.

There were no incidents of public safety concerns during 2012.

### 3.20 Other Issues and Risks

#### 3.20.1 Environmental Risk

Environmental risks associated with the Drayton Operations are recorded in Environmental Aspects and Impacts Register. The Environmental Aspects and Impacts Register is reviewed on an annual basis and is the basis of the Environmental Improvement Plan (EIP). The current version of the Aspects and Impacts Register and the EIP are available to be viewed by all site personnel via the document control system, Drayton SHEC MS Explorer. Table 27 shows the primary aspects of mining rated against the Anglo American Risk Matrix (**Appendix G**).

**Table 27: Environmental Risk Review**

Aspect	Normal Operations		Abnormal Operations		Start Up		Shut Down		Emergency	
	Env	Rep	Env	Rep	Env	Rep	Env	Rep	Env	Rep
Spontaneous Combustion	8M	8M	8M				7M	4L	8M	
Decommissioning of Mine	13H	13H	18H				13H	13H		
Water Management	12H	5L	12H						16H	
Availability of Inert Material	8M		2L						2L	
Statutory Legislation	2L		4L							
Management of Topsoil	8M		5L						5L	
Final Void	8M	5L	8M	5L					9M	
Waste Management	4L	7M	7M						5L	
Equipment Noise	8M	8M		8M					7M	7M
Ground Vibration – blasting	4L	4L		8M						4L
Noise from blasting	4L	4L		4L						4L
Suspended Dust	8M	8M	8M		4L				4L	
Dust fallout	4L	4L	4L		4L				4L	
Groundwater	4L	4L	4L				4L			



<b>Sewerage Treatment Plant</b>	4L	4L			4L
<b>Erosion on Rehabilitation</b>	4L	7M		4L 4L	7M
<b>Workshop Maintenance</b>	4L	4L	4L		4L
<b>Greenhouse Gases</b>	8M 8M				8M
<b>Contaminated Land</b>	4L	7M	4L	7M	4L
<b>Machine Wash down</b>	4L	7M			
<b>Hydrocarbon Spills</b>	4L				7M
<b>Cultural Heritage</b>	4L 8M	8M			16H
<b>Light emissions</b>	4L				
<b>Fauna management</b>	8M	8M			
<b>Flora management</b>	8M				
<b>Uncapped exploration holes</b>	4L				8M
<b>Coal transport – conveyor</b>	2L	4L	4L		
<b>Coal transport – rail</b>	2L 2L	4L			
<b>Radiation devices</b>	4L				
<b>Exhaust emissions</b>	4L				4L
<b>Weed Infestation</b>	4L				
<b>Feral Animals</b>	4L				

### 3.21 Meteorological Monitoring

A real-time meteorological station is a crucial component of Drayton’s environmental monitoring system. Meteorological data including wind speed, wind direction, temperature, rainfall, solar radiation and humidity is collected at five minute intervals. The data allows Drayton employees to assess the prevailing weather conditions and modify the operation where necessary to best suit the current conditions. It also plays a vital role in minimising the environmental and community impacts of blasting.

Weather conditions throughout the 2012 reporting period were monitored onsite using an automatic weather station. The measurements were logged every five minutes and the data was immediately transferred into a log file located on Drayton’s electronic database.

#### 3.21.1 Results

##### Rainfall

Total annual rainfall for 2012 was 610.4 millimetres, the lowest annual rainfall in the last six years (see Figure 14). Additionally, 2012 only had 88 days on which rainfall was larger than 0.02, this is lowest number of rain days in the last 7 years (see Figure 14). The first half of the reporting period received the majority of the rain with a dryer period in the second half (see Table 28). January, February and March also had higher rainfall than in the previous year however, the remainder of year (except for July) had significantly lower rainfall (see Figure 15).

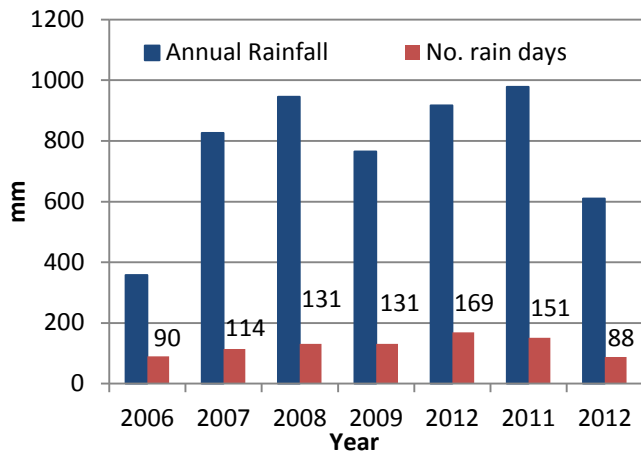


Figure 14: Annual rainfall history

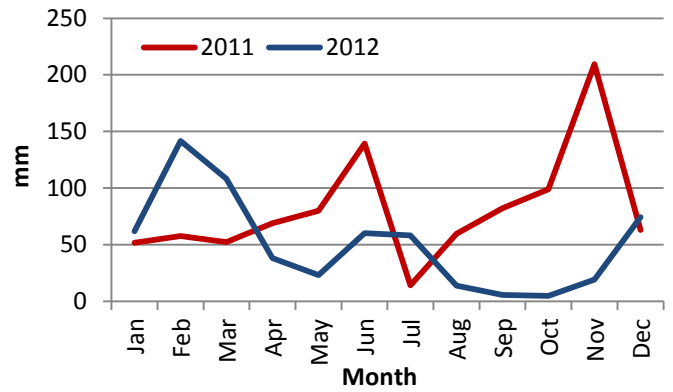


Figure 15: Comparison of 2011 and 2012 monthly rainfall

Table 28: Total Monthly Rainfall for 2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Rainfall (mm)	62	141.6	108.4	38.2	23.2	60.4	58.2	14	5.8	4.8	19.4	74.4	610.4
No. of rain days	9	13	8	6	5	13	9	3	3	2	7	10	88

\* A wet day is classified to be a day in which more than 0.2 mm of water is collected in the gauge of the station

### Temperature

Temperature was also monitored at the Drayton meteorological station throughout 2012. The average temperature and the temperature range per month throughout the reporting period is shown in Table 29 below. The maximum temperature recorded during the year was 43.3°C on 18 January 2012 and the minimum was 1.1°C on 9 June 2012. Temperatures in 2012 were consistent with the previous year (see Figure 16).

Table 29: 2012 Monthly temperature and average daily temperature

Month	Monthly Temp Range (°C)	Average Daily Temp (°C)
January	14. – 35.8	22.39
February	13.3 – 30.9	21.05
March	10.4 – 30.8	19.86
April	7.6 – 30.6	17.81
May	1.8 – 27.1	13.3
June	1.1 – 21.3	11.52
July	1.2 – 18.2	10.81
August	1.2 – 26.5	12.27
September	2.6 – 29.9	15.96
October	5.9 – 34.4	18.11
November	11.7 – 39.2	21.64
December	13.4 – 39.3	23.7

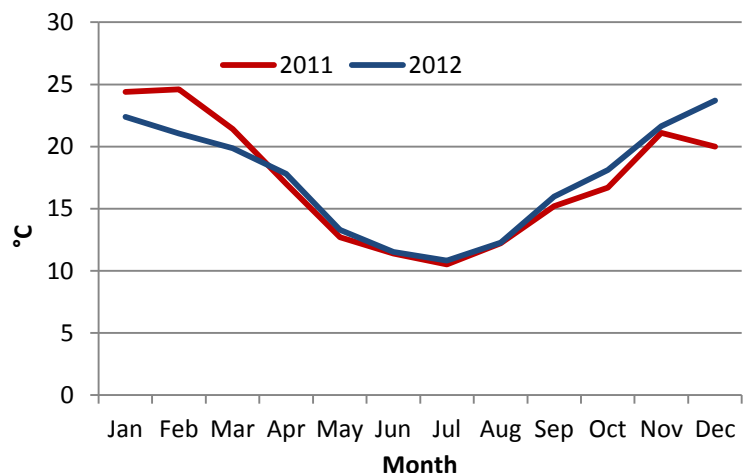


Figure 16: Comparison - Average daily temperature per month

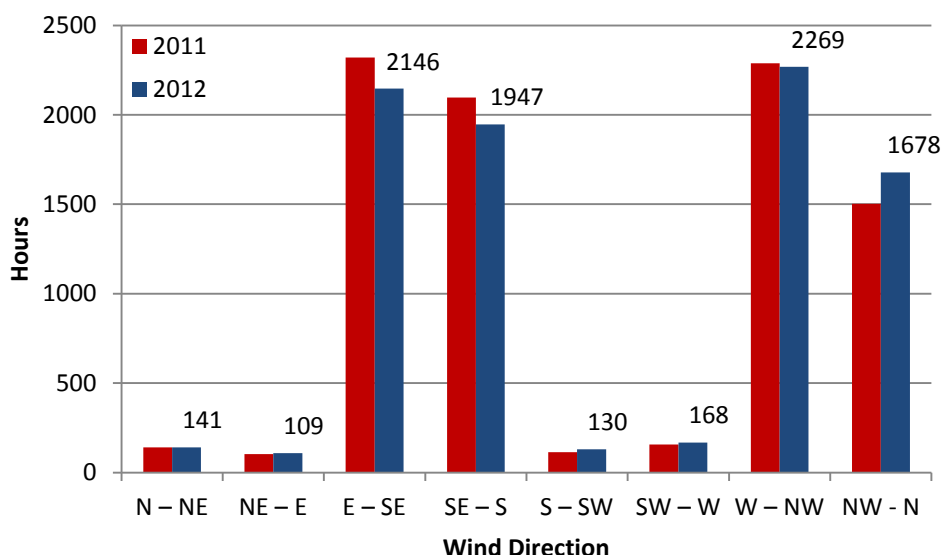
## Wind Speed and Direction

In 2012 the wind speeds at Drayton reached their highest in January and September with the maximum wind speed recorded at 16.9m/sec in September. For the majority of the year however, wind speeds generally remained between 0 and 4m/sec. Table 30 list the total hours per month that the wind sustained various velocities.

**Table 30: Monthly wind velocity and duration (hours)**

Month	0 – 2 (m/sec)	2 – 4 (m/sec)	4 – 6 (m/sec)	6 – 8 (m/sec)	8 – 10 (m/sec)	>10 (m/sec)
January	228	386	86	7	1	0
February	386	231	55	2	0	0
March	380	286	57	3	0	0
April	488	203	23	1	0	0
May	542	170	28	2	0	0
June	410	254	37	0	0	0
July	525	191	25	1	0	0
August	354	279	82	12	0	0
September	385	233	64	20	3	0
October	318	332	85	8	0	0
November	300	287	91	6	0	0
December	241	332	124	15	0	0

Similar to previous years, there were four prominent wind directions which prevailed at Drayton during 2012 (see Figure 17). The main wind direction was West – North West, from the Denman and/or Mount Arthur Coal direction. These winds were the most frequently occurring wind direction during May through to October (see Table). East – South East winds, from the Lake Liddell direction, was the next most frequent wind direction and occurred most often in January through to April and November and December (see Table 31).



**Figure 17: Comparison – 2011 and 2012 wind direction and duration**

**Table 31: Monthly wind direction and duration (hours)**

Month	N - NE	NE - E	E - SE	SE - S	S - SW	SW - W	W - NW	NW - N
January	13	13	310	217	7	7	76	64
February	13	15	277	210	21	15	76	46
March	12	12	255	223	8	7	129	90
April	14	11	216	188	12	11	142	122
May	11	7	92	94	8	13	312	206
June	5	3	123	154	4	6	221	186
July	13	7	119	147	14	20	249	173
August	8	3	10	61	8	10	369	257
September	14	9	75	88	8	17	273	219
October	10	9	172	165	12	17	207	151
November	14	8	229	183	17	25	128	79
December	14	12	268	217	11	20	87	85

## 4 Community Relations

Drayton is bounded to the north by Thomas Mitchell Drive, to the south-east by the Liddell and Bayswater power stations and to the west by Mt Arthur Coal. The privately owned, rural-residential land holdings to the north-east of Thomas Mitchell Drive (Antiene Estate) represent Drayton's immediate local community.

Drayton falls entirely within the Muswellbrook Local Government Area (LGA), which represents Drayton's wider local community. The Singleton LGA adjoins the Muswellbrook LGA immediately to the south of Drayton mine.

Drayton currently employs approximately 442 permanent employees and engages contractors to assist in some areas of the operation. Approximately 48% of the permanent workforce lives in Muswellbrook and the Upper Hunter with a further 42% hailing from Singleton and the Lower Hunter towns of Maitland and Cessnock.

**Table 32: 2012 Workforce Shire of Origin**

Shire	Number of Employees
Muswellbrook	155
Singleton	114
Upper Hunter	57
Maitland	39
Cessnock	32
Newcastle	21
Other	24
<b>TOTAL</b>	<b>442</b>

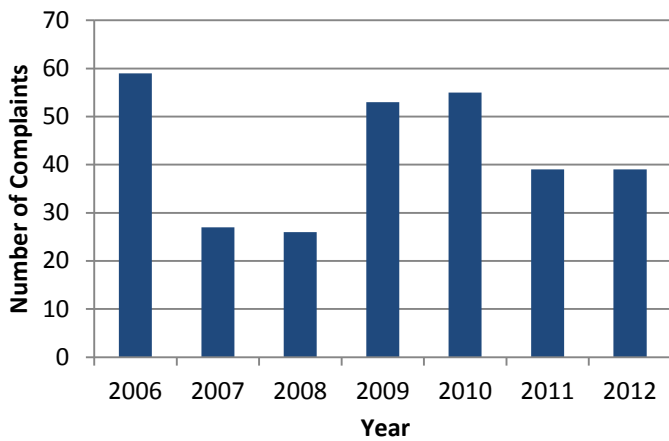
### 4.1 Environmental Complaints

At any time, the community and other stakeholders can find information on Drayton's environmental management and performance by visiting the Anglo Coal website. The Drayton Environment web page features details of Drayton's approvals, proposed blasting times and environmental management plans. Drayton also publishes a monthly update of environmental monitoring data to the web page and the AEMR can also be found there for download.

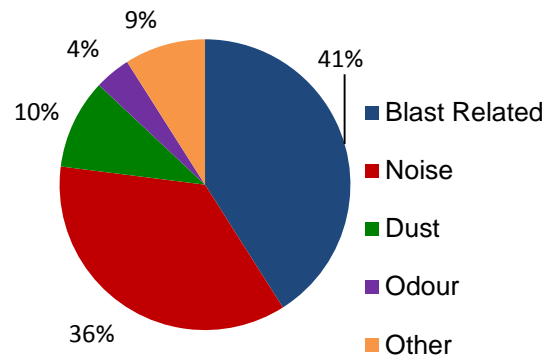
Drayton maintains a 24 hour hotline (1800 814 195) for complaints and enquiries as well as a complaints form on its web page <[www.angloamerican.com.au/our-operations/thermal-coal/drayton/Related Downloads](http://www.angloamerican.com.au/our-operations/thermal-coal/drayton/Related%20Downloads)>. The hotline allows the community to request and provide feedback about operational activities and lodge complaints on any aspect of the Drayton operations. The hotline number has been advertised in the local newspapers throughout the reporting period and is available on the Drayton Website.

An initial call back is provided for all calls to the hotline within 24 hours of the call. All complaints are investigated and the details, including any follow up actions required, are recorded in Enablon, Anglo's internal reporting system. The community member is notified of the response and/or outcome of the complaint once the investigation has been completed. Complaint information is also provided at Drayton's CCC meetings.

In the 2009 and 2010 reporting periods the number of complaints at Drayton increased significantly from previous years (see Figure 18). Over the past two reporting periods however, a lower number of complaints has been maintained. A total of 39 complaints were received during the 2012 reporting period. Of these the majority were general blast or noise related complaints (see Figure 19). There were also four general enquiries and seven enquiries regarding blasts that were found not to be a result of the Drayton operations.



**Figure 18: Community Complaints Associated with Drayton (2006 – 2012)**



**Figure 19: Community Complaints by Type for the 2012 Reporting Period**

Community members were occasionally able to provide specific timeframes for an event. The times provided indicate that the complaints generally relate to disturbances occurring during the day (7am to 6pm). The complaints during daylight hours are most often in regards to blasting. The majority of complaints in the evening (6pm to 10pm) and night (10pm to 7am) are noise complaints. Further information on community complaints can be found in Table 44 of Appendix F.

## 4.2 Community Liaison

Drayton’s CCC meets quarterly to discuss environmental performance and community issues. Members of this committee consist of local council representatives, local community, near neighbours and employees in addition to the General Manager, SHE Manager and the Environmental Coordinator. Drayton also operates, in conjunction with Mount Arthur Coal (a neighbouring BHP Billiton mining operation), a joint CCC where discussions are held regarding the shared Antiene Rail Spur. Members of this CCC meet on a six monthly basis.

Key aspects discussed at the CCC meetings include environmental complaints and enquiries, water use, air quality, blasting and vibration, greenhouse gases, waste management, rehabilitation and new developments. During 2012, specific discussion was held around dust management and train noise. Additional information has also been gathered from media articles, community complaints and general communication with local community members and organisations over the course of 2012. The minutes from CCC meetings are published on the Drayton web page. Additionally, a Community Engagement Plan 2012 - 2014 has been developed with the intention of providing a practical strategy to improve dialogue, enhance partnerships and promote wider development at the local and regional level.

### 4.2.1 Social / Economic Contributions and Achievements

Drayton supports a diverse range of projects benefiting the communities of Muswellbrook, Singleton and Upper Hunter LGAs. Contributions are made regularly through applications rounds which are advertised in the local papers. Community members belonging to schools and organisations requiring funding for projects, equipment or events are encouraged to complete the application form (available on the Anglo American website) for consideration. Drayton regularly supports projects relating to: education and training; health and welfare; sport; arts, culture and heritage; and environment.

In early 2012, a donation of \$10,000 was presented by Anglo American to the DeenCity Youth Group towards the construction of Aberdeen’s first skate park. A further \$10,000 was donated to Aberdeen Community Caring Inc to help fund a new public outdoor gym area for the community to enjoy. These projects, supported in partnership with the Upper Hunter Shire Council, demonstrate Anglo American’s commitment to improving social infrastructure and facilities for the ongoing benefit of our local communities.

In 2012 Drayton once again participated in the annual Bursting with Energy Expo in order to connect with the community in a positive and educational environment. Drayton also supports the annual Solar Boat Challenge organised by the MSC. In 2012, Drayton volunteers manned the “fix-it tent” which proved an essential service stop

between boat races for many of the teams from various schools. Drayton also helped with the discretionary judging of the team entries.

## 5 Rehabilitation

The Rehabilitation and Offset Management Plan outlines the objectives, methodology and monitoring of Drayton's rehabilitation areas in accordance with condition 39 of the project approval.

The foremost objective of mine rehabilitation at Drayton is to create a landform which is compatible with the surrounding land use practices, is stable in the long term and is capable of a productive post mining land use. Rehabilitation is designed to align with the conservation objectives of the Drayton offset areas as well as those of neighbouring land holders. The objectives of local strategies including the new Muswellbrook Shire Council Mining Rehabilitation Policy have been incorporated where possible and the general principles of the NSW Department of Resources and Energy - Mineral Resources 'Synoptic Plan of Integrated Landscapes' have been accounted for in the plan with respect to the creation of wildlife habitat corridors.

The Drayton area was traditionally used for beef cattle grazing, so maintaining grazing capacity in pasture areas is a key objective. A second key objective is to maintain ecosystems and biodiversity through the establishment of trees native to the region. Achieving both goals is possible and attainment will result in land that has good grazing potential and high wildlife amenity.

### 5.1 Buildings

No buildings are scheduled for removal during the 2012-17 MOP period however some buildings will be removed as part of mine closure requirements. All buildings undergo routine inspections and maintenance. No buildings were renovated or removed at Drayton during the 2012 reporting period.

### 5.2 Rehabilitation of Disturbed Land

Drayton targeted of 18ha for rehabilitation in 2012. A total of 18.9ha was completed and comprised of 12.2ha in January and 6.7ha in December. The areas that were rehabilitated in 2012 were on the northern, southern and eastern sides of the Great North Tip. These areas are highlighted on Figure 20. At the end of the reporting period, a further 21.8 hectares was bulk shaped and ready for seeding during 2013.

All 18.9ha completed during the 2012 reporting period will be returned to woodland to expand and enhance the habitat corridor being established on the Great North Tip rehabilitation area. This corridor is designed to link the Southern Offset area to the Northern Offset area. These areas will in turn link to other offsite conservation areas. The 12.2ha area completed in January 2012 was sown with pasture species. This area will be returned to woodland through addition of native seedling planting in 2013. The 6.7ha completed in December was seeded with a native woodland species mix apart from the contour banks which were seeded with pasture species for stabilisation. All areas seeded with a pasture species mix have fertiliser applied with the seed. Areas seeded with native species were mixed with kitty litter as a bulking agent to assist with even distribution of seed. All seeding mixtures included an appropriate cover crop to aid soil stabilisation.

No maintenance of rehabilitated area was required during 2012. Pasture areas continue to exhibit high groundcover establishment levels. A period of three months from September 2012 proved challenging for pasture areas established during 2011, however heavy rainfall received in late December caused a flush of new germination on these areas demonstrating the resilience of the species sown. Stability of slopes and condition of contour banks are assessed as part of regular site inspections. No maintenance was required on erosion control structures in 2012.

Areas rehabilitated during the reporting period were prepared in accordance with the Drayton Rehabilitation and Offset Management Plan and the Spontaneous Combustion Management Plan. These areas were bulk shaped then capped with inert material to minimise the risk of spontaneous combustion. Topsoil was spread over the areas with a minimum coverage of 10cm. Contour drain construction and seeding was conducted by the NSW Soil Conservation Service.

Table 33 gives a summary of mining and rehabilitation areas located at Drayton for 2012. During the 2012 reporting period, approximately 4.8ha of pasture rehabilitation was cleared to make way for topsoil and clay stockpiles. A further 5.2ha of woodland rehabilitation on the South Tip was cleared ahead of mining in the South Pit West area.

A further 99.4ha of rehabilitation completed by Drayton has been subtracted from the 2012 figures. This rehabilitation is situated in the sublease area controlled by Mt Arthur Coal. Due to Mt Arthur Coal activities, this rehabilitation area has been subject to disturbance during 2012. The area has therefore been subtracted from the reported figures.

**Table 33: Rehabilitation Summary**

		<b>Area Affected / Rehabilitated (hectares)</b>		
		<b>To Date</b>	<b>Last Report</b>	<b>Next Report (Estimated)</b>
<b>A: MINE LEASE AREA</b>				
A1	Mine Lease(s) Area	1767.5		
<b>B: DISTURBED AREAS</b>				
B1	Infrastructure area (other disturbed areas to be rehabilitated at closure including facilities, roads)	94.5	94.5	94.5
B2	Active Mining Area (excluding items B3 – B5 below)	434.0	277.8	400
B3	Waste emplacements (active/unshaped/in or out-of-pit)	104.3	282.3	100
B4	Tailing emplacements (active/unshaped/in or out-of-pit)	14.3	4.3	14.3
B5	Shaped waste emplacement (awaits final vegetation)	21.8	13.8	0
<b>ALL DISTURBED AREAS</b>		668.9	672.7	608.8
<b>C: REHABILITATION PROGRESS</b>				
C1	Total Rehabilitated area (except for maintenance)	467.2	576.6	495.9
<b>D: REHABILITATION ON SLOPES</b>				
D1	14 to 18 degrees	180.3	170.7	185
D2	Greater than 18 degrees	27	27	27
<b>E: SURFACE OF REHABILITATED LAND</b>				
E1	Pasture and grasses	329.5	410.6	345.6
E2	Native forest/ecosystems	133.7	162	146.3
E3	Plantations and crops	4	4	4
E4	Other (include no vegetative outcomes)	0	0	0

### 5.3 Rehabilitation Trials and Research

Drayton has conducted various trials on-site over the life of Drayton, and been involved in a number of in-house and industry sponsored research projects.

