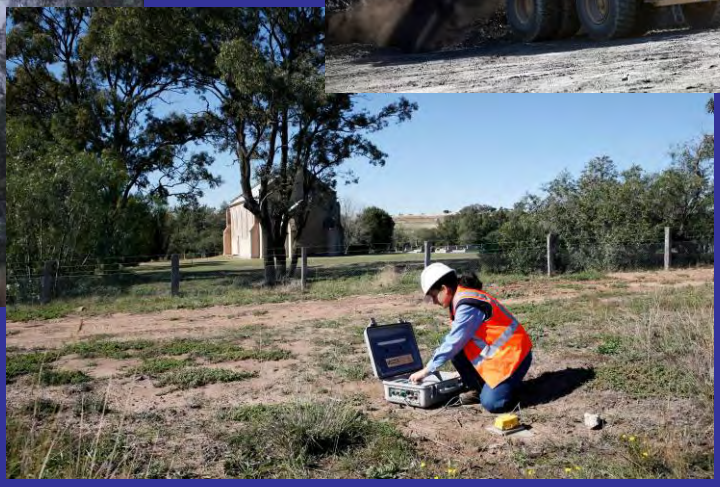
AshtonCoal

ASHTON COAL OPERATIONS PTY LIMITED

ANNUAL ENVIRONMENTAL MANAGEMENT REPORT 2006 / 2007



Name of mine Ashton Coal Mine

Titles/Mining Leases ML1526 and ML1533

MOP Commencement Date 25/08/2004 **MOP Completion Date** 25/08/2009

AEMR Commencement Date 2/09/2006 **AEMR Completion Date** 1/09/2007

Name of Leaseholder White Mining NSW Limited & ICRA (Ashton) Pty Ltd & International Marine Corporation

Name of Operator (if different) Ashton Coal Operations Pty Ltd

Reporting Officer Peter Barton
Title General Manager

Signature _____ **Date**

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1.0 INTRODUCTION

The Ashton Coal Project (ACP) is located approximately 14km north-west of Singleton near the village of Camberwell. During the period of this Annual Environmental Management Report (AEMR), the Open Cut has continued at full production and the Underground Mine has progressed through construction activities into full operation of the longwall.

The project currently consists of an open cut and underground longwall mine, associated coal preparation plant, stockpiling, administration buildings, workshops, stores, bathhouse facilities and car parking. The underground mine commenced long wall operation in early March 2007.

This report has been developed in accordance with the conditions of Environmental Protection Licence No. 11879 and all relevant development consent conditions. The structure of this report is based on the document "*Guidelines and Format for Preparation of Annual Environmental Management Report*", Department of Mineral Resources, Document No. EDG03 MREMP Guide V3 dated January 2006.

Ashton Coal is owned by Felix Resources Limited (60%), Itochu Corporation (10%) and International Marine Corporation Group (30%) and operated by ACOL.

This report covers the period 2 September 2006 to 1 September 2007. In accordance with Condition 9.3 of the Development Consent, Ashton has consulted with the Director-General of the Department of Planning in relation the preparation of this report.

1.1 CONSENTS, LEASE AND LICENCES

An interim Mining Operations Plan (MOP) was submitted to the Department of Mineral Resources (DMR) in August 2003, prior to the commencement of construction activities on site. The Open Cut MOP is now approved and was modified in January 2005 for the inclusion of the increased height of the Eastern Emplacement Area and the removal of the Western Emplacement Area from the MOP. The Underground MOP was approved in March 2006 and includes the period from February 2006 through to December 2010. During the reporting period a variation to the Underground MOP was submitted to allow the installation of a dewatering bore and ventilation bore. A combined site MOP which incorporates the Open Cut and Underground operations into a single MOP document the draft MOP has been submitted to the DPI and feed back recived, the final will be submitted shortly for approval..

During the AEMR period ACOL received approval for a modification to both the Development Consent 309-11-2001-i (M3) for the construction and operations of tailings pipelines between the mine and the former Ravensworth Mine, and also DA 144/1993, a Singleton shire Council DA held by Macquarie Generation for use of Ravensworth Void 4 for Tailings Disposal. As a requirement of these two consent variations ACOL produced a Tailings Emplacement Operations Plan to be approved by the Department of Primary Industries. A S126 was also granted for Ravensworth Void 4, the tailings disposal facility.

In November 2006 a DA held by Queensland Rail was approved by Singleton Shire Council to allow the construction of a refuelling station on the Ashton rail siding.

The following table provides a summary of the status of all leases, licences and approvals obtained by Ashton.

Copies of all licences and approvals have been provided to government agencies and Singleton Council and are available for inspection at the ACOL site office.

Table 1. LEASES, LICENCES AND APPROVALS

Ref	Detail	Granted	Authority	Area	Status	Expiry
	PLANNING APPROVALS					
1.	309-11-2001-i Development Consent	11/10/02	DoP ^	Schedule 1 of the Consent	Current	11/10/23
2.	309-11-2001-i (M1) Modification to Development Consent (allows EPA to specify noise criteria in Table 5)	15/10/03	DoP	Schedule 1 of the Consent	Current	11/10/23
3.	309-11-2001-i (M2) Modification to Development Consent (permits 10 m increase in height of EEA)	27/01/05	DoP	Schedule 1 of the Consent	Current	11/10/23
4.	309-11-2001-i (M3) Modification to Development Consent (for the construction and operations of tailings pipelines between the mine and the former Ravensworth Mine)	19/02/07	DoP	Schedule 1 of the Consent	Current	11/10/23
5.	DA 144/1993 Amendment for use of Ravensworth Void 4 – Tailings Disposal. (held by Macquarie Generation)	25/05/07	SSC	NA	Current	NA
5.	DA486/2006 Train fuelling facility (held By QR)	28/11/06	SSC	Rail Siding	Current	28/11/11

Table 1. LEASES, LICENCES AND APPROVALS

Ref	Detail	Granted	Authority	Area	Status	Expiry
	MINING TENEMENTS					
5.	ML 1533	26/02/03	DPI	883.4 ha	Current	26/02/24
6.	ML 1529	17/09/03	DPI	128.7 ha (sub surface)	Current	11/11/12
7.	Exploration Licence (EL) 5860	14/03/04	DPI	272 ha	Current	21/05/09
8.	Exploration Licence (EL) 4918	17/09/99	DPI	370 ha	Current	17/12/10
9.	EPL 11879 (Open Cut Area and processing facilities)	02/09/03	DECC *	As shown on EPL 11879 Fig 1	S/S	06/11/11
10.	Variation to EPL 11879 (established Construction Noise Criteria)	10/11/03	DECC	As above	S/S	As above
11.	Variation to EPL 11879 (modified dust sampling requirements)	28/02/05	DECC	As above	S/S	As above
12.	Variation to EPL 11879 (incorporation of UG mine)	17/11/05	DECC	ML1533	Current	As above
	MINING OPERATIONS PLAN					
13.	Interim MOP (for construction and initial 12 months operation of Open Cut & CHPP)	11/08/04	DPI	N/A	S/S	11/08/09
14.	MOP for Open Cut (for all associated life of mine activities)	22/07/04	DPI	N/A	S/S	22/07/09
15.	MOP Modification (for increase in EEA height & removal of WEA)	Jan 2005	DPI	N/A	S/S	Jan 2010
16.	MOP Modification (for Glennies Creek Road Environmental Bund)	31/05/05	DPI	N/A	SS	25/05/10
17.	Interim Underground MOP (for first workings development)	20/12/05	DPI	N/A	S/S	09/12/09
18.	MOP for the Ashton Underground Mine (Development of underground operations for LW1-4 and associated facilities)	23/01/06	DPI	N/A	S/S	31/12/11
19.	Variation to the MOP for the Ashton Underground Mine	28/02/07	DPI	N/A	S/S	31/12/12
	SUBSIDENCE MANAGEMENT PLAN					
20.	Subsidence Management Plan (for the extraction of LW1–4)	08/03/07	DPI	N/A	Current	Based on area not on year

Table 1. LEASES, LICENCES AND APPROVALS						
Ref	Detail	Granted	Authority	Area	Status	Expiry
	OTHER LICENCES					
21.	Water Licences: • 20AL201311 Glennies Creek High Security 3ML • 20AL201564 Glennies Creek General Security 272ML • 20AL201030 Glennies Creek General Security 12ML • 20AL203056 Glennies Creek Supplementary 4ML • 20AL200568 Glennies Creek Stock and Domestic 3ML • 20AL201712 Glennies Creek Stock and Domestic 3ML • 20AL201083 Glennies Creek Stock and Domestic 3ML • 20AL200508 Glennies Creek Stock and Domestic 3ML • 20AL200690 Glennies Creek Stock and Domestic 3ML • 20AL201031Glennies Creek Stock and Domestic 8ML • 20AL201624 Hunter River High Security 3ML • 20AL201625 Hunter River General Security 335ML • 20AL203106 Hunter River Supplementary 15.5 ML • 20SL044434 Bowmans Creek Irrigation 366ML • 20SL042214 Bowmans Creek Irrigation 14ML	N/A	DWE **	N/A	Current	30/06/17 11/03/09 30/06/17 11/03/09 1/07/06 30/06/17 23/05/08 30/06/17 TBC 30/06/17 7/04/09 7/04/09 7/04/09 16/10/09 23/02/12

Table 1. LEASES, LICENCES AND APPROVALS						
Ref	Detail	Granted	Authority	Area	Status	Expiry
22.	Groundwater Licences: • 20BL136766 Stock Domestic • 20BL168848 Test Bore • 20BL168849 Test Bore • 20BL169508 Mining 10ML • 20BL169937 Mining 100ML • 20BL170596 Monitoring • 20BL171364 Mining 100ML	 12/01/88 27/08/03 27/08/03 15/03/05 06/04/06 16/10/06 17/05/07	DWE	N/A	 Current Current Current Current Current Current Current	 Perpetuity Perpetuity Perpetuity 14/03/10 5/04/08 Perpetuity 16/05/12
23.	Radiation Licences Licence to Sell/Possess 28485	18/6/03	EPA	NA	Current	18/6/08
24.	Radiation Licences • Registration Certificate • Serial Number 4376GK • Serial Number 4416GK • Serial Number 7024LX • Serial Number 4372GH • Serial Number 4423GK	1/05/07	DECC	N/A	Current	1/05/09
25.	AHIMS Permit No 1591 to collect Aboriginal artefacts north of the New England Highway under S90 of NPW Act	21/07/03	DECC (NPWS)	239.8	Complete	21/07/08
26.	AHIMS Permit No 2783 to collect Aboriginal artefacts EWA86 under S90 of NPW Act	28/09/07	DECC (NPWS)	NA	Current	NA
27.	Part 3A permit No P1819 to install two power poles near Bowmans Creek	05/12/03	DWE	N/A	Current	05/12/04
28.	Permit No CW802609 to construct levee bank on Bowmans Creek	08/09/03	DWE	N/A	Current	07/09/08
29.	Clause 88(1) approval for safe operations and stability of workings and resource recovery longwall mining	28/02/07	DPI	N/A	Current	1/06/2011
30.	S126 Approvals for emplacement of carbonaceous materials Ravensworth Void 4	08/04/04	DPI	N/A	Current	NA
31.	S126 Approvals for emplacement of carbonaceous materials Ravensworth Void 4	17/01/07	DPI	N/A	Current	NA

^ Department of Planning (DoP) *S/S – superseded*
^^ Department of Water & Energy (DWE) *N/A – Not available*
** Department of Environment & Climate Change (DECC)*

1.2 MINE CONTACTS

Positions of responsibility for operations and environment are detailed hereunder:

Table 2. KEY MINE CONTACTS

Area of Responsibility	Name	Title	Contact Number(s)
General Manager	P. Barton	General Manager	(02) 6576 1111
Open Cut Mine	B. Chilcott	Mining Manager	(02) 6570 9128
Underground Mine	B. Wesley	Mine Manager	(02) 6570 9104
CHPP	P. Davis	Declared Plant Manager	(02) 6570 9148
Environment	Lisa Richards	Environment and Community Relations Manager	(02) 6570 9219
Environmental Contact Line			1800 657 639

ACOL's General Manager, Peter Barton, has overall responsibility for the operational and development phases of the project and statutory manager for the open cut coal mine. Brian Chilcott is Mining Manager for the open cut operation. Brian Wesley is Mine Manager for the Underground Mine. Paul Davis is CHPP Manager and Declared Plant Manager. Lisa Richards is responsible for day-to-day environmental management and community relations and is the nominated Environmental Officer for the project. ACOL's Board of Directors has ultimate responsibility for Ashton's environmental performance.

1.3 ACTIONS REQUIRED AT AEMR REVIEW

The previous years AEMR review included a Department of Primary Industry site inspection on 20 February 2007. During the site inspection, only three issues were identified that required attention, these are detailed in the following table.

Table 3. AEMR 2004-2005 ANNUAL INSPECTION ACTION LIST

No	Issue	Action Required	Action Details	Status
1	Rehabilitation	Due to a number of issues such as soil quality, the site preparation and limited rainfall, there has been poor establishment of vegetation, compaction of soil and some riling on the rehabilitation on the Eastern Emplacement Area. The area will need to be reviewed and remedial actions implemented.	20.6 Ha of the Eastern Emplacement area has been rehabilitated during the reporting period. 1.2Ha's of this was rework of the existing rehabilitation area. Where considered necessary further areas will be reseeded during future rehabilitation works. This year has seen an increase in rainfall from the previous years and areas of existing rehabilitation have been seen to kick away again with the increased soil moisture.	Ongoing Ref Section 5
2	Storage of Equipment in Farm Paddock	White Mining is currently storing mining equipment on the mining lease, but outside the designated disturbance area. Mining equipment must be stored within a designated lay down area and the dirty water catchment system. White Mining must relocate the mining equipment to an approved location.	The equipment has been removed from site.	Complete
3	Hydrocarbon storage area at Underground Store	The bund wall at the Underground Store hydrocarbon storage area needs to be repaired. Additionally consider extending the roof to prevent rainwater mixing with hydrocarbon materials.	The bund wall has been repaired. Consideration has been made to extending the roof however this has not been considered necessary for effective management of the area at this point in time.	Complete

1.4 INDEPENDENT ENVIRONMENTAL AUDITING

As required by Consent Condition 8.8 and 8.9 the Independent three yearly Environmental Compliance Audit was conducted in August 2007. DoP advised by email (13/08/07) that in addition to satisfying Development Consent Conditions 8.8 and 8.9, the audit should focus on the impacts of the underground mine on surface and groundwater sources and ongoing impacts of the open-cut operations on the Camberwell Village, and in particular the issue of dust from the mine on the Village.

Condition 8.8 of the Development Consent (DA 309-11-2001-i) dated 11 October 2002 requires that:

"One year after commencement of construction and every three years thereafter until five years after completion of mining in the DA area, or as otherwise directed by the Director-General, the Applicant shall conduct an environmental audit of the mining and infrastructure areas of the development in accordance with ISO 14010 - Guidelines and General Principles for Environmental Auditing, and ISO 14011 - Procedures for Environmental Auditing (or the current versions), and in accordance with any specifications required by the Director-General. Copies of the report shall be submitted by the Applicant to the Director-General, SSC, DEC, DIPNR, DPI Minerals, NPWS, RTA, DPI - Fisheries, MSB, DPI - Agriculture and the CCC within two weeks of the report's completion for comment."

The audit team consisted of:

Wayne Perry	Lead Environmental Auditor (RABQSA), Managing Director, Pacrim Environmental Pty Ltd
Lisa Aspinall	Environmental Manager, Pacrim Environmental Pty Ltd

The scope of the audit comprised:

- An assessment of compliance against:
  - Development Consent DA 309-11-2001-I;
  - Environment Protection Licence 11879;
  - Water Act 1912 and Water Management Act 2000 Water Licences;
  - National Parks and Wildlife Act 1974 Section 90
- An assessment of the environmental performance against predictions made in the EIS;
- An assessment of the development against predictions made in the Subsidence Management Plan SMP);

- A review of the effects of the development on the surrounding environment, the effectiveness of the environmental management and the adequacy of strategies, Environmental Management Plans and Programs required by the Consent.