During the 2012 reporting period, a rehabilitation trial was commenced to examine variables and to determine the methodology for recreating Endangered Ecological Communities (EEC) noted during the Drayton South Environmental Assessment (EA). The two communities examined were:

- Central Hunter Box Iron Bark Woodland
- Narrabeen Slopes Slaty Box Woodland

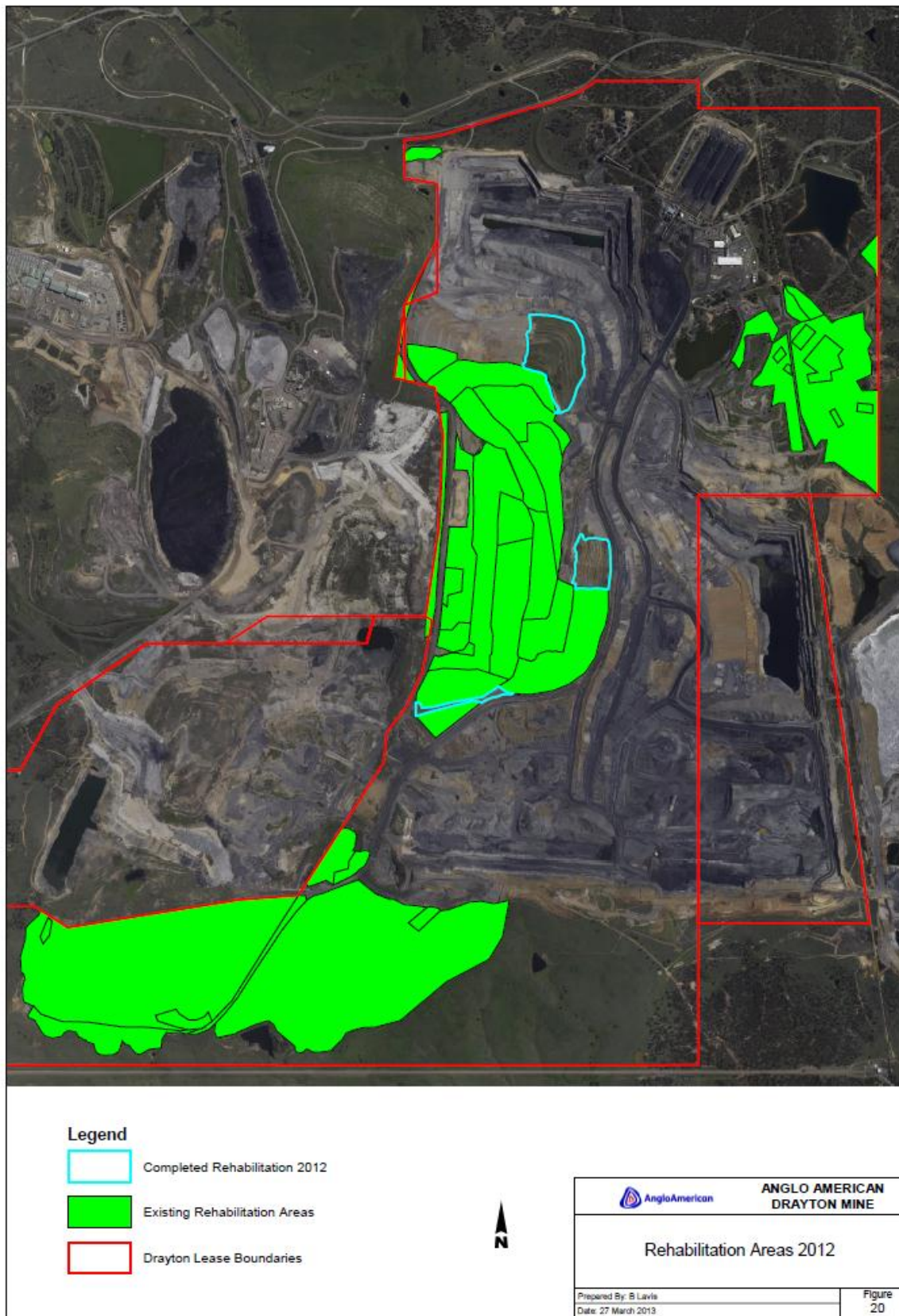
The trial used a combination of tubestock planting and direct seeding for a wide range of native trees, shrubs and groundcovers both with and without application of fertiliser. The trial was designed to assess the relative merit of several methodologies and species commonly found in each EEC. Soil samples were taken to establish baseline conditions and assess variability prior to establishment of the trial area.



## 5.4 Further Development of the Final Rehabilitation Plan

Drayton continues to follow the general principles of our mining operations plan. A total area of 668.9 hectares remains disturbed with a total of 467.2 hectares being rehabilitated. Figure 20 shows the rehabilitated areas within Drayton controlled leases and highlights the areas completed during the 2012 reporting period.

Due to the incidents of spontaneous combustion, inert capping is applied in areas of rehabilitation that are at risk of an outbreak of spontaneous combustion. Erosion control measures are incorporated into final rehabilitation works where appropriate. This strategy for rehabilitation shall continue using similar methods.



**Figure 20: Rehabilitation Areas**

Rehabilitation during 2012 did not follow exactly as predicted in the Mining Operations Plan and Drayton's business plan. At the end of the reporting period 18.9ha of rehabilitation was completed. Of the total area rehabilitated, 12.2ha was planned for 2011 and was completed in January 2012. All 18.9ha completed during 2012 will be returned to woodland using a mixture of native plant direct seeding and seedling planting.

A weed control program continued during 2012 with Prickly Pear being the primary target species treated on the rehabilitated areas. This program will continue throughout 2013.

A total of 5400 native trees were planted on rehabilitation areas completed during 2011. In accordance with the Rehabilitation and Offset Management Plan, these areas are to be returned to woodland forming part of the habitat corridor linking the Southern and Northern Offset areas. The planting was hampered by the prolonged periods of hot, dry weather in spring 2012 and planting of the remaining 6000 trees was postponed until 2013 pending rainfall.

## 6 ACTIVITIES PROPOSED FOR THE NEXT AEMR PERIOD

### 6.1 Environmental Performance

Drayton's environmental targets for the 2013 reporting period include:

- Maintaining full compliance with environmental legislation;
- Create a new spillway on the Rail Loop Dam to remove the risk of an offsite discharge from this dam;
- Development of a new Dust Management System
- Comply with an 80% dust control efficiency on all haul roads;
- Nil discharge of mine water;
- All blasts to be less than 5 mm/sec ground vibration and 115 dB(L) at the nearest residence;
- Dust emissions to be below the statutory limits of 4g/m<sup>2</sup>.month and 50 µg/m<sup>3</sup> TSP at nearby residences;
- Noise emissions to be below statutory requirements;
- Reduction in spontaneous combustion emissions by continued improvement in application of the spontaneous combustion management plan;
- Continuation of the CCC meetings;
- Continuation of the waste management plan and continued improvement in the application of the waste management practices;
- Continuous improvement of the documentation associated with the Environmental Management System;
- Conduct 13ha of rehabilitation;
- Maintain compliance with ISO14000 systems Targets and Objectives for the operation of the Antiene Rail Loop and Drayton Rail Spur will remain consistent with those detailed for the Drayton mining operation;
- Plant a total of 6000 tubestock trees in areas identified within the Drayton final landform as woodland.

## 7 ADDITIONAL INFORMATION

### 7.1 Antiene Joint Rail User Facility

The Antiene Rail Spur is wholly owned and operated by Drayton Mine. Development Consent S99 / 010170 was obtained in November 2000 to increase the authorised tonnage of the Drayton Loop to 7Mtpa and the Antiene Spur to 20Mtpa. The increased tonnage over the Antiene Spur allows for the additional output from a potential future Drayton South mine on the Drayton rail loop.

There were no variations to Drayton approvals relating to the rail facility during the 2012 reporting period. Additionally, condition 8.1 of Department of Urban Affairs and Planning (now DoPI) development consent S99/01070 requires that the following additional information is supplied in relation to environmental management of the Drayton Rail Loop and Antiene Rail Spur development.

#### 7.1.1 Management

Dust mitigation measures were proposed in the EA for both the construction and operation of the Bayswater Rail Loading Facility and operation of the Antiene Joint User Rail Facility. Mitigation measures have included enclosing conveyors, loaded trains using a telescopic chute, train carriages designed with small aperture and equipping transfer points with dust suppression structures.

In addition to the dust mitigation measures, which can assist with noise abatement, noise barricades have been constructed at the northern face at the base of the rail loadout bins. Despite these measures, in the 2012 reporting period, three noise related complaints were made in regards to rail activity. On two occasions, Drayton did not have any rail activity occurring during the times specified. The three complaints are indicated in Table 34 below and are sub listed in **Appendix F**.

**Table 34: Rail Related Noise Complaints Received in 2012**

Date	Name	Enquiry, Concern OR Complaint	Nature	Outcome
13/01/2012	Lot 27	Complaint	Blast, Noise	The resident phoned regarding a blast on the 05/01/12 and train noise heard on the 13/01/12 at 02:00hrs. Drayton did not have a train on the line on this date. Drayton's previous train departed at 07:20hrs on the 11/01/2012 and the next train was not due to arrive until the 14/01/12 at 05:30hrs. The Drayton blast at 15:11hrs on the 05/01/12 was within limits for both air pressure and ground vibration at all blasting monitors (Antiene 103.4dbL, 0.90mm/sec; DeBoer 101.1dbL, 0.43mm/sec; Sharman 98.6dbL, 0.22mm/sec; Ash Dam 112.8dbL, 0.36mm/sec).
26/03/2012	Lot 16	Complaint	Blast, Noise	The resident phoned in regards to train and mine noise on the 23, 24 and 25th and a blast on the 26/03/12. The complaint investigated with Ecotech and Barnowl.
31/03/2012	Lot 72	Complaint	Noise	The resident phoned in regards to train loading noise on the 31/03/12. The complaint was investigated and the train schedule indicated that no Drayton trains were on the line after 22:30hrs on that date. Possible noise sources were discussed with the CHP supervisor. On the 04/04/12 the resident was informed of the train idling information for that date.

Offsite lighting is restricted to certain parts of the rail loader and rail loop. The lighting is similar to street lighting and was predicted to have minimal impacts. A dense surrounding of native trees are in place to mitigate the impacts on the surrounding residents. In 2012 no complaints were made in regards to lighting in these areas.

A joint Drayton and Mt Arthur Coal CCC held two scheduled meetings during 2012 where the environmental performance of the rail spur was discussed and reviewed, together with any environmental enquiries and other issues.

Environmental targets and strategies are detailed in Drayton's Environment Management Plans (EMP) and include:

- Adhere to all conditions as set out in development consent;
- Ensure all monitoring is undertaken as per EMP and consent conditions;
- Ensure all enquiries are dealt with promptly and efficiently;
- Ensure all reporting requirements are met within the required timeframe;
- Ensure, if required, that any requirements outside of this consent, as directed by the Director General are undertaken; and
- Ensure active community consultation continues on a regular basis.

### 7.1.2 Monitoring

Under the consent condition 6.1 (e) coal haulage reports are required on a six monthly basis. These reports were provided to the DoPI at the appropriate time, with a summary report being contained in **Appendix H**. Condition 6.1(b) states that, Coal transported along the Antiene Rail Spur is limited to twenty (20) million tonnes per annum. In the 2012 reporting period, 20,432,118 tonnes of coal was transported on the Antiene Rail Spur. This comprised of 4,254,439 tonnes from Drayton and 16,177,679 tonnes from Mt Arthur Coal. Mt Arthur Coal has a more recent development approval allowing up to 27 million tonnes of coal to be transported along the Antiene Rail Spur.

General environmental monitoring also continued throughout 2012 with regards to both Drayton's mining operation and the use of the Drayton Rail Loop Facility. Impacts to water quality within the Rail Loading Facility and the Rail Spur have been minimal. There has been fluctuations observed in some of the monitoring characteristics however, characteristics have been within limits.

The EA predicted only low level air quality impacts as a result of the construction of the Bayswater Rail Loading Facility and operation of the Antiene Joint User Rail Facility. As predicted no significant amounts of dust have been observed from the rail loop or spur. Data sets studied throughout the Antiene rural subdivision generally indicate no increase in dust emissions over a period of in excess of 20 years in some instances.

Noise assessments indicated that there would not be a significant noise impact from these areas provided that appropriate noise abatement measures were adopted. Despite the current noise mitigation measures, in 2012 train noise was audible on 13 out of 29 different attended noise monitoring occasions. The trains were most commonly heard at the Lot 76 residence and Lot 7 (Antiene). On all occasions it was noted that train noise did not comprise more than 40% of the total noise recorded during the monitoring (see Table 35).

**Table 35: Train Noise Perceived during Attended Noise Monitoring**

Location	Date	Time	LEQ	L10	L50	L90	Comments
<b>Lot 27</b>	12-Jan-12	14:35	39.80	35.80	33.00	31.10	Birds 30%, Insects 40%, NEH 15%, TMD 10%, <b>Train horn 5%</b> , Mine Inaudible
<b>Lot 16</b>	20-Jan-12	8:45	36.70	38.80	35.70	33.30	Birds 40%, TMD 10%, <b>Train 40%</b> , Insects 5%, Mine Noise (horn in NN from trucks loading) 5%
	23-Feb-12	10:20	28.30	30.40	26.20	24.00	Birds 30%, Insects 55%, TMD 10%, <b>Train rumble (PN) 5%</b> , Mine Inaudible
	14-Sep-12	9:50	35.50	32.90	27.40	25.40	Birds 70%, TMD 20%, Cockatoo 5%, <b>Train 5%</b> , Mine Inaudible
<b>Lot 22</b>	05-Jul-12	11:50	42.60	42.90	34.90	31.40	Birds 70%, TMD 10%, <b>Train 15%</b> , Mine RB, CHP 5%
<b>Lot 76</b>	27-Jan-12	8:55	43.30	43.80	40.00	38.00	Birds 20%, Dogs barking 5%, <b>Train 30%</b> , <b>Train horn (loud) 5%</b> , TMD 10%, Insects 30%, Mine inaudible
	23-Feb-12	11:05	41.10	39.70	35.00	30.80	Birds 25%, Insects 35%, Dogs barking 5%, TMD/NEH 25%, <b>Train (PN) 10%</b> , Mine Inaudible
	02-May-12	9:35	48.40	51.30	46.20	41.80	Very loud birds 70%, NEH 20%, <b>Train rumble and horn 10%</b> , Mine inaudible
	21-May-12	11:10	52.10	55.20	50.50	45.90	Birds 50%, TMD 45%, <b>Train moving 5%</b>
	10-Jul-12	7:50	43.60	44.90	41.70	39.90	<b>Train 5%</b> , Birds 30% TMD/NEH 40%, Mine-rumble, machinery 25%
<b>Lot 7 Antiene</b>	10-Jul-12	7:30	49.20	53.00	46.20	40.60	TMD 80%, NEH 10%, <b>Train 10%</b> , Mine Inaudible
	03-Aug-12	15:00	49.90	53.20	47.10	42.00	TMD 60%, Birds 20%, <b>Train 20% (QR)</b> , Mine Inaudible
	15-Aug-12	9:30	52.20	56.80	48.70	41.30	Birds 20%, TMD 70%, <b>Train 10%</b> , Mine Inaudible
	24-Oct-12	11:10	46.10	50.70	38.70	30.00	TMD 70%, <b>Train 10%</b> , Birds 20%, Mine inaudible
	03-Dec-12	14:40	45.70	49.90	43.40	36.80	Birds/Insects 40%, TMD 30%, <b>train 30%</b> , Mine inaudible

## 7.2 Dams Safety Committee Requirements

### 7.2.1 Liddell Ash Dam

The Liddell Ash Dam Levee (ADL) was constructed to retain ash and minimise the amount of free standing water entering the mine. The DSC issued Drayton with requirements for monitoring and reporting regarding the ADL. In 2012 Drayton complied with the DSC requirements by carrying out:

- Annual independent Type 2 engineering assessment;
- Tri-weekly inspections conducted by a competent person;
- An annual review of the Ash Dam Management System;
- Having an appointed a DSC Liaison Officer;
- Inspecting the ADL after each blast in the notification area;
- Reporting significant changes in seepage to DSC immediately;
- Reporting blast vibrations in excess of 20mm/sec to DSC immediately; and
- Providing monthly reports on:
  - seepage
  - ash deposition status
  - blast monitoring results within the notification area
  - mining face positions
  - compliance statement

The vibration limit at the ADL for blasting, set by the DSC, is 30mm/sec with all blast results over 20mm/sec to be reported immediately to the DSC. During 2012, one blast exceeded the limit of 30mm/sec. The blast fired on 19th September 2012 recorded a peak particle vibration of 31.64mm/sec. The blast vibration result was reported to the DSC in accordance with DSC requirements.

Two blasts exceeding 20mm/sec were reported to the DSC. The blast fired on 12th September 2012 recorded a peak particle vibration of 23.14mm/sec at the Ash Dam monitor. A blast fired on 22nd November 2012 reached a peak particle vibration of 22.55mm/sec at the Ash Dam Toe monitor.

### 7.2.2 Access Road Dam

The Drayton Access Road (2081) Dam is also a DSC prescribed dam. This dam is a 13 metre high significant consequence category dam. A Type 3 surveillance inspection is conducted every five years and results reported to the DSC. The last Type 3 surveillance report for this dam was submitted to the DSC in September 2010. The next report is due in June 2015.



# APPENDICES

## Appendix A: Consents, Leases and Licenses

Table 36: Drayton's Consents, Leases and Licenses

Consents, Leases and Licences	Date of Issue	Approval Authority
<b>Licence / Approval Title</b>		
DUAP Conditions re Antiene Rail Spur Development	02/11/2000	Department of Planning
PA – Drayton Mine Extension (06_0202)	01/02/2008	NSW Department of Planning
Modification to Drayton Mine Extension	16/10/2009	NSW Department of Planning
<b>Lease Conditions</b>		
Exchange of Parts of Coal Lease 229 & Coal Lease 744	25/06/1992	Department of Primary Industries (DMR)
Coal Lease 395	08/03/2007	Department of Primary Industries (DMR)
Coal Lease, Part Transfer of CL744	23/06/1992	Department of Primary Industries (DMR)
Renewal of Authorisation 173	2008	Department of Primary Industries (DMR)
Mining Operation Plan 2006	Feb 2007	Department of Primary Industries (DMR)
Coal Lease 229	28/05/2003	Department of Primary Industries (DMR)
Mining Lease ML 1531	26/02/2003	Department of Primary Industries (DMR)
Ministerial Approval of an Emplacement Area	22/09/2004	Department of Primary Industries (DMR)
Anglo Sub Lease	29/01/2008	Department of Primary Industries (DMR)
Ministerial Approval of an Emplacement Area	30/11/2009	Department of Primary Industries (DMR)
<b>Current Licence Conditions</b>		
Licence under POEO Act 1997 1323	21/12/2011	Department Environment & Climate Change (EPA)
Bore Licence 20BL111869	23/04/2000	Department Land & Water Conservation
Bore Licence 20BL122620	24/05/1997	Department Land & Water Conservation
Bore Licence 20BL171956	27/08/2008	Department of Water and Energy
Bore Licence 20BL171957	27/08/2008	Department of Water and Energy
Bore Licence 20BL171958	23/02/2010	NSW Office of Water
Bore Licence 20BL171955	27/08/2008	Department of Water and Energy
Bore Licence 20BL171954	27/08/2008	Department of Water and Energy
Bore Licence 20BL171953	27/08/2008	Department of Water and Energy
Keeping Dangerous Goods (Class 1 Explosives)	19/03/2011	Work Cover NSW
Registration - Radiation Control Act, 1990	26/02/2004	Department Environment & Climate Change (EPA)

Licence for Keeping Dangerous Goods	19/03/2011	Work Cover NSW
Hunter River Salinity Trading Scheme	Nov 1998	Department Environment & Climate Change (EPA)
<b>Other Agreements</b>		
NPWS Wildlife Refuge	1987	National Parks and Wildlife
Bayswater/Drayton Boundary Licence No 5	02/02/1999	
Licence Agreement for Liddell – Macquarie Generation Water Bores	14/10/1986	Electricity Commission NSW
Agreement to Access & Occupy Property (Water Bores)	04/06/2001	Macquarie Generation
Agreement to Access & Occupy Property (Far East Tip)	04/06/2001	Macquarie Generation
Licence Agreement with Muswellbrook Pistol Club	Aug 2001	Drayton Coal Pty Ltd

## Appendix B: 2012 Water Sampling Results

Table 37: 2012 Surface Water Results

Site	Date	pH	Electrical Conductivity µS/cm	TDS mg/L	NFR mg/L	Sodium mg/L	Potassium mg/L	Magnesium mg/L	Calcium mg/L	Chloride mg/L	Sulphate mg/L	Bicarbonate mg/L
<b>1609</b>	Jan	8.10	6980	7180	8	632	56	580	585	693	3650	189
	Feb	8.10	6730	6150	6	644	61	565	553	662	3570	187
	Mar	7.90	6770	6380	8	724	54	580	566	658	4130	197
	Apr	8.00	7140	5970	5	655	64	596	543	715	3680	196
	May	8.00	7220	6910	24	655	61	633	578	716	4450	231
	Jun	8.00	7100	6480	8	684	59	599	553	773	3440	243
	Jul	8.00	6960	6300	14	662	62	574	548	721	3910	230
	Aug	8.10	7210	6850	16	732	58	573	556	715	3590	269
	Sep	8.00	7230	6150	7	664	63	561	514	739	4190	245
	Oct	8.00	7470	6330	8	672	65	542	526	704	3800	201
	Nov	7.80	7300	6550	17	701	66	593	551	788	3520	199
	Dec	8.00	7570	6410	8	708	61	568	522	736	4040	209
	Average	8.00	7140	6472	11	678	61	580	550	718	3831	216
<b>1969</b>	Jan	8.20	5690	4710	8	615	45	412	366	719	2250	355
	Feb	8.30	5040	4140	17	570	42	359	270	645	2210	128
	Mar	8.00	5220	4230	63	666	41	381	262	657	2170	204
	Apr	8.10	5560	4500	14	606	49	387	326	729	2180	343
	May	8.30	5760	4770	16	628	47	400	359	755	2230	427

	Jun	8.20	5800	4840	48	656	45	396	370	841	2020	419
	Jul	8.20	5750	4910	14	609	45	392	381	798	2240	400
	Aug	8.00	6080	5040	54	707	44	368	348	815	1980	395
	Sep	7.50	6080	4640	117	719	47	431	316	867	2820	221
	Oct	8.20	6500	5290	19	644	48	393	361	827	2250	314
	Nov	7.90	6460	5230	28	728	51	443	385	942	2430	258
	Dec	8.00	6740	4770	10	726	47	428	386	881	2490	275
	Average	8.08	5890	4756	34	656	46	399	344	790	2273	312

<b>2090</b>	Jan	7.60	568	348	69	40	16	35	26	48	8	221
	Feb	7.70	654	382	12	52	22	26	33	68	10	222
	Mar	7.50	629	340	14	48	19	24	30	74	13	196
	Apr	7.60	706	318	54	61	24	26	32	82	5	220
	May	8.00	719	394	48	62	24	30	35	87	20	243
	Jun	7.50	737	446	25	67	25	30	35	97	20	218
	Jul	7.80	692	404	16	61	29	30	35	98	24	207
	Aug	7.80	781	412	60	64	27	28	35	100	18	222
	Sep	7.50	964	560	86	87	31	37	41	138	99	294
	Oct	-	-	-	-	-	-	-	-	-	-	-
	Nov	-	-	-	-	-	-	-	-	-	-	-
	Dec	-	-	-	-	-	-	-	-	-	-	-
	Average	7.67	717	400	43	60	24	30	34	88	24	227

<b>2109</b>	Jan	7.80	2050	1410	32	290	7	75	71	324	492	62
	Feb	7.80	1870	1340	17	273	6	68	68	296	467	50

	Mar	7.70	1900	1240	14	306	6	62	62	303	497	48
	Apr	7.50	2460	1550	0	375	7	88	77	426	651	58
	May	7.90	2890	1920	20	464	7	108	85	489	782	77
	Jun	7.60	3250	2220	10	537	7	125	96	583	885	60
	Jul	7.40	2520	1730	6	392	6	96	79	467	714	53
	Aug	7.70	3700	2460	18	588	7	123	19	645	893	66
	Sep	7.30	4720	3250	54	762	9	179	116	827	1550	76
	Oct	8.00	7320	6070	22	838	42	437	353	977	2690	174
	Nov	7.80	7920	6370	30	1040	48	539	420	1150	3270	204
	Dec	7.90	7910	5620	8	1040	36	463	370	1090	3350	186
	Average	7.70	4043	2932	19	575	16	197	151	631	1353	93

<b>2114</b>	Jan	8.20	3560	2840	8	359	24	203	219	428	1380	102
	Feb	7.70	3280	2730	10	362	21	194	221	388	1300	97
	Mar	8.20	5140	4280	11	664	35	308	336	645	2260	160
	Apr	8.10	5300	4450	7	567	40	346	317	685	2200	153
	May	8.30	5650	4680	28	612	39	388	346	717	2340	230
	Jun	8.10	5990	5020	15	647	43	423	378	817	2370	218
	Jul	8.20	5960	5600	10	649	42	418	382	2600	783	220
	Aug	8.30	6470	5690	72	704	45	414	380	800	2470	236
	Sep	8.30	6780	5570	12	687	53	484	417	830	3380	208
	Oct	8.10	7560	6370	20	713	60	536	484	828	3520	180
	Nov	8.20	7550	6730	20	746	72	598	549	898	3510	185
	Dec	8.20	6950	5970	14	638	58	506	492	735	3630	168
	Average	8.16	5849	4994	19	612	44	402	377	864	2429	180

<b>2221</b>	Jan	8.00	2010	1290	20	282	10	58	71	345	376	143
	Feb	8.10	1900	1180	17	294	9	70	57	324	376	131
	Mar	7.90	1900	1240	44	323	8	66	55	333	401	130
	Apr	7.70	1960	1150	38	294	9	67	54	356	321	151
	May	8.10	1940	1190	18	298	8	68	54	343	350	174
	Jun	8.00	1900	1230	18	307	8	68	53	340	368	156
	Jul	7.90	1880	1240	8	284	9	66	52	354	381	152
	Aug	8.10	2010	1240	10	317	9	68	55	350	336	176
	Sep	7.90	2200	1330	18	351	9	78	59	398	557	180
	Oct	8.60	2450	1540	24	363	10	79	59	425	444	156
	Nov	9.30	2520	1590	16	439	12	91	46	472	480	82
	Dec	9.60	2760	1600	8	473	10	89	36	514	583	30
	Average	8.27	2119	1318	20	335	9	72	54	380	414	138

<b>1895</b>	Jan	8.30	3610	2490	5	529	19	177	53	484	890	425
	Feb	8.40	3520	2500		569	18	198	61	475	885	416
	Mar	8.10	3560	2500	6	652	16	188	66	473	1020	440
	Apr	8.30	3700	2500	8	592	19	202	68	518	981	457
	May	8.30	3890	2670	10	595	17	211	71	524	998	522
	Jun	8.30	3940	2790	10	644	18	215	72	546	968	482
	Jul	8.40	4000	2990	5	612	18	212	72	576	1020	477
	Aug	8.50	4300	2930	13	695	18	216	78	575	968	527
	Sep	8.50	4480	3150	5	732	19	250	80	630	1460	500
	Oct	8.60	4780	3220	6	677	19	237	63	628	1320	421

	Nov	8.70	4800	3230	6	815	24	286	56	685	1300	409
	Dec	8.70	5120	3370	10	838	20	275	48	698	1360	464
	Average	8.43	4142	2862	8	663	19	222	66	568	1098	462

<b>2081</b>	Jan	8.20	5180	4300	20	525	39	347	274	654	2000	142
	Feb	8.30	5470	4770	24	615	48	402	344	682	2160	333
	Mar	8.30	5030	4200	28	624	38	340	263	623	2220	132
	Apr	7.60	5400	4450	8	558	44	377	313	697	2270	210
	May	8.40	5550	4640	86	578	44	398	289	691	2300	152
	Jun	7.90	5830	5060	27	630	47	439	352	787	2420	223
	Jul	8.00	5820	5440	6	588	49	444	364	748	2780	236
	Aug	8.10	6180	5330	22	648	48	429	360	724	2450	237
	Sep	7.90	6500	5350	11	642	53	473	372	768	3320	228
	Oct	8.00	7020	5840	8	619	62	514	461	746	3440	213
	Nov	8.00	7180	6430	4	681	69	567	533	842	3330	200
	Dec	8.00	7450	6370	6	700	68	538	535	795	3840	202
	Average	8.06	6051	5182	21	617	51	439	372	730	2711	209

**Table 38: 2012 Piezometer Results**

Drill Number	Date	Water Level (m)	pH	Electrical Conductivity	Salinity	Total Dissolved Solids
<b>F1024</b>	January	179.00	7.20	440	212	7.20
	February	178.90	6.80	555	364	6.80
	March	177.90	6.80	437	230	6.80
	Apr – Dec	<i>No water – unable to sample</i>				
	Average	178.60	6.93	477	269	339

<b>F1162</b>	Jan – Dec	<i>Too deep – unable to sample</i>				
--------------	-----------	------------------------------------	--	--	--	--

<b>F1163</b>	January	176.76	7.10	809	407	554
	February	177.83	7.20	740	397	535
	March	177.43	7.10	800	391	560
	April	177.66	7.00	919	434	643
	May	177.53	7.00	981	471	660
	June	177.58	7.10	963	494	668
	July	177.89	7.00	1164	543	763
	August	177.50	7.00	1142	507	713
	September	177.36	7.00	1171	591	804
	October	177.39	7.70	725	620	875
	November	177.32	7.10	998	584	772
	December	177.38	7.40	227	107	150
	Average	177.53	7.14	887	462	641

<b>F1164</b>	Jan – Dec	<i>Too deep – unable to sample</i>				
--------------	-----------	------------------------------------	--	--	--	--

<b>F1167</b>	January	174.80	6.80	499	251	349
	February	173.08	6.90	437	218	327
	March	172.83	6.50	312	144	220
	April	173.10	6.70	477	238	336
	May	173.23	6.40	526	268	380
	June	173.13	6.70	585	294	406
	July	173.38	6.30	573	301	406
	August	-	-	-	-	-
	September	172.36	6.70	721	355	501
	October	169.20	6.50	788	390	573



November	170.98	6.50	701	318	498
December	170.55	6.60	744	369	519
Average	172.42	6.60	578	286	410

<b>F1168</b>	January	168.57	6.60	529	266	366
	February	166.73	7.10	310	1410	206
	March	166.80	7.20	387	195	261
	April	167.10	7.00	426	196	288
	May	166.52	6.90	473	236	329
	June	166.46	7.00	480	233	334
	July	166.30	7.00	370	184	261
	August	166.18	7.00	494	254	343
	September	165.50	6.90	429	213	303
	October	165.27	6.90	428	2040	2960
	November	165.46	7.00	511	249	317
	December	164.48	7.20	458	224	318
	Average	166.28	6.98	441	475	524

<b>R4171A</b>	Jan – Dec	<i>Lost to mining.</i>			
---------------	-----------	------------------------	--	--	--

<b>R4171B</b>	Jan – Dec	<i>Lost to mining.</i>			
---------------	-----------	------------------------	--	--	--

<b>R4220</b>	January	198.28	8.20	447	710	312
	February	197.24	7.90	498	226	341
	March	197.02	7.80	405	302	211
	April	196.46	7.80	359	243	247
	May	195.93	7.90	419	215	280
	June	195.81	7.60	449	226	317
	July	195.71	7.60	474	238	333
	August	196.15	7.60	411	212	284
	September	192.86	7.80	421	213	299
	October	192.37	7.20	3470	1750	2450
	November	193.50	7.00	384	757	279
	December	191.57	7.10	319	219	221
	Average	195.24	7.63	671	443	465

<b>R4224</b>	Jan – Feb	<i>Too deep – unable to sample</i>				
	March	123.41	7.30	523	250	365
	Apr – May	<i>Too deep – unable to sample</i>				

June	119.91	7.20	536	269	374
Jul – Sep	<i>Too deep – unable to sample</i>				
October	118.67	7.10	5150	2580	3540
November	118.07	7.20	580	273	319
December	194.23	7.20	489	246	349
Average	134.86		1456	724	989

<b>R4241</b>	January	185.39	7.70	1071	554	793
	February	185.09	7.60	1398	694	982
	March	186.38	7.00	320	167	221
	April	186.48	6.90	416	203	290
	May	185.18	6.90	409	203	287
	June	184.82	6.90	316	154	219
	July	184.44	7.20	225	111	154
	August	183.89	6.90	413	194	289
	September	183.37	7.50	1991	998	1374
	October	182.53	7.10	2240	1520	1540
	November	181.97	7.00	424	202	297
	December	181.68	7.20	318	159	224
	Average	184.27	7.16	795	430	556

<b>R4243</b>	January	229.94	7.10	213	998	146
	February	231.17	7.00	219	106	149
	March	231.13	6.90	201	999	1353
	April	229.99	6.90	1975	1000	144
	May	229.58	6.90	204	106	153
	June	229.26	6.70	222	106	152
	July	227.64	6.70	233	113	158
	August	228.21	7.40	1788	749	145
	September	225.26	7.10	220	107	151
	October	224.86	6.60	1986	988	1440
	November	223.00	6.70	1484	742	103
	December	222.42	6.80	1880	910	1278
	Average	227.71	6.90	885	577	448

<b>W1102</b>	January	178.50	7.00	472	239	341
	February	178.76	7.00	810	414	535
	March	178.36	6.90	648	326	442
	April	178.75	7.20	256	1210	179

May	178.72	7.50	743	369	518
June	178.73	7.10	339	176	238
July	178.76	6.90	673	324	454
August	178.62	7.00	667	330	464
September	178.48	7.00	758	391	549
October	178.37	7.40	732	372	499
November	178.46	7.40	789	347	511
December	178.16	6.90	797	396	564
Average	178.56	7.11	640	408	441

## Appendix C: 2012 Dust Sampling Results

Table 39: Depositional Dust Gauge Results

Site Number	Period	Ash Content (g/m <sup>2</sup> .month)	Combustible Matter (g/m <sup>2</sup> .month)	Total Insoluble Matter (g/m <sup>2</sup> .month)	Total Solids (g/m <sup>2</sup> .month)	Comments
2130	January	1.7	0.9	2.5	4.2	Dust and algae
	February	1.8	0.9	2.0	3.6	Dust
	March	1.3	0.6	1.9	2	Broken lid. Contains vegetation
	April	2.6	0.6	3.2	3.2	Insects and vegetation
	May	1.2	0.2	1.4	1.6	Dust and a grasshopper
	June	0.8	0.4	1.2	1.6	Vegetation
	July	1.3	0.2	1.5	1.6	Dust
	August	1.5	0.3	1.8	2.2	Dust
	September	1.6	0.3	1.9	2	Dust
	October	1.8	0.7	2.5	2.6	Light turbidity, algae and insects
	November	3.3	1.1	4.4	4.8	Dust
	December	2.8	1	3.8	5.4	Clear with dust
	Average	1.8	0.6	2.3	2.9	

2157	January	1.4	0.9	2.3	3.3	Dust and vegetation
	February	1.0	0.5	1.5	2.1	Dust and insects
	March	1.1	0.9	2	3.1	Insects and vegetation
	April	1.4	0.3	1.7	1.7	Dust and insects
	May	1	0.2	1.2	1.2	Algae

	June	1.1	0.9	2	2	Dust
	July	1	0.4	1.4	1.5	Dust and insects
	August	1.2	0.8	2	2.2	Dust, vegetation and a leaf
	September	1.3	0.8	2.1	2.1	Leaf and algae
	October	1.3	0.7	2	2.1	Algae and insects
	November	2.2	0.8	3	4.1	Dust
	December	2.1	0.8	2.9	3.5	Clear with dust
	Average	1.3	0.7	2	2.4	

<b>2175</b>	January	1.1	0.4	1.4	2.5	Dust and algae
	February	1.0	0.3	1.3	1.0	Dust
	March	0.9	0.9	1.8	4.1	Insects
	April	1.5	0.5	2	2.6	Dust and algae
	May	0.9	0.3	1.2	1.3	Dust
	June	0.7	0.4	1.1	1.2	Dust
	July	1	0.2	1.2	1.8	Dust
	August	0.8	0.5	1.3	1.8	Dust and insects
	September	1.1	0.4	1.5	1.6	Dust and algae
	October	0.8	0.3	1.1	1.1	Insects
	November	2	0.6	2.6	2.9	Dust and insects
	December	1.8	0.5	2.3	3.4	Clear with insects and dust
	Average	1.1	0.4	1.6	2.1	

<b>2197</b>	January	3.2	1.4	4.5	5.9	Dust and algae
	February	1.8	0.9	2.7	3.9	Dust

	March	2.2	3.8	6	7.2	Algae, insects and bird droppings
	April	2	0.8	2.8	2.9	Vegetation and insects
	May	1.9	0.5	2.4	2.7	Insects and algae
	June	4	1	5	5.6	Dust
	July	1.8	1.1	2.8	2.9	Dust
	August	1.4	0.6	2	2.2	Insects and algae
	September	1.6	0.6	2.2	5.6	Insects
	October	2.6	1.6	4.2	4.6	Grey, light turbidity with insects and dust
	November	4	2.3	6.3	7.7	Dust
	December	3.3	2.5	5.8	7.6	Clear with insects and dust
	Average	2.5	1.4	3.9	4.9	

<b>2208</b>	January	1.0	0.5	1.5	2.6	Dust
	February	1.4	0.6	2.0	2.0	Dust
	March	0.9	0.6	1.5	2.6	
	April	1.5	0.1	1.6	2.1	Veg
	May	0.9	0.1	1	1	Dust
	June	0.8	0.5	1.3	2.3	Dust
	July	0.9	0.1	1	1.5	Dust and insects
	August	0.9	0.3	1.2	1.4	Dust
	September	1	0.3	1.3	1.3	Insects
	October	1.1	0.4	1.5	1.6	Algae
	November	2.8	0.8	3.6	4	Dust and insects
	December	1.8	0.7	2.5	4.1	Clear with insects and dust
	Average	1.2	0.4	1.7	2.2	

<b>2230</b>	January	1.5	0.8	2.2	3.4	Dust, algae and a beetle
	February	1.2	0.6	1.9	3.3	Bugs, algae and dust
	March	0.9	1.3	2.2	3.5	Insects and algae
	April	1.5	0.8	2.3	2.4	Spider, insects and algae
	May	1.1	0.2	1.3	1.4	Insects
	June	1.1	0.7	1.8	2.7	Dust
	July	1.2	0.6	1.8	2	Dust and insects
	August	1.3	0.6	1.9	2.5	Algae
	September	1.7	1.1	2.8	2.9	Algae and arachnid
	October	2.1	1	3.1	3.2	Insects
	November	3.5	1.4	4.9	5.9	Dust and insects
	December	2	0.8	2.8	4.1	Clear with insects and dust
	Average	1.6	0.8	2.4	3.1	

<b>2235</b>	January	1.2	0.5	1.6	2.7	Dust
	February	1.0	0.4	1.4	2.2	Dust
	March	0.7	0.7	1.4	4.1	Algae, insects and bird droppings
	April	1.8	1.2	3	3.1	Algae, cricket and other insects
	May	1.1	0.2	1.3	1.4	Dust
	June	0.9	0.3	1.2	1.8	Dust
	July	1.1	0.2	1.3	1.6	Dust and arachnid
	August	1.2	0.8	2	2.7	Arachnid and Algae
	September	1.3	0.8	2.1	2.2	Algae and insects
	October	1.6	0.6	2.2	2.2	Light turbidity with arachnid and dirt

	November	2.8	1	3.8	4.1	Dust and insects
	December	3.2	2.1	5.3	9.2	Light brown and clear with insects and algae
	Average	1.5	0.7	2.2	3.1	

<b>2247</b>	January	0.8	0.4	1.2	2.3	Dust and vegetation
	February	0.8	0.7	1.5	2.4	Dust
	March	1	0.9	1.9	5.4	Insects
	April	1.6	0.2	1.8	2	Algae, spider and insects
	May	1	0.2	1.2	1.3	Dust
	June	0.7	0.5	1.2	1.5	Dust and insects
	July	1.2	0.2	1.2	1.7	Dust and insects
	August	1.2	1.4	1.6	1.6	Algae
	September	1.4	2.5	3.9	3.9	Murky with algae
	October	0.8	0.8	1.6	1.7	Dirt
	November	2.9	1	3.9	4.1	Insects, Dust
	December	2.2	1	3.2	4.3	Clear with insects and dust
	Average	1.3	0.8	2	2.7	



**Table 40: TEOM Real Time PM10 Monitoring Results**

Date	PM10 24Hr Av $\mu\text{g}/\text{m}^3$
<b>January</b>	
1/01/2012	19.7
2/01/2012	18.2
3/01/2012	19.5
4/01/2012	23.5
5/01/2012	28.4
6/01/2012	4.8
7/01/2012	20.1
8/01/2012	26.5
9/01/2012	17.6
10/01/2012	16.3
11/01/2012	15.7
12/01/2012	34.2
13/01/2012	27.7
14/01/2012	27.9
15/01/2012	19.3
16/01/2012	9.7
17/01/2012	19.7
18/01/2012	19
19/01/2012	15.3
20/01/2012	19.7
21/01/2012	20.8
22/01/2012	15.8
23/01/2012	13.3
24/01/2012	7.2
25/01/2012	8.1
26/01/2012	4.6
27/01/2012	7.3
28/01/2012	8.7
29/01/2012	9.8
30/01/2012	11.4
31/01/2012	8.7

<b>March</b>	
1/03/2012	11.6
2/03/2012	7.9

Date	PM10 24Hr Av $\mu\text{g}/\text{m}^3$
<b>February</b>	
1/02/2012	6.7
2/02/2012	2.3
3/02/2012	2.4
4/02/2012	10.2
5/02/2012	13.6
6/02/2012	17.1
7/02/2012	15.8
8/02/2012	11.5
9/02/2012	17.5
10/02/2012	16.4
11/02/2012	11.1
12/02/2012	12.7
13/02/2012	18.2
14/02/2012	15.7
15/02/2012	13.4
16/02/2012	12.5
17/02/2012	16.2
18/02/2012	23.9
19/02/2012	21.8
20/02/2012	16.3
21/02/2012	6.8
22/02/2012	9.9
23/02/2012	17.6
24/02/2012	14
25/02/2012	12.1
26/02/2012	13.1
27/02/2012	14.3
28/02/2012	11.9
29/02/2012	15.5

<b>April</b>	
1/04/2012	12.2
2/04/2012	25.4

3/03/2012	2.5
4/03/2012	9.8
5/03/2012	8.6
6/03/2012	12.3
7/03/2012	12.9
8/03/2012	7.7
9/03/2012	6.9
10/03/2012	10.8
11/03/2012	19.5
12/03/2012	21.2
13/03/2012	15.4
14/03/2012	16.9
15/03/2012	17.1
16/03/2012	12.7
17/03/2012	9.7
18/03/2012	8.1
19/03/2012	12
20/03/2012	10.9
21/03/2012	9.2
22/03/2012	11.2
23/03/2012	15.9
24/03/2012	13.5
25/03/2012	16.6
26/03/2012	18.5
27/03/2012	17.2
28/03/2012	15.3
29/03/2012	14.7
30/03/2012	20.3
31/03/2012	20.2

3/04/2012	20.6
4/04/2012	27.6
5/04/2012	20.8
6/04/2012	14.9
7/04/2012	17.1
8/04/2012	32.2
9/04/2012	17.3
10/04/2012	12.8
11/04/2012	9.5
12/04/2012	8.1
13/04/2012	9.9
14/04/2012	11.6
15/04/2012	16.6
16/04/2012	17.2
17/04/2012	13.3
18/04/2012	6.9
19/04/2012	7.8
20/04/2012	11.4
21/04/2012	13.4
22/04/2012	16.4
23/04/2012	16.6
24/04/2012	5.8
25/04/2012	3.9
26/04/2012	8
27/04/2012	13.2
28/04/2012	18
29/04/2012	11.4
30/04/2012	18.2

<b>May</b>	
1/05/2012	16.6
2/05/2012	15
3/05/2012	9.9
4/05/2012	6
5/05/2012	12.5
6/05/2012	9
7/05/2012	6.3
8/05/2012	13.4

<b>June</b>	
1/06/2012	-21
2/06/2012	9.6
3/06/2012	6.2
4/06/2012	2.9
5/06/2012	3.2
6/06/2012	6.3
7/06/2012	8.3
8/06/2012	9.2

9/05/2012	8
10/05/2012	9.4
11/05/2012	11.4
12/05/2012	10.5
13/05/2012	11.5
14/05/2012	10.6
15/05/2012	12.5
16/05/2012	15.1
17/05/2012	18.6
18/05/2012	18.2
19/05/2012	10.4
20/05/2012	13.1
21/05/2012	14.9
22/05/2012	13.9
23/05/2012	9.3
24/05/2012	12.8
25/05/2012	9.1
26/05/2012	2.8
27/05/2012	4.5
28/05/2012	8.7
29/05/2012	14.4
30/05/2012	10.3
31/05/2012	8.6

9/06/2012	9.6
10/06/2012	9.2
11/06/2012	10.6
12/06/2012	5.3
13/06/2012	8.4
14/06/2012	7.9
15/06/2012	11.4
16/06/2012	8.3
17/06/2012	6.3
18/06/2012	4.8
19/06/2012	3.7
20/06/2012	5.6
21/06/2012	6.3
22/06/2012	8.1
23/06/2012	5.4
24/06/2012	2.7
25/06/2012	3.9
26/06/2012	13.4
27/06/2012	14.1
28/06/2012	13
29/06/2012	10.8
30/06/2012	5

<b>July</b>	
1/07/2012	7.3
2/07/2012	5.8
3/07/2012	4.3
4/07/2012	7.3
5/07/2012	13.5
6/07/2012	11.2
7/07/2012	11.9
8/07/2012	13.9
9/07/2012	12.6
10/07/2012	20
11/07/2012	18.1
12/07/2012	12
13/07/2012	7
14/07/2012	2.6

<b>August</b>	
1/08/2012	11.7
2/08/2012	5.5
3/08/2012	7.4
4/08/2012	8.4
5/08/2012	8
6/08/2012	7.9
7/08/2012	10.1
8/08/2012	8
9/08/2012	9.8
10/08/2012	12.2
11/08/2012	23.7
12/08/2012	14.1
13/08/2012	19.5
14/08/2012	7.5

15/07/2012	2.3
16/07/2012	4.3
17/07/2012	14.2
18/07/2012	15.7
19/07/2012	6.2
20/07/2012	12.8
21/07/2012	20.4
22/07/2012	18.8
23/07/2012	10.7
24/07/2012	15.8
25/07/2012	8.5
26/07/2012	11.7
27/07/2012	8.7
28/07/2012	5.9
29/07/2012	6.5
30/07/2012	13
31/07/2012	12.4

15/08/2012	8.9
16/08/2012	12.4
17/08/2012	12.4
18/08/2012	9.9
19/08/2012	5
20/08/2012	8.5
21/08/2012	24.9
22/08/2012	31.8
23/08/2012	15
24/08/2012	8.3
25/08/2012	7
26/08/2012	7.5
27/08/2012	11.9
28/08/2012	15.8
29/08/2012	21.9
30/08/2012	16.6
31/08/2012	16.4

September	
1/09/2012	13
2/09/2012	18.3
3/09/2012	9.4
4/09/2012	18.4
5/09/2012	16.9
6/09/2012	24.7
7/09/2012	23.8
8/09/2012	15.2
9/09/2012	10.1
10/09/2012	17.6
11/09/2012	23.6
12/09/2012	15568.5
13/09/2012	23.2
14/09/2012	13
15/09/2012	15550.4
16/09/2012	15815.9
17/09/2012	9.7
18/09/2012	9.7
19/09/2012	7.4
20/09/2012	10

October	
1/10/2012	18.2
2/10/2012	20.8
3/10/2012	18.2
4/10/2012	12.5
5/10/2012	20.1
6/10/2012	34
7/10/2012	27.5
8/10/2012	29.3
9/10/2012	25.3
10/10/2012	15.6
11/10/2012	21.4
12/10/2012	5.1
13/10/2012	4.8
14/10/2012	15.3
15/10/2012	16.5
16/10/2012	10.9
17/10/2012	17.1
18/10/2012	35.6
19/10/2012	9.1
20/10/2012	47.1

21/09/2012	15.6
22/09/2012	17.8
23/09/2012	14.4
24/09/2012	26
25/09/2012	23
26/09/2012	12.2
27/09/2012	25
28/09/2012	20.5
29/09/2012	18
30/09/2012	10.3

21/10/2012	35.1
22/10/2012	17.9
23/10/2012	26.5
24/10/2012	30.2
25/10/2012	34
26/10/2012	31.8
27/10/2012	26.8
28/10/2012	28.2
29/10/2012	23.9
30/10/2012	1.4
31/10/2012	18.1

<b>November</b>	
1/11/2012	39.9
2/11/2012	37.3
3/11/2012	26.8
4/11/2012	22.5
5/11/2012	25.5
6/11/2012	34.4
7/11/2012	37.6
8/11/2012	23.7
9/11/2012	15.2
10/11/2012	20.1
11/11/2012	16.6
12/11/2012	21.3
13/11/2012	23.8
14/11/2012	31
15/11/2012	29.6
16/11/2012	28.4
17/11/2012	11.1
18/11/2012	17.9
19/11/2012	23.3
20/11/2012	23.2
21/11/2012	33.3
22/11/2012	39.7
23/11/2012	21.3
24/11/2012	26.9
25/11/2012	27
26/11/2012	23.9

<b>December</b>	
1/12/2012	24.6
2/12/2012	22.4
3/12/2012	13.9
4/12/2012	10.8
5/12/2012	18
6/12/2012	27.4
7/12/2012	28.6
8/12/2012	33.7
9/12/2012	31.4
10/12/2012	19.7
11/12/2012	11.9
12/12/2012	12.1
13/12/2012	15.4
14/12/2012	15.8
15/12/2012	25.7
16/12/2012	25.1
17/12/2012	34.1
18/12/2012	33.4
19/12/2012	29
20/12/2012	23.4
21/12/2012	25.5
22/12/2012	26.6
23/12/2012	20.4
24/12/2012	18.3
25/12/2012	12.9
26/12/2012	6.4

27/11/2012	18.1
28/11/2012	8.3
29/11/2012	5.7
30/11/2012	23.5

27/12/2012	14.6
28/12/2012	20.5
29/12/2012	20.7
30/12/2012	21.4
31/12/2012	18.1

**Table 41: High Volume Air Sampler Results**

Lot 22	
Start Date	Particulate Matter µg/m <sup>3</sup>
03-Jan-12	86.01
09-Jan-12	39
15-Jan-12	39
21-Jan-12	76
27-Jan-12	31
02-Feb-12	17
08-Feb-12	38
14-Feb-12	33
20-Feb-12	27
26-Feb-12	40
03-Mar-12	21
09-Mar-12	36
15-Mar-12	56
21-Mar-12	37
27-Mar-12	47
02-Apr-12	101
08-Apr-12	85
14-Apr-12	61
20-Apr-12	48
26-Apr-12	53
02-May-12	37
08-May-12	24
14-May-12	61
20-May-12	48
26-May-12	24
01-Jun-12	30
07-Jun-12	28
13-Jun-12	24
19-Jun-12	16
25-Jun-12	19
01-Jul-12	34
07-Jul-12	46
13-Jul-12	7
19-Jul-12	59
25-Jul-12	18
31-Jul-12	43
06-Aug-12	43
12-Aug-12	92
18-Aug-12	22

24-Aug-12	31
30-Aug-12	71
05-Sep-12	51
11-Sep-12	96
17-Sep-12	96
23-Sep-12	52
29-Sep-12	49
05-Oct-12	96
11-Oct-12	57
17-Oct-12	95
23-Oct-12	83
29-Oct-12	80
04-Nov-12	112
10-Nov-12	77
16-Nov-12	58
22-Nov-12	133
28-Nov-12	46
04-Dec-12	57
10-Dec-12	60
16-Dec-12	79
22-Dec-12	87
28-Dec-12	45