The audit process consisted of:

- pre-audit preparation and review of documentation;
- site inspection of the main aspects of the Underground, Opencut, Workshop/maintenance facilities and CHPP operations;
- review of relevant documents to assess compliance, impact assessment and environmental management;
- interview of relevant Mine personnel; and
- preparation of the Audit Report and supporting tables.

The audit was undertaken in accordance with *ISO 19011:2002 – 'Guidelines for quality and/or environmental management systems auditing',* which supersedes *ISO 14010 – Guidelines and general principles for environmental auditing 1996* and *ISO 14011 – Procedures for environmental auditing 1996.*

Site Inspection

During the course of the Audit, the following aspects of the Mine were observed:

- Underground Mine – including longwall (not operating), continuous miner (not operating,) shuttle car (not operating,) development area, crib and toilet areas;
- Underground Mine Land Surface – including ventilation bore, dewatering bore (under construction,) above long wall face, Glennies Creek, Voluntary Conservation Area, Access Road to property 130.
- Underground Mine Surface Facilities – including workshop, waste management, hydrocarbon storage and service areas, water treatment system.
- CHPP area - ROM stockpiles and hoppers in use, Breaker stations in use, tailings pipeline, process water dam, and stockpiled product coal;
- Open Cut Mine – including excavation of overburden and coal, truck haulage of coal and overburden, drill, water cart and a dozer in operation, Mine water lines;
- Workshop - including hard stand areas, waste management, hydrocarbon management, water treatment system;
- Water management systems including dams and diversion channels;
- monitoring sites (dust deposition gauges, HVAS, TEOMs, noise monitor and blast monitor);
- weather station; and

- rehabilitated areas including environmental bund.

Audit Terminology

The intention of this section is to provide an understanding of the interpretation given against the column 'satisfactory compliance at the time of audit'. Many development and licence conditions are not worded so that a definitive 'yes' or 'no' can be stated, therefore a condition may receive non-compliance status even though partial compliance is achieved or is in the process of being achieved.

Yes:	Full compliance with all sections of the condition is evident.
No:	Non-compliance with all sections or a section of the condition.
Not yet triggered:	The condition is not yet applicable to the operations.
No longer applicable:	The condition is not or is no longer applicable.

This interpretation is generally in accordance with the Department of Planning's requirements for audits. In addition to this requirement, The Department of Planning has stated:

> *"Wherever a non-compliance with the conditions of the Minister's consent is identified, the audit report should describe the significance of the non-compliance and its circumstances, including any mitigating factors."*

Summary of Compliance with Consents, Licences and Approvals

Development Consent

The conditions of Development Consent (DA 309-11-2001-i) granted to Ashton Coal Operations by the Department of Planning were reviewed as part of the audit. Of these conditions, eleven were found to be non-compliant. Non-compliance had low significance for four conditions, moderate significance for two conditions and high significance for five conditions. The low-significance conditions were of an administrative nature. These non-compliant conditions are summarised below in **Table 4**.

Environment Protection Licence No. 11879

Operations at Ashton Coal Operations are covered by Environment Protection Licence (EPL) N^{o} 11879. The conditions of the EPL were reviewed as part of the audit. Of these conditions, three were found to be non-compliant. These three non-compliances are ranked as highly significant and are summarised in **Table 5.**

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Table 4. ENVIRONMENTAL AUDIT - NON-COMPLIANT CONDITIONS OF DEVELOPMENT CONSENT (DA 309-11-2001-i)				
Condition No.	**Description of Item**	**Comment / Suggested Action**	**Significance of Non-Compliance**	**Recommendation**
Mine Management Plan, Operations and Methods				
2.4	A copy of the MOP, excluding commercial in confidence information, 0shall be forwarded to SSC and the Director-General within 14 days of acceptance by DPI Minerals.	O/C MOP receipt acknowledged by DoP. No evidence of O/C or U/G MOP being sent to SCC or U/G MOP being sent to DoP.	Low	Ensure that SCC and DoP are in receipt of all current MOPs.
Flora and Fauna Management Plan				
3.46 b	The Applicant shall prepare and implement a Flora and Fauna Management Plan (FFMP) for the DA area. The Plan shall include but not be limited to: Details of strategic vegetation management, outlining timeframes for clearing and re-vegetation activities and a map illustrating the Plan. The Plan should aim to maximise scope for new vegetation to establish and restore ecological integrity;	Clearing and revegetation activities, including maps, are included in the MOP.	Low	Include strategic vegetation details in Flora and Fauna Management Plan.

Table 4. cont' ENVIRONMENTAL AUDIT - *NON-COMPLIANT CONDITIONS OF DEVELOPMENT CONSENT (DA 309-11-2001-i)*				
Condition No.	**Description of Item**	**Comment / Suggested Action**	**Significance of Non-Compliance**	**Recommendation**
Bushfire and other Fire Controls				
3.57 c	Submit an annual report on fire management activities to the Singleton Fire Control Officer;	Do not currently conduct any special fire management activities.	Low	ACOL do conduct generic fire management activities. Prepare a report detailing these and submit to Singleton Fire Control Officer.
Surface Water				
4.1	Except as may be expressly provided by a licence under the Protection of the Environment Operations Act 1997 in relation of the development, section 120 of the Protection of the Environment Operations Act 1997 must be complied with in and in connection with the carrying out of the development.	Sediment Dam 5/6 overflowed on 08.06.07 during a severe storm event (1 in 100 ARI) and released an unknown volume of mine water (> 900 µs/cm) and stormwater from disturbed areas off site. DECC was notified. Overflows occurred from the majority of Hunter Valley mines during this storm event.	Moderate	No further action. Sediment dams are designed to handle 1 in 20 year storm events in accordance with the Water Management Plan.

Table 4. cont' ENVIRONMENTAL AUDIT - *NON-COMPLIANT CONDITIONS OF DEVELOPMENT CONSENT (DA 309-11-2001-I)*				
Condition No.	**Description of Item**	**Comment / Suggested Action**	**Significance of Non-Compliance**	**Recommendation**
4.2	[13]Any release of surplus mine water from the mine must comply with the requirements of the Hunter River Salinity Trading Scheme and any licence issued under the Protection of the Environment Operations Act unless otherwise directed by the DEC.	Water >900 µs/cm left the site 08.06.07 (see above). The mine is not a registered participant in the HRSTS. The EPL does not allow the discharge of water.	Moderate	No further action required as this was a catastrophic event.
Groundwater				
4.16	The Applicant shall prepare a statistical assessment to the satisfaction of DIPNR to initially benchmark the pre-mining natural variation in groundwater quality and quantity and to set trigger levels for accepting accountability. The assessment is to be documented in the SWMP (condition 4.24).	Statistical analysis in SWMP is for surface water only. No statistical analysis in Groundwater Management Plan. Standard deviation for groundwater results in AEMR but no trigger levels.	High	Prepare a statistical assessment of pre-mining groundwater quantities, set trigger levels and document in the GMP.

Table 4. cont' ENVIRONMENTAL AUDIT - *NON-COMPLIANT CONDITIONS OF DEVELOPMENT CONSENT (DA 309-11-2001-I)*

Condition No.	Description of Item	Comment / Suggested Action	Significance of Non-Compliance	Recommendation
Air Quality				
6.1	Table 1 Long Term Particulate Matter Criteria **Pollutant** **Standard/Goal** **Agency** Total Suspended Particulate Matter (TSP) 90ug/m^3 (annual mean) NH & MRC Particulate matter 10um (PM_{10}) < 30ug/m^3 NSW DEC	No community sites exceeded the annual average PM10 Long term goal of 30ug/m3. The annual average TSP goal was exceeded at Site 3 for the 2005 period, and at Site 1 for the 2006 and 2007 YTD periods.	High	Review dust control procedures and training. Continue to purchase dust affected properties.
	Table 2 Short Term Particulate Matter Goal **Pollutant** **Standard/Goal** **Agency** Particulate matter 10um (PM_{10}) <50ug/m3 NSW DEC	The ACOL contribution to PM10 Short term goal of 50 ug/m3 was exceeded at Site 1; twice in 2006 and twice in 2007 reporting periods.	High	
	Table 3 NSW DEC Amenity Based Criteria for Dust Fallout **POLLUTANT** / **AVERAGING PERIOD** / **MAXIMUM INCREASE IN DEPOSITED DUST LEVEL** / **MAXIMUM TOTAL DEPOSITED DUST LEVEL** Deposited dust / Annual / 2 g/m^2/month / 4 g/m^2/month	Depositional dust (annual averages) goal of 4g/m2/mth was exceeded at D7 (Camberwell Village Nth) in 2006 and 2007 YTD periods.	High	

Table 4. cont' ENVIRONMENTAL AUDIT - *NON-COMPLIANT CONDITIONS OF DEVELOPMENT CONSENT (DA 309-11-2001-i)*				
Condition No.	**Description of Item**	**Comment / Suggested Action**	**Significance of Non-Compliance**	**Recommendation**
Blast Management				
6.22	The Airblast overpressure level from blasting operations carried out in or on the premises must not exceed: (i) 115 dB (Linear Peak) for more than 5% of the total number of blasts over a period of 12 months; and (ii) Exceed 120dB (linear Peak) at any time, at any residence or other noise sensitive receiver such as the St Clements Church and Camberwell Community Hall.	The 115 dBL criteria was exceeded >5% at Camberwell Village in 2005, 2006 and 2007 Reporting Periods. The St Clements Church monitor has been relocated to adjacent to the Church. There were 3 blasts >120 dBL during the 3 year reporting period.	High	Continue to investigate blast exceedences to identify causes and contributing factors and improve procedures as required.
6.23	The ground vibration peak particle velocity from blasting operations carried out in or on the premises must not exceed: (i) 2mm/s for more than 5% of the total number of blasts over a period of 12 months; and (ii) Exceed 10mm/s at any time, at any residence or other noise sensitive receiver such as the St Clements Church and Camberwell Community Hall.	The 2mm/s criteria was exceeded >5% of blasts at Camberwell Village in the 2005 and 2006 Reporting Periods. No blasts have exceeded 10mm/s.	High	

Table 4. cont' ENVIRONMENTAL AUDIT - *NON-COMPLIANT CONDITIONS OF DEVELOPMENT CONSENT (DA 309-11-2001-i)*				
Condition No.	**Description of Item**	**Comment / Suggested Action**	**Significance of Non-Compliance**	**Recommendation**
Noise Control				
6.34	Except as may be expressly provided by a DEC licence, noise generated by the development must not exceed the limits specified in Table 5 below	In the 2007 YTD reporting period 1 day and 1 evening exceedance occurred at Site 2 and 1 evening exceedance at Site 3 (now owned by ACOL.) In the 2006 reporting period 1 day and 1 evening exceedance occurred at Site 2 and 1 day and 1 evening exceedance occurred at Site 3. In the 2005 reporting period 1 day and 2 evening exceedences occurred at Site 1, 1 day and 1 evening exceedance occurred at Site 2 and 1 day exceedance occurred at Site 4 (now owned by ACOL.)	High	Continue to investigate noise exceedences to identify causes and contributing factors and improve procedures as required. Continue to purchase noise affected properties.
6.43 e	The Applicant shall prepare and implement a Noise Management Plan (NMP) for the ACP mine. The Plan shall include: Redefine both the acquisition and management zones on a yearly basis in the AEMR, unless otherwise agreed by the Director-General. This review shall draw upon the noise monitoring results obtained during the previous year and incorporate noise modelling to provide a forward plan of predicted noise levels for the year ahead;	The AEMR specifies the criteria in Condition 6.34 but does not outline the acquisition and management zones or provide a forward plan of predicted noise levels.	Low	Since ACOL owns most properties now in the acquisition zone, seek approval from DoP to forego this condition. Otherwise, define acquisition and management zones annually and report in AEMR.

Table 5. ENVIRONMENTAL AUDIT - NON-COMPLIANT CONDITIONS OF EPL NO. 11879				
Condition	**Description of Item**	**Comment**	**Significance of non-compliance**	**Recommendation**
Pollution of Waters				
L1.1	Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.	Sediment Dam 5/6 overflowed on 08.06.07 during a severe storm event (1 in 100 ARI) and released an unknown volume of mine water (> 900 us/cm) and stormwater from disturbed areas off site. DECC was notified. Overflows occurred from the majority of Hunter Valley mines during this storm event.	High	No further action. Sediment dams are designed to handle 1 in 20 year storm events in accordance with the Water Management Plan.
Noise Limits				
L6.1	Noise from the premises must not exceed the limits specified in the table below:	In the 2007 YTD reporting period 1 day and 1 evening exceedance occurred at Site 2 and 1 evening exceedance at Site 3 (now owned by ACOL.) In the 2006 reporting period 1 day and 1 evening exceedance occurred at Site 2 and 1 day and 1 evening exceedance occurred at Site 3. In the 2005 reporting period 1 day and 2 evening exceedences occurred at Site 1, 1 day and 1 evening exceedance occurred at Site 2 and 1 day exceedance occurred at Site 4 (now owned by ACOL.)	High	Continue to investigate noise exceedences to identify causes and contributing factors and improve procedures as required. Continue to purchase noise affected properties.

Table 5. cont' INDEPENDENT ENVIRONMENTAL AUDIT - *Non-compliant Conditions of EPL No. 11879*				
Condition No.	**Description of Item**	**Comment / Suggested Action**	**Significance of Non-Compliance**	**Recommendation**
Blasting Limits				
L7.2	The overpressure level from blasting operations carried out in or on the premises must not: (a) exceed 115 dB(L) for more than 5% of the total number of blasts carried out on the premises within the 12 months annual reporting period; and (b) exceed 120 dB(L) at any time at any residence or noise sensitive location (such as a school or hospital) that is not owned by the licensee or subject of a private agreement between the owner of the residence or noise sensitive location and the licensee as to an alternative overpressure level.	The 115 dBL criteria was exceeded >5% at Camberwell Village in 2005, 2006 and 2007 Reporting Periods. The St Clements Church monitor has been relocated to adjacent to the Church. There were 3 blasts >120 dBL during the 3 year reporting period.	High	Continue to investigate blast exceedences to identify causes and contributing factors and improve procedures as required.