## Appendix D: 2012 Noise Monitoring Results

**Table 42: Attended Background Noise Monitoring Results**

De Boer	Date	Time	LEQ	L10	L50	L90	Comments
	12-Jan-12	14:35	39.80	35.80	33.00	31.10	Birds 30%, Insects 40%, NEH 15%, TMD 10%, Train horn 5%, Mine Inaudible
	20-Jan-12	10:20	47.10	43.40	38.40	36.30	Birds (loud) 30%, insects 30%, TMD 2-0%, Mine (rb, chp hum) 5%, wind in trees 15%
	27-Jan-12	9:35	41.00	43.20	40.00	36.80	Mine RB 5%, Birdsn 40%, Insects 15%, Wind in trees 15%, NEH 15%
	06-Feb-12	14:25	40.70	43.00	40.10	36.80	Birds 10%, TMD/NEH 40%, Wind in Trees 30%, Insects 10%, Residents home phone 10%
	13-Feb-12	13:00	38.20	41.40	35.70	32.10	Insects/Birds 65%, NEH 35%, Mine Inaudible
	23-Feb-12	11:50	33.30	36.60	31.80	29.70	Insects 40%, Birds 20%, Firing range 20%, NEH 10%, Residents ride-on mower 10%, Mine inaudible
	19-Mar-12	15:10	46.30	48.40	44.20	40.60	NEH 50%, Wind in trees 40%, Birds 10%, Mine Inaudible
	28-Mar-12	11:05	33.60	34.00	30.20	27.70	Birds, 40%, TMD 40%, NEH 20%, Mine inaudible
	05-Apr-12	10:20	30.60	31.10	30.30	29.80	NEH 40%, Birds 50%, TMD 10%, Mine Inaudible
	13-Apr-12	13:50	35.60	38.40	33.20	31.10	Birds 80%, TMD?NEH 20%, Mine Inaudible
	02-May-12	10:20	34.30	36.80	30.00	27.90	Birds 70%, NEH 25%, Dog Barking 5%, Mine inaudible
	21-May-12	11:50	36.70	35.80	30.60	28.10	Birds 55%, NEH 45%, Mine inaudible
	30-May-12	14:50	40.50	41.20	38.70	36.70	NEH/TMD 60%, Birds 40%, Mine inaudible
	08-Jun-12	5:50	53.70	58.30	44.10	40.30	FOG, NEH 50%, Birds 50%, Mine Inaudible
	19-Jun-12	12:50	39.30	42.50	38.90	36.00	Wind in Trees 10%, NEH 60%, Birds 30%, Mine Inaudible
	22-Jun-12	6:20	47.90	50.10	47.20	45.40	NEH 70%, Wind 30%, Mine inaudible
	05-Jul-12	12:15	37.20	39.60	35.90	32.50	Birds 20%, NEH 70%, Mine RB, CHP 10%
	10-Jul-12	8:30	42.50	44.60	42.00	40.20	NEH 50, Birds 50%, Mine inaudible
	18-Jul-12	15:30	36.30	37.30	34.40	32.30	Birds 35%, NEH/TMD 60%, Wibnd in Trees 5%, Mine inaudible
	03-Aug-12	14:00	40.50	42.80	39.70	36.00	Birds 35%, NEH 25%, Wind in Trees 40%, Mine Inaudible

15-Aug-12	10:40	43.90	46.60	42.90	39.80	Wind in Trees 40%, Birds 20%, NEH 40%, Mine Inaudible
29-Aug-12	11:20	36.20	37.80	33.30	30.50	Birds 45%, NEH 40%, Tractor (resident) 15%, Mine Inaudible
14-Sep-12	11:10	33.00	35.50	33.10	31.20	NEH 50%, Birds 50%, Mine Inaudible
19-Sep-12	10:45	37.40	38.50	35.40	32.40	TMD/NEH/Pamger Dr 30%, Birds 50%, Wind in Trees 20%, Mine Inaudible
02-Oct-12	12:10	35.40	36.90	32.40	30.10	Birds 40%, NEH/TMD 60%, Mine Inaudible
24-Oct-12	12:20	37.70	39.80	60.30	27.90	Birds 70%, NEH 15%, Pistol Club 15%, Mine Inaudible
08-Nov-12	13:50	34.40	37.10	32.60	28.30	Birds 90%, NEH 10%, Mine Inaudible
03-Dec-12	15:30	30.30	32.20	29.80	26.90	Birds 60%, Insects 20%, NEH 20%, Mine Inaudible
14-Dec-12	8:45	32.60	31.80	28.30	26.40	NEH 20%, Birds 70%, Road works 10%, Mine inaudible

Doherty	Date	Time	LEQ	L10	L50	L90	Comments
	12-Jan-12	13:07	32.80	35.30	30.70	28.50	Wind in trees/grass 25%, Insects 30%, Birds 20%, TMD 20%, Mine Noise (rumble falling debris) 5%
	20-Jan-12	8:45	36.70	38.80	35.70	33.30	Birds 40%, TMD 10%, Train 40%, Insects 5%, Mine Noise (horn in NN from trucks loading) 5%
	27-Jan-12	8:00	37.10	39.10	36.20	34.70	Birds 50%, Insects 30%, TMD 10%, Mine Noise (RB, mechanical) 5%, Wind in trees/grass 5%
	06-Feb-12	13:05	35.10	37.80	32.70	29.70	Insects 45%, Birds 20%, TMD 25%, Cow 5%, Mine (machinery) 5%
	13-Feb-12	11:40	38.80	43.50	33.10	30.10	Rifle Range Firing 40%, Plane 5%, Birds/Insects 40%, TMD 10%, Residents radio 5%, Mine Inaudible
	23-Feb-12	10:20	28.30	30.40	26.20	24.00	Birds 30%, Insects 55%, TMD 10%, Train rumble (PN) 5%, Mine Inaudible
	19-Mar-12	7:40	43.40	45.60	40.70	38.70	Mine Noise CHP 30%, Birds 30%, Insects 30%, TMD Traffic 10%
	28-Mar-12	9:30	30.80	31.70	27.30	25.00	Birds 25%, Plane 5%, Insects 25%, Residents radio 30%, TMD 15%, Mine Inaudible
	05-Apr-12	8:55	36.90	37.20	32.60	29.80	Birds 50%, Insects 20%, TMD 20%, Mine CHP 10%
	13-Apr-12	12:25	45.30	39.50	28.50	24.40	Birds 20%, Residents Lawn Mower 50%, Residents Radio 20%, TMD 10%, Mine Inaudible
	02-May-12	8:55	34.70	36.60	34.10	31.70	Residents radio 50%, Birds/insects 20%, NEH/TMD 20%, Reversing beeper 10%, Mine inaudible
	21-May-12	10:15	47.20	52.20	35.50	31.80	Birds 70%, TMD/NEH 15%, Tractor 15%, Mine inaudible
	30-May-12	13:25	49.70	54.60	42.90	40.30	Birds 30%, TMD 10%, NN excavator and trucks 60%

08-Jun-12	5:10	36.80	39.10	36.90	34.80	FOG, CHP 30%, RB 5%, Birds 40%, Insects 10%, TMD 10%, Plane 5%
19-Jun-12	11:25	40.10	42.80	37.40	35.30	Birds 60%, TMD 20%, Wind in Trees 20%, Mine Inaudible
22-Jun-12	5:30	40.50	41.40	40.30	39.40	Wind in trees 70%, NEH/TMD 25% Rooster 5%, Mine inaudible
05-Jul-12	11:30	34.20	36.10	32.10	30.20	Birds 70%, TMD 25%, CHP 5%
10-Jul-12	7:10	45.90	47.90	45.60	41.70	Birds 20%, NEH/TMD 30%, Mine-RB, Dozer tracks, machinery, conveyors 50%
18-Jul-12	14:10	32.50	33.90	30.10	27.50	Birds 60%, TMD 25%, Tractor 10%, Plane 5%, Mine Inaudible
03-Aug-12	13:40	39.80	42.00	36.50	33.60	Birds 30%, Wind in Trees 60%, NEH/TMD 10%, Mine Inaudible
15-Aug-12	9:10	34.70	36.40	34.00	31.60	Birds 50%, NEH/TMD 50%, Mine Inaudible
29-Aug-12	9:50	33.70	36.10	32.50	30.60	Birds 20%, TMD 25%, Plane 5%, Mine Inaudible
14-Sep-12	9:50	35.50	32.90	27.40	25.40	Birds 70%, TMD 20%, Cockatoo 5%, Train 5%, Mine Inaudible
19-Sep-12	9:20	36.20	37.10	32.20	29.50	Residents tractor 50%, Birds 40%, TMD 5%, Dozer tracks (MAC?) 5%, Mine Inaudible
02-Oct-12	10:30	35.40	37.40	33.90	31.80	Birds 60%, TMD 20%, Wind in Trees 15%, Reversing Beeper 5%
24-Oct-12	10:50	37.20	39.50	32.50	29.90	Birds 80%, TMD 15%, Mine (CHPP conveyors? General machinery noise) 5%
08-Nov-12	12:30	34.40	37.30	31.30	27.40	Birds 80%, TMD 20%, Mine Inaudible
03-Dec-12	14:20	33.40	36.00	30.70	28.70	Birds/Insects 60%, TMD 40%, Mine Inaudible
14-Dec-12	7:20	38.90	42.50	35.80	32.90	Birds 50%, Turkey 15%, TMD/NEH 35%, Mine inaudible

Halloran	Date	Time	LEQ	L10	L50	L90	Comments
	12-Jan-12	14:15	50.50	55.70	42.70	35.80	Birds 35%, Insects 50%, NEH 10%, TMD 5%, Mine Inaudible
	20-Jan-12	10:00	40.90	42.30	38.80	35.80	Insects 10%, Birds 30%, NEH 30%, Mine (Reversing Beeper, CHP rumble) 10%, TMD 20%
	27-Jan-12	9:15	42.80	44.50	40.20	37.10	TMD 30%, Birds 30%, Insects 20%, NEH truck 5%, Wind 15%, Mine inaudible
	06-Feb-12	14:05	49.40	53.00	42.50	37.40	Insects 60%, NEH 20%, Wind in trees 5%, TMD 10%, Mine (reversing beepers) 5%
	13-Feb-12	12:45	49.50	53.40	47.30	34.10	Insects (loud) 60%, Birds 20%, NEH 20%, Mine Inaudible
	23-Feb-12	11:25	41.00	43.10	40.60	36.00	Firing range 20%, Insects 30%, Birds 10%, NEH 10%, Residents ride-on mower 30%, Mine Inaudible
	19-Mar-12	14:45	44.90	47.20	43.90	42.00	NEH 30%, TMD 5%, Birds 30%, Wind in trees 30%, Mine CHP 5%

28-Mar-12	10:45	35.50	38.80	31.50	28.00	Birds 40%, TMD 50%, Dogs barking 5%, Mine horn 5%
05-Apr-12	10:00	35.80	37.70	33.90	32.00	Birds 60%, NEH 30%, TMD 10%, Mine Inaudible
13-Apr-12	13:30	38.80	41.60	33.10	28.70	Birds 55%, TMD/NEH 15%, Mine Reversing beepers 10%, Helicopter 20%
02-May-12	10:00	39.50	42.90	30.90	27.40	Birds (cockatoos) 70%, Dog barking 10%, NEH 15%, Mine noise (CHP, RB) 5%
21-May-12	11:30	43.10	38.40	30.60	26.10	Birds 60%, NEH 30%, Reversing beepers 10%, Mine inaudible
30-May-12	14:30	41.10	41.80	39.60	38.10	NEH/TMD 40%, Birds 50%, CHP/RB 10%
08-Jun-12	5:30	47.50	43.70	34.70	31.70	FOG, Birds 50%, NEH 30%, CHP/Dozer clunking 20%
19-Jun-12	12:25	38.50	41.00	37.30	35.70	NEH 35%, Birds 35%, Wind in Trees 25%, Dog Barking 5%, Mine Inaudible
22-Jun-12	6:00	43.50	46.20	42.30	40.30	Wind in trees 60%, NEH 40%, Mine Inaudible
05-Jul-12	11:50	42.60	42.90	34.90	31.40	Birds 70%, TMD 10%, Train 15%, Mine RB, CHP 5%
10-Jul-12	8:10	43.10	44.70	41.50	39.10	NEH 10%, TMD 40%, Birds 40%, Mine-RB, dozer tracks, machinery 10%
18-Jul-12	15:10	32.70	33.90	32.50	30.30	NEH 50%, Birds 35%, Plane 5%, Wind in Trees 10%, Mine inaudible
03-Aug-12	14:20	37.90	40.30	35.60	33.20	Birds 25%, Wind in Trees 45%, NEH/TMD 25%, Mine Inaudible
15-Aug-12	10:15	39.00	40.30	37.60	34.50	Wind in Trees 35%, Dog Barking 5%, Birds 30%, NEH 30%, Mine Inaudible
29-Aug-12	10:55	36.40	36.80	30.70	28.30	Birds 50%, Motorcycle (resident) 10%, Plane 10%, NEH 30%, Mine Inaudible
19-Sep-12	10:25	34.80	36.00	31.20	29.00	Birds 70%, NEH 20%, Wind in Trees 10%, Mine Inaudible
02-Oct-12	11:50	38.40	39.40	35.50	32.10	Birds 50%, NEH/TMD 60%, Reversing Beeper 5%
24-Oct-12	12:00	32.20	33.70	28.60	26.60	TMD/NEH 40%, Insects/Birds 50%, Pistol Club 10%, Mine inaudible
08-Nov-12	13:30	31.90	33.20	30.50	28.60	Birds 75%, NEH 15%, TMD 10%, Mine Inaudible
03-Dec-12	15:20	31.80	31.40	28.30	25.70	Birds 80%, NEH 20%, Mine Inaudible
14-Dec-12	8:25	36.90	41.00	31.70	27.70	NEH 40%, Birds 60%, Mine Inaudible

Horder	Date	Time	LEQ	L10	L50	L90	Comments
	12-Jan-12	13:50	42.10	40.20	34.50	32.80	Birds 25%, Insects 25%, TMD 45%, Residents Radio 5%, Mine Inaudible
	20-Jan-12	9:40	43.20	45.90	39.50	36.70	Birds 50%, TMD 30%, Insects 10%, Mine (rumble) 10%

27-Jan-12	8:55	43.30	43.80	40.00	38.00	Birds 20%, Dogs barking 5%, Train 30%, Train horn (loud) 5%, TMD 10%, Insects 30%, Mine inaudible
06-Feb-12	13:45	41.90	40.90	36.80	34.90	Insects 40%, Birds 15%, TMD (v loud trucks) 30%, Residents radio 10%, Mine (trucks, machinery, dumping) 5%
13-Feb-12	12:25	40.20	42.30	39.20	34.70	TMD 45%, Birds 15%, Insects 40%, Mine Inaudible
23-Feb-12	11:05	41.10	39.70	35.00	30.80	Birds 25%, Insects 35%, Dogs barking 5%, TMD/NEH 25%, Train (PN) 10%, Mine Inaudible
19-Mar-12	8:25	39.60	41.10	38.90	37.10	Birds 40%, TMD 30%, Mine CHP and RB 10%, NEH 5%, Insects 15%
28-Mar-12	10:25	47.10	46.80	42.90	39.00	TMD 15%, Birds v.loud 70%, Insects 5%, Plane 5%, NEH 5%, Mine inaudible
05-Apr-12	9:35	50.10	50.90	45.70	42.10	Birds v.loud 40%, Residents water pump 50%, TMD 10%, Mine Inaudible
13-Apr-12	13:10	46.10	44.20	36.50	33.10	Loud Birds 50 %, Cockatoo Screeching 10%, Dogs Barking 15%, TMD/NEH 20%, Mine Reversing beepers 5%
02-May-12	9:35	48.40	51.30	46.20	41.80	Very loud birds 70%, NEH 20%, Train rumble and horn 10%, Mine inaudible
21-May-12	11:10	52.10	55.20	50.50	45.90	Birds 50%, TMD 45%, Train moving 5%
30-May-12	14:05	48.20	52.00	45.20	38.80	TMD 70%, Birds loud 30%, Mine inaudible
08-Jun-12	6:15	55.40	43.70	40.60	36.30	FOG, birds 30%, TMD 70%, Mine Inaudible
19-Jun-12	12:05	45.70	46.80	42.70	40.40	Birds 30%, Wind in Trees 30%, TMD 30%, Mine Inaudible
05-Jul-12	13:00	45.80	48.60	40.10	36.20	TMD/NEH 80%, Birds 15%, Mine CHP 5%
10-Jul-12	7:50	43.60	44.90	41.70	39.90	Train 5%, Birds 30% TMD/NEH 40%, Mine-rumble, machinery 25%
18-Jul-12	14:50	38.80	40.50	38.70	36.80	TMD 60%, Birds 30%, Wind in Trees 10%, Mine inaudible
03-Aug-12	14:40	41.40	43.50	40.20	47.80	TMD 45%, Birds 15%, Wind in Trees 40%, Mine Inaudible
15-Aug-12	9:50	41.40	43.30	40.60	38.10	Birds 30%, TMD 40%, Wind in Trees 30%, Mine Inaudible
29-Aug-12	10:30	42.00	42.70	36.90	35.20	Birds 40%, TMD 40%, NEH 20%, Mine Inaudible
14-Sep-12	10:30	43.80	43.30	34.80	31.80	Birds 80%, TMD/NEH 15%, Mine Inaudible
19-Sep-12	10:05	36.70	37.30	35.20	33.10	Birds 40%, TMD/NEH 60%, Mine Inaudible
02-Oct-12	11:20	37.60	38.30	34.60	31.70	Birds 50%, TMD 50%, Mine inaudible
24-Oct-12	11:40	43.70	29.20	37.30	32.50	Birds 90%, TMD/NEH 10%, Mine Inaudible

08-Nov-12	13:10	45.90	49.10	41.50	35.20	Birds 95%, TMD 5%, Mine Inaudible
03-Dec-12	15:00	32.30	35.30	31.80	27.90	Birds 60%, TMD 40%, Mine Inaudible
14-Dec-12	8:00	34.70	34.30	32.40	30.80	Birds 70%, TMD 30%, Mine inaudible

Lot 7 Antiene	Date	Time	LEQ	L10	L50	L90	Comments
	12-Jan-12	13:30	51.00	54.80	48.00	38.50	TMD 45%, Insects 50%, Mine (machinery) 5%
	20-Jan-12	9:20	47.80	51.20	42.60	37.80	Birds (loud) 30%, TMD 60%, Insects 10%, Mine Inaudible
	27-Jan-12	8:30	47.00	50.30	43.90	40.80	Insects 60%, Birds 10%, TMD (loud crane and truck horn) Mine inaudible
	06-Feb-12	13:25	45.40	47.90	39.40	35.70	Insects 45%, TMD 50%, Truck horn 5%, Mine Inaudible
	13-Feb-12	12:05	51.10	54.10	50.50	39.80	TMD 50%, Insects 50%, Mine Inaudible
	23-Feb-12	10:45	46.30	50.20	41.60	32.60	TMD 50%, Insects 40%, Birds 5%, Mine (reversing beepers) 5%
	19-Mar-12	8:00	47.90	52.20	42.70	35.80	TMD 50%, Birds 35%, Insects 10%, Mine CHP 5%
	28-Mar-12	10:05	49.50	53.60	46.40	36.30	Birds 10%, TMD 90%, Mine inaudible
	05-Apr-12	9:15	46.00	49.40	43.00	37.20	TMD 40%, Birds 60%, Mine Inaudible
	13-Apr-12	12:45	46.60	50.60	39.00	32.40	Birds 20%, TMD 80%, Mine Inaudible
	02-May-12	9:15	49.20	53.50	43.50	35.50	TMD 70%, Birds 30%, Mine inaudible
	21-May-12	10:50	39.20	43.10	37.20	31.90	Birds 35%, TMD 60% (vlarge truck) CHPP 5%
	30-May-12	13:45	49.90	52.00	45.20	38.80	TMD 70%, Birds 25%, Wind in trees 5%, Mine inaudible
	08-Jun-12	6:40	59.10	52.70	49.30	45.40	FOG, TMD 70%, Birds 30%, Mine Inaudible
	19-Jun-12	11:45	47.30	50.70	43.90	40.00	TMD 80%, Birds 15%, Wind in Trees 5%, Mine Inaudible
	22-Jun-12	6:40	45.40	45.60	44.30	42.50	TMD 80%, Wind 20%, Mine inaudible
	05-Jul-12	12:40	48.00	50.60	40.80	37.10	TMD 80%, Birds 20%, Mine Inaudible
	10-Jul-12	7:30	49.20	53.00	46.20	40.60	TMD 80%, NEH 10%, Train 10%, Mine Inaudible
	18-Jul-12	14:30	48.40	51.60	45.80	39.60	TMD 70%, Birds 30%, Mine inaudible
	03-Aug-12	15:00	49.90	53.20	47.10	42.00	TMD 60%, Birds 20%, Train 20% (QR), Mine Inaudible

15-Aug-12	9:30	52.20	56.80	48.70	41.30	Birds 20%, TMD 70%, Train 10%, Mine Inaudible
29-Aug-12	10:10	47.30	49.80	42.30	35.30	Birds 20%, TMD 80%, Mine Inaudible
14-Sep-12	10:10	50.00	49.60	39.40	31.60	TMD 80%, Birds (kookaburras) 20%, Mine Inaudible
19-Sep-12	9:45	47.30	51.70	41.40	32.60	Birds 40%, TMD 60%, Mine Inaudible
02-Oct-12	10:55	45.90	50.10	39.40	29.80	TMD 70%, Birds 25%, Reversing beepers non-mine 5%
24-Oct-12	11:10	46.10	50.70	38.70	30.00	TMD 70%, Train 10%, Birds 20%, Mine inaudible
08-Nov-12	12:50	45.70	50.10	41.00	32.80	Birds 20%, TMD 80%, Mine Inaudible
03-Dec-12	14:40	45.70	49.90	43.40	36.80	Birds/Insects 40%, TMD 30%, train 30%, Mine inaudible
14-Dec-12	7:40	46.10	51.10	40.50	32.60	TMD 80%, Wind in Trees 15%, Mine inaudible



16 April 2012

Ref: 03012/4325

**James Benson**

Anglo Coal (Drayton Management) Pty Limited

PMB 9

Muswellbrook NSW 2333

### RE: MARCH 2012 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Drayton Coal Mine (DCM) on 25 March 2012. The purpose of the measurements was to quantify the overall noise levels at the nearby residences and determine the contribution from DCM operations. Schedule 3 of the DCM Project Approval details noise impact assessment criteria for 28 specific residential locations. For logistic reasons it is not reasonable to carry out attended noise monitoring at all of the listed locations during the one monitoring survey. As such, the approach taken was to monitor the noise at eight representative residential locations and determine, by noise modelling, the noise level at all of the other locations required in the Project Approval. Noise measurement locations for the attended noise survey are listed below (as shown in **Figure 1**):

Location R16: Doherty

Location R25: Collins

Location R35: Wilson\*

Location R42: Smith\*

Location R61: Skinner

Location R72: Robertson

Location R75: Sharman

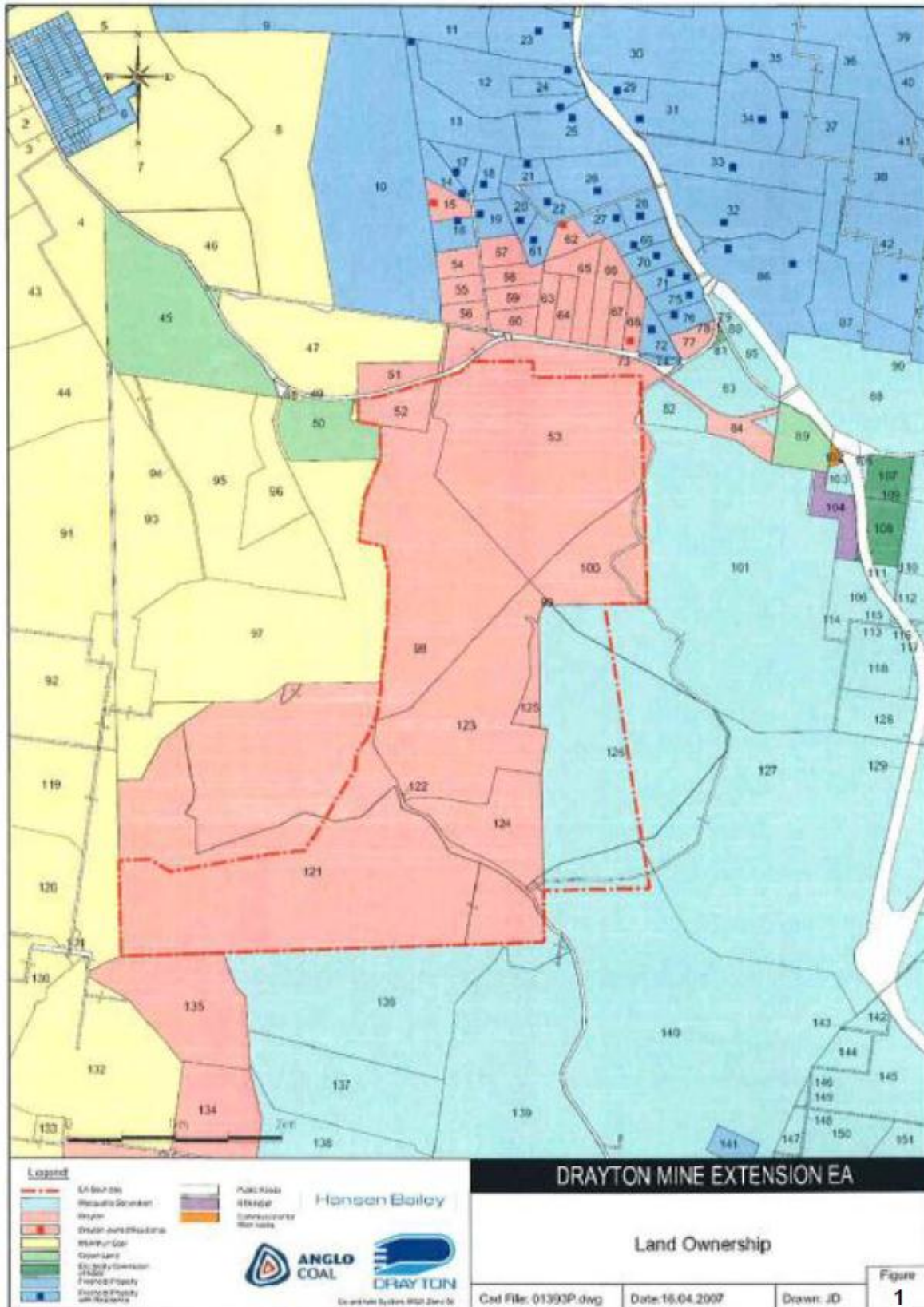
Location R76: Horder

\* Additional locations contained in EPL 1323 but not in the Project Approval.

Three sets of measurements were made over the "circuit", one during the day time period (before 6 pm), one during the evening period (from 6 pm – 10 pm) and one at night (after 10 pm). DCM activities were inaudible at many monitoring locations throughout the survey.



Meteorological data used in this report was supplied by the mine from their automatic weather station. Wind speeds (in m/s) and direction have been determined as the arithmetic average of the measurements over the monitoring period. The mine operated weather station does not record temperature inversion data.



Details of the DCM Project Approval with respect to noise emissions are shown as **Appendix A** to this report.

Noise emission levels were measured with a Brüel & Kjær Type 2260 Precision Sound Analyser. This instrument has Type 1 characteristics as defined in AS1259-1982 "Sound Level Meters". Calibration of the instrument was confirmed with a Brüel & Kjær Type 4231 Sound Level Calibrator Prior to and at the completion of measurements.

Measured noise levels for each monitoring circuit are summarised in the following tables. The total measured  $L_{Aeq}$  is shown in tables 1-3 and night time  $L_{A1(1minute)}$  – expressed as  $L_{Amax}$  – in Table 4. Data was analysed with the Bruel & Kjaer "Evaluator" software to quantify the contributions of the various noise source(s) to the overall. The noise sources are listed in the comments column with the contribution of each shown in brackets. The noise goal for mining operations at DCM is variable depending upon the location (as per the table from Schedule 3 shown in Appendix A). The contribution of mine noise from DCM is shown in bold. Any exceedances of the EPL and project approval noise criteria are shown in red.

Table 1 DCM Noise Monitoring Results – 25 March 2012 (Day)				
Location (Criterion)	Time	dB(A), $L_{eq(15min)}$	Wind speed/ direction	Identified Noise Sources
Doherty (41)	2:45 pm	48	6.0 m/s, ESE	Mower 45, Traffic (41), Insects (37), <b>DCM (36)</b>
Collins (36)	4:07 pm	53	6.1 m/s, ESE	Traffic (52), Birds (44), Wind (39), <b>DCM inaudible</b>
Skinner (39)	3:44 pm	55	5.7 m/s, ESE	Mower (54), Birds (48), Wind (40), <b>DCM (35)</b>
Robertson (36)	2:23 pm	43	5.9 m/s, E	Traffic (41), Wind (37), <b>DCM (30, train)</b>
Sharman (35)	3:25 pm	51	6.2 m/s, ESE	Traffic (51), Wind (42), <b>DCM inaudible</b>
Horder (35)	3:04 pm	44	6.7 m/s, ESE	Traffic (40), Ducks (39), Wind (48), <b>DCM inaudible</b>
Wilson (35)	4:31 pm	42	6.3 m/s, ESE	Wind (40), Birds (35), Traffic (29), <b>DCM inaudible</b>
Smith (35)	4:52 pm	42	6.4 m/s, ESE	Wind (41), Birds (34), Quarry (30), <b>DCM inaudible</b>

Table 2 DCM Noise Monitoring Results – 25 March 2012 (evening)				
Location (Criterion)	Time	dB(A), $L_{eq(15min)}$	Wind speed/ direction	Identified Noise Sources
Doherty (41)	7:14 pm	45	7.6 m/s, ESE	Traffic (42), Wind (40), <b>DCM (38)</b>
Collins (37)	9:02 pm	45	6.9 m/s, ESE	Traffic (44), Insects (37), <b>DCM (32)</b>
Skinner (40)	8:19 pm	47	6.7 m/s, ESE	Wind (44), Traffic (40), Insects (40), <b>DCM (35)</b>
Robertson (37)	7:23 pm	42	8.6 m/s, ESE	Traffic (40), Wind (36), <b>DCM (33)</b>
Sharman (35)	7:55 pm	54	8.1 m/s, ESE	Traffic (54), Wind (44), <b>DCM inaudible</b>
Horder (36)	6:54 pm	51	6.4 m/s, ESE	Birds (48), Traffic (45), Wind (40), <b>DCM inaudible</b>
Wilson (35)	9:26 pm	41	6.6 m/s, SE	Wind (38), Insects (35), Traffic (35), <b>DCM inaudible</b>
Smith (35)	8:39 pm	43	7.2 m/s, ESE	Wind (41), Insects (37), <b>DCM inaudible</b>

Location (Criterion)	Time	dB(A), $L_{eq}(15min)$	Wind speed/ direction	Identified Noise Sources
Doherty (39)	10:00 pm	45	7.0 m/s, E	Insects (41), Wind (41), DCM (36)
Collins (37)	11:43 pm	41	6.1 m/s, ESE	Traffic (38), Insects (35), DCM (34)
Skinner (39)	11:22 pm	45	6.2 m/s, SE	Insects (44), Wind (39), DCM (37)
Robertson (42)	10:21 am	42	6.8 m/s, ESE	Wind (37), Traffic (36), Insects (33), DCM (33)
Sharman (41)	11:01 pm	50	5.9 m/s, SE	Traffic (49), Insects (43), DCM (34)
Horder (42)	10:41 pm	40	6.9 m/s, SE	DCM (36), Traffic (34), Insects (33)
Wilson (36)	12:08 am	40	4.9 m/s, SE	Wind (37), Insects (34), Traffic (32), DCM inaudible
Smith (36)	12:29 am	41	5.0 m/s, ESE	Wind (38), Insects (38), DCM inaudible

Location (Criterion)	Time	dB(A), $L_{1(1minute)}$	Wind speed/ direction	Identified Noise Sources
Doherty (47)	10:00 pm	51	7.0 m/s, E	Insects (51), DCM (<40)
Collins (47)	11:43 pm	63	6.1 m/s, ESE	Traffic (63), DCM (<40)
Skinner (47)	11:22 pm	48	6.2 m/s, SE	Insects (48), DCM (<40)
Robertson (47)	10:21 am	54	6.8 m/s, ESE	Traffic (54), DCM (<40)
Sharman (47)	11:01 pm	58	5.9 m/s, SE	Traffic (58), DCM (<40)
Horder (47)	10:41 pm	49	6.9 m/s, SE	Insects (49), DCM (41)
Wilson (47)	12:08 am	45	4.9 m/s, SE	Insects (45), DCM inaudible
Smith (47)	12:29 am	47	5.0 m/s, ESE	Insects (47), DCM inaudible

The results in **Tables 1 to 4** show that the noise criteria ( $L_{Aeq}(15minute)$  and  $L_{A1(1minute)}$ ) were not exceeded at any receiver.

Data from those times where DCM operations were audible were analysed using the “Evaluator” software. This analysis showed the noise did not contain any tonal, impulsive or low frequency components as per definitions in the NSW Industrial Noise Policy.

The operational noise levels at other receivers listed in the DCM Project Approval were determined using the ENM noise model in point calculation mode. The noise model was set up with a series of point noise sources representing the DCM operations and then calibrated to be consistent with the measured noise levels from the attended survey under similar atmospheric conditions to those at the time of the monitoring. Point calculations were then performed for each of the listed residential locations with results shown in **Appendix B**.

Because the  $L_{A1(1minute)}$  levels were well below the sleep disturbance criterion at the attended monitoring locations, no modelling of  $L_{A1(1minute)}$  levels was conducted for other receiver locations, as these are all at greater distance from the DCM.

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 4954 2276.

Yours faithfully,

**SPECTRUM ACOUSTICS PTY LIMITED**

Author:



**Neil Pennington**

Acoustical Consultant

Review:



**Ross Hodge**

Acoustical Consultant

**SCHEDULE 3  
SPECIFIC ENVIRONMENTAL CONDITIONS**

**NOISE**

**Noise Impact Assessment Criteria**

- The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria in Table 1 at any residence on privately-owned land, or on more than 25 percent of any privately-owned land.

Table 1: Noise impact assessment criteria dB(A)

Land Number	Day	Evening	Night	
	$L_{Aeq}(15 \text{ min})$	$L_{Aeq}(15 \text{ min})$	$L_{Aeq}(15 \text{ min})$	$L_{A1}(1 \text{ min})$
34	35	35	36	45
29	35	35	36	47
31	35	35	37	47
33, 86	35	35	38	45
32	35	35	40	47
71, 75	35	35	41	47
70	35	36	41	47
76	35	36	42	47
28	35	37	40	47
69	35	37	41	47
13	36	36	35	45
12	36	36	36	47
25	36	37	37	47
26	36	37	38	47
27	36	37	39	47
72	36	37	42	47
17	37	38	36	47
21, 22	38	38	38	45
18	38	39	38	47
20, 61	39	40	39	45
14	40	39	38	47
19	40	40	39	47
16	41	41	39	47
23	35	35	35	47
All other privately-owned land	35	35	35	45

However, if the Proponent has a written negotiated noise agreement with any landowner of the land listed in Table 1, and a copy of this agreement has been forwarded to the Department and DECC, then the Proponent may exceed the noise limits in Table 1 in accordance with the negotiated noise agreement.

**Notes:**

- For information on the numbering and identification of properties used in this approval, see Appendix 5.
- To determine compliance with the  $L_{Aeq}(15 \text{ min})$  noise limits, noise from the project is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.
- To determine compliance with the  $L_{A1}(1 \text{ min})$  noise limits, noise from the project is to be measured at 1 metre from the dwelling façade. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).
- The noise emission limits identified in the above table apply under meteorological conditions of:
  - wind speeds of up to 3 m/s at 10 metres above ground level; or
  - temperature inversion conditions of up to 3°C/100m, and wind speeds of up to 2 m/s at 10 metres above ground level.

## Land Acquisition Criteria

- If the noise generated by the project exceeds the criteria in Table 2 at any residence on privately-owned land or on more than 25 percent of any privately-owned land, the Proponent shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 8-10 of Schedule 4.

Table 2: Land acquisition criteria dB(A)

Land Number	Day/Evening/Night <i>L<sub>Aeq</sub>(15min)</i>
12, 14, 16, 17, 18, 19, 23, 25, 26, 27, 28, 29, 31, 32, 69, 70, 71, 72, 75, 76	42
All other private land owners not listed in Table 1, or on more than 25 percent of, any privately owned land.	40

Note: Noise generated by the project is to be measured in accordance with the notes to Table 1.

## Cumulative Noise Criteria

- The Proponent shall take all reasonable and feasible measures to ensure that the noise generated by the project combined with the noise generated by other mines does not exceed the following amenity criteria at any residence on privately-owned land or on more than 25 percent of any privately owned land:
  - L<sub>Aeq</sub>(11 hour)* 50 dB(A) – Day;
  - L<sub>Aeq</sub>(4 hour)* 45 dB(A) – Evening;
  - L<sub>Aeq</sub>(9 hour)* 40 dB(A) – Night.
- If the noise generated by the project combined with the noise generated by other mines exceeds the following amenity criteria at any residence on privately owned-land or on more than 25 percent of any privately owned land, then upon receiving a written request from the landowner, the Proponent shall acquire the land on as equitable basis as possible with the relevant mines in accordance with the procedures in conditions 8-10 of Schedule 4:
  - L<sub>Aeq</sub>(11 hour)* 53 dB(A) – Day;
  - L<sub>Aeq</sub>(4 hour)* 48 dB(A) – Evening;
  - L<sub>Aeq</sub>(9 hour)* 43 dB(A) – Night.

Notes: The cumulative noise generated by the project combined with the noise generated by other mines is to be measured in accordance with the relevant procedures in the NSW Industrial Noise Policy.

APPENDIX B  
MODELLED NOISE LEVELS as Leq (15 min)

Location	Day		Evening		Night	
	Noise Level	Noise Goal	Noise Level	Noise Goal	Noise Level	Noise Goal
34	<30	35	<30	35	<30	39
29	<30	35	<30	35	<30	36
31	<30	35	<30	35	<30	37
33	<30	35	<30	35	<30	38
86	<30	35	<30	35	<30	38
32	<30	35	<30	35	30	40
71	<30	35	<30	35	33	41
75*	<30	35	<30	35	34	41
70	<30	35	<30	36	35	41
76*	<30	35	<30	36	36	42
28	<30	35	<30	37	36	40
69	<30	35	<30	37	35	41
13	<30	36	31	36	35	35
12	<30	36	31	36	35	36
25*	<30	36	32	37	34	37
26	<30	36	32	37	34	38
27	30	36	33	37	34	39
72*	30	36	33	37	33	42
17	30	37	33	38	32	36
21	32	38	33	38	33	38
22	32	38	34	38	35	38
18	34	38	34	39	35	38
20	35	39	34	40	36	39
61*	35	39	35	40	37	39
14	35	40	35	39	36	39
19	36	40	36	40	36	39
16*	36	41	38	41	36	39
23	<30	35	<30	35	<30	35
35*	<30	35	<30	35	<30	35
37	<30	35	<30	35	<30	35
42*	<30	35	<30	35	<30	35

- Measurement location



26 September 2012

Ref: 03012/4513

**James Benson**

Anglo Coal (Drayton Management) Pty Limited

PMB 9

Muswellbrook NSW 2333

### RE: SEPTEMBER 2012 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Drayton Coal Mine (DCM) on 8 September 2012. The purpose of the measurements was to quantify the overall noise levels at the nearby residences and determine the contribution from DCM operations. Schedule 3 of the DCM Project Approval details noise impact assessment criteria for 28 specific residential locations. For logistic reasons it is not reasonable to carry out attended noise monitoring at all of the listed locations during the one monitoring survey. As such, the approach taken was to monitor the noise at eight representative residential locations and determine, by noise modelling, the noise level at all of the other locations required in the Project Approval. Noise measurement locations for the attended noise survey are listed below (as shown in **Figure 1**):

Location R16: Doherty

Location R25: Kerr

Location R35: Wilson\*

Location R42: Smith\*

Location R61: Skinner

Location R72: Robertson

Location R75: Sharman

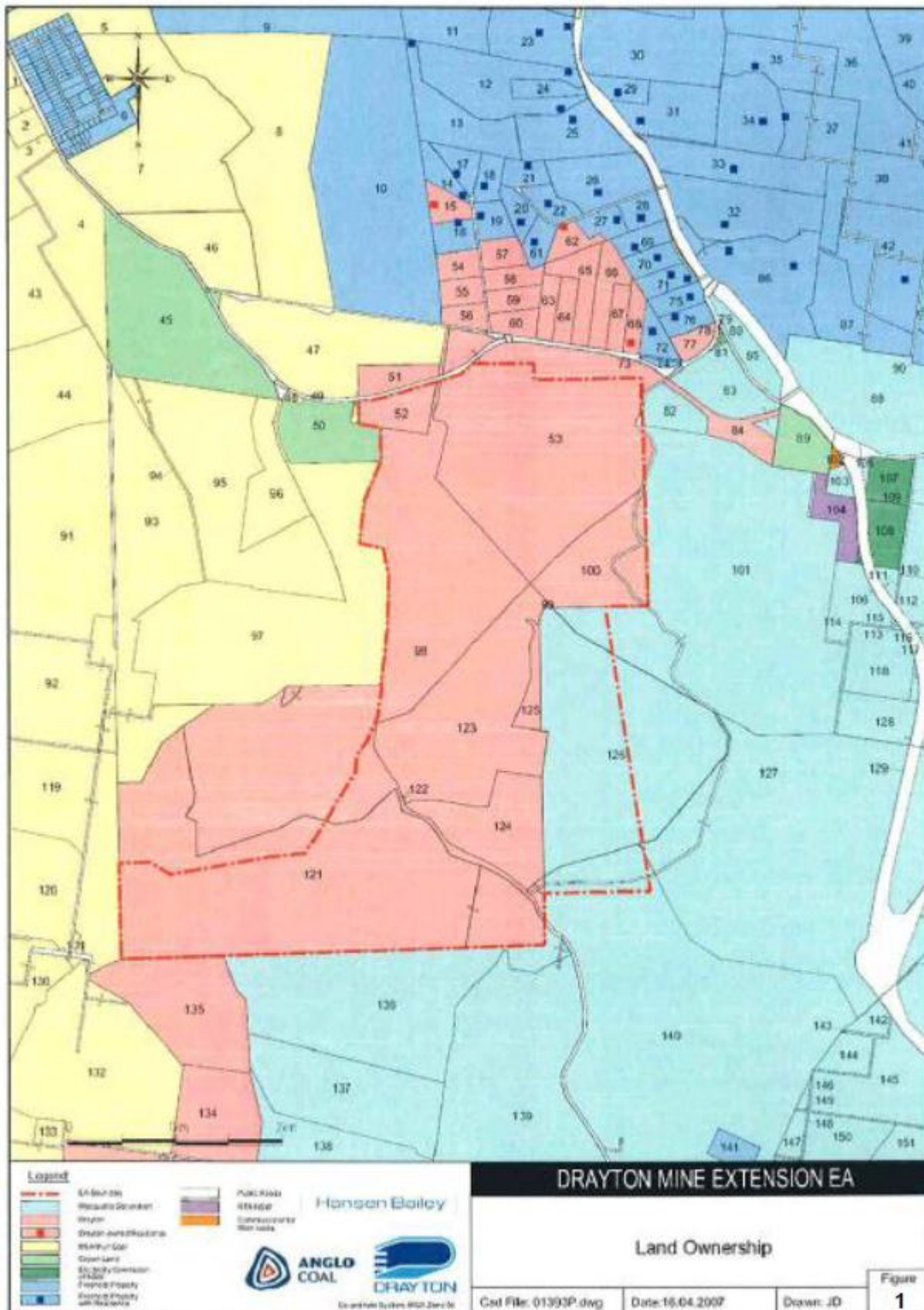
Location R76: Horder

\* Additional locations contained in EPL 1323 but not in the Project Approval.

Three sets of measurements were made over the "circuit", one during the day time period (before 6 pm), one during the evening period (from 6 pm – 10 pm) and one at night (after 10 pm). DCM activities were inaudible at many monitoring locations throughout the survey.



Meteorological data used in this report was supplied by the mine from their automatic weather station. Wind speeds (in km/h) and direction have been determined as the arithmetic average of the measurements over the monitoring period. The mine operated weather station does not record temperature inversion data.



Details of the DCM Project Approval with respect to noise emissions are shown as **Appendix A** to this report.

Noise emission levels were measured with a Brüel & Kjær Type 2260 Precision Sound Analyser. This instrument has Type 1 characteristics as defined in AS1259-1982 "Sound Level Meters". Calibration of the instrument was confirmed with a Brüel & Kjær Type 4231 Sound Level Calibrator Prior to and at the completion of measurements.

Measured noise levels for each monitoring circuit are summarised in the following tables. The total measured  $L_{Aeq}$  is shown in tables 1-3 and night time  $L_{A1(1minute)}$  – expressed as  $L_{Amax}$  – in Table 4. Data was analysed with the Bruel & Kjaer "Evaluator" software to quantify the contributions of the various noise source(s) to the overall. The noise sources are listed in the comments column with the contribution of each shown in brackets. The noise goal for mining operations at DCM is variable depending upon the location (as per the table from Schedule 3 shown in Appendix A). The contribution of mine noise from DCM is shown in bold. Any exceedances of the EPL and project approval noise criteria are shaded grey.

Location (Criterion)	Time	dB(A), $L_{eq(15min)}$	Wind speed/ direction	Identified Noise Sources
Doherty (41)	4:04 pm	40	24.4 / 337	Traffic (36), <b>DCM (34)</b> , birds (33)
Kerr (36)	5:40 pm	54	24.3 / 324	Traffic (53), birds (45), <b>DCM inaudible</b>
Skinner (39)	5:17 pm	42	21.6 / 336	Birds (40), traffic (34), train (33), <b>DCM inaudible</b>
Robertson (36)	4:26 pm	43	23.1 / 328	Birds (40), traffic (38), <b>DCM (33)</b>
Sharman (35)	5:01 pm	44	22.2 / 335	Traffic (42), birds (37), <b>DCM inaudible</b>
Horder (35)	4:44 pm	48	23.9 / 328	Birds (48), traffic (33), <b>DCM (&lt;30)</b>
Wilson (35)	3:42 pm	39	24.4 / 331	Birds (36), traffic (34), <b>DCM inaudible</b>
Smith (35)	3:21 pm	38	24.1 / 336	Birds (35), traffic (32), quarry (31), <b>DCM inaudible</b>

Location (Criterion)	Time	dB(A), $L_{eq(15min)}$	Wind speed/ direction	Identified Noise Sources
Doherty (41)	7:52 pm	42	17.1 / 292	Traffic (39), <b>DCM (37)</b> , wind (32)
Kerr (37)	9:42 pm	45	12.4 / 294	Traffic (45), <b>DCM (32)</b>
Skinner (40)	9:20 pm	44	14.4 / 293	<b>DCM (40)</b> , train (39), insects (38)
Robertson (37)	8:20 pm	42	15.3 / 296	Traffic (39), <b>DCM (35)</b> , insects (34)
Sharman (35)	8:58 pm	47	16.3 / 313	Traffic (45), insects (41), <b>DCM (37)</b>
Horder (36)	8:39 pm	42	16.4 / 309	<b>DCM (39)</b> , traffic (36), insects (31)
Wilson (35)	7:29 pm	38	16.9 / 285	Traffic (35), insects (33), <b>DCM inaudible</b>
Smith (35)	7:06 pm	37	15.9 / 294	Traffic (36), frogs (31), <b>DCM inaudible</b>

**Table 3**  
**DCM Noise Monitoring Results – 8 September 2012 (night)**

Location (Criterion)	Time	dB(A), L <sub>eq</sub> (15min)	Wind speed/ direction	Identified Noise Sources
Doherty (39)	10:03 pm	41	10.3 / 321	DCM (38), traffic (38)
Kerr (37)	11:44 pm	47	15.9 / 323	Traffic (47), DCM (32), insects (30)
Skinner (39)	11:23 pm	38	17.3 / 334	DCM (36), traffic (30), insects (30)
Robertson (42)	10:24 pm	40	9.1 / 345	DCM (37), traffic (34), insects (34)
Sharman (41)	11:03 pm	42	12.1 / 2	Traffic (40), DCM (35), insects (33)
Horder (42)	10:45 pm	41	11.8 / 345	DCM (37), insects (37), traffic (32)
Wilson (36)	12:24 pm	38	14.8 / 332	Insects (36), traffic (32), DCM inaudible
Smith (36)	12:06 pm	37	14.8 / 332	Insects (37), DCM inaudible

**Table 4**  
**DCM Noise Monitoring Results – 8 September 2012 (night)**

Location (Criterion)	Time	dB(A), L <sub>1</sub> (1minute)	Wind speed/ direction	Identified Noise Sources
Doherty (47)	10:03 pm	46	10.3 / 321	Insects (46), DCM (43)
Kerr (47)	11:44 pm	56	15.9 / 323	Traffic (46), DCM (<40)
Skinner (47)	11:23 pm	51	17.3 / 334	Dogs (51), DCM (<40)
Robertson (47)	10:24 pm	50	9.1 / 345	Domestic (50), DCM (40)
Sharman (47)	11:03 pm	51	12.1 / 2	Traffic (51), DCM (41)
Horder (47)	10:45 pm	48	11.8 / 345	Insects (48), DCM (42)
Wilson (47)	12:24 pm	40	14.8 / 332	Traffic (40), DCM inaudible
Smith (47)	12:06 pm	43	14.8 / 332	Insects (43), DCM inaudible

The results in Tables 1 to 4 show that the noise criteria (L<sub>Aeq</sub>(15minute)) were exceeded on the following occasions:

#### Evening

Sharman (2 dB). This minor exceedance occurred when wind speed were above the 3m/s (10.5 km/h) upper limit of wind speeds for the noise criteria to be applicable.

Horder (3 dB). This moderate exceedance occurred when wind speed were above the 3m/s (10.5 km/h) upper limit of wind speeds for the noise criteria to be applicable.

Field notes from the survey identified an excavator operating in the North Pit as the dominant mining noise source.

DCM train schedule during monitoring period:

Date	Start_time	Departure_time	Train_number
8-Sep-12	2:42:00 AM	5:12:00 AM	DR278
8-Sep-12	8:50:00 AM	10:31:00 AM	DR128
8-Sep-12	4:29:00 PM	7:53:00 PM	DR196
8-Sep-12	10:23:00 PM	12:49:00 AM	DR248

Trains were identified during the attended monitoring at Skinner (5:17 pm and 9:20 pm). These times do not coincide with the DCM train schedule and were therefore associated with another mine.

Data from those times where DCM operations were audible were analysed using the "Evaluator" software. This analysis showed the noise did not contain any tonal, impulsive or low frequency components as per definitions in the NSW Industrial Noise Policy.

The results in Table 4 show that the noise sleep disturbance criteria ( $L_{A1(1\text{minute})}$ ) were not exceeded at any receiver.

The operational noise levels at other receivers listed in the DCM Project Approval were determined using the ENM noise model in point calculation mode. The noise model was set up with a series of point noise sources representing the DCM operations and then calibrated to be consistent with the measured noise levels from the attended survey under similar atmospheric conditions to those at the time of the monitoring. Point calculations were then performed for each of the listed residential locations with results shown in **Appendix B**.

Because the  $L_{A1(1\text{minute})}$  levels were well below the sleep disturbance criterion at the attended monitoring locations, no modelling of  $L_{A1(1\text{minute})}$  levels was conducted for other receiver locations, as these are all at greater distance from the DCM.

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 4954 2276.

Yours faithfully,

**SPECTRUM ACOUSTICS PTY LIMITED**

Author:



**Neil Pennington**  
Acoustical Consultant

Review:



**Ross Hodge**  
Acoustical Consultant

**SCHEDULE 3  
SPECIFIC ENVIRONMENTAL CONDITIONS**

**NOISE**

**Noise Impact Assessment Criteria**

- The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria in Table 1 at any residence on privately-owned land, or on more than 25 percent of any privately-owned land.