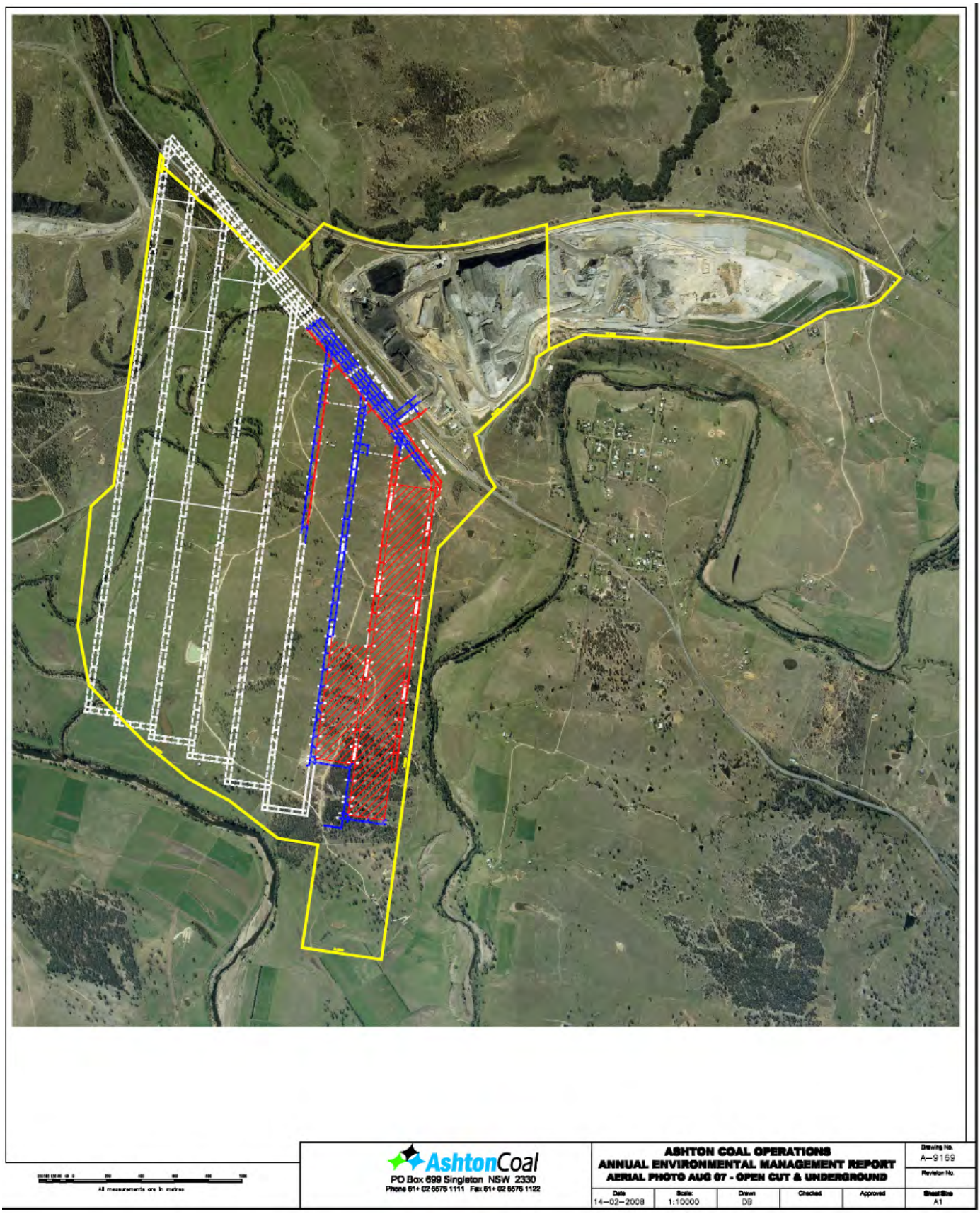

Figure 1. Ashton Coal Location

1.5 ENVIRONMENTAL MANAGEMENT PLAN UPDATE

The Subsidence Management Plan (SMP) for Longwalls 1-4 was submitted in October 2006. In accordance with correspondence received from the Department of Planning, the SMP was also aligned with the Subsidence Environmental Management Plan (SEMP) process required by the consent condition 3.18 which predated the current SMP process. The site Groundwater Management Plan has also been reviewed during the period and submitted to the Department of Water and Energy, the Department of Primary Industries and the Department of Planning. The new plan is still to be approved.

During the AEMR period ACOL received approval for a modification to Development Consent 309-11-2001-i (M3) for the construction and operations of tailings pipelines between the mine and the former Ravensworth Mine, and also DA 144/1993 a Singleton shire Council DA held by Macquarie Generation for use of Ravensworth Void 4 for Tailings Disposal. As a requirement of these two consent variations ACOL produced a Tailings Emplacement Operations Plan for submission and approval by the Department of Primary Industries.

There have been no other Environmental Management Plans updated during the AEMR reporting period.

Table 6. ENVIRONMENTAL MANAGEMENT PLANS SUBMITTED DURING THE REPORTING PERIOD

Subsidence Management Plans
Subsidence Management Plan
Land Management Plan
Archaeology and Cultural Heritage Management Plan
Pothole Management Plan
Site Water Management Plan
Road Management Plan
Electricity Management Plan
Telstra Assets Management Plan
Farm Dams Management Plan
Flora and Fauna Management Plan
Property 130 Management Plan
Groundwater Management Plan
Public Safety Management Plan
Farm Fences Management Plan
Other Management Plans
Tailings Emplacement Operations Plan
Groundwater Management Plan

2.0 OPERATIONS DURING THE REPORTING PERIOD

2.1 EXPLORATION

Mining Lease 1533

- Open Cut - 59 holes (9 cored + 50 open holes)
- Underground - 14 holes (1 cored and 13 open holes)
  - 5 in-seam long holes

Exploration Licences 5860 & 4918

- Area being assessed - 31 holes (6 cored 25 open holes)

2.2 LAND PREPARATION

Clearing was conducted for only two areas in the Open Cut in strips 4 and 5.

All Aboriginal artefacts in the area north of the New England Highway were collected in accordance with AHIMS Permit No 1591 prior to the disturbance of the surface of the land and were reported in the 2004-2005 AEMR reporting period.

Fauna inspections of the cleared areas were undertaken prior to clearing in accordance with the Flora ad Fauna Management Plan.

2.3 CONSTRUCTION

2.3.1 Underground

The surface facilities for the Underground were mostly completed in the 2005-2006 AEMR period with the exception of; a solcenic station, the workshop lubrication system and a small extension of the stores facility which were completed during this AEMR period.

In addition to this, an Underground dewatering bore and ventilation bore were constructed at the southern end of longwall one, during the AEMR period. Both of these facilities required a variation to the Underground MOP. The installation of the ventilation bore was completed during the reporting period. The dewatering bore included the installation of a submersible pump, supply of power services and the installation of a buried pipeline to the CHPP process water dam. The installation of the facility was all but completed during the reporting period with commissioning expected during September 2007.

2.3.2 Relocation of Glennies Creek Road

The development consent required that Ashton construct an upgraded section of Glennies Creek Road from the New England Highway to the mine entrance and the option to deviate the road in the North West corner of the Temporary Common. Deviation of Glennies Creek Road in the North West corner of the Temporary Common was also necessitated due to a highwall slip in that area causing instability of the existing road.

As shown in **Figure 2** extensive cracking occurred on Glennies Creek Road in the vicinity of the Temporary Common. As an immediate response a temporary side track was established to relocate traffic and advice was sought from a Geotechnical Expert. A monitoring program which included radar monitoring, survey checks and inspections was initiated. The investigations concluded that the movement will not cease until buttressing works at the toe of the highwall was substantially completed. As a result these works were undertaken immediately.

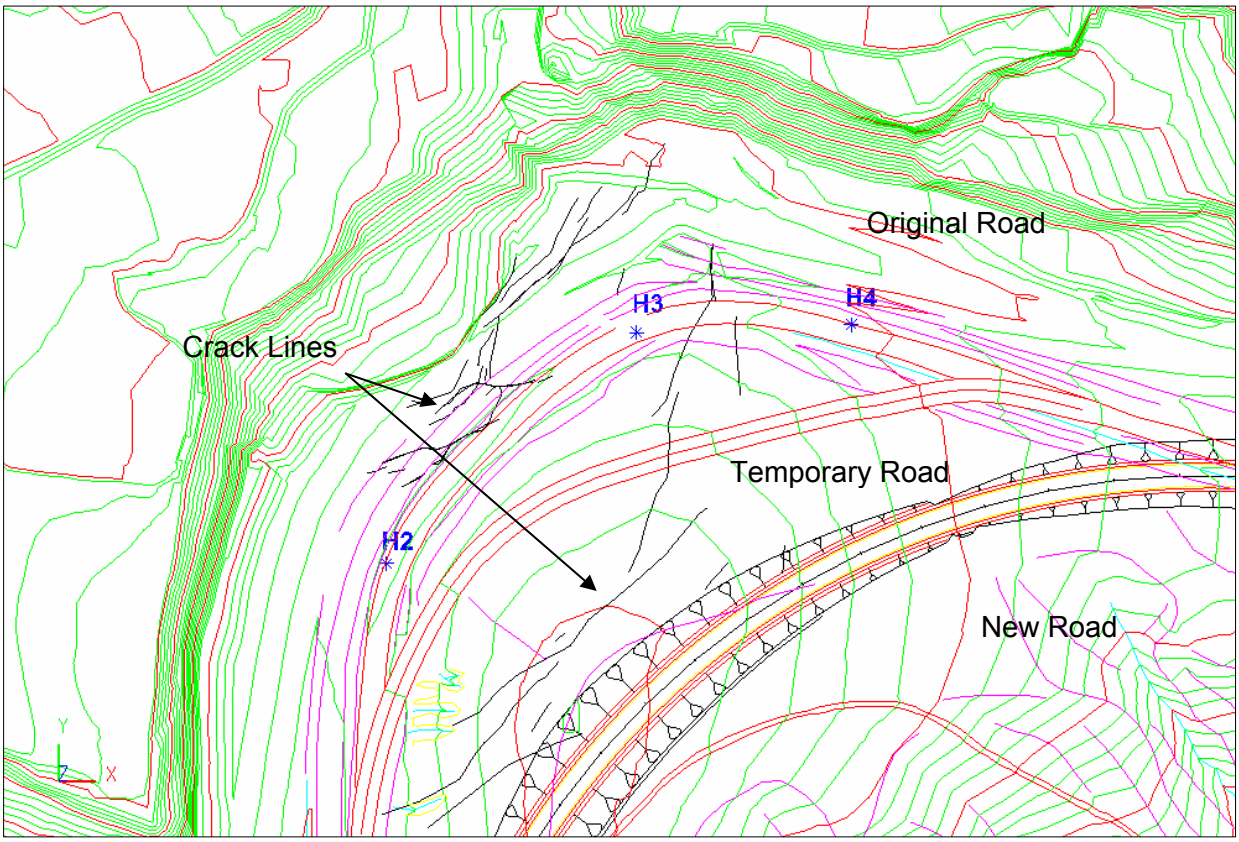

Figure 2. Glennies Creek Road, Extent of Highwall Cracking

During this time a geotechnical assessment was completed to confirm that the proposed alignment of the new road was outside of cracking zone. Design of the permanent road diversion was then completed. Prior to the road works being undertaken approval was required from Singleton Shire Council and the Roads and Traffic Authority. The road works were completed in March 2007.

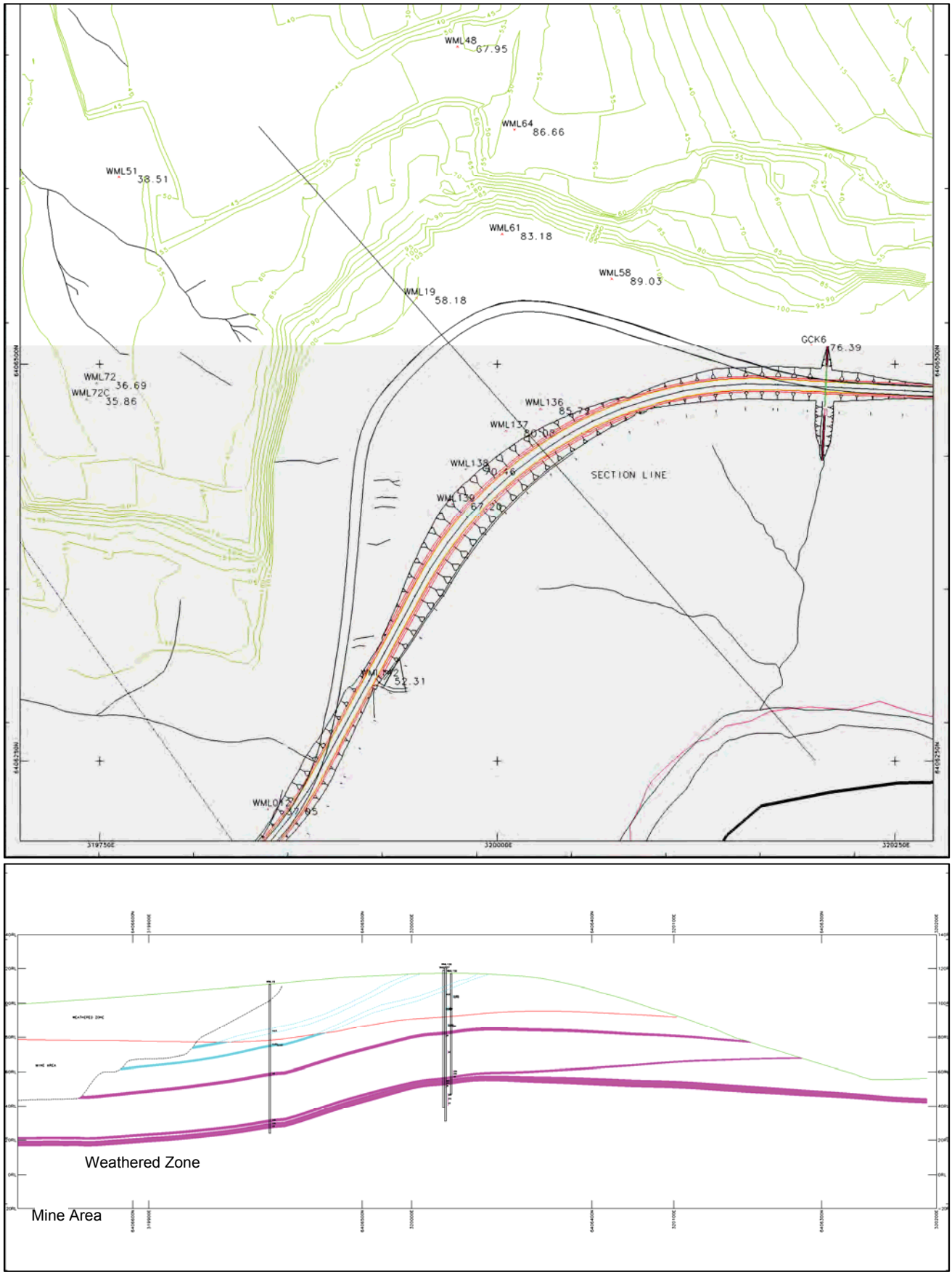

Figure 3. Highwall Slip Geological Cross Section

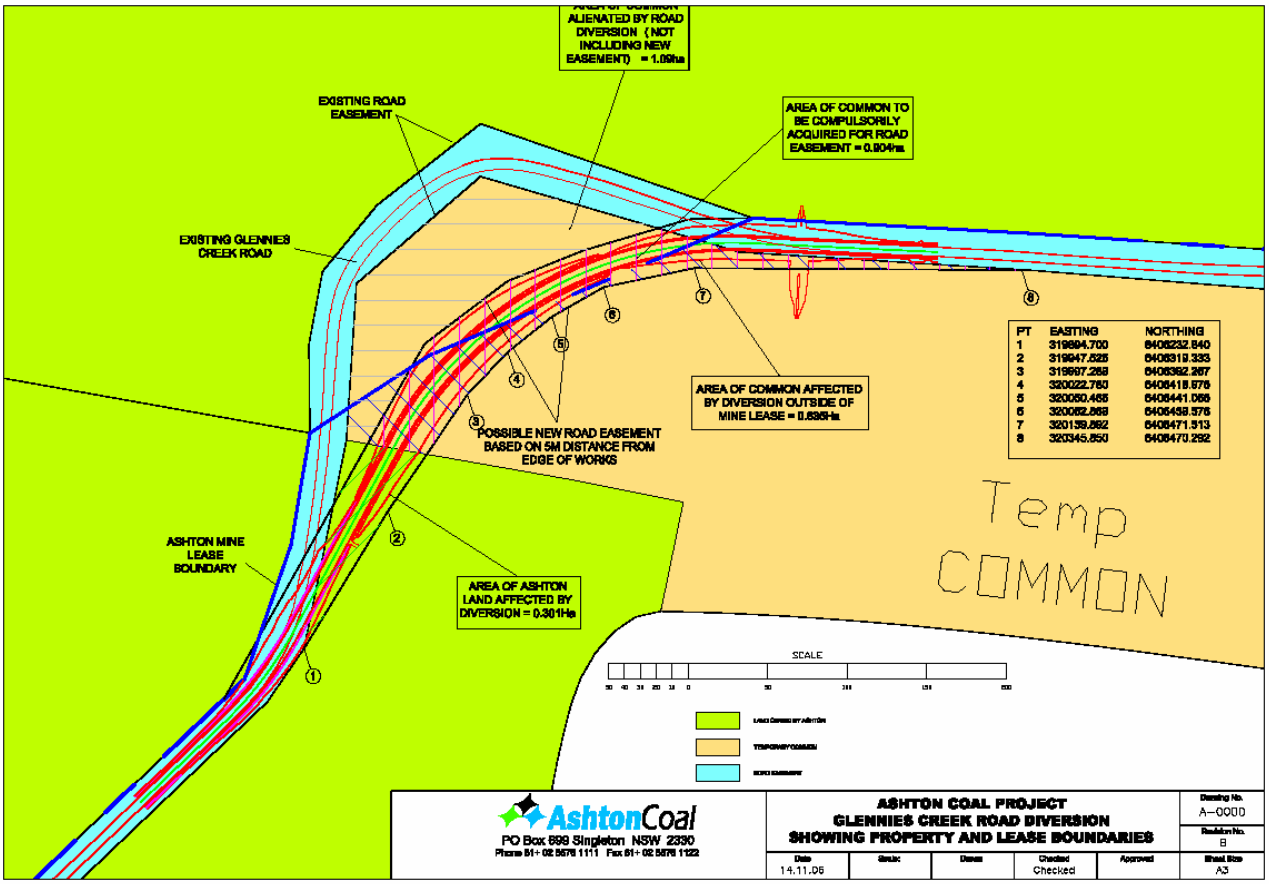

Figure 4. Glennies Creek Rd Diversion

2.3.3 Coal Handling and Preparation Plant

During the reporting period expansion works were completed on the CHPP. The upgrade works have increased the plant capacity to 1000tph. This was achieved through the introduction of an additional 600tph module, together with additional ROM handing facilities for the underground mine. Major components included:

- RC4 conveyor, which will transport ROM coal from the underground mine portal conveyor to an additional ROM stockpile within the Arties Pit,
- A hopper / feeder system to load Conveyor CV2001,
- Conveyor CV2001, which will transport the ROM coal from the Arties Pit to a screening crushing station,
- A screening / crushing station comprising a rotary breaker on natural surface at the west end of the Arties Pit. The breaker station design included a noise assessment and as a result a noise suppression housing was constructed around the breaker station.
- Conveyor CV2002, which will transport ROM coal from the screening / crushing station to the ROM surge bin,
- A 300 tonne ROM coal surge bin located to the south of the existing CPP module.
- Conveyor CV2003, which will transport ROM coal from the ROM surge bin to the new CPP module,
- A second CPP module with capacity of 600tph and utilising dense medium cyclone and spirals technology,
- A rejects transfer conveyor to transport coarse rejects material from Module 2 to the existing rejects bin,
- An additional 30 metre diameter thickener; and
- A 50 metre extension to the product coal reclaim tunnel.

The housing for the breaker station was completed prior to commissioning and to-date, noise suppression of the breaker station has been successful.

Figure 5. PHOTOS CHPP WHILE UNDER CONSTRUCTION

Module 2 Spirals Building

600TPH Module 2

Module 2 Breaker Station Foundations

Module 2 300T ROM Coal Bin

RC4 Conveyor

Extension to Product Reclaim Tunnel

Figure 6. PHOTOS CHPP AT COMPLETION OF CONSTRUCTION

Module 2 CHPP Washery

Underground RC conveyor and ROM

Module 2 Breaker Station & Enclosure

2.3.4 Ravensworth Void 4 Tailings Emplacement

During the reporting period mining in the Open Cut moved through the four tailings settling dams, which necessitated the relocation of the facility. The original Development Consent provided for a transitional treatment area within the existing Open cut area prior to disposal in the final void. The availability of the Macquarie Generation (MacGen) Ravensworth Void 4 has meant that these transitional cells can be avoided by the construction of an off site Tailings Emplacement. The use of the Ravensworth Void 4 area will also reduce the final overburden dump by 5 million cubic metres.

The dam was designed by Connell Wagner. The main dam wall has been reviewed by the Dam Safety Committee and is not designated. However the saddle dam, which is yet to be constructed at the eastern end of the main dam, has been deemed a designated dam. The tailings dam will be undermined by Newpac Mine and has been designed to accommodate the subsidence impacts. The final main wall height is 55 metres. The dam is estimated to have approximately 5.5 years life, after which tailings will be disposed of back in the Ashton Open Cut Final Void.

In undertaking the disposal of tailings in the Ravensworth Void 4, Ashton has taken on the responsibility for fulfilling MacGen's rehab responsibilities within the area of the void. As the dam is not within a mining lease area the details of this rehabilitation have been documented in a Tailings Emplacement Operations Plan (TEOP), which, has been approved by the Department of Primary Industries Minerals. This document is also a requirement of ACOL's Development Consent and the Macquarie Generation Singleton Shire Council DA. As the area is not within a mining lease there was no requirement to undertake a revision of the site MOP to include the area. The TEOP may be considered as a substitute MOP and a security calculation and associated security deposit were also submitted as part of this process.

Associated with the construction of the tailings dam was the installation of five pipelines (2 x tailings, 1 x decant return, 1 x Newpac transfer, 1 x construction water). These pipelines were designed by Parsons Brinkerhoff. They consist of sleeved (pipe in pipe) sections through sensitive areas and spill containment bunds and storage dams throughout the rest of the alignment.

First tailings were pumped to the new tailings dam in late June 2007.

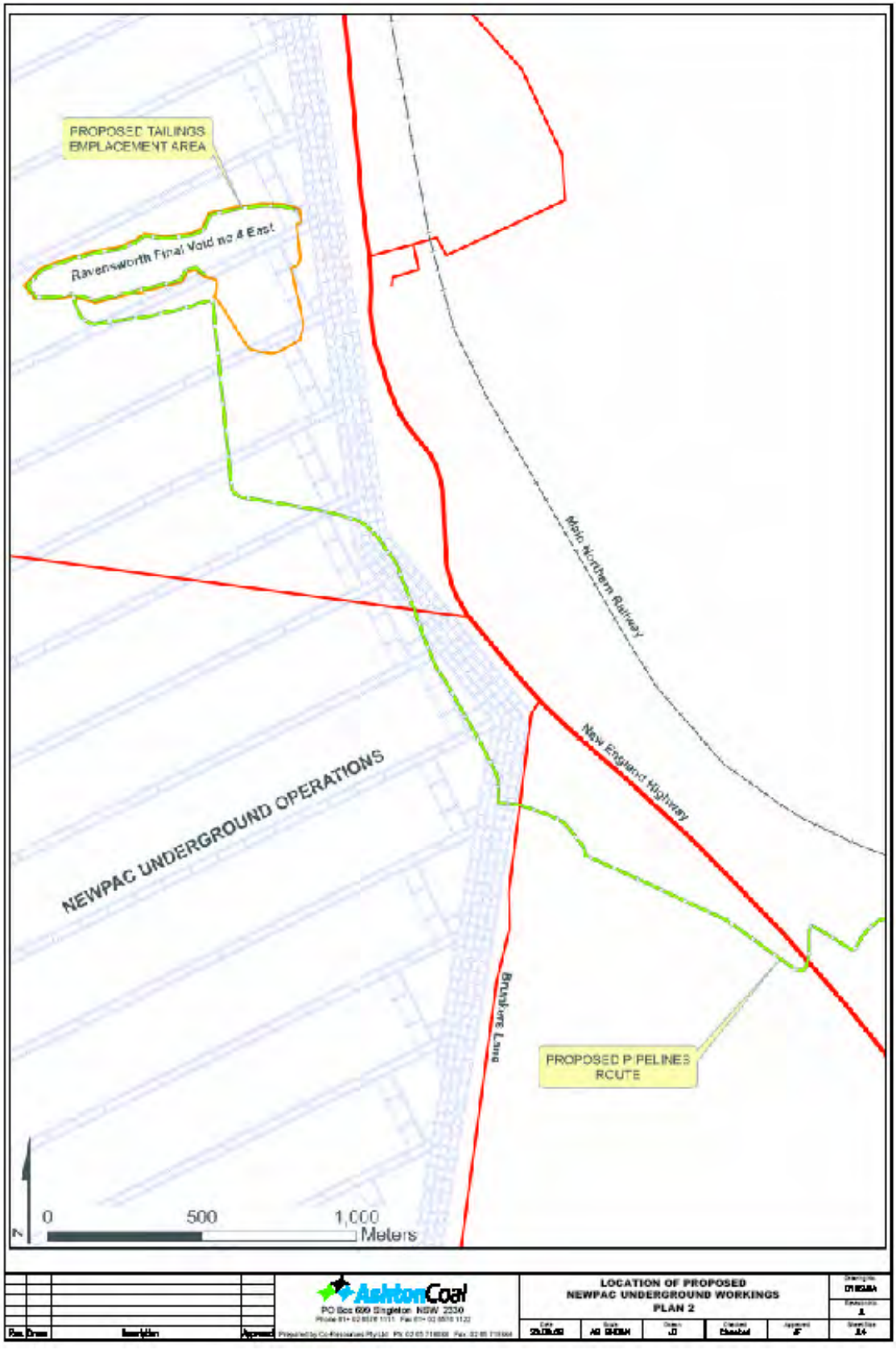

Figure 7. Ravensworth Void 4 Tailings

2.4 MINING

2.4.1 Estimated Mine Life

The life-of-mine MOP for the Open Cut Mine anticipates that open cut mining will be completed by mid 2010.

The underground mine began development in December 2005. The longwall started cutting coal in March 2007 and has an expected mine life of 18 years (2024).

2.4.2 Mine Production and Mining Constraints

2.4.2.1 Geology

The major coal seams identified at Ashton are (in descending stratigraphical order); the Lemington, Pikes Gully, Arties, Upper Liddell, Middle Liddell, Upper Lower Liddell, Lower Lower Liddell, Upper Barrett and Lower Barrett seams.

The strata within the Foybrook Formation comprises in order of predominance, fine to coarse grained sandstone, siltstone, conglomerate, mudstone, shale and coal. The top of the formation corresponds with the base of the overlying Bulga Formation which in turn is overlain by the Archerfield Sandstone and Jerrys Plains Sub group respectively. The later includes the Bayswater Seam that has been mined in the adjacent Ravensworth development. Only a remnant portion of the Bayswater seam exists in the far western part of the project area.

The principal structural feature of the project area is the Camberwell Anticline. The axis of this structure trends along the eastern boundary of EL4918. The coal seams of principal interest subcrop along the eastern part of the mining area. These subcrops define the westerly dipping limb of the Camberwell Anticline. In the north eastern part of the project area the formation is folded around the axis of the Camberwell Anticline. At this location the formation is more steeply inclined, up to 22 degrees on the eastern limb, with a flatter dip of less then 10 degrees on the western limb. As mining has progressed minor faulting has been detected sub parallel with, and adjacent to, the crest of the anticline in the open cut operation. This faulting is predominantly reverse faults formed in conjunction with the Camberwell Anticline. Underground mining has intersected a small igneous dyke in the northern part of the main gate 2 development. This dyke is associated with a small normal fault, of less then 0.03 metres displacement. Long hole drilling from main gate 1 development headings have confirmed the continuity of the dyke and confirmed its direction as north-south, of a doleritic composition up to 1.2 metres thick.

Total in-situ Coal within Ashton is 191 Million tonnes (Mt). Of this quantum, 173 Mt is measured and 18 Mt indicated. Coal resources have been assessed from the in-situ coal inventory and have been further segregated on the basis of Underground or Open Cut development potential.

2.4.2.2 Open Cut

Seams

The seams targeted during Open Cut operations (in descending order) are as follows:

- Pikes Gully;
- Upper Arties;
- Arties;
- Upper Liddell;
- Middle Liddell;
- Upper Lower Liddell;
- Lower Lower Liddell;
- Upper Barrett;
- Upper Barrett Split;
- Lower Barrett Split; and
- Lower Barrett.

Coal Analysis

An assessment of the ROM coal that is recovered from the Open Cut mine found that it generally has an ash content of 18% to 32%. Following processing in the CHPP, steaming and semi soft coking coal will be produced for the export market and sized raw coal for domestic consumption. Analysis of the recoverable coal revealed significant proportions of Vitrinite and low amounts of elements such as sulphur, chlorine and phosphorous.

Coal Reserves

The Open Cut is encompassed by ML 1533 which covers an area of 883 hectares (ha) and has known extractable reserves of approximately 6.95 Mt of coal in some 14 seams and splits.

Mining Constraints

Significant mining constraints in the Open Cut operation include:

- The proximity of the village of Camberwell to the site;
- The location of the Main Northern Railway;
- The Glennies Creek road;
- Geological conditions that limit the area available for Open Cut mining; and
- The location of the Hunter River, Glennies Creek and Bowmans Creek and their associated alluvials in relation to the mine.

Mining Operations

Ashton Open Cut has approximately three years operation remaining at the current rate of 2.3 Mt ROM and 11.2 Mbcm of overburden removed per year. Ashton Open Cut operates a fleet of hydraulic excavators and associated haul trucks along with support equipment consisting of watercarts, dozers and graders. Overburden is drilled and blasted prior to removal by the excavators. Overburden between seams is typically 15 – 20 m thick and although in the northern half of the pit, this can be blasted in one pass, in the southern half it will be blasted in two or three passes in order to minimise the impact of blasting vibration on Camberwell village. Coal is usually free-dug by excavator or windrowed by dozers prior to loading in the case of thinner seams.

The Ashton Open Cut mine design has been developed to minimise environmental impacts on Camberwell village, particularly in relation to impacts from blasting vibration, dust and noise. The original mine plan with north-south strips and pit progressing from east to west has been progressively changed to east-west strips and mining from north to south. This concentrates the mining activity initially in the north-west corner of the pit, furthest from the village, and has the effect of creating a buffer as the mining operations deepened. Mining with this modified orientation minimises hauling of overburden along the southern boundary of the pit and concentrates most of the mining and hauling at levels below the environmental bund for longer periods. Toward the end of the mine life, mining will be at sufficient depth in the southern corner with dumping occurring in the northern half of the pit. The remaining void at the southern end of the operation will be progressively filled with CHPP reject from the continuing Underground operation.

Initial dumping is concentrated on the southern edge of the existing overburden dump to the maximum designed height of 135 RL in order to create a visual and sound screen from Camberwell village and Glennies Creek Road as quickly as possible. The dump's drainage structures design incorporated water recovery maximisation for ongoing utilisation in the CHPP, for surface run-off and also water from CHPP reject co-disposal once the Open Cut operations cease.

Sufficient overburden will be stockpiled to enable the rehabilitation of Ashton, including Underground and CHPP areas following cessation of mining.

Hours of Operation

Under the conditions of the Development Consent and EPL11879, Open Cut mining operations are limited to the hours of 7:00 am to 10:00 pm, Monday to Saturday and 8:00 am to 10:00 pm on Sundays and public holidays. Hauling of reject material within the Open Cut pit area, operation of water carts and maintenance of equipment may be undertaken 24 hours a day 7 days a week.

Equipment Fleet

Mining of overburden and coal is conducted using hydraulic excavators supported by a range of trucks and other ancillary equipment.

The Open Cut mining fleet at Ashton consists of the equipment as outlined in **Table 7**.

Table 7. OPEN CUT AND CHPP MINING EQUIPMENT

Number	Description	Number	Description
2	Liebherr 994B excavators	3	Cat 777 or 773 water trucks
1	Liebherr 994 excavator	1	Cat 16H grader
1	Cat 5130 excavator	1	Cat 14H grader
7	Komatsu 630E trucks	1	Komatsu WA 600 wheel Dozer
3	Komatsu 730E trucks	1	CAT 950E
4	Cat 789 trucks	1	Komatsu 475 dozer
1	Drilltech DK45 drill rig	1	Cat 938 wheel loader
2	Drilltech DK25S drill rig	1	Cat D8R dozer
6	D10 bulldozer	2	Cat 992 Wheel loader
		1	Cat 994 Wheel Loader

Permanent workshop, office and refuelling facilities are located at the northern limit of the developing open cut and in the vicinity of the Clean Coal Stockpile and Train Loading Infrastructure.

2.4.2.3 Underground

Ashton Underground Coal Mine produced 1,691,690 ROM t during the reporting period from Sep 2006 to Aug 2007.