Table 1: Noise impact assessment criteria dB(A)

Land Number	Day	Evening	Night	
	$L_{Aeq}(15 \text{ min})$	$L_{Aeq}(15 \text{ min})$	$L_{Aeq}(15 \text{ min})$	$L_{A1}(1 \text{ min})$
34	35	35	36	45
29	35	35	36	47
31	35	35	37	47
33, 86	35	35	38	45
32	35	35	40	47
71, 75	35	35	41	47
70	35	36	41	47
76	35	36	42	47
28	35	37	40	47
69	35	37	41	47
13	36	36	35	45
12	36	36	36	47
25	36	37	37	47
26	36	37	38	47
27	36	37	39	47
72	36	37	42	47
17	37	38	36	47
21, 22	38	38	38	45
18	38	39	38	47
20, 61	39	40	39	45
14	40	39	38	47
19	40	40	39	47
16	41	41	39	47
23	35	35	35	47
All other privately-owned land	35	35	35	45

However, if the Proponent has a written negotiated noise agreement with any landowner of the land listed in Table 1, and a copy of this agreement has been forwarded to the Department and DECC, then the Proponent may exceed the noise limits in Table 1 in accordance with the negotiated noise agreement.

**Notes:**

- For information on the numbering and identification of properties used in this approval, see Appendix 5.
- To determine compliance with the  $L_{Aeq}(15 \text{ min})$  noise limits, noise from the project is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.
- To determine compliance with the  $L_{A1}(1 \text{ min})$  noise limits, noise from the project is to be measured at 1 metre from the dwelling façade. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).
- The noise emission limits identified in the above table apply under meteorological conditions of:
  - wind speeds of up to 3 m/s at 10 metres above ground level; or
  - temperature inversion conditions of up to 3°C/100m, and wind speeds of up to 2 m/s at 10 metres above ground level.

## Land Acquisition Criteria

2. If the noise generated by the project exceeds the criteria in Table 2 at any residence on privately-owned land or on more than 25 percent of any privately-owned land, the Proponent shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 8-10 of Schedule 4.

Table 2: Land acquisition criteria dB(A)

Land Number	Day/Evening/Night <i>L<sub>Aeq</sub>(15min)</i>
12, 14, 16, 17, 18, 19, 23, 25, 26, 27, 28, 29, 31, 32, 69, 70, 71, 72, 75, 76	42
All other private land owners not listed in Table 1, or on more than 25 percent of, any privately owned land.	40

Note: Noise generated by the project is to be measured in accordance with the notes to Table 1.

## Cumulative Noise Criteria

3. The Proponent shall take all reasonable and feasible measures to ensure that the noise generated by the project combined with the noise generated by other mines does not exceed the following amenity criteria at any residence on privately-owned land or on more than 25 percent of any privately owned land:
- *L<sub>Aeq</sub>(11 hour)* 50 dB(A) – Day;
  - *L<sub>Aeq</sub>(4 hour)* 45 dB(A) – Evening;
  - *L<sub>Aeq</sub>(9 hour)* 40 dB(A) – Night.
4. If the noise generated by the project combined with the noise generated by other mines exceeds the following amenity criteria at any residence on privately owned-land or on more than 25 percent of any privately owned land, then upon receiving a written request from the landowner, the Proponent shall acquire the land on as equitable basis as possible with the relevant mines in accordance with the procedures in conditions 8-10 of Schedule 4:
- *L<sub>Aeq</sub>(11 hour)* 53 dB(A) – Day;
  - *L<sub>Aeq</sub>(4 hour)* 48 dB(A) – Evening;
  - *L<sub>Aeq</sub>(9 hour)* 43 dB(A) – Night.

Notes: The cumulative noise generated by the project combined with the noise generated by other mines is to be measured in accordance with the relevant procedures in the NSW Industrial Noise Policy.

APPENDIX B  
MODELLED NOISE LEVELS as Leq (15 min)

Location	Day		Evening		Night	
	Noise Level	Noise Goal	Noise Level	Noise Goal	Noise Level	Noise Goal
34	<30	35	<30	35	<30	39
29	<30	35	31	35	<30	36
31	<30	35	31	35	33	37
33	<30	35	30	35	<30	38
86	<30	35	<30	35	<30	38
32	<30	35	31	35	< 30	40
71	<30	35	36	35	33	41
75*	<30	35	37	35	35	41
70	<30	35	35	36	36	41
76*	<30	35	39	36	37	42
28	<30	35	36	37	36	40
69	<30	35	35	37	35	41
13	<30	36	30	36	34	35
12	<30	36	30	36	34	36
25*	<30	36	32	37	32	37
26	<30	36	32	37	33	38
27	30	36	33	37	34	39
72*	33	36	35	37	37	42
17	33	37	34	38	33	36
21	<30	38	33	38	34	38
22	<30	38	34	38	34	38
18	37	38	33	39	36	38
20	30	39	36	40	36	39
61*	<30	39	40	40	36	39
14	31	40	38	39	34	39
19	33	40	37	40	36	39
16*	34	41	37	41	38	39
23	<30	35	<30	35	<30	35
35*	<30	35	<30	35	<30	35
42*	<30	35	<30	35	<30	35
37	<30	35	<30	35	<30	35

- Measurement location

**Table 43: Real Time Noise Monitoring**

January	Day dB(A)	Evening dB(A)	Night dB(A)
1/01/2012	34.9	33.7	37.7
2/01/2012	30.8	33.7	37.9
3/01/2012	34.4	36.3	37.7
4/01/2012	36.4	38.9	34.7
5/01/2012	33.7	36.8	34.2
6/01/2012	33.9	31	33
7/01/2012	30.2	32.6	33.5
8/01/2012	29.7	41.2	38.2
9/01/2012	38	37.8	38
10/01/2012	36.3	39.2	41.9
11/01/2012	39.6	40.9	38.4
12/01/2012	33.9	31.2	31.1
13/01/2012	33.3	31.6	34.9
14/01/2012	33.9	32.4	31.5
15/01/2012	31.8	32.8	33.5
16/01/2012	33.2	31.6	33.4
17/01/2012	34.8	30.3	36.4
18/01/2012	33.9	31	32.3
19/01/2012	34.1	31.4	34.9
20/01/2012	33.5	29.8	33.7
21/01/2012	33	32	37.7
22/01/2012	34.5	31.1	31.2
23/01/2012	34.2	30.7	31.3
24/01/2012	35.2	35.4	33.8
25/01/2012	35.4	32.9	34.8
26/01/2012	32.2	32.3	32.2
27/01/2012	34.7	36	32.4
28/01/2012	32.2	36.9	38
29/01/2012	30.9	36.1	35.2
30/01/2012	34.8	34.1	34.2
31/01/2012	39.8	39.8	36.6

February	Day dB(A)	Evening dB(A)	Night dB(A)
1/02/2012	37.8	33.9	36.2
2/02/2012	38.6	36.1	35.5
3/02/2012	35.5	32.9	31.2
4/02/2012	32.2	33.3	33.1
5/02/2012	30.4	31.1	31.6
6/02/2012	35	30.6	32.4
7/02/2012	36.1	31	35.2
8/02/2012	35.4	34.3	33.3
9/02/2012	35.1	32.5	33.1
10/02/2012	35.9	31.5	31.8
11/02/2012	33.4	31.7	32.9
12/02/2012	29.7	30.9	32.9
13/02/2012	35.6	44.5	31.8
14/02/2012	35.8	32.6	32.2
15/02/2012	34.9	34	35.1
16/02/2012	36.8	32.5	35.6
17/02/2012	35.4	39.2	35.6
18/02/2012	32.1	41	35.2
19/02/2012	33.2	32	37.4
20/02/2012	37.1	34.9	33
21/02/2012	35.9	35.3	34.4
22/02/2012	36.4	29.3	31.7
23/02/2012	34.8	30	31.9
24/02/2012	34.5	31.6	32.6
25/02/2012	38.1	30.8	31.7
26/02/2012	29.2	31	31.1
27/02/2012	34.3	32	31.5
28/02/2012	33.3	32.4	32.1
29/02/2012	33.9	32	29.5

March	Day dB(A)	Evening dB(A)	Night dB(A)
1/03/2012	33.6	31.5	29.7
2/03/2012	35	32.8	30.8
3/03/2012	33.6	34.9	35.7
4/03/2012	31.8	35.8	32.8
5/03/2012	35.3	30.7	33.3
6/03/2012	35.7	33.7	36.6

April	Day dB(A)	Evening dB(A)	Night dB(A)
1/04/2012	33.5	38.3	37.7
2/04/2012	35.5	38.1	39.7
3/04/2012	34.3	41.5	37.3
4/04/2012	34.7	35.2	34.7
5/04/2012	41.1	35.3	37.2
6/04/2012	33.9	37.3	37



7/03/2012	38.7	36	34.4
8/03/2012	39.9	35.9	34.9
9/03/2012	36.3	37.5	34.9
10/03/2012	32.1	34.3	31.3
11/03/2012	30.8	31.7	34.1
12/03/2012	35.2	36.4	37.5
13/03/2012	34.2	30.6	34.5
14/03/2012	33.3	34.8	33
15/03/2012	33.6	34.6	36.2
16/03/2012	33.8	28.9	34.8
17/03/2012	33.9	26.8	30.1
18/03/2012	33	33.4	31.7
19/03/2012	36.5	41.6	36.9
20/03/2012	35.1	30.8	34
21/03/2012	36.3	37.6	33.8
22/03/2012	36.8	37.9	29.5
23/03/2012	37.7	39.1	39.8
24/03/2012	35.7	35.5	35.4
25/03/2012	32.6	34.2	35.5
26/03/2012	35.2	33	36.3
27/03/2012	35	35.8	34.8
28/03/2012	34.9	34.6	37.4
29/03/2012	36.9	33.3	33.4
30/03/2012	35.4	34.4	35.8
31/03/2012	31.9	31.8	40.6

7/04/2012	35.7	32.2	32.1
8/04/2012	35.6	31.1	35.3
9/04/2012	36.3	43.1	42.1
10/04/2012	37.4	34.4	35.3
11/04/2012	34.8	32	35.1
12/04/2012	36	-	-
13/04/2012	-	-	-
14/04/2012	-	-	-
15/04/2012	-	-	-
16/04/2012	-	-	-
17/04/2012	-	-	-
18/04/2012	35.6	38.3	31.3
19/04/2012	34.6	30.3	34.1
20/04/2012	36	34.1	34.2
21/04/2012	33.7	32.4	31.6
22/04/2012	32.4	32.6	33.9
23/04/2012	36.2	27.7	32.5
24/04/2012	37.3	39.5	36.3
25/04/2012	37.4	38.6	34.2
26/04/2012	35	37.2	39.8
27/04/2012	35.9	33	35.1
28/04/2012	31.2	34.9	38.2
29/04/2012	34.6	37.2	35.9
30/04/2012	34.9	31.2	35.5

May	Day dB(A)	Evening dB(A)	Night dB(A)
1/05/2012	35.8	37	35.5
2/05/2012	36.5	34.9	31.5
3/05/2012	35.1	34.3	40.6
4/05/2012	35.4	34.5	36.4
5/05/2012	37.6	37.1	40.4
6/05/2012	35	41.5	34.3
7/05/2012	36.3	35.6	40.9
8/05/2012	35.4	40.4	38.2
9/05/2012	35.7	41.8	38.6
10/05/2012	35.7	35.3	39.1
11/05/2012	35.8	33.3	39.7
12/05/2012	40	-	-
13/05/2012	-	-	-
14/05/2012	-	-	-
15/05/2012	-	-	-

June	Day dB(A)	Evening dB(A)	Night dB(A)
1/06/2012	35.1	39.5	35.5
2/06/2012	34.8	34.8	35.9
3/06/2012	35	39.5	35.5
4/06/2012	39.6	38.6	34.9
5/06/2012	40.2	37.9	41.4
6/06/2012	39.5	42	37.7
7/06/2012	36.5	34.3	33.6
8/06/2012	35.4	34.9	37.4
9/06/2012	31.9	37.1	38.9
10/06/2012	35.1	36.4	36.7
11/06/2012	38.1	35.7	38
12/06/2012	38.3	-	-
13/06/2012	39	32.6	37.3
14/06/2012	35.5	32.9	36.5
15/06/2012	35.5	37	38.4

16/05/2012	-	-	-
17/05/2012	-	-	-
18/05/2012	-	-	-
19/05/2012	-	-	-
20/05/2012	-	-	-
21/05/2012	-	-	-
22/05/2012	-	-	-
23/05/2012	-	-	-
24/05/2012	-	-	-
25/05/2012	-	-	-
26/05/2012	-	-	-
27/05/2012	-	-	-
28/05/2012	-	-	-
29/05/2012	35.6	33.6	34.9
30/05/2012	35.3	31.9	34.8
31/05/2012	36.7	34.5	37.1

16/06/2012	39.5	33	37.5
17/06/2012	38.4	36.1	39.4
18/06/2012	36.6	39.7	37.6
19/06/2012	36.6	39.6	38
20/06/2012	37.5	37	39.1
21/06/2012	35.6	31.9	37.2
22/06/2012	36.7	37.8	34.7
23/06/2012	36.8	42.6	36.5
24/06/2012	39.6	40.1	43
25/06/2012	38.4	40.4	41.9
26/06/2012	37.3	32.2	37.1
27/06/2012	35.9	34.8	39.9
28/06/2012	37.4	37.4	32.7
29/06/2012	36.1	39.1	40
30/06/2012	37.1	36.3	38.8

July	Day dB(A)	Evening dB(A)	Night dB(A)
1/07/2012	36.2	37.5	39.1
2/07/2012	38	43.9	37.4
3/07/2012	39.4	39.7	39.4
4/07/2012	37.2	34.9	37.5
5/07/2012	35.5	38.9	39.2
6/07/2012	38.4	34.6	39.2
7/07/2012	35.3	30.4	36.7
8/07/2012	34	38.3	41.4
9/07/2012	36	36.4	45.1
10/07/2012	35.8	40.1	33.3
11/07/2012	36.8	37.4	41.3
12/07/2012	35.7	32.2	47
13/07/2012	38.6	38.6	40.1
14/07/2012	38.2	35.1	39.9
15/07/2012	37.9	38.7	33.9
16/07/2012	37.4	40.4	39.5
17/07/2012	37.1	37.8	41.4
18/07/2012	37	38	40.3
19/07/2012	37.1	36.1	45.4
20/07/2012	37.5	40	39.6
21/07/2012	39.6	40.3	37.2
22/07/2012	37.5	37.5	39.2
23/07/2012	37.4	35.8	38.2
24/07/2012	37.5	39.5	35.9

August	Day dB(A)	Evening dB(A)	Night dB(A)
1/08/2012	36.5	40.2	42.3
2/08/2012	37.5	42.3	40.4
3/08/2012	38.6	36.5	40.6
4/08/2012	41	37.1	37.4
5/08/2012	35.8	35.6	38.7
6/08/2012	36	33.8	34.9
7/08/2012	35.7	35.7	34.2
8/08/2012	35	31.5	34.6
9/08/2012	38.5	42	39
10/08/2012	30	-	-
11/08/2012	-	-	-
12/08/2012	-	-	-
13/08/2012	-	-	-
14/08/2012	-	-	-
15/08/2012	30	34.9	41.5
16/08/2012	38.7	44	41.5
17/08/2012	40	39.5	39
18/08/2012	38.6	38.7	38.7
19/08/2012	35.8	40.7	43
20/08/2012	36.4	42.2	37.2
21/08/2012	35	43.3	38.9
22/08/2012	34.6	34.8	32.4
23/08/2012	37.9	30.4	36.9
24/08/2012	38.2	38	34.1

25/07/2012	36.3	42.9	36.1
26/07/2012	35.9	32.8	36.6
27/07/2012	37	39.7	36.8
28/07/2012	37.1	41.6	36
29/07/2012	31.2	36.6	37.9
30/07/2012	36.7	37	43.3
31/07/2012	38.1	36.9	38.2

25/08/2012	37	40.7	37.9
26/08/2012	35.1	39.4	40.1
27/08/2012	35.3	39.6	39.6
28/08/2012	36.4	32.9	39.4
29/08/2012	34.5	41.4	37.1
30/08/2012	38.2	41.9	40.3
31/08/2012	37.2	41.7	43

September	Day dB(A)	Evening dB(A)	Night dB(A)
1/09/2012	30.4	33.3	37.6
2/09/2012	27.8	39.2	35.2
3/09/2012	30.3	34.7	39
4/09/2012	33.7	40.8	38.5
5/09/2012	32.9	31.4	31
6/09/2012	37.3	33	36.9
7/09/2012	41.8	36.8	34.7
8/09/2012	36.3	40.7	37.4
9/09/2012	32.2	37.2	36.4
10/09/2012	30.8	37.1	38.2
11/09/2012	30.1	35.7	35.7
12/09/2012	31.6	36.1	38.7
13/09/2012	40	41.5	41.4
14/09/2012	33.3	34.9	41
15/09/2012	30.4	26.9	34.1
16/09/2012	30.8	30.8	36.4
17/09/2012	31.5	29.9	41.2
18/09/2012	41.6	30.9	35.4
19/09/2012	39.5	35.4	35.3
20/09/2012	30.5	33.2	36.6
21/09/2012	40.1	39.6	40.2
22/09/2012	28.1	36.7	37
23/09/2012	28.9	32.8	39.3
24/09/2012	36.1	37	39.1
25/09/2012	31.2	30.2	39.7
26/09/2012	30.4	36.7	37.5
27/09/2012	32.4	36.2	36.7
28/09/2012	32.6	25.3	33.4
29/09/2012	40.5	42.3	40.4
30/09/2012	34.1	40	37.8

October	Day dB(A)	Evening dB(A)	Night dB(A)
1/10/2012	29.1	31.3	32.4
2/10/2012	28.7	36.5	41.7
3/10/2012	34	37	38.3
4/10/2012	35.1	38.4	37.8
5/10/2012	38.8	34.4	29.5
6/10/2012	31.7	34.6	41.2
7/10/2012	33.1	31.4	33.8
8/10/2012	30.2	32.2	37
9/10/2012	39	35.3	33.6
10/10/2012	31.2	35.2	32.1
11/10/2012	29.3	36.4	35.1
12/10/2012	38.1	33.9	37
13/10/2012	35.5	28.9	33.9
14/10/2012	28.2	31.5	35.2
15/10/2012	31.2	37.9	37.4
16/10/2012	31	33.4	36.7
17/10/2012	35.4	31.9	34.3
18/10/2012	31.2	37.3	33.2
19/10/2012	34.7	30	38.7
20/10/2012	40.4	37.7	36.1
21/10/2012	33.2	29.6	37.7
22/10/2012	34.6	34.5	39.4
23/10/2012	30.5	29.4	36.1
24/10/2012	33.2	36.4	37.4
25/10/2012	35.9	38.9	40.1
26/10/2012	37.5	34.2	40.6
27/10/2012	29.6	33.7	29.7
28/10/2012	32.4	33	36.3
29/10/2012	30.5	33.3	34.6
30/10/2012	30.4	36.2	41.6
31/10/2012	29.6	33.5	34.9

November	Day dB(A)	Evening dB(A)	Night dB(A)
1/11/2012	38.1	39.3	40.9
2/11/2012	32.1	31.3	32.3
3/11/2012	30.9	32.9	33.3
4/11/2012	33.1	34.1	35.1
5/11/2012	31.7	34.9	37.9
6/11/2012	30.9	34.9	32.2
7/11/2012	30.6	40.5	38
8/11/2012	35.2	24.5	32.5
9/11/2012	35.4	36.8	35.6
10/11/2012	31.3	26.6	34
11/11/2012	29.5	40	33.8
12/11/2012	30.5	-	-
13/11/2012	34	33.5	32.6
14/11/2012	31.3	32.3	33.2
15/11/2012	37.2	34.7	33
16/11/2012	36.1	32.1	34.9
17/11/2012	31.9	30.4	35.7
18/11/2012	31.3	41.4	38.7
19/11/2012	33.3	34.6	36.2
20/11/2012	31.5	27.2	32.3
21/11/2012	30.6	31.4	31.9
22/11/2012	30.4	27.6	25.8
23/11/2012	29.6	31.2	31.8
24/11/2012	25.4	31.8	34
25/11/2012	30.2	31.7	34.4
26/11/2012	29.5	33.4	32.5
27/11/2012	31.3	38.7	30.5
28/11/2012	34.9	32.5	-
29/11/2012	30	31.9	32.4
30/11/2012	29.9	29.4	36.3

December	Day dB(A)	Evening dB(A)	Night dB(A)
1/12/2012	28.3	36.2	35.3
2/12/2012	27	35	31.3
3/12/2012	32	32.8	32.1
4/12/2012	39	40.7	39.9
5/12/2012	40.9	40.3	40.7
6/12/2012	31.7	33.8	30.9
7/12/2012	29.8	33.5	33.6
8/12/2012	26	30	31.9
9/12/2012	31	29.3	34.7
10/12/2012	36.1	31.4	35.3
11/12/2012	33	33.2	32.9
12/12/2012	30.7	30.3	33.1
13/12/2012	28.3	29.9	37.2
14/12/2012	29.4	27.7	34.2
15/12/2012	37.1	30.8	34.6
16/12/2012	35.4	38.2	34.5
17/12/2012	30.1	32.1	33.7
18/12/2012	32.2	33.1	38.8
19/12/2012	27.9	33.7	32.7
20/12/2012	31.9	33.6	32.9
21/12/2012	31.7	33.6	30
22/12/2012	25.7	32	31.6
23/12/2012	28.4	33.8	34.6
24/12/2012	29.4	23.8	16.5
25/12/2012	28.4	23.6	25.2
26/12/2012	35.9	25.6	29.8
27/12/2012	29.3	34.5	35.9
28/12/2012	35.8	34.7	33
29/12/2012	27.8	35.6	35.4
30/12/2012	30.1	33.4	32.7
31/12/2012	33.7	29	38.9

## Appendix E: 2012 Blast Monitoring Results

Table 44: Blast Monitoring Results

Date	Location	Type	Antiene (AB) dB(L)	Antiene (Vib) mm/sec	Deboer (AB) dB(L)	Deboer (Vib) mm/sec	Sharman (AB) dB(L)	Sharman (Vib) mm/sec
05/01/12	NN12	Overburden	103.40	0.90	101.10	0.43	98.60	0.22
06/01/12	SPE10	Overburden	93.60	0.06	97.60	0.20	92.90	0.10
07/01/12	SPW11	Overburden	101.40	0.03	102.60	0.08	99.50	0.07
07/01/12	SPE07	Parting	86.80	0.05	97.40	0.19	91.60	0.14
10/01/12	SPE07	Overburden	91.90	0.06	97.90	0.14	95.30	0.11
12/01/12	SPW11	Overburden	91.50	0.04	95.60	0.11	87.60	0.05
11/01/12	SPE11	Overburden	110.10	0.06	94.60	0.10	99.80	0.05
13/01/12	SPE07	Overburden	96.90	0.03	94.70	0.10	94.40	0.06
14/01/12	SPE	Overburden	96.60	0.06	94.10	0.13	89.00	0.08
17/01/12	SPW12	Overburden	94.80	0.08	101.90	0.30	98.90	0.11
16/01/12	SPW11	Overburden	94.10	0.08	94.80	0.24	89.00	0.09
18/01/12	SPE07	Overburden	94.10	0.03	95.10	0.06	92.10	0.06
25/01/12	SPE12	Overburden	99.60	0.07	96.30	0.17	96.20	0.14
01/02/12	NN12	Parting	105.20	0.09	94.20	0.06	93.30	0.04
31/01/12	SPE08	Overburden	97.10	0.05	97.10	0.16	92.40	0.09
08/02/12	SPE07	Overburden	94.10	0.09	92.20	0.28	95.60	0.10
11/02/12	SPW13	Overburden	93.30	0.02	90.40	0.05	90.50	0.03
13/02/12	SPW12	Overburden	96.50	0.05	97.00	0.10	94.90	0.07
17/02/12	SPE06	Parting	95.90	0.03	94.60	0.12	96.40	0.08
15/02/12	SPE10	Prestrip	95.90	0.04	92.80	0.18	92.40	0.05

15/02/12	SPE06	Overburden	99.80	0.05	96.00	0.19	94.00	0.10
01/03/12	SPW12	Overburden	97.80	0.03	93.00	0.08	92.50	0.04
24/02/12	SPE06/07	Overburden	99.50	0.09	96.70	0.31	99.90	0.16
07/03/12	SPE07	Overburden	96.70	0.03	92.80	0.09	87.80	0.06
02/03/12	SPW12	Overburden	104.20	0.02	96.10	0.06	92.70	0.03
14/03/12	SPE07	Overburden	87.00	0.01	87.30	0.04	91.10	0.03
20/03/12	SPE08	Overburden	108.10	0.05	111.20	0.26	110.50	0.10
22/03/12	SPE03	Overburden	103.40	0.05	97.30	0.11	100.30	0.08
26/03/12	NN12	Overburden	102.50	0.80	94.60	0.67	94.70	0.32
27/03/12	NN12	Parting	95.40	0.12	88.70	0.05	88.60	0.02
22/03/12	SPW11	Coal	101.20	0.05	98.20	0.09	93.80	0.05
30/03/12	NN12	Parting	103.70	0.21	98.70	0.11	101.50	0.04
29/03/12	SPW11	Coal	99.40	0.01	100.00	0.01	96.30	0.01
04/04/12	EN04	Overburden	104.80	0.11	103.30	0.30	100.50	0.22
10/04/12	SPE10	Overburden	97.90	0.02	98.80	0.05	96.90	0.06
18/04/12	NN14	Prestrip	108.90	0.77	92.40	0.43	86.10	0.23
17/04/12	SPE09 / SPE08	Overburden	98.50	0.06	99.50	0.23	100.50	0.12
19/04/12	SPE10	Overburden	92.40	0.03	94.30	0.06	94.20	0.05
20/04/12	NN12	Overburden	98.30	1.20	94.10	0.86	96.00	0.28
24/04/12	NN12	Prestrip	115.20	0.24	103.80	0.13	105.20	0.08
27/04/12	NN14	Overburden	107.60	2.12	98.20	0.82	97.90	0.25
24/04/12	SPW11	Coal	96.60	0.01	98.60	0.01	97.40	0.01
23/04/12	SPE07	Overburden	97.00	0.04	93.20	0.03	95.80	0.08
30/04/12	NN12	Overburden	100.20	1.93	94.60	0.76	89.30	0.29
23/01/12	SPW11	Overburden	83.80	0.05	94.20	0.09	92.00	0.04