The Underground is listed as having total mining reserves of 38.4Mt. The mining plan includes sequential mining of the Pikes Gully, Upper Liddell, Upper Lower Liddell and the Lower Barrett coal seams. Underground development commenced on the 21st of December 2005.

The requirements of the development consent and the subsidence guidelines of DPI (Minerals) have been merged, and a Subsidence Management Plan was approved in February 2007 for the first four longwall panels in the Pikes Gully Seam.

Operations in this reporting period include development drivage for Longwall 2, commencement of longwall 1 extraction in February 2007 with completion of Longwall 1 extraction scheduled for October 2007.

Mining production activities are undertaken on a five day week basis. Additional crews are available on the weekend for maintenance and services support. Underground equipment is listed in **Table 8** below.

Table 8. ASHTON INDICATIVE UNDERGROUND MINING EQUIPMENT			
Number	**Description**	**Number**	**Description**
2	12CM12 Continuous Miners	6	PJB Mk4.5
3	15SC Shuttle Cars	4	Jugganaut V2
3	21m3/s auxiliary ventilation fans	2	Eimco EJC 130
3	Integral Rand 160 – 1000 cfm air compressors	2	Flakt Woods 315kW centrifugal fans
2	1050mm temporary conveyors (Jiffy drives)	2	1400mm conveyors (two VVVF drives each)
2	1600mm Conveyors (two VVVF drives each)	1	1600mm stacker conveyor (single VVVF Drive)
1	200m DBT Longwall	1	Stamler breaker feeder

The mining height during development and longwall extraction has been increased in the outbye mining areas to include a rider seam in the immediate roof. This has resulted in an increase in the amount of stone being mined during initial development. Increased interburden thickness in the inbye mining areas results in only the Pikes Gully seam being mined. A development mining height of 2.6m is being maintained throughout the operation.

The presence of a sandstone parting within the seam has resulted in the shortening of both Longwall 1 and Longwall 2. Longwall panel 3 is also likely to be shortened.

Development encountered water inflows in the Tailgate when the roadway was initially driven. Water flows continue to be monitored with assistance from external consultants. Negligible water inflows have been encountered during mining of subsequent gateroads.

A 1050mm diameter intake ventilation shaft was drilled and installed at the rear of Longwall 1 to provide ventilation for the Maingate travel road as longwall retreats. Airflow through this shaft is drawn by the Main fans operating in the A heading portal entrance.

2.4.3 Production and Waste Summary

Operations in the reporting period and predictions for the next reporting period are detailed in **Table 9**.

Table 9. PRODUCTION WASTE SUMMARY

	CUMULATIVE PRODUCTION (cubic meters)		
	Start of this Reporting Period	At end of this Reporting Period	Estimate, end of next Reporting Period
Topsoil Stripped	93,600	158,200	158,200
Topsoil used/spread	17,000	30,890	49,610
Waste Rock	26,958,256	38,685,967	49,829,000
Open Cut Coal	4,367,692	6,587,192	8,899,000
Underground Coal	137,662	1,828,611	4,679,000
Total Coal	4,505,354	8,415,803	13,578,000
Processing Waste	1,835,969	2,945,500	4,752,300
Open Cut Product Coal	2,604,356	3,968,538	5,430,500
Underground Product Coal	65,029	931,410	2,883,400
Total Product Coal	2,669,385	4,899,948	8,313,900

2.4.4 Changes in Mining Equipment or Method

During the reporting period ACOL have obtained an additional Cat 992G wheeled loader for operation in the raw coal stockpile. This loader is quieter then the older Cat 992 and Cat 994 which were previously operated on site. The new Cat 992G is predominantly operated on the higher Open Cut ROM during night time operation while the other two loaders are used on the lower Underground ROM. Four Cat 777 haul trucks were also replace with two Cat 789's. The Cat 789 haul trucks are rated to operate 2dB quieter then the Cat 777 which they replaced.

2.5 MINERAL PROCESSING

The CHPP incorporates two modules (400tph and 600tph) which are operated independently to produce the total designed throughput of 1000tph. The associated materials handling is designed for 1000tph and includes two rotary breakers on the ROM coal side, one feeding Open Cut coal and the other Underground, and a skyline conveyor on the product coal side. Product coal is recovered through a series of coal valves and conveyed to a Train Loading Station mounted over a dedicated rail siding.

The CHPP is operated by ACOL and manned on a 24 hours a day five days per week basis. However the CHPP has the ability where required to operate 24 hours a day seven days a week. Train loading may operate 7 days a week dependant on the rail schedule.

The CHPP processed 4.03Mt ROM coal during the reporting period to produce 2.23Mt of semi-soft and thermal product coal. All coal was transported by rail to the Port of Newcastle for sale on the export market.

2.6 WASTE MANAGEMENT

Coarse rejects are transferred to a rejects bin, loaded on to ACOL trucks and transported to the overburden dump for disposal. A total of 861 Kt of coarse reject material were disposed of in this manner during the reporting period.

As indicated above in section 2.3.4, placement of fine rejects is achieved by pumping to the Mac Gen Void 4 tailings dam. This process began in May 2007. Prior to this, fine rejects were pumped to a small series of tailings ponds, treated with coagulant and, following release of entrapped moisture, were excavated and transported to the overburden dump for disposal. A total of 208 Kt of fine reject material was pumped to the Mac Gen tailings dam during the period and a total of 469 Kt was disposed of in the overburden dump.

2.6.1 Chemical/Physical Characteristics of Residues

Coarse rejects are generally mudstones and claystones, with some sandstones, and generally contain minimal amounts of carbonaceous material.

The fine rejects contain finely disseminated clays and mudstone, which have been flocculated using a relatively inert chemical. It contains a higher concentration of carbonaceous material than the coarse reject.

2.6.2 Handling and Disposal Procedures

Procedures for the mining of the original tailings ponds are included in the MOP and the Manager's Rules for the Declared Plant.

Procedures for the disposal of both coarse and fine reject material are contained in the MOP and the Tipping Rules developed by the Open Cut Mine Manager.

2.6.3 Monitoring and Maintenance of Containment Facilities

Prior to June 2007 all coarse and fine reject materials were disposed of within the Eastern Emplacement Area and covered with inert overburden material.

Following commissioning of the Ravensworth Void 4 tailings emplacement all tailings are pumped to Void 4. The Tailings Emplacement Operations Plan defines the management of the Void 4 tailings facility.

Monitoring includes;

- Continuous Flow Monitoring,
- Twice a week inspections,
- Monthly inspections,
- Subsidence Monitoring, and
- Emplacement Surveillance Report

2.6.4 Sewage Treatment/Disposal

Ashton Coal Operations Limited now operates three (3) on-site sewerage management systems, being:-

1. Underground mine bathhouse and administration building combined, which treats the waste from 32 showers, 12 WC's, 9 hand basins and two sinks. The sewage treatment system is a two stage Biolytix type with tertiary bromide dosing. Treated effluent is disposed of by spray irrigation.

2. CHPP facilities and open cut bathhouse combined, which treats waste from 25 showers, 11 WC's, 8 hand basins and one sink. The sewage treatment system is an Envirocycle type with disposal of the treated effluent by spray irrigation.

3. Open cut mine workshop which treats 4 showers, 4 WC's, three hand basins and a sink. The sewage treatment system is an Envirocycle type with disposal of the treated effluent by spray irrigation.

2.6.5 Total Site Waste Management Program

In February 2007 Ashton Coal entered into an alliance with Transpacific Industries to create a total site waste management program with the aim to increase and maximise re-use and recycling of waste material on-site. The key objective of the waste management program is to reduce waste to landfill by 20% in the next 5 years. To date the following changes have been implemented as part of the program:

- Increase in paper and cardboard recycling bins including under desk baskets, wheely bins and skip bins across site.
- Timber skip bins have been placed at each of the surface areas (UG surface, CHPP and OC workshop).
- Batteries are now recycled where possible.
- Used printer cartridges are now fully recycled through the 'Cartridges 4 Planet Ark' program.

A Transpacific Waste Management Officer (WMO) inspects ACOL's waste streams on a weekly basis. During these inspections the WMO identifies contamination of waste streams, and where efficiencies and improvements can be made to the system. All of this information is provided in a monthly report which is presented in Occupational Health, Safety and Environment meetings.

Where heavy contamination is identified, the WMO will provide a toolbox talk to the relevant employees to increase the awareness of the problem.

Waste tracking is also completed by Transpacific with data provided in the monthly reports.

2.6.6 Waste Stream Volumes

The waste stream volumes are shown in **Tables 10** and **11** below. **Table 10** shows the waste volumes tracked from September 2006 to February 2007 prior to the Total Site Waste Management Program coming on line.

Table 10. WASTE STREAM VOLUMES SEPTEMBER 06 – FEBRUARY 07

Waste Stream		Sep-06	Oct-06	Nov-06	Dec-06	Jan-07	Feb-07
Waste Oil (L)		10,500	17,500	11,500	8,200	17,500	15,900
Oily Rags		1 x 205L Bin	-	-	1x 205L Bin	2x 205L Bin	4x 240L Bin
Oil Filters	Filters Crushed	216	313	208	229	-	-
	Oil Recovered (L)	105	130	95	100	-	-

Table 11 shows the recorded wastes for each waste stream for the period March to August 2007.

Table 11. WASTE STREAM WEIGHTS IN KG MARCH 07 – AUGUST 07

Waste Stream	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07
Absorbents (kg)	2	0	1,000	430	0	0
Air Filters (kg)	0	0	100	0	0	50
Air Filters (refurbished) (kg)	0	0	475	0	0	480
Batteries - Lead Acid (kg)	1,340	0	0	0	780	0
Contaminated Rags – Hydrocarbons (kg)	1,680	960	1,440	720	960	240
Effluent (kg)				18,000	0	0
Empty Drums (Contaminated) (kg)	180	0	0	20	0	20
General Waste (kg)	25,750	21,720	28,169	21,581	32,590	21,064
Grease (kg)	445	205	0	0	0	240
Oil Emulsions (kg)	6,300	4,800	4,900	18,200	11,100	36
Oil Filters (kg)	1,742	3,000	3,240	4,740	4,500	1,500
Paper & Cardboard (kg)	1,095	850	1,165	1030	895	920
Resin (kg)	0	0	0	205	0	0
Scrap Metal (kg)	32,360	8,080	7,300	18,640	0	0
Timber (kg)	4,560	4,360	11,400	8,460	12,316	3,836

Through the total Site Waste Management Program, ACOL and TPI have established five end uses for waste produced on site. These being:

- Disposal – general waste, air filters, resin and timber.
- Energy Recovery – grease.
- Recycling – oil emulsion, oil filters, paper and cardboard and scrap metal.
- Reuse – refurbished air filters.
- Treatment – hydrocarbon contaminated rags and drums.

Table 12 below shows the percentage breakdown of each end use for the period March 07 to August 07. The higher percentage of recyclables recorded in June was due to 18,000L of effluent which was pumped out from the septic systems on site.

Table 12. WASTE END USE PERCENTAGES MARCH 07 – AUGUST 07

Month		Disposal	Energy Recovery	Recycling	Reuse	Treatment
Mar - 07	Weight (kg)	30,310	445	42,837	-	1,861
	%	40.2 %	0.6 %	56.8 %	-	2.5 %
Apr - 07	Weight (kg)	26,080	205	16,730	-	960
	%	59.3 %	0.5	38.0 %	-	2.2 %
May - 07	Weight (kg)	39,669	-	16,605	475	2,440
	%	67 %	-	28.1 %	0.8 %	4.1 %
Jun - 07	Weight (kg)	30,246	-	60,610	-	1,170
	%	32.9 %	-	65.9 %	-	1.3 %
Jul - 07	Weight (kg)	44,906	-	17,275	-	960
	%	71.1 %	-	27.4 %	-	1.5 %
Aug - 07	Weight (kg)	24,950	240	2,456	480	26 %
	%	87.9 %	0.8 %	8.7 %	1.7 %	0.9 %
Average percentage		59.7 %	0.3%	37.5 %	0.4 %	2.1 %

2.7 ROM COAL AND COAL PRODUCT STOCKPILES

Both ROM coal and product coal are stockpiled adjacent to the CHPP. ROM coal from the Open Cut is stockpiled in a 100,000T stockpile. During the reporting period the Underground ROM stockpile capacity was increased from 50,000T to 180,000T.

The capacity of the product coal stockpile is approximately 300Kt. All product coal was transported off site by rail during the reporting period. No changes are envisaged to this mode of transport.

2.8 WATER MANAGEMENT

Ashton is a nil discharge site and split water into three distinct water categories, Clean Water, Runoff Water and Mine Water.

2.8.1 Clean Water Management

Clean water is used only where there exists a need for water of that quality or there is a shortfall of Mine water for reuse. Clean water is currently sourced from:

- Glennies Creek; and
- The Hunter River.

This water is used untreated as raw water in the Underground, treated in an on-site water treatment plant for use in the office and bath house facilities, or used as raw top up water to the process water dam for use in the CHPP, wash down and dust suppression.

2.8.2 Runoff Water Management

Runoff water from some of the rehabilitation areas is directed to sediment control structures prior to runoff from site. These areas are minimised and the water is harvested back onto site for reuse as a priority.

2.8.3 Mine Water Management

All water contaminated by contact with carbonaceous material or collected from the general mining area catchment is classed as Mine water and is collected on site in storage dams. This mine water is utilised in the mining process for dust suppression and the CHPP. Where the quality is suitable this water may also be used to irrigate rehabilitated areas. Due to water restrictions, with the exception of recycled sewage water no rehabilitation areas were irrigated this reporting period.

There is an agreement in place to use excess underground water from Glennies Creek Underground Coal Mine (Glennies Creek Coal Management Pty Ltd). This water supply is used intermittently to top up process water levels and for dust suppression.

2.8.4 Drainage

Drainage from undisturbed areas is managed in one of two ways:

- The drainage from small undisturbed areas that do not form part of the general mine catchment area are permitted to follow their natural drainage path; or

- The drainage from areas that do form part of the general mine catchment area is channelled into the runoff water dam where it is pumped to the process water dam and used in the CHPP, for wash down or dust suppression.

Drainage from disturbed areas is captured in sedimentation control dams and transferred to the process water dam and used in the CHPP, for wash down or dust suppression.

2.8.5 Water Supply and Demand

Licences are held by ACOL to pump water from Glennies, and the Hunter River for use on the mine site (refer to **Table 1**). During the reporting period 46.5ML additional water and 150 licence units were purchased on Glennies Creek. The water was made available on the Glennies Creek Pump works approval 20CA201565 in May 2007 while the licence units are included as additional water for the 2007 – 2008 water year.

Tables 13 and **14** show the balance of water draw from Glennies Creek and the Hunter River respectively over the reporting period. The Glennies Creek water draw includes pumped volume as well as Underground seepage inflows commencing in January 2007. **Section 3.4** discusses in more detail the Underground Seepage Inflow.

Table 15 details the total site water balance calculated on a 6 monthly basis for the AEMR reporting period. It should be noted that there are potentially some errors inherent in the water balance as they are based on a combination of metering and calculations. The accuracy of this is expected to improve for the next AEMR period as throughout the 2006 - 07 reporting period the site metering network has been significantly upgraded with the installation of 31 meters across the site. Almost all meters were fully installed by August 2007 with balancing and meter verification being undertaken.

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Table 13. BALANCE OF LICENCED WATER DRAW FROM GLENNIES CREEK

Month	Total Volume Pumped	Uncontrolled Flow Pumping	Drawdown on Unrestricted Volume	Available Water Determination	Pumped Drawdown on Restricted Volume	Days with uncontrolled flows	Underground Seepage Inflows	(Pumping + Seepage) Drawdown from Restricted Licence
2006-07 Water Year								
Starting Allocation			137	8% GS, 79% HS	13.1	181		
Jul-06	3.7	0	133.3	8% GS, 79% HS	9.4	-	-	9.4
Aug-06	3.7	0	129.6	8% GS, 79% HS	5.7	-	-	5.7
Sep-06	3	0	126.6	8% GS, 79% HS	2.7	-	-	2.7
Oct-06	1	0	125.6	8% GS, 79% HS	1.7	-	-	1.7
Nov-06	0	0	125.6	8% GS, 79% HS	1.7	-	-	1.7
Dec-06	0	0	125.6	16% GS, 83% HS	12.5	-	-	12.5
Jan-07	3	0	122.6	16% GS, 83% HS	9.5	3	4.6	4.9
Feb-07	3	3	116.6	16% GS, 83% HS	9.5	5	3.8	1.0
Mar-07	1.4	0	115.2	29% GS, 87% HS	19.58	0	5.1	6.0
Apr-07	0.8	0	114.4	35% GS, 92% HS	23.1	0	5.0	4.5
May-07	0.5	0	160.4	35% GS, 92% HS	69.1	3	4.6	45.9
Jun-07	9.6	0	150.8	35% GS, 92% HS	59.5	24	1.0	35.3
Total at end of Water Year	**29.7**	**3**	**150.8**		**59.5**	**35**	**24.2**	**35.3**
2007-08 Water Year								
			272	0% GS, 75% HS, 10% CO	27.2		10.5	
Jul-07	18	18	254	0% GS, 75% HS, 10% CO	27.2	31	0	27.2
Aug-07	38.92	38.92	215.08	0% GS, 75% HS, 10% CO	27.2	20	1.9	25.3

Table 14. BALANCE OF LICENSED WATER DRAW FROM HUNTER RIVER

Month	Total Volume Pumped	Uncontrolled Flow Pumping	Unrestricted Volume	Available Water Determination	Restricted Volume
2006-07 Water Year					
Starting Allocation			585		46.8
Jul-06	2.34	0	582.7	8% GS, 79% HS	44.5
Aug-06	16.38	0	566.3	8% GS, 79% HS	28.1
Sep-06	1	0	565.3	8% GS, 79% HS	27.1
Oct-06	1	0	564.3	8% GS, 79% HS	26.1
Nov-06	4	3	560.3	8% GS, 79% HS	25.1
Dec-06	5	5	555.3	16% GS, 83% HS	71.9
Jan-07	0	0	555.3	16% GS, 83% HS	71.9
Feb-07	9	2	546.3	16% GS, 83% HS	64.9
Mar-07	19.6	2.6	526.7	29% GS, 87% HS	124.0
Apr-07	26	0	500.7	35% GS, 92% HS	141.0
May-07	39.2	0	461.5	35% GS, 92% HS	101.8
Jun-07	2.5	0	459.0	35% GS, 92% HS	99.3
Total at end of Water Year	126.02	12.6	459.0		99.3
2007-08 Water Year					
			335		33.5
Jul-07	20.2	20.2	314.8	0% GS, 75% HS, 10% CO	33.5
Aug-07	53.7	51.1	261.1	0% GS, 75% HS, 10% CO	30.9

GS – General Security
HS – High Security
CO – Carry Over

The project water balance for the reporting period is detailed in the following table:

Table 15. ASHTON COAL WATER BALANCE

Month	ML 2 Sept 06 – 28 Feb 07	ML 1 March 07 - 1 Sep 07
Water Sources		
Meter readings Glennies Creek	7	69.2
Meter readings Hunter River	16	157
Pit water make OC	91	91
Pit water make UG	91	127
Rainfall captured on sited	215	380
Glennies Creek Mine water	30	36
Underground Tonnes	17	152
OC Tonnage Mined	109	91
ROM t on ROM beginning of period	9	0
Product at beginning of period	8	7
TOTAL WATER SOURCES	**587**	**1074**
Water Use		
Product Tonnage leaving Site	63	115
Dust Suppression Roads	241	241
Amount of Coarse Tailing created	39	81
Amount of Fine Tailing created	68	74
Tailings water to Mac Gen	0	266
Storm Water to Mac Gen	0	84
Watering Rehab areas	0	0
TOTAL WATER USE	**411**	**862**
Storage		
ROM t on ROM end of period	9	17
Product at end of period	8	18
Settling Dam	0.1	1
Process Water Dam	36.9	40.7
Arties Pit Sump	2.5	9.7
Borrow Pit	30	NA
FMD1	1.1	NA
Cell 4	7.7	NA
Dam 56	31.1	11.3
Mac Gen Tailings	0	20
Total water in Dams Onsite	**82**	**83**
TOTAL WATER STORED	**89**	**117**
SUMMARY		
A) Total Water sources	587	1075
B) Water used/stored on site	411	862
C) Water held in dams on site at end of period	89	117
Balance (A – (B + C))	+87	+96

Note: Evaporation losses have not been included in the above calculations.

2.9 HAZARDOUS MATERIAL MANAGEMENT

2.9.1 Fuel Containment

The open cut workshop and fuel storage facilities have a dedicated bunded area for both fuel and oil storage. This area has been upgraded during the reporting period with the addition of an apron at the front of the bund facility for the storage of bulk grease and to provide an impervious handling area for transfer of materials. In addition to this area a drive in bund has been constructed for parking the field service trailer. The runoff from these areas is captured within the existing workshop drainage system which flows to an oil separation system located adjacent to the truck wash bay.

Figure 8. Queensland Rail re-fuelling facility

QR self bunded diesel tank QR re-fuelling station

It was identified during a site audit that the oil water separator at the Open Cut Workshop did not have enough capacity to cater for the flow rates generated from the wash down bay and catchment area it was servicing. The best solution to this problem is to create a larger storage area and a secondary oil separator before the water enters the Settling dam. This system was fully installed and commissioned during the reporting period.

During the reporting period a Queensland Rail refuelling station has been constructed on the ACOL rail siding. The facility consists of a 95,000L self bunded diesel storage tank and associated pipe work and refuelling point. The installation required a Singleton Shire Council Planning approval and was also added to the ACOL Hazardous Materials Management System, including Work Cover notification.

Only small volumes of specialised lubricants are stored at the CHPP. These are stored in a dedicated bunded area.

2.10 OTHER INFRASTRUCTURE MANAGEMENT

Other infrastructure established on site includes a railway siding, various roads, electricity reticulation, site communications and water reticulation system.

Tailings Disposal

Ashton has reached agreement with Macquarie Generation (MacGen) to dispose of tailings in to Void 4 (East) at Ravensworth. This agreement has a number of advantages for Ashton, including:

- It will alleviate the need for costly rehandling of decanted tailings;
- It will enable the existing tailings ponds to be mined without the need for the establishment of temporary tailings ponds; and
- It will reduce the amount of material that needs to be disposed of in the open cut area (thereby reducing the height of the final landform).

As detailed in **Section 2.3** the construction of this facility was undertaken during the reporting period.

3.0 ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

3.1 AIR POLLUTION

3.1.1 Air Pollution Management

Ashton Coal has an approved Air Quality Management Plan. Controls have been put in place in accordance with this plan to control potential causes of air pollution. These controls are considered to have been adequate for the reporting period, these are described below.

Planning Controls

ACOL has implemented the following planning controls:

- A network of real time environmental monitoring stations has been established on site;
- ACOL has developed protocols involving specific operational controls when the wind is emanating from the northwest sector to minimise the effect of emissions on the village of Camberwell. The trigger to stop operations is generated by real-time monitoring.
- Large earth berms and tree plantations between the operations and the village have been constructed and planted;
- External overburden emplacement areas have been completed and rehabilitation will be complete within three years;
- The active mining area continues to be minimised.

Engineering Controls

Engineering controls are implemented on the ACOL site during mining operations. These include but are not necessarily limited to:

- Water carts utilised around the site to keep trafficked areas in a damp condition;
- All stockpiles are kept damp by the use of fixed or mobile water sprays under dry and windy conditions;
- Roads are regularly graded to ensure that loose dust-generating surface material is kept to the lowest level practicable;
- Speed limits on mine roads are restricted to 60 km/hr. Speed limits will be reduced if required to maintain dust emission at minimum levels;
- Roads are clearly delineated to minimise trafficked areas and to ensure that traffic is kept to watered areas;
- Drills are fitted with dust control equipment and graded rock will be used to stem blast holes. Drill rigs use water injection for drilling and drill areas are wet down prior to drilling during dry and windy conditions;
- Haul trucks and other earthmoving equipment with upwardly directed exhausts are used on site to minimise the generation of dust by exhaust emissions;
- All diesel equipment used on site is maintained properly and fitted with appropriate pollution control devices; and
- Underground ventilation fans are monitored to manage particulate emissions.

Operational Controls

Active controls involve the continuous management of dust generating activities to ensure that dust emissions do not affect nearby sensitive receptors. Operations are managed in response to real time air quality and weather data measured within the village and surrounds in accordance with set protocols. Other controls include day-to-day planning of mining activities and taking account of forecast weather and actual weather conditions.

Specific Operational controls include:

- There will be no dumping on high levels of emplacement areas when ten minute average wind speeds exceed 10 m/s and the wind is emanating from the northwest sector;
- Dumping, dozing, loading and haulage operations will be managed to minimise the amount of visible dust exiting the “lease” area; and
- Blasting is to be undertaken using procedures that will involve an assessment of meteorological conditions and will be designed to prevent dust and other emissions causing exceedences, or air quality goals or nuisance effects. Such controls are detailed in the Blasting and Vibration Management Plan.
- Four water carts are used onsite at Ashton Coal. Two of these operate permanently during open cut operations with the remainder being utilised when the conditions necessitate.

Improvements during the Reporting Period

Improvements made during the reporting period to reduce the potential for the generation of dust from site activities include;

- The height of the anemometer used to trigger the CHPP water sprays was raised to provide a more accurate reading of wind speed.
- The CHPP water sprays were upgraded to cover a larger area of stockpiles, and the ROM sprays have been upgraded to spray further to the outside of the hopper to maximise their effectiveness.
- A cannon spray has been installed on the Underground conveyor to provide dust suppression to the Underground ROM area.
- Dust monitoring Site 6 has been relocated into Camberwell to provide additional monitoring information which has been used to more effective manage the operations.
- A large area of the Eastern Emplacement Area has been rehabilitated with a focus on the area facing Camberwell Village.

There are daily operational changes which are undertaken as standard practice by the Open Cut Examiner, and CHPP supervisors. These are based on standard scenarios of pit and weather conditions and/or response to complaints. These standard controls are listed above and are inclusive of moving operations within the pit, operation of additional water carts and stockpile water sprays. In addition to these standard scenario controls other higher level operational changes may be undertaken on site at the discretion of the Mine Manager in consultation with the Environmental Officer. These additional higher level operational changes

are listed in **Table 16.** Things that may be considered higher level controls include cancellation or change of blast times and shutting down of pit operations.

Table 16. OPERATIONAL CHANGES RELATING TO DUST IMPACTS

Date	Issue	Changes Undertaken
21/11/2006	Strong north westerly winds were causing dust impacts	Excavator 19, operating adjacent to Glennies Creek Rd was shut down at 11:00am
11/12/2006	Excessive dust generation on ROM stockpile haul road.	Small water cart was ordered to focus on the area.
21/01/2007	Dust complaints were received from Camberwell Village, Singleton Shire Councils Glennies Creek road works had produced a large area of exposed soil. Strong winds were mobilising this dirt.	Daracon were contacted and a water cart was sent to the road works area to address the problem. Excavator 19 was operating adjacent to Glennies Creek Rd and was shut down to remove the cumulative impact of both areas.
27/01/2007	OCE observations indicated that dust generated within the pit was impacting on Camberwell Village	Excavator 30 was shutdown following crib break for the remainder of the day (9 hours downtime)
28/01/2007	Strong winds were causing increased dust generation	Excavator 30 was shutdown at 11am until wind speeds dropped in the evening (8 hours downtime)
16/03/2007	Strong north westerly winds causing increased dust generation from Excavator operations	Following a site inspection, Excavator 30 was shut down and Excavator 19 was relocated from weathered rock near the surface to a lower bench
17/03/2007	Increased dust generation along the southern boundary due to westerly winds	Excavator 19 relocated from surface level adjacent to Glennies Creek Road
29/03/2007	Dust conditions were being experienced following strong westerly winds, dust complaint was received	Excavator 19 was moved out of heavily weathered material immediately prior to the complaint. PM10 levels did not significantly decrease so Excavator was moved to base of pit.
5/04/2007	Strong north westerly winds were being experienced causing excessive dust generation from topsoil hauling	Topsoil hauling was ceased at 10am for the remainder of the day.
1/08/2007	10 minute PM10 levels exceeding 110	Dumping operations moved to lower levels to decrease dust emissions
10/08/2007	Excessive dust levels (approaching Ashton Contribution limit) resulting from strong north westerly winds instigated response	Excavator 21 was immediately shut down. Four Haul trucks were shut down. All graders were shutdown. All four water carts were operating and were focusing on high impact haul roads. Maximum speed limit was reduced from 60km/hr to 40km/hr.

3.1.2 Meteorological Monitoring

Ashton established two meteorological monitoring stations prior to the commencement of construction and operation activities on site. These are located at Monitoring Location 1 in the village of Camberwell and at the Repeater Station on the ridge above the village (see **Figure 2** in **Appendix 2**). The repeater station is the primary meteorological station from which wind direction and speed is assessed for mine operation purposes, whilst Location 1 is primarily

used to measure temperature inversions. Both weather stations were calibrated in December 2006.

Rainfall
Rainfall data for the reporting period is displayed in the following table.

Table 17. RAINFALL DATA 2005-2006

Month	Rainfall (mm)	Long Term Median Rainfall *(mm)
Sep 06	116.8	50.4
Oct 06	2.8	34.5
Nov 06	62	64.6
Dec 06	39	83.4
Jan 07	30	69.6
Feb 07	32.6	94.7
Mar 07	83	68.5
Apr 07	27.8	41.3
May 07	30.4	43.6
Jun 07	270.5	34.8
Jul 07	14.8	40.8
Aug 07	73.7	31.5
Total	**783.4**	**657.7**

*Long Term Median Data from Bureau of Meteorology, for Singleton STP.

Annual rainfall for the period was above the long term median for Singleton NSW. This however was due in part to floods experienced in June 2007. Generally most months were below the long term average, in particular the spring and summer months. Where necessary due to equipment failure, data from neighbouring Camberwell Mine has been used to supplement the information obtained on site.