27/02/12	SPW12	Overburden	97.80	0.03	93.00	0.08	92.50	0.04
29/02/12	NN12	Prestrip	96.30	0.14	85.30	0.06	86.70	0.08
29/02/12	SPE07	Overburden	94.90	0.09	93.20	0.20	89.20	0.19
09/03/12	SPE08	Overburden	98.70	0.04	88.00	0.18	95.00	0.07
16/03/12	SPW12	Overburden	95.40	0.06	93.70	0.12	89.70	0.11
23/03/12	SPE11	Overburden	87.90	0.07	88.60	0.24	107.40	0.15
03/04/12	SPE12	Overburden	73.40	0.02	73.10	0.04	78.20	0.07
11/04/12	SPW11	Coal	82.90	0.00	89.00	0.00	85.20	0.00
03/05/12	NN12	Overburden	83.80	2.41	91.50	0.46	97.40	0.18
03/05/12	SPE08/9	Overburden	72.40	0.08	91.60	0.32	91.70	0.15
07/05/12	SPE08/9	Overburden	77.40	0.04	88.60	0.18	88.10	0.07
07/05/12	NN14	Overburden	106.80	1.73	108.00	0.67	109.00	0.21
14/05/12	SPE11	Coal	81.00	0.02	85.00	0.04	86.40	0.02
12/05/12	SPW11	Parting	94.20	0.02	102.30	0.02	94.90	0.01
11/05/12	NN14	Overburden	99.20	0.96	102.10	0.67	104.20	0.20
10/05/12	SPE07	Overburden	76.70	0.03	92.00	0.08	90.40	0.04
09/05/12	SPE12	Overburden	85.30	0.03	99.00	0.26	94.60	0.08
09/05/12	SPW12	Overburden	91.10	0.05	101.60	0.09	93.90	0.05
15/05/12	SPE0607	Prestrip	78.70	0.07	86.40	0.07	84.50	0.10
21/05/12	SPW12	Overburden	78.70	0.01	88.80	0.02	90.30	0.01
17/05/12	SPW12	Overburden	91.70	0.03	104.50	0.05	97.90	0.03
18/05/12	NN14	Overburden	100.60	1.00	106.20	0.39	103.90	0.13
21/05/12	SPW12	Overburden	78.70	0.04	96.40	0.09	95.60	0.04
22/05/12	SPE04-5	Overburden	73.50	0.02	98.50	0.05	94.20	0.04
25/05/12	NN14	Overburden	107.00	0.91	121.20	0.57	117.40	0.13

28/05/12	SPE10	Overburden	85.30	0.03	97.40	0.06	98.80	0.04
31/05/12	SPE11	Overburden	84.10	0.03	98.30	0.14	95.20	0.05
01/06/12	SPW11	Overburden	70.30	0.00	76.90	0.00	84.80	0.00
04/06/12	SPE11	Overburden	74.10	0.02	85.30	0.07	93.30	0.02
20/06/12	SPW12	Overburden	79.80	0.03	97.60	0.05	92.30	0.02
20/06/12	SPE03	Overburden	74.60	0.02	91.10	0.05	91.20	0.04
22/06/12	SPE03	Overburden	83.60	0.04	94.60	0.15	95.90	0.08
25/09/12		Overburden	0.00	0.00	0.00	0.00	0.00	0.00
29/06/12	SPW12	Overburden	73.50	0.06	86.20	0.12	88.80	0.05
29/06/12	SPE06 / 07	Overburden	75.50	0.09	87.20	0.29	95.40	0.16
30/06/12	SPE03	Overburden	71.70	0.05	91.50	0.11	90.00	0.05
04/07/12	NN12	Coal	96.30	0.68	102.30	0.30	97.50	0.17
06/07/12	SPE04	Overburden	95.60	0.07	107.80	0.21	106.70	0.12
06/07/12	SPW12	Overburden	92.00	0.05	102.50	0.12	99.40	0.04
18/06/12	SPW12	Overburden	79.60	0.08	86.00	0.22	97.00	0.10
15/06/12	SPW11	Overburden	73.00	0.06	89.70	0.20	92.40	0.15
12/06/12	SPE0405	Overburden	81.90	0.01	96.90	0.04	103.20	0.02
09/06/12	SPW12	Overburden	80.30	0.02	100.50	0.03	95.70	0.03
11/07/12	SPE07 / 08	Overburden	86.00	0.06	73.80	0.18	106.20	0.09
16/07/12	NN12	Overburden	91.00	0.08	93.70	0.07	91.50	0.03
19/07/12	SPE03	Overburden	73.00	0.06	95.10	0.13	91.00	0.09
24/07/12	NN14	Overburden	103.90	1.68	103.30	0.97	101.70	0.34
25/07/12	NN14	Overburden	94.50	0.64	105.50	0.51	106.70	0.33
26/07/12	NN14	Overburden	86.40	0.85	96.30	0.40	100.40	0.21
27/07/12	NN12	Coal	87.40	0.64	110.60	0.16	108.70	0.06



27/07/12	SPE07 / 08	Overburden	76.30	0.07	95.60	0.26	100.50	0.15
30/07/12	NN14	Overburden	102.90	0.97	104.30	0.49	98.80	0.30
02/08/12	SPW12	Overburden	86.90	0.13	77.70	0.31	96.80	0.13
25/06/12	SPW12	Overburden	92.60	0.06	77.30	0.14	103.40	0.09
03/08/12	SPW12	Overburden	81.90	0.01	93.10	0.02	98.80	0.01
08/08/12	SPE08 / 09	Overburden	85.70	0.02	95.50	0.05	93.80	0.04
07/08/12	NN14	Overburden	99.00	0.94	103.80	0.67	104.40	0.34
10/08/12	NN14	Overburden	119.00	3.33	115.60	0.63	111.70	0.38
10/08/12	SPW12	Overburden	77.10	0.02	99.30	0.04	94.60	0.02
15/08/12	SPW12	Overburden	83.60	0.04	94.70	0.11	90.30	0.08
16/08/12	SPW12	Coal	85.70	0.01	94.70	0.02	96.50	0.01
20/08/12	SPE07/8 / SPE03	Overburden	88.50	0.13	76.90	0.37	96.90	0.22
21/08/12	NN12	Parting	86.10	0.17	88.90	0.06	92.60	0.02
20/08/12	SPE03	Overburden	86.50	0.03	90.20	0.04	86.40	0.04
23/08/12	SPE0708	Overburden	75.90	0.01	89.00	0.03	92.90	0.03
25/08/12	SPE070810	Overburden	91.00	0.06	89.80	0.23	95.30	0.12
29/08/12	SPE10 / 11	Overburden	77.80	0.07	82.00	0.21	89.20	0.13
04/09/12	SPE11 / SPW12	Overburden	88.40	0.09	80.80	0.42	92.30	0.16
08/09/12	SPW12	Parting	86.40	0.01	87.80	0.02	108.60	0.01
08/09/12	NN14	Overburden	94.30	0.26	99.30	0.17	106.10	0.10
07/09/12	SPW11	Overburden	101.70	0.04	117.10	0.12	107.40	0.10
11/09/12	NN14	Overburden	100.40	0.92	99.60	0.33	94.10	0.28
12/09/12	SPE10	Overburden	80.60	0.06	96.80	0.20	103.50	0.13
14/09/12	NN13	Overburden	100.90	0.88	101.40	0.26	101.10	0.13
17/09/12	SPW12	Overburden	77.80	0.04	90.80	0.07	89.50	0.04

19/09/12	SPE10	Overburden	78.70	0.07	85.10	0.17	90.10	0.12
20/09/12	SPE0708	Parting	90.10	0.02	100.70	0.04	96.10	0.03
25/09/12	SPE12 / SPE13	Overburden	97.40	0.06	101.40	0.25	102.20	0.14
03/10/12	SPW12 / SPE13	Overburden	86.60	0.04	96.70	0.17	94.60	0.09
05/10/12	NN14	Parting	92.70	1.13	108.50	0.47	101.90	0.38
08/10/12	SPE13	Overburden	101.20	0.03	103.40	0.24	99.80	0.07
12/10/12	SPW12	Overburden	87.10	0.11	98.90	0.20	103.20	0.14
12/10/12	NN14	Parting	105.50	2.49	79.80	1.39	96.90	1.25
15/10/12	SPE09	Overburden	88.80	0.01	96.40	0.04	91.00	0.02
16/10/12	SPE10	Overburden	90.40	0.03	89.40	0.06	85.30	0.06
16/10/12	NN14	Overburden	93.40	0.76	95.70	0.34	96.50	0.12
19/10/12	SPE13 / SPE05	Parting	80.10	0.01	91.40	0.03	99.70	0.01
22/10/12	SPW09	Overburden	90.90	0.01	96.80	0.01	99.10	0.01
23/10/12	NN14	Overburden	110.20	0.37	101.90	0.23	93.30	0.10
04/10/12	SPE05	Parting	83.40	0.02	87.10	0.05	88.90	0.02
25/10/12	SPE05	Coal	87.40	0.01	96.10	0.03	86.20	0.02
27/10/12	SPE11	Overburden	93.60	0.10	94.90	0.23	97.40	0.15
31/10/12	EN02	Overburden	86.40	0.10	90.80	0.14	92.30	0.08
03/11/12	SPE11	Parting	84.70	0.08	106.80	0.12	94.60	0.10
05/11/12	SPE11	Parting	78.70	0.04	86.90	0.11	81.70	0.07
07/11/12	SPW12	Overburden	89.60	0.09	94.10	0.26	88.30	0.15
09/11/12	SPE09	Overburden	83.80	0.01	88.30	0.02	93.30	0.02
13/11/12	SPE8-9	Overburden	87.90	0.05	92.30	0.14	98.50	0.08
15/11/12	SPE05	Parting	82.10	0.02	95.80	0.07	98.30	0.03
16/11/12	SPE05	Coal	86.20	0.04	92.10	0.10	93.10	0.09

17/11/12	SPW12	Parting	96.90	0.02	110.80	0.05	110.80	0.03
19/11/12	SPW12	Coal	86.10	0.01	87.10	0.00	92.20	0.00
22/11/12	SPE11	Overburden	94.00	0.06	104.80	0.18	98.90	0.09
27/11/12	SPE13 / EN02	Overburden	92.70	0.06	96.70	0.19	97.10	0.10
30/11/12	SPE11	Overburden	83.80	0.03	89.70	0.08	85.00	0.06
06/12/12	SPE09	Overburden	98.50	0.06	102.20	0.19	99.80	0.12
10/12/12	SPE05	Overburden	92.90	0.04	111.40	0.07	110.40	0.07
11/12/12	NN14	Parting	108.50	0.45	107.80	0.19	98.50	0.14
12/12/12	SPW12	Parting	81.30	0.01	97.50	0.02	96.70	0.01
17/12/12	SPE13 / SPE12	Overburden	97.50	0.06	104.40	0.23	98.00	0.14
19/12/12	EN04	Overburden	96.20	0.02	96.00	0.05	96.90	0.03
20/12/12	EN04	Overburden	89.80	0.07	99.40	0.11	98.20	0.11
21/12/12	SPW12	Coal	97.10	0.01	103.50	0.01	97.50	0.01
24/12/12	NN13	Overburden	88.70	0.02	97.50	0.05	93.20	0.04
28/12/12	SPE13	Parting	84.60	0.04	91.80	0.08	90.30	0.08

## Appendix F: 2012 Enquiries, Concerns and Complaints

Table 45: List of Enquiries, Concerns and Complaints Received throughout 2012

Date	Location	Enquiry, Concern OR Complaint	Nature	Outcome
<b>January</b>				
11/01/2012	Lot 16	Complaint	Blast, Dust, Noise	The resident phoned regarding a blast on the 16/12/11 and noise from mine machinery during the nights of the week 02 - 08/01/12. There was also a lot of dust around their residence (no time defined).
13/01/2012	Lot 27	Complaint	Blast, Noise	The resident phoned regarding a blast on the 05/01/12 and train noise heard on the 13/01/12 at 02:00hrs. Drayton did not have a train on the line on this date. Drayton's previous train departed at 07:20hrs on the 11/01/2012 and the next train was not due to arrive until the 14/01/12 at 05:30hrs. The Drayton blast at 15:11hrs on the 05/01/12 was within limits for both air pressure and ground vibration at all blasting monitors (Antiene 103.4dbL, 0.90mm/sec; DeBoer 101.1dbL, 0.43mm/sec; Sharman 98.6dbL, 0.22mm/sec; Ash Dam 112.8dbL, 0.36mm/sec).
27/01/2012	Pamger Dr	General Enquiry	Water tank	The residents had noted that their tank water was dark grey in colour and believed that it was due to mine dust. The resident phoned to enquire about Drayton assisting them in cleaning out the water tanks in preparation for the sale of their house. The resident was informed that the request would be passed on to the Environmental Coordinator and that Drayton would get back to them with the outcome.
<b>February</b>				
24/02/2012	Lot 16	Complaint	Blast, Noise	The resident phoned regarding blasting and noise. The complaint was investigated and the data from the Ecotech and Barnowl showed that Drayton was compliant. The data indicated that the noise was likely caused by traffic from Thomas Mitchell Dr and the New England Highway.
<b>March</b>				
26/03/2012	Lot 16	Complaint	Blast, Noise	The resident phoned in regards to train and mine noise on the 23, 24 and 25th and a blast on the 26/03/12. The complaint investigated with Ecotech and Barnowl.
31/03/2012	Lot 72	Complaint	Noise	The resident phoned in regards to train loading noise on the 31/03/12. The complaint was investigated and the train schedule indicated that no Drayton trains were on the line after 22:30hrs on that date. Possible noise sources were discussed with the CHP supervisor. On the 04/04/12 the resident was

informed of the train idling information for that date.

**April**

15/04/2102	Scone area	Complaint	Odour	The resident phoned in regards to spontaneous combustion odours near Scone on the 15/04/12. The complaint was investigated and the SHE Manager spoke with the resident regarding the issue.
27/04/2012	Singleton	Complaint	Blast (Prolonged Closure TMD)	The resident phoned in regards to the length of time Thomas Mitchell Dr was kept closed for blasting. The Environmental Coordinator responded to the complaint on the 02/05/12 and left message on the resident's phone.
30/04/2012	Lot 16	Complaint	Blasting, Dust	A complaint was received, via fax, relating to blasting on the 27/04/12 and dust on the 30/04/12. The complaint was investigated with Ecotech. The Environmental Coordinator phoned the resident on the 30/04/12 to discuss the results of the investigation.

**May**

3/05/2012	Lot 16	Complaint	Complaints Hotline	DoPI phoned on behalf of resident in regards to the Drayton complaints hotline not working. The SHE Manager phoned the hotline at 16:00hrs and it was found to be working.
3/05/2012	Lot 16	Complaint	Blast	The resident phoned regarding a blast on the 03/05/12. The complaint was investigated and the blast was found to be within compliance limits. The SHE Manager phoned and discussed the results with the resident on the same date.
4/05/2012	DoPI	Complaint	Complaints Hotline	DoPI phoned on behalf of resident in regards to the Drayton complaints hotline not working.
5/05/2012	Lot 16	Enquiry	Blast	A complaint was received, via fax, relating to blasting on the 05/05/12 at 9:18hrs. The complaint was investigated and it was found that Drayton did not fire a shot that day.
7/05/2012	Lot 27	Complaint	Blast	DoPI phoned on behalf of resident regarding a blast at 03:05hrs on the 07/05/12. The complaint was investigated and the blast levels were within limits. The Environmental Coordinator phoned the resident to discuss the results.
7/05/2012	NE Highway	Complaint	Blast	The resident phoned regarding a blast on the 07/05/12. The complaint was investigated and the blast levels were within limits. The Environmental Coordinator phoned the resident to discuss the results.
11/05/2012	Lot 16	Complaint	Blast	DoPI phoned on behalf of resident in regards to a blast on the 11/05/12. The complaint was investigated and the blast levels were within limits. The Environmental Coordinator phoned the resident to discuss the results.
25/05/2012	Hassall Rd	Complaint	Blast	The resident phoned in regards to blasting. The complaint was investigated and the blast levels were within limits. The Environmental Coordinator phoned the resident on the 25/05/12 to discuss the results.
30/05/2012	Lot 22	Complaint	Noise	The resident phoned in regards to early morning continuous machinery noise over the past few weeks.

The complaint was investigated.

**June**

9/06/2012	(Plashett Homestead)	General Enquiry	Loose Cattle	A communication was received in regards to cattle roaming near the residence. The enquiry was looked into.
10/06/2012	Lot 22	Complaint	Noise	The resident phoned regarding noise heard coming from Drayton. The complaint was investigated and the SHE Manager phoned and discussed the results with the resident on the 12/06/12.
18/06/2012	Lot 16	Enquiry & Complaint	Blast, Dust, Noise	A complaint was received regarding general dust, noise on the 18-24/06/12 and blasting on the 22/06/12 at 11:20 and 14:15hrs. Complaint investigated. No blasting occurred at Drayton at the times indicated and an email was sent on 28/06/12 to enquire about blasting at Mount Arthur Coal.
25/06/2012	M'brook	Enquiry	Blast	The resident phoned in regards to blasting on the morning of the 25/06/12. The complaint was investigated and it was found that the only Drayton Blast was at 16:00hrs.
27/06/2012	DoPI	Enquiry	Dust	DoP phoned to enquire about dust from the south pit. The enquiry was investigated and the dust was found to be coming from the 307 tip. The details of the investigation were reported to DoP on the same day. No further action was required.

**July**

4/07/2012	Lot 22	Complaint	Noise	The resident phoned in regards to noise on the 04/07/12. The complaint was investigated and the Environmental Coordinator phoned the resident to discuss the results. The outcome was for Drayton to monitor weather conditions and conduct noise readings in similar conditions.
6/07/2009	Lot 16	Complaint	Blast, Noise	The resident phoned in regards to noise between 12:30 and 13:30hrs and blasting at 16:45hrs. The complaint was investigated and it was found that one blast occurred at Drayton and was within compliance limits.
7/07/2012	Lot 22	Complaint	Noise	The resident phoned regarding CHP noise from 04:30hrs onwards on the 07/07/12. The complaint was investigated and monitoring is taking place.
8/07/2012	Lot 22	Complaint	Noise	The resident phoned regarding CHP noise from 04:00hrs onwards on the 08/07/12. The complaint was investigated and monitoring is taking place.
9/07/2012	NE Highway	Enquiry	Blast	The resident phoned to enquire about a blast at 15:50hrs on the 09/07/12. The complaint was investigated and it was found that Drayton did not fire a shot that day. The resident was directed to call Wild Quarries.
9/07/2012	DoPI	Enquiry	Blast	The resident phoned to enquire about a blast at 15:50hrs on the 09/07/12. The complaint was investigated and it was found that Drayton did not fire a shot that day. The resident was directed to call Wild Quarries.
18/07/2012	Lot 27	Complaint	Noise	DoP phoned on behalf of the resident regarding train noise between 21:30 and 22:00hrs. The

				complaint was investigated and it was found that all noise from Drayton was within compliance limits. The Environmental Coordinator emailed the findings to DoP.
24/07/2012	NSW EPA	Complaint	Blast	The NSW EPA phoned on behalf of resident regarding blasting at 15:30hrs 24/07/12. The complaint was investigated and it was discovered that the blast was a Drayton NN shot and was within compliance limits at all monitors.
25/07/2012	Singleton	Complaint	Blast (TMD Signage)	The resident phoned in regards to the update of Thomas Mitchell Dr blasting signs and waiting periods. The complaint was investigated and TES and D&B were informed of complaint. Signs are to be updated properly.
<b>August</b>				
3/08/2012	Lot 16	Complaint	Blast, Noise	A complaint (received via fax) was made in regards to blasts the previous day at 12:05hrs which was very loud with vibration. There was also a blast on the day the complaint was made at 13:15hrs and, as the resident was on night shift, the blast woke him.
7/08/2012	Unknown	Complaint	Blast (TMD Signage)	A phone message was left in regards to Drayton not adhering to blast times. No personal information left. The SHE Manager investigated.
<b>September</b>				
20/09/2012	Lot 16	Complaint	Blast, Noise	A complaint was received, via fax, regarding a blast on 14/09/12 at 15:02hrs and noise over the past four weeks. The complaint was investigated and blast levels were found to be within limits. The Environmental Graduate phoned the resident to discuss the results.
<b>October</b>				
12/10/2012	Lot 16	Complaint	Blast, Noise	A complaint was received via fax at 15:39hrs on the 11/10/12 (see fax transaction record). The fax was discovered sitting on machine the next day (13:20hrs on the 12/10/12). The fax contained a complaint about mine noise and vibration at the residence at 21:10hrs on the 10/10/12. A message was left on the resident's answering machine on the 12/10/12. A second call was made to the residents on the 19/10/12 at 14:00hrs to discuss the outcome of the investigation. The resident was informed that no blasting occurs between the hours of 17:00 and 21:00. The resident could not provide sufficient information to determine the cause of the vibration experienced. Scrutiny of the Barnowl data revealed no unusual noises at the time specified. Drayton had a train loading at the time but there is no evidence to suggest that train loading could have caused the vibrations experienced.
12/10/2012	NE Highway	Complaint	Blast	The resident phoned in regards to blast vibration at 15:20hrs on the 12/10/12. The complaint was investigated and it was discovered that a shot was fired at Drayton at 15:13hrs however, all monitors showed that the blast was within limits. The Environmental Coordinator called the resident to discuss the results.
17/10/2012	Lot 22	General Enquiry	Dam Contamination	The resident phoned regarding the smell of their dam when irrigated. The complaint was investigated and the Environmental Coordinator confirmed with the opposite neighbors that the septic system was

				working fine with no leaks. The Environmental Coordinator discussed the outcome of the investigation with resident on the 13/11/2012.
19/10/2012	Lot 16	Enquiry	Blast	A complaint was received, via fax, at 13:40hrs on the 19/10/12 in regards to blasts on the 18/10/12 at 12:10hrs and 19/10/12 at 12:20hrs. The resident was notified that Drayton did not blast at the times specified. The resident was satisfied with this response.
25/10/2012	NSW EPA	Enquiry	Dust	The NSW EPA phoned regarding visible dust arising from the South pit at 07:30hrs on the 25/10/2012. The Environmental Officer investigated and found that the majority of equipment was not operating due to a Toolbox Talk being held at that time. The dragline was operating however, sufficient dust controls were being implemented due to dry conditions and PM10 levels were below applicable limits. This response was provided to the EPA.
<b>November</b>				
5/11/2012	Lot 16	Complaint	Blast, Noise	DoPI phoned on behalf of resident in regards to a blast on the 30/10/12 at 15:09hrs and requested noise and vibration levels. A follow-up email was sent from DoP stating that the complaint included reversing beepers and noise on 3-4/11/12. A fax was received from the Lot 16 residence with the same complaint. The residents were called and informed that the blast was within limits and discussed the 120dBL limit for overpressure. The resident ended the call before the noise issue could be discussed.
8/11/2012	Lot 76	Complaint	Dust, Odour	The resident phoned in regards to dust and sulphur smelling water. The complaint was investigated and the Environmental Coordinator looked into the water spray used on stockpiles. The Environmental Coordinator phoned the resident on the 08/11/12 to discuss the results.
11/11/2012	C.Ray	Complaint	Blast	A complaint was received, via the hotline, in regards to the resident's house shaking at 16:34hrs. The SHE Manager investigated and found that the blast was within limits. A response was provided to the resident.
20/11/2012	Lot 16	Complaint	Dust, Noise	A complaint was received, via fax, in regards to noise on the 18, 19, and 20/11/12 and general dust in their area. The complaint was investigated.
<b>December</b>				
9/12/2012	Scone Resident	Complaint	Odour	The resident phone regarding a spontaneous combustion odour apparent at her residence from Sunday night 22:30hrs to 06:00hrs on Monday the 10 <sup>th</sup> . She was concerned for her health, particularly in regards to sulphur. The Environmental Coordinator investigated and provided the following information to the resident at 16:30hrs on the 11/12: The wind direction was 135° (SE) and the Muswellbrook monitor indicated SO <sup>2</sup> levels to be 0.3pphm and 0.8pphm on the 9 <sup>th</sup> and 10 <sup>th</sup> respectively.
17/12/2012	Hebden Rd	Complaint	Blast	The resident phoned in regarding a blast at approximately 17:00hrs. The complaint was investigated and it was found that Drayton fired blast at 16:55hrs however, blast levels were within compliance limits. The Environmental Coordinator phoned the resident to discuss the results.



22/12/2012	Lot 16	Complaint	Noise	The resident phoned in regards to mine noise on Saturday and Sunday evening and throughout the night, no time was specified. The complaint was investigated and the Barnowl data and audio files showed no abnormal noise readings.
24/12/2012	Lot 16	Complaint	Vibration	The resident phoned the hotline and made a complaint regarding unacceptable vibration from a shot about 11:20 / 11:30hrs on the 24/12. The SHE Manager phoned the resident to inform her that the blast was within limits.
30/12/2012	Lot 16	Complaint	Noise	A complaint was logged by the hotline at 10:59am 31/12/12. The resident complained in regards to noise between 12pm and 3pm Sunday 30/12/12. The complainant described a noise like a "cannon going off" between the times specified and over Christmas. The complainant was contacted and when questioned, noted that the noise was coming from the Muswellbrook Pistol Club. The complainant expressed concern regarding the approval of an extension to the pistol club and stated that they had not been consulted. The complainant noted that the pistol club is on Drayton owned land. The complaint is under investigation and will be referred to the pistol club.