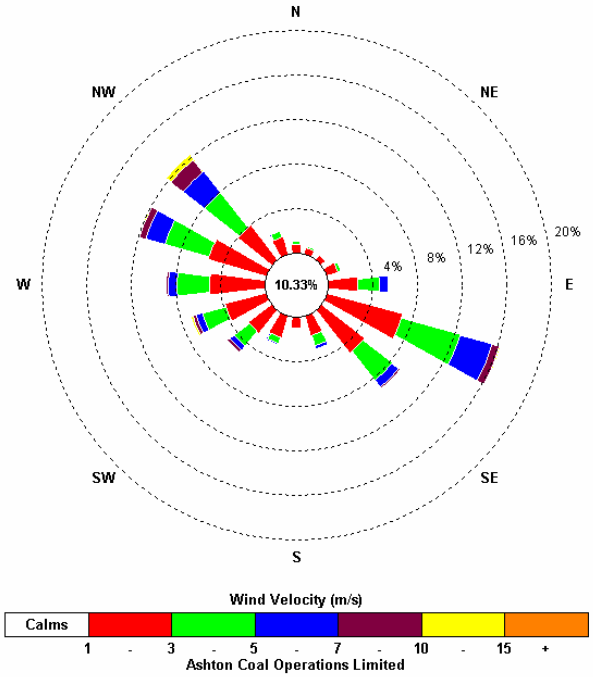
Wind Speed and Direction
Observed wind patterns for the period are outlined in the following table:

Table 18. WIND PATTERNS BY MONTH 2005 - 2006

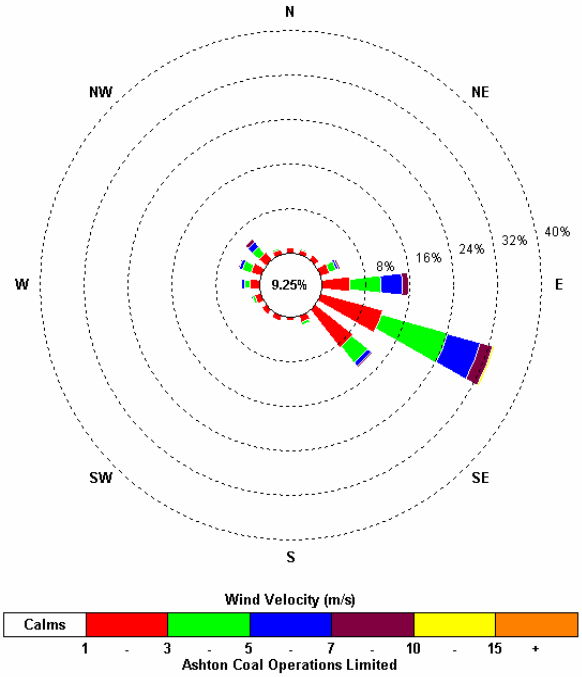
Month	Primary Wind Direction (Quadrant)	Secondary Wind Direction (Quadrant)
September	WNW	
October	WSW	WNW
November	ESE	SSW
December	ESE	-
January	ESE	-
February	ESE	-
March	ESE	-
April	ESE	WSW
May	WNW	-
June	WNW	-
July	WNW	-

August	WNW	SSE

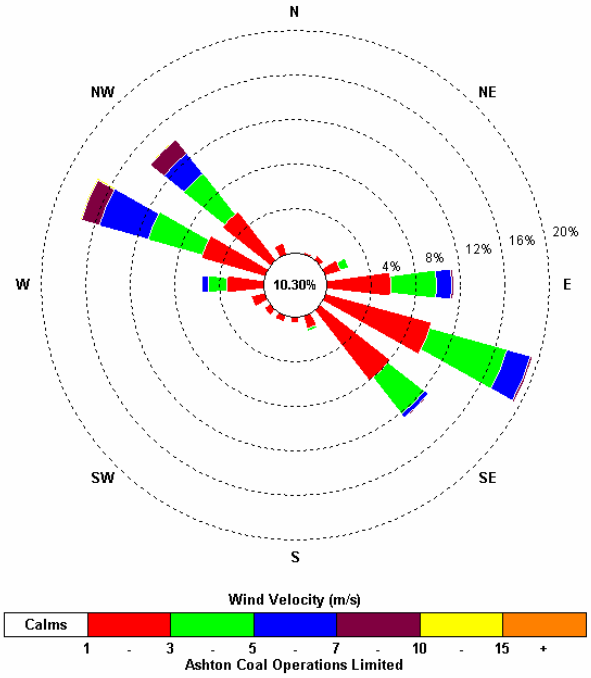
Figure 9. Windroses



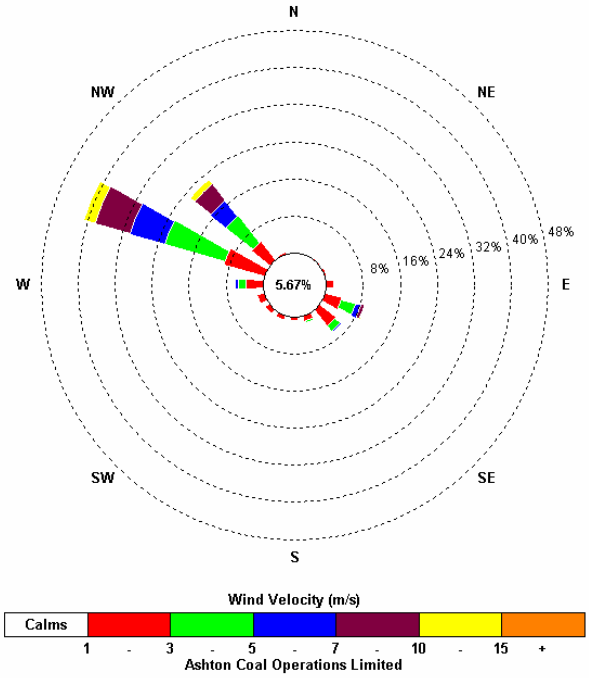
1st Quarter Windrose Sep 06– Nov 06



2nd Quarter Windrose Dec 06 – Feb 07



3rd Quarter Windrose Mar 07 – May 07



4th Quarter Windrose Jun 07 – Aug 07

Dominant winds for the first quarter of the period were from the North West during September followed by an emergence of Southerlies in October and November. The second quarter (December 06 – Feb 07) saw a continuation of the dominant Southerlies which sustained into

the third quarter until May when the North Westerlies returned and remained throughout the fourth quarter.

3.1.3 Dust Criteria and Monitoring

A network of real-time environmental monitoring stations was installed prior to the commencement of operations and is utilised to ensure continued compliance with the criteria established in the Development Consent and the EPL. **Figure 8** details the monitoring locations.

3.1.3.1 Particulate Matter < 10µg (PM_{10})

The criteria for particulate matter less than 10µm (PM_{10}) is as follows:

- Annual mean less than 30µg/m^3 on a cumulative basis,
- 24 hour average contribution from Ashton Mine not to exceed 50µg/m^3, and
- Maximum cumulative 24 hour average not to exceed 150µg/m^3.

Locations of PM_{10} monitoring stations are detailed on **Figure 8**. They are as follows:

Table 19. LOCATION OF PM_{10} MONITORING STATIONS

Monitoring Station No	Location
1	Camberwell village (north)
2	Camberwell village (south)
3	Property east of Camberwell village
4	**On site** north of Eastern Emplacement Area
7	**On site** at country end of rail siding
8	Camberwell village (east)

Monitoring Locations 4 and 7 are situated to the north of mining operations, immediately south of the Main Northern Railway and are intended to monitor the incoming concentrations of PM_{10} dust when the prevailing winds are from the northwest, which is the wind direction that presents the greatest risk of impact to the village of Camberwell. Prior to the 2006-07 reporting period a third background PM10 site was present however due to high impacts on this site from Ashton's Open Cut operations, this site (Site 6) has been relocated to the eastern area of Camberwell Village (Site 8). This was completed in order to provide a more representative monitoring program for the mines operational impacts.

The Ashton contribution to the concentration of PM_{10} at community sites is calculated by subtracting the incoming dust concentration (the lowest level recorded at sites 4 or 7 is used for

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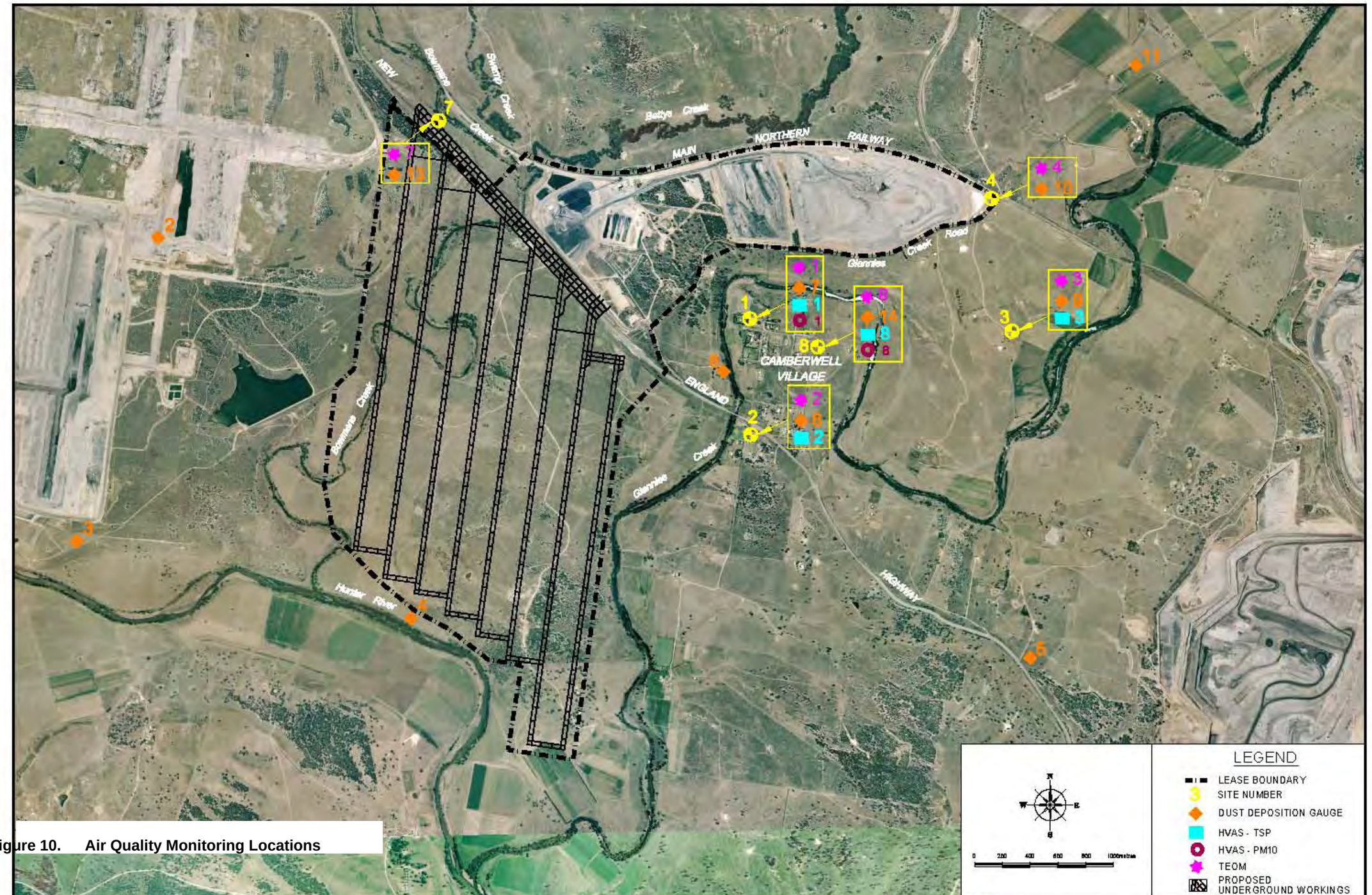

Figure 10. Air Quality Monitoring Locations

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this calculation) from the ambient level of dust concentration at the four community sites. This is a very conservative calculation.

Historic Trends

Long term PM 10 results from 1996 to 2001 are available for a monitorign location in close proximity to ACOL's Site 1. These results are shown below. It is difficult to undertake a direct comparrison of these results with the the ACOL monitoring results as the historic results are based on the Operations of a HVAS PM10 operated every 6 days and the ACOL monitoring system is a realtime monitoring system operating24 hours a day 7 days a week . The results however do give an indication of the historic PM10 levels within the Village of Camberwell prior to the commencment of the ACOL operations. As seen in the graph below there are several periods in time where the historic annual average is above the cummulative annaul average criteria of 30µg/m^3.

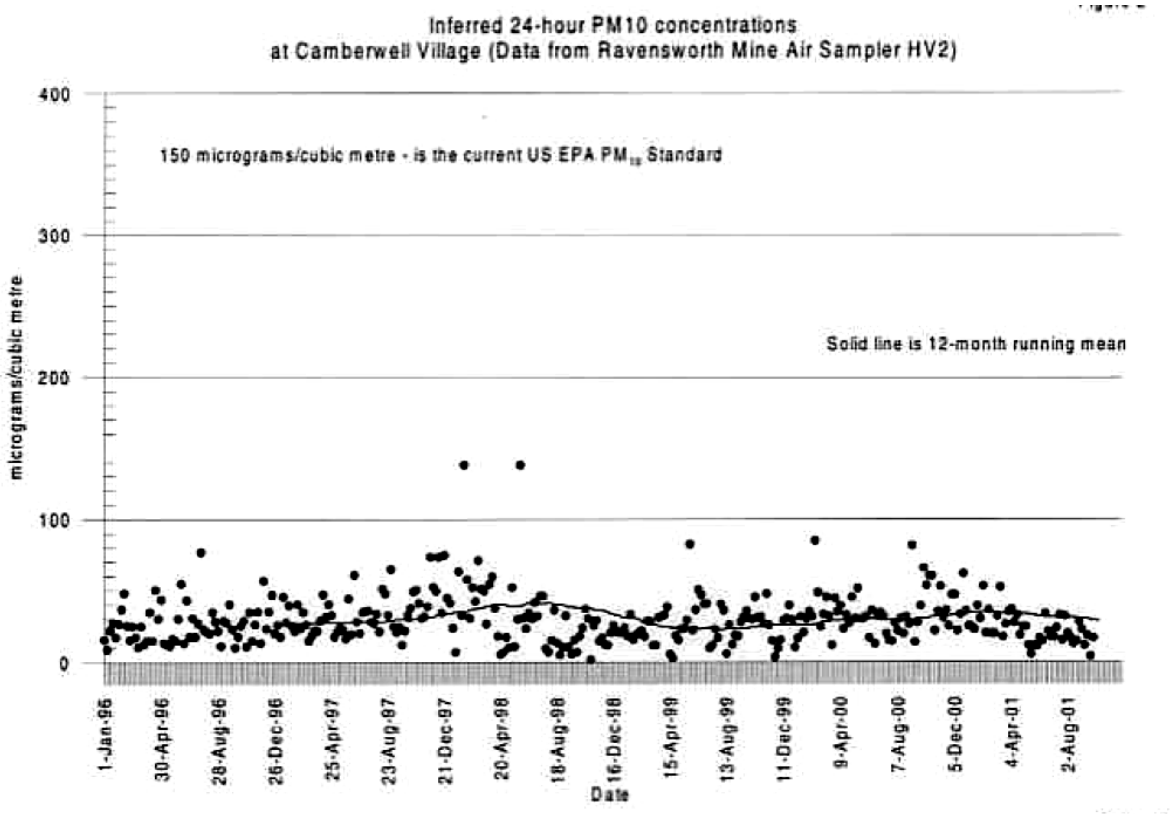
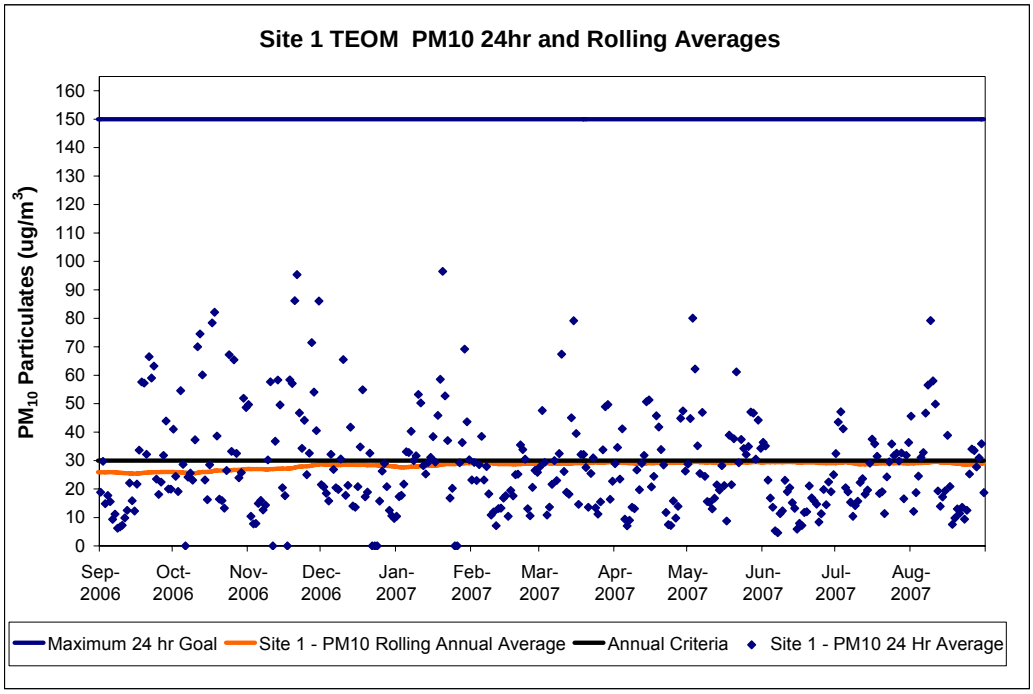