## Appendix G: Anglo American Safety, Health and Environment Risk Matrix

Table 46: Anglo American Risk Matrix

AAplc Risk Matrix	Hazard Effect/ Consequence				
Loss Type	1. Insignificant	2. Minor	3. Moderate	4. High	5. Major
<b>(S/H)</b> <b>Harm to people (safety /health)</b>	First aid case / Exposure to minor health risk	Medical Treatment case / Exposure to major health risk	Lost time injury / Reversible impact on health	Single fatality or loss of quality of life / Irreversible impact on health	Multiple fatalities / Impact on health ultimately fatal
<b>(EI)</b> <b>Environmental Impact</b>	Minimal environmental harm – L1 incident	Material environmental harm – L2 incident remediable short term	Serious environmental harm – L2 incident remediable within LOM	Major environmental harm – L2 incident remediable post LOM	Extreme environmental harm – L3 incident irreversible
<b>(BI/MD)</b> <b>Business interruption / Material damage and other consequential losses</b>	No disruption to operation 5% loss of budgeted operating profit / listed assets	Brief disruption to operation 10% loss of budgeted operating profit / listed assets	Partial shutdown / 15% loss of budgeted operating profit / listed assets	Partial loss of operation / 20% loss of budgeted profit / listed assets	Substantial or total loss of operation 25% loss of budgeted profit / listed assets
<b>(L&amp;R)</b> <b>Legal and regulatory</b>	Low level legal issue	Minor legal issue: non- compliance and breaches of the law	Serious breach of law: investigation / report to authority, prosecution and/or moderate penalty possible	Major breach of the law: considerable prosecution and penalties	Very considerable penalties & prosecutions. Multiple law suits & jail terms
<b>(R/S/C)</b> <b>Impact on reputation, social and community</b>	Slight impact – public awareness may exist but no public concern	Limited impact – local public concern	Considerable impact – regional public concern	National impact – national public concern	International impact - international public attention

Likelihood	Examples	Risk Rating				
<b>5 (Almost Certain)</b>	The unwanted event has occurred frequently: occurs in order of one or more times per year & is likely to reoccur within 1 year	11 (M)	16 (S)	20 (S)	23 (H)	25 (H)
<b>4 (Likely)</b>	The unwanted event has occurred infrequently: occurs in order of less than once per year & is likely to reoccur within 5 years	7 (M)	12 (M)	17 (S)	21 (H)	24 (H)
<b>3 (Possible)</b>	The unwanted event has happened in the business at some time: or could happen within 10 years	4 (L)	8 (M)	13 (S)	18 (S)	22 (H)
<b>2 (Unlikely)</b>	The unwanted event has happened in the business at some time: or could happen within 20 years	2 (L)	5 (L)	9 (M)	14 (S)	19 (S)
<b>1 (Rare)</b>	The unwanted event has never been known to occur in the business: or it is highly unlikely that it will occur within 20 years	1 (L)	3 (L)	6 (M)	10 (M)	15 (S)

Risk Rating	Risk Level	Guidelines for Risk Matrix
21 to 25	High (H)	Eliminate, avoid, implement specific action plans / procedures to manage & monitor
13 to 20	Significant (S)	Proactively manage
6 to 12	Medium (M)	Actively manage
1 to 5	Low (L)	Monitor & manage as appropriate

## Appendix H: 2012 Rail Activity Statement

### SIX-MONTHLY RAIL ACTIVITY STATEMENT

FOR PERIOD 1/1/2012 - 30/6/2012

(Destination for all trains was Port of Newcastle)

Date	Drayton Coal		Mt Arthur Coal		Total Rail Activity	
	Total trains per day	Total tonnage per day	No trains	Total tonnage per day	Total Train Movements / day	Total Tonnage per day
01-Jan-12	3	26252	6	43033	9	69286
02-Jan-12	2	17000	8	57516	10	74517
03-Jan-12	4	34345	8	57658	12	92003
04-Jan-12	2	17601	5	35910	7	53512
05-Jan-12	2	17448	9	64497	11	81945
06-Jan-12	1	8780	8	57905	9	66685
07-Jan-12	1	9002	7	50352	8	59354
08-Jan-12	1	7451	9	65481	10	72932
09-Jan-12	3	26629	6	43403	9	70032
10-Jan-12	2	17127	9	64624	11	81751
11-Jan-12	3	25742	8	57836	11	83578
12-Jan-12			4	28908	4	28908
13-Jan-12			7	50255	7	50255
14-Jan-12	1	8917	6	43028	7	51944
15-Jan-12	2	16555	6	43346	8	59901
16-Jan-12			10	72335	10	72335
17-Jan-12	1	8277	7	50602	8	58879
18-Jan-12	1	7827	5	36438	6	44265
19-Jan-12	2	17058	3	21307	5	38365
20-Jan-12			2	14569	2	14569
21-Jan-12	1	9008	7	49593	8	58601
22-Jan-12	1	9098	7	50233	8	59330
23-Jan-12			6	43001	6	43001
24-Jan-12			7	49959	7	49959
25-Jan-12			7	50583	7	50583
26-Jan-12			5	36209	5	36209
27-Jan-12	2	18462	6	43482	8	61944
28-Jan-12	3	26514	6	43170	9	69684
29-Jan-12	2	16977	8	57554	10	74531
30-Jan-12	1	8534	4	28602	5	37136
31-Jan-12	2	17884	6	43294	8	61178
01-Feb-12	2	17860	6	43613	8	61474
02-Feb-12	2	18044	3	21919	5	39963
03-Feb-12			7	50071	7	50071
04-Feb-12			5	36207	5	36207
05-Feb-12			6	43429	6	43429
06-Feb-12						
07-Feb-12			3	21245	3	21245
08-Feb-12			5	35910	5	35910
09-Feb-12			3	21702	3	21702
10-Feb-12			4	28539	4	28539
11-Feb-12			5	35875	5	35875

12-Feb-12			6	43155	6	43155
13-Feb-12			2	14225	2	14225
14-Feb-12			4	28825	4	28825
15-Feb-12	1	9118	3	21423	4	30541
16-Feb-12	2	16970	7	50324	9	67294
17-Feb-12	1	8687	3	21530	4	30217
18-Feb-12	3	27221	4	28705	7	55926
19-Feb-12	2	16703	3	21712	5	38414
20-Feb-12	2	16767	9	64520	11	81287
21-Feb-12			7	50320	7	50320
22-Feb-12			9	64430	9	64430
23-Feb-12			3	21455	3	21455
24-Feb-12			6	43003	6	43003
25-Feb-12			8	57633	8	57633
26-Feb-12			6	43206	6	43206
27-Feb-12			6	43440	6	43440
28-Feb-12			7	50421	7	50421
29-Feb-12			1	7189	1	7189
01-Mar-12			3	21406	3	21406
02-Mar-12			4	28815	4	28815
03-Mar-12			4	28884	4	28884
04-Mar-12			6	42763	6	42763
05-Mar-12			5	35747	5	35747
06-Mar-12			7	50169	7	50169
07-Mar-12			7	50198	7	50198
08-Mar-12	1	9317	9	64920	10	74236
09-Mar-12			8	57446	8	57446
10-Mar-12			9	64969	9	64969
11-Mar-12			6	43067	6	43067
12-Mar-12	2	17403	5	36300	7	53703
13-Mar-12						
14-Mar-12						
15-Mar-12						
16-Mar-12						
17-Mar-12	1	8469	5	36310	6	44778
18-Mar-12			5	36270	5	36270
19-Mar-12	2	17374	2	14529	4	31903
20-Mar-12	2	17558	4	28977	6	46535
21-Mar-12	2	17749	4	28509	6	46258
22-Mar-12	2	17452	5	36070	7	53522
23-Mar-12			6	43027	6	43027
24-Mar-12	2	16334	6	43240	8	59574
25-Mar-12	2	16040	8	57390	10	73429
26-Mar-12			8	57279	8	57279
27-Mar-12	1	9249	6	43340	7	52590
28-Mar-12	1	8966	3	21708	4	30674
29-Mar-12	1	7948	4	28647	5	36595
30-Mar-12	3	25397	5	36477	8	61874
31-Mar-12	2	17130	5	36656	7	53787
01-Apr-12	4	33591	4	29265	8	62855
02-Apr-12	3	24013	8	58191	11	82204
03-Apr-12	2	16319	1	7171	3	23489

04-Apr-12	2	16522	5	35954	7	52476
05-Apr-12	1	8214	5	35974	6	44187
06-Apr-12	2	16699	8	57368	10	74066
07-Apr-12	1	9025	6	43102	7	52127
08-Apr-12	1	8170	7	50706	8	58877
09-Apr-12			6	42932	6	42932
10-Apr-12			7	51110	7	51110
11-Apr-12	1	8389	7	50857	8	59246
12-Apr-12	1	8830	7	49982	8	58812
13-Apr-12	1	8309	2	14487	3	22797
14-Apr-12	1	8925	4	28796	5	37721
15-Apr-12	2	17128	5	35784	7	52913
16-Apr-12	1	8640	5	35970	6	44610
17-Apr-12	3	26282	7	50198	10	76479
18-Apr-12	2	17394	3	21620	5	39014
19-Apr-12	1	8830	1	7143	2	15973
20-Apr-12	2	16891	3	21377	5	38268
21-Apr-12			5	35849	5	35849
22-Apr-12			3	21679	3	21679
23-Apr-12	1	8273	5	36086	6	44359
24-Apr-12	1	8069	1	7376	2	15445
25-Apr-12	3	24611	9	64260	12	88871
26-Apr-12	2	18746	3	21758	5	40504
27-Apr-12	1	7375	8	57780	9	65155
28-Apr-12			10	73870	10	73870
29-Apr-12			10	72896	10	72896
30-Apr-12			8	57438	8	57438
01-May-12			8	57477	8	57477
02-May-12	1	8345	6	43405	7	51750
03-May-12	1	8739	6	42877	7	51615
04-May-12			5	35948	5	35948
05-May-12	3	24924	10	72030	13	96954
06-May-12	2	17144	10	72189	12	89333
07-May-12	2	17130	5	35882	7	53012
08-May-12	3	25006	6	43032	9	68037
09-May-12	3	24152	7	50324	10	74476
10-May-12			7	50694	7	50694
11-May-12			6	43075	6	43075
12-May-12	1	8614	8	57883	9	66497
13-May-12	1	8534	8	58116	9	66650
14-May-12	1	8235	7	50267	8	58502
15-May-12						
16-May-12						
17-May-12						
18-May-12						
19-May-12	1	8129	5	35697	6	43826
20-May-12	1	8507	5	35882	6	44388
21-May-12	3	24888	5	35999	8	60887
22-May-12	2	15373	8	57060	10	72432
23-May-12	3	25375	8	57480	11	82855
24-May-12	1	8094	7	49872	8	57966
25-May-12	2	17106	8	57250	10	74356

26-May-12	3	25070	7	50273	10	75342
27-May-12	1	8969	6	43418	7	52388
28-May-12	3	26086	9	64881	12	90967
29-May-12	2	17730	7	50660	9	68390
30-May-12	1	9055	7	51099	8	60154
31-May-12	3	26198	7	50477	10	76675
01-Jun-12	3	25220	6	42963	9	68183
02-Jun-12	2	17217	5	36212	7	53429
03-Jun-12	3	23531	8	57669	11	81201
04-Jun-12	2	16690	4	28658	6	45349
05-Jun-12	2	17081	4	28802	6	45883
06-Jun-12	3	24895	7	50715	10	75610
07-Jun-12	1	8727	5	35947	6	44674
08-Jun-12			7	49821	7	49821
09-Jun-12	1	8806	6	42672	7	51479
10-Jun-12			6	42976	6	42976
11-Jun-12			7	50438	7	50438
12-Jun-12	1	8845	8	57237	9	66082
13-Jun-12	3	25720	7	50548	10	76268
14-Jun-12			4	28414	4	28414
15-Jun-12			7	50348	7	50348
16-Jun-12	2	16495	9	64736	11	81231
17-Jun-12	2	16559	8	57662	10	74221
18-Jun-12			8	58864	8	58864
19-Jun-12			5	36232	5	36232
20-Jun-12			7	50674	7	50674
21-Jun-12			6	42816	6	42816
22-Jun-12	1	8988	9	64550	10	73538
23-Jun-12	3	26286	9	64772	12	91058
24-Jun-12	2	17632	11	79381	13	97013
25-Jun-12	3	25937	9	65410	12	91347
26-Jun-12	2	17536	7	50402	9	67938
27-Jun-12	2	17478	6	43342	8	60820
28-Jun-12	2	17292	6	43467	8	60759
29-Jun-12	3	26207	9	64562	12	90770
30-Jun-12	1	8095	4	28910	5	37004

<b>Total</b>	<b>209</b>	<b>1786125</b>	<b>1047</b>	<b>7541246.2</b>	<b>1256</b>	<b>9327371.2</b>
--------------	------------	----------------	-------------	------------------	-------------	------------------

PERIOD SUMMARY					
Maximum train movements / day (Drayton)			8	Limit	12
Maximum train movements / day (MAC)			22	Limit	No Limit
Maximum combined train movements			26	Limit	No Limit
Total Tonnes (Drayton)			1,786,125	Tonnes	
Total Tonnes (Mt Arthur Coal)			7,541,246	Tonnes	

**SIX-MONTHLY RAIL ACTIVITY STATEMENT  
FOR PERIOD 1/7/2012 - 31/12/2012  
(Destination for all trains was Port of Newcastle)**

Date	Drayton Coal		Mt Arthur Coal		Total Rail Activity	
	Total trains per day	Total tonnage per day	No trains	Total tonnage per day	Total Train Movements / day	Total Tonnage per day
01-Jul-12	1	8790.75	8	53225.4	9	62016.15
02-Jul-12	2	17612.9	5	36198	7	53810.9
03-Jul-12	2	17106.65	5	36295.6	7	53402.25
04-Jul-12	2	16202.25	3	21633.6	5	37835.85
05-Jul-12	1	8275.1	7	50351.8	8	58626.9
06-Jul-12	3	23974.15	9	64849.7	12	88823.85
07-Jul-12	3	24903.45	6	43040.7	9	67944.15
08-Jul-12	3	24962.7	8	57331.55	11	82294.25
09-Jul-12	4	32628.6	7	50113.9	11	82742.5
10-Jul-12	2	17606.1	5	35898.75	7	53504.85
11-Jul-12	3	24719.75	5	35968.45	8	60688.2
12-Jul-12	1	8425.2	5	35890	6	44315.2
13-Jul-12	4	33275.65	6	43068	10	76343.65
14-Jul-12	2	15882	4	28712	6	44594
15-Jul-12	2	15678.8	9	64712.6	11	80391.4
16-Jul-12	1	7998.75	10	72078.2	11	80076.95
17-Jul-12	2	17167.9	5	35947	7	53114.9
18-Jul-12	3	23344.5	5	35896	8	59240.5
19-Jul-12	2	18337.9	4	29471.2	6	47809.1
20-Jul-12	2	15869.25	6	44203.4	8	60072.65
21-Jul-12	1	8416	8	58340.8	9	66756.8
22-Jul-12	1	8146.95	7	50311.1	8	58458.05
23-Jul-12	2	16629.2	8	58106.8	10	74736
24-Jul-12	3	25766.35	9	65456.3	12	91222.65
25-Jul-12	1	8374.2	7	50690.2	8	59064.4
26-Jul-12			8	57487.5	8	57487.5
27-Jul-12			5	36095.5	5	36095.5
28-Jul-12			6	44124.4	6	44124.4
29-Jul-12			7	50710.1	7	50710.1
30-Jul-12			9	64262.55	9	64262.55
31-Jul-12	2	16518.6	8	57291.2	10	73809.8
01-Aug-12	2	16387.95	8	57706.8	10	74094.75
02-Aug-12	4	32333.4	6	43283.4	10	75616.8
03-Aug-12	1	8568	7	51165.85	8	59733.85
04-Aug-12	1	8505.4	7	50298.6	8	58804
05-Aug-12	2	17903.2	8	57618.8	10	75522
06-Aug-12						
07-Aug-12						
08-Aug-12						
09-Aug-12						
10-Aug-12			9	65176.8	9	65176.8
11-Aug-12	2	16333.4	4	29271	6	45604.4
12-Aug-12	2	17464.8	8	58176.7	10	75641.5
13-Aug-12			8	57642.9	8	57642.9
14-Aug-12	2	16911.2	4	28642.2	6	45553.4
15-Aug-12	3	25259.8	9	65652.9	12	90912.7
16-Aug-12	3	25131.8	8	57582.6	11	82714.4



17-Aug-12	3	25473	8	57968.2	11	83441.2
18-Aug-12	2	16174.1	5	35194.2	7	51368.3
19-Aug-12	3	24516.65	7	51133	10	75649.65
20-Aug-12	2	16183	7	51131.5	9	67314.5
21-Aug-12	3	23924.5	6	43850.7	9	67775.2
22-Aug-12	1	8267.6	6	43138.5	7	51406.1
23-Aug-12			3	21537	3	21537
24-Aug-12	1	8330.8	1	7289.6	2	15620.4
25-Aug-12			5	36577.6	5	36577.6
26-Aug-12	2	16117.55	6	43186.5	8	59304.05
27-Aug-12	3	25385.5	9	64969.7	12	90355.2
28-Aug-12	2	16767.3	8	56671.75	10	73439.05
29-Aug-12	1	9085.2	8	57990.1	9	67075.3
30-Aug-12	1	7058.8	4	28449	5	35507.8
31-Aug-12	1	8977.4	8	57844.4	9	66821.8
01-Sep-12			10	73383.4	10	73383.4
02-Sep-12			8	58223.7	8	58223.7
03-Sep-12			6	44635.9	6	44635.9
04-Sep-12	3	25449.45	7	50892.4	10	76341.85
05-Sep-12	3	25747.35	7	50120	10	75867.35
06-Sep-12	3	26539.2	8	58376.8	11	84916
07-Sep-12	3	24792.3	9	65225.7	12	90018
08-Sep-12	4	29620.05	11	80348.9	15	109968.95
09-Sep-12	3	25828.75	11	78641	14	104469.75
10-Sep-12	2	16622.7	9	64400	11	81022.7
11-Sep-12	2	16481.3	7	50430.9	9	66912.2
12-Sep-12	3	24374.85	8	58385.3	11	82760.15
13-Sep-12	3	26461.7	6	43244.9	9	69706.6
14-Sep-12	2	17092.6	4	28861.5	6	45954.1
15-Sep-12	2	17741.9	9	66734	11	84475.9
16-Sep-12	1	8670.4	6	44632.7	7	53303.1
17-Sep-12	2	17685.3	4	29516.1	6	47201.4
18-Sep-12	2	16438.6	7	51132.4	9	67571
19-Sep-12			9	66034.5	9	66034.5
20-Sep-12			6	44756.1	6	44756.1
21-Sep-12			9	67935.8	9	67935.8
22-Sep-12			9	64702.2	9	64702.2
23-Sep-12	1	8542	9	65165.85	10	73707.85
24-Sep-12	2	16757	8	57183.9	10	73940.9
25-Sep-12	2	16876.8	9	65098.65	11	81975.45
26-Sep-12	2	16391.95	10	73922.6	12	90314.55
27-Sep-12	1	8470.05	8	57408.7	9	65878.75
28-Sep-12			7	51534.3	7	51534.3
29-Sep-12	3	25112.2	8	58369.1	11	83481.3
30-Sep-12	3	25703.95	6	45694.9	9	71398.85
01-Oct-12	2	8586	6	43660.1	8	52246.1
02-Oct-12	2	17103.35	7	53393.9	9	70497.25
03-Oct-12	2	16914.4	6	44516.8	8	61431.2
04-Oct-12			6	45354.3	6	45354.3
05-Oct-12	1	7852.8	8	57949.55	9	65802.35
06-Oct-12	2	16903.95	6	43581.35	8	60485.3
07-Oct-12	2	17088.55	8	60681.05	10	77769.6
08-Oct-12	1	8531.25	7	51004.9	8	59536.15
09-Oct-12	1	8437.5	10	73331.6	11	81769.1

10-Oct-12	1	8369	6	44259.4	7	52628.4
11-Oct-12			4	29742.3	4	29742.3
12-Oct-12	1	8430.4	6	44046.7	7	52477.1
13-Oct-12	1	7887.6	7	52685.2	8	60572.8
14-Oct-12			8	58593.9	8	58593.9
15-Oct-12	1	7852	7	50443.4	8	58295.4
16-Oct-12	1	8267.4	8	58140.4	9	66407.8
17-Oct-12	1	7890.8	6	43434.4	7	51325.2
18-Oct-12	3	25523.7	5	36751.8	8	62275.5
19-Oct-12	2	16465.4	7	50681.6	9	67147
20-Oct-12	4	34286.4	8	57995.5	12	92281.9
21-Oct-12	1	8280.9	7	50286	8	58566.9
22-Oct-12	2	14495	8	57644.7	10	72139.7
23-Oct-12	2	16999.2	8	57681	10	74680.2
24-Oct-12	3	25848.75	7	51833.2	10	77681.95
25-Oct-12	2	18354.5	7	50641	9	68995.5
26-Oct-12	2	17161.6	6	44767.4	8	61929
27-Oct-12	2	17000.8	6	43857.4	8	60858.2
28-Oct-12	3	24998.75	7	51295.6	10	76294.35
29-Oct-12	2	18127.2	6	43834.9	8	61962.1
30-Oct-12	2	17673.4	7	51485.4	9	69158.8
31-Oct-12			8	60978.4	8	60978.4
01-Nov-12	3	26685.05	6	46465.4	9	73150.45
02-Nov-12	3	25970.15	7	53147.5	10	79117.65
03-Nov-12	1	8573.55	7	52429.2	8	61002.75
04-Nov-12	1	9264.45	7	54475.5	8	63739.95
05-Nov-12	1	8945.3	9	69390.7	10	78336
06-Nov-12			6	46178.2	6	46178.2
07-Nov-12	2	17792.3	7	53352.4	9	71144.7
08-Nov-12			6	46591.1	6	46591.1
09-Nov-12	1	8686.4	4	31490.4	5	40176.8
10-Nov-12	2	16403.9	6	46836.1	8	63240
11-Nov-12	2	17615	5	38877.1	7	56492.1
12-Nov-12			5	38916.3	5	38916.3
13-Nov-12	2	18077.8	5	38260.5	7	56338.3
14-Nov-12	1	8733.6	2	15132	3	23865.6
15-Nov-12	1	8920.5	5	37422.95	6	46343.45
16-Nov-12	2	17535.5	6	45275	8	62810.5
17-Nov-12	2	17644.4	8	60944.7	10	78589.1
18-Nov-12	1	7825.5	6	46975.5	7	54801
19-Nov-12	2	17339.2			2	17339.2
20-Nov-12						
21-Nov-12						
22-Nov-12						
23-Nov-12			4	31778.6	4	31778.6
24-Nov-12			5	38348.7	5	38348.7
25-Nov-12			8	62115.6	8	62115.6
26-Nov-12			9	69192.9	9	69192.9
27-Nov-12			3	23635.2	3	23635.2
28-Nov-12	2	17255.05	8	61502.25	10	78757.3
29-Nov-12	1	8574	6	45595.4	7	54169.4
30-Nov-12	2	17926.8	4	29702.6	6	47629.4
01-Dec-12	1	7857.6	5	38142.2	6	45999.8
02-Dec-12	1	8889.6	7	55962.7	8	64852.3

03-Dec-12	2	17065.9	6	47879.4	8	64945.3
04-Dec-12	2	15679.2	6	47485.2	8	63164.4
05-Dec-12	2	16823.6	6	46220.4	8	63044
06-Dec-12			5	39378.6	5	39378.6
07-Dec-12	1	8481	4	31853.2	5	40334.2
08-Dec-12			9	71317.1	9	71317.1
09-Dec-12	2	16741.05	5	39722.5	7	56463.55
10-Dec-12	3	26199.8	4	31373.4	7	57573.2
11-Dec-12	3	25910.2	6	47771.1	9	73681.3
12-Dec-12	1	8546.2	5	39890.9	6	48437.1
13-Dec-12	1	9000	3	23798.75	4	32798.75
14-Dec-12	2	16956.2	4	31702.4	6	48658.6
15-Dec-12	1	9083.8	9	71244.7	10	80328.5
16-Dec-12	3	26219	8	63719.9	11	89938.9
17-Dec-12	2	17532.5	5	39904.55	7	57437.05
18-Dec-12	2	17819.1	5	39391.2	7	57210.3
19-Dec-12	3	26049.1	6	47308.5	9	73357.6
20-Dec-12	3	26407.6	5	39774.7	8	66182.3
21-Dec-12	3	21749.3	7	55781.6	10	77530.9
22-Dec-12	1	8537.5	8	63686	9	72223.5
23-Dec-12	2	17357.7	6	47804.7	8	65162.4
24-Dec-12	1	8758.75			1	8758.75
25-Dec-12			7	54783.2	7	54783.2
26-Dec-12	2	18480	2	15908	4	34388
27-Dec-12	3	26803.35	2	15808.8	5	42612.15
28-Dec-12	2	19053.95	9	71452.1	11	90506.05
29-Dec-12	3	25136.5	7	55665.9	10	80802.4
30-Dec-12	3	25629.9	8	63734.1	11	89364
31-Dec-12	3	25372.4	11	87477	14	112849.4

Total	293	2468314.3	1163	8636432.6	1456	11104747
-------	-----	-----------	------	-----------	------	----------

PERIOD SUMMARY			
Maximum train movements / day (Drayton)	8	Limit	12
Maximum train movements / day (MAC)	22	Limit	No Limit
Maximum combined train movements	30	Limit	30
Total Tonnes (Drayton)	2,468,314	Tonnes	
Total Tonnes (Mt Arthur Coal)	8,636,433	Tonnes	