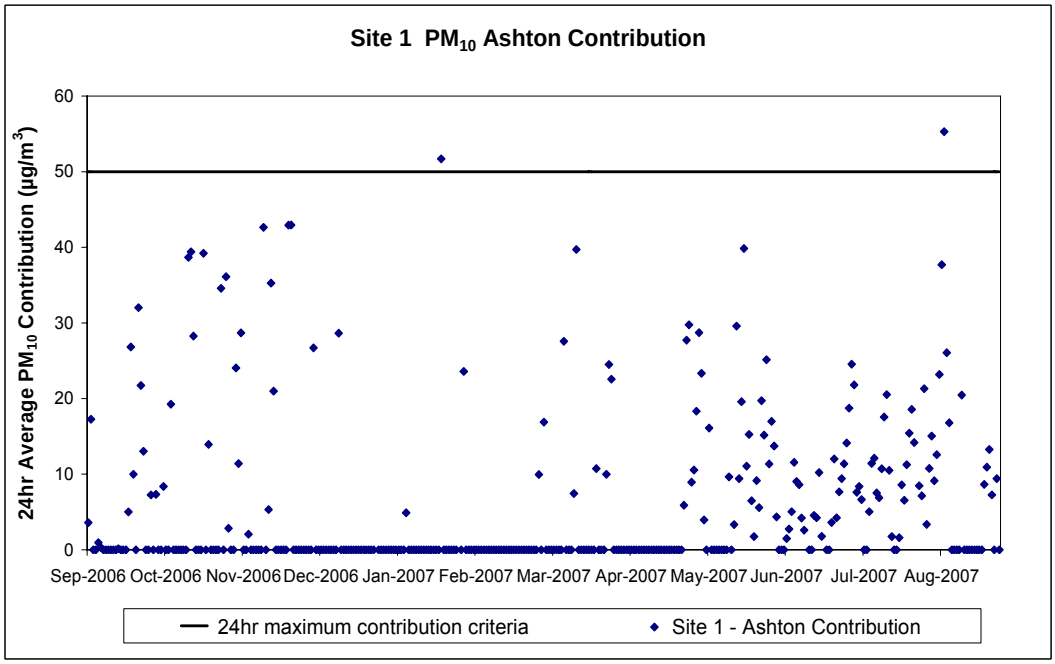
Figure 3

Site 1 TEOM

Site 1 is located in the northern portion of the village of Camberwell. 98% of data was captured for Site 1 for the reporting period. Results of PM_{10} monitoring at this location were as follows:



The rolling average PM_{10} results for Site 1 demonstrates compliance with the annual goal of 30µg/m^3. Site 1 also demonstrated compliance with the maximum 24hr Criteria of 150µg/m^3.

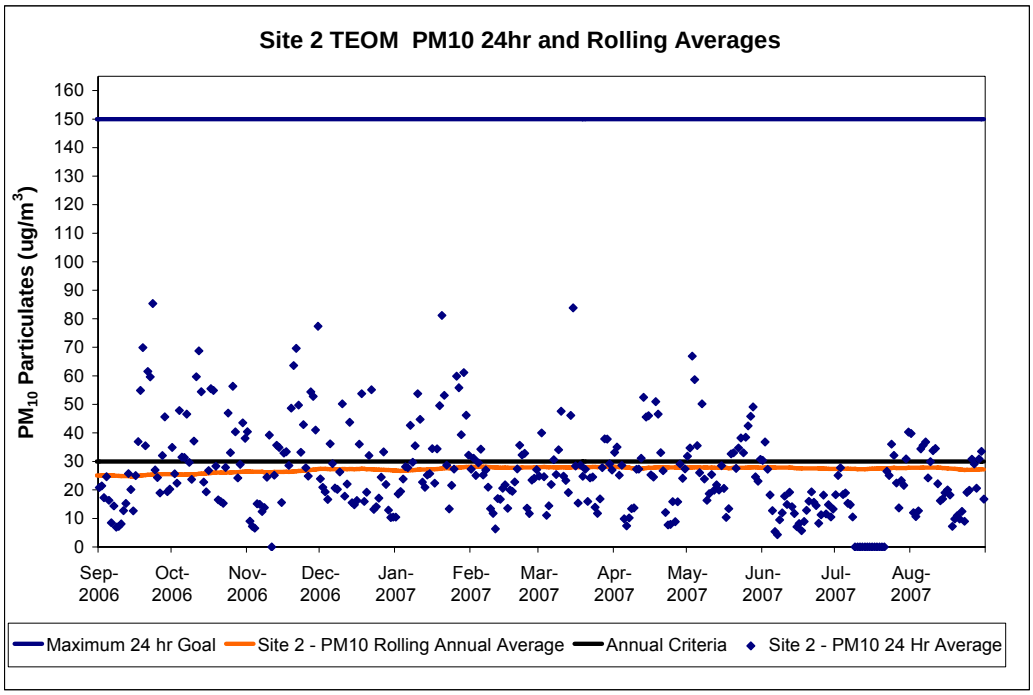


Note: Ashton Contributions are calculated where there is a NW wind direction otherwise the contribution is plotted as 0.

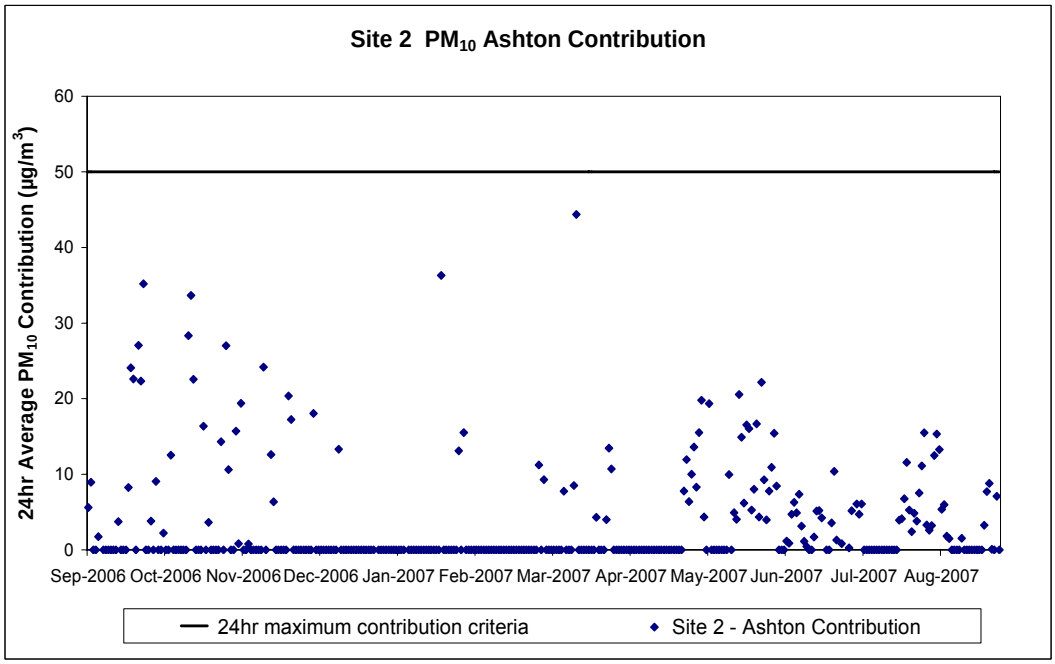
There were 2 instances where Ashton's community contribution was recorded above the criteria of 50µg/m^3. These levels were recorded as 52µg/m^3 on the 21 January 2007 and 55µg/m^3 on the 10 August 2007. Operational changes implemented in relation to these two events were discussed earlier in **Section 3.1.**

Site 2 TEOM

Site 2 is located in Camberwell village on the south side of the New England Highway. 96% of data was captured from Site 2 for the reporting period. Results of PM_{10} monitoring at this location were as follows:



The rolling average PM_{10} results for Site 2 demonstrates compliance with the annual criteria of 30µg/m^3 and with the maximum 24 hour criteria of 150µg/m^3.

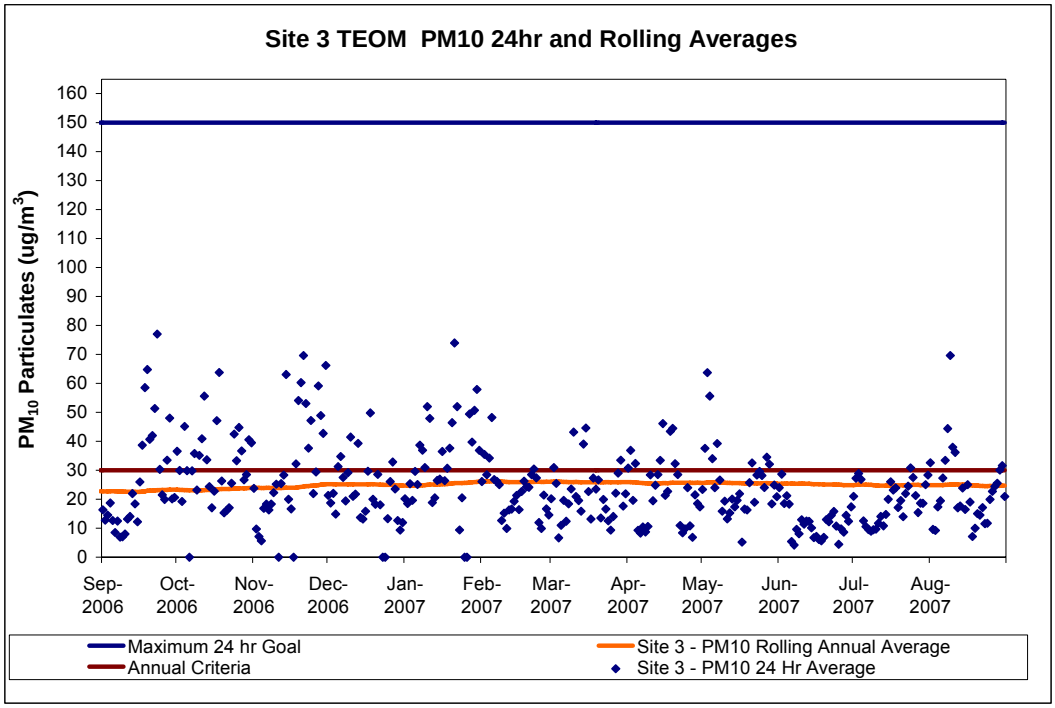


Note: Ashton Contributions are calculated where there is a NW wind direction otherwise the contribution is plotted as 0.

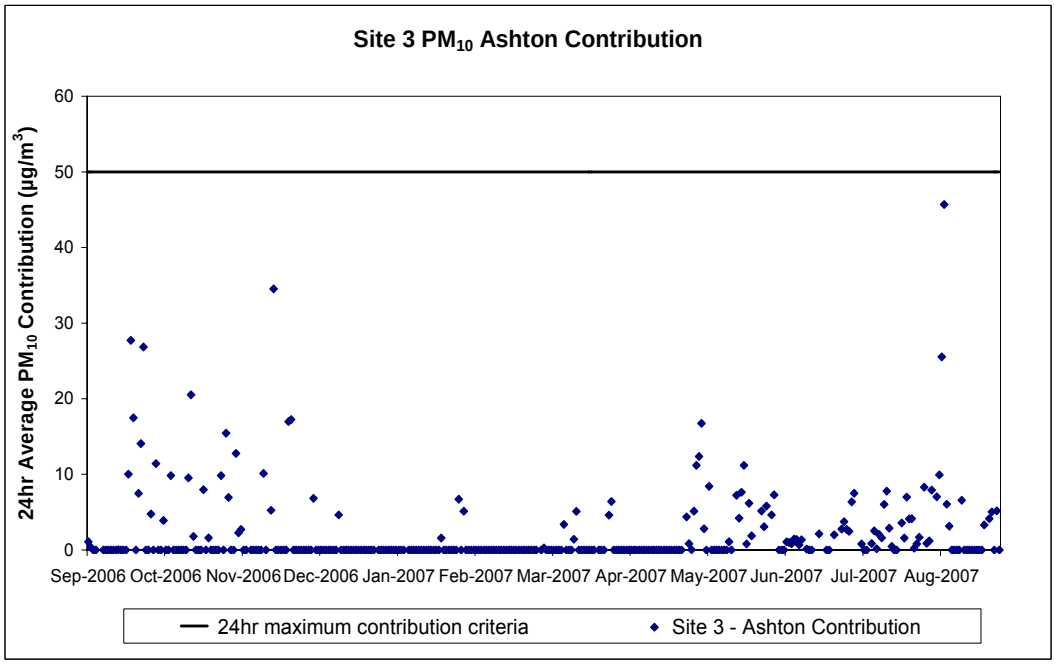
Site No 2 is located close to the New England Highway, and may be influenced by passing traffic when the winds emanate from the north, however Ashton remained in compliance with the criteria of 50µg/m^3 at all times.

Site 3 TEOM

Site 3 is located on a farming property to the east of the Eastern Emplacement Area. 98% of data was recovered at Site 3 for the reporting period. Results of PM_{10} monitoring at this location were as follows:



The rolling average PM_{10} results for Site 3 demonstrates compliance with the annual criteria of 30µg/m^3. Site 3 also complied with the maximum 24 hour criteria of 150µg/m^3.

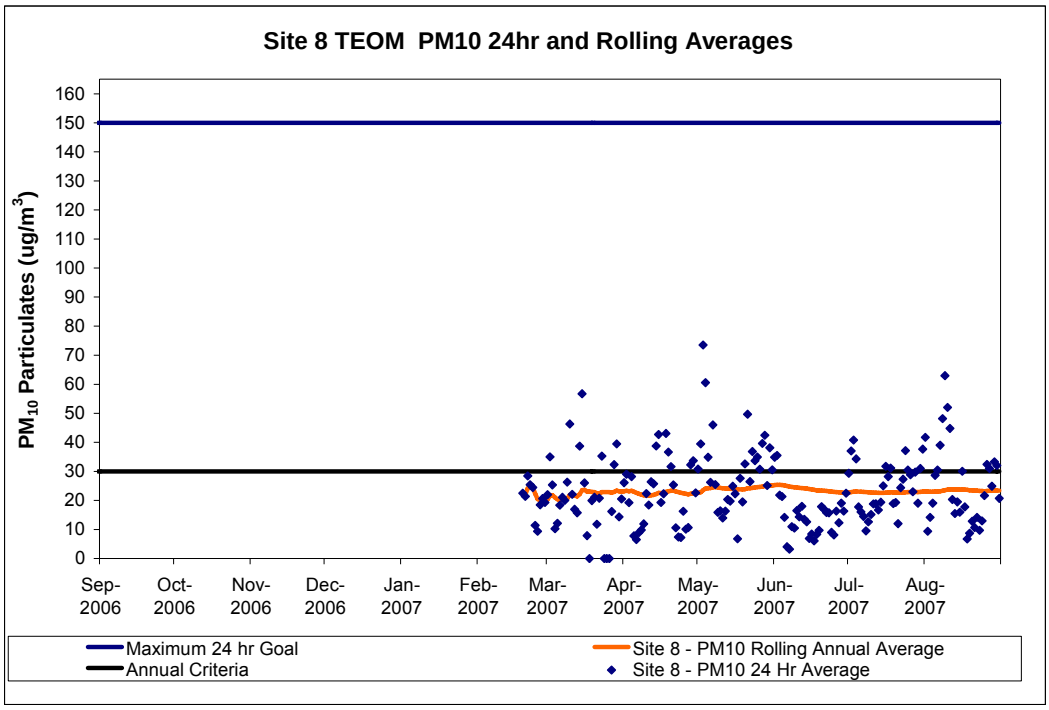


Note: Ashton Contributions are calculated where there is a NW wind direction otherwise the contribution is plotted as 0.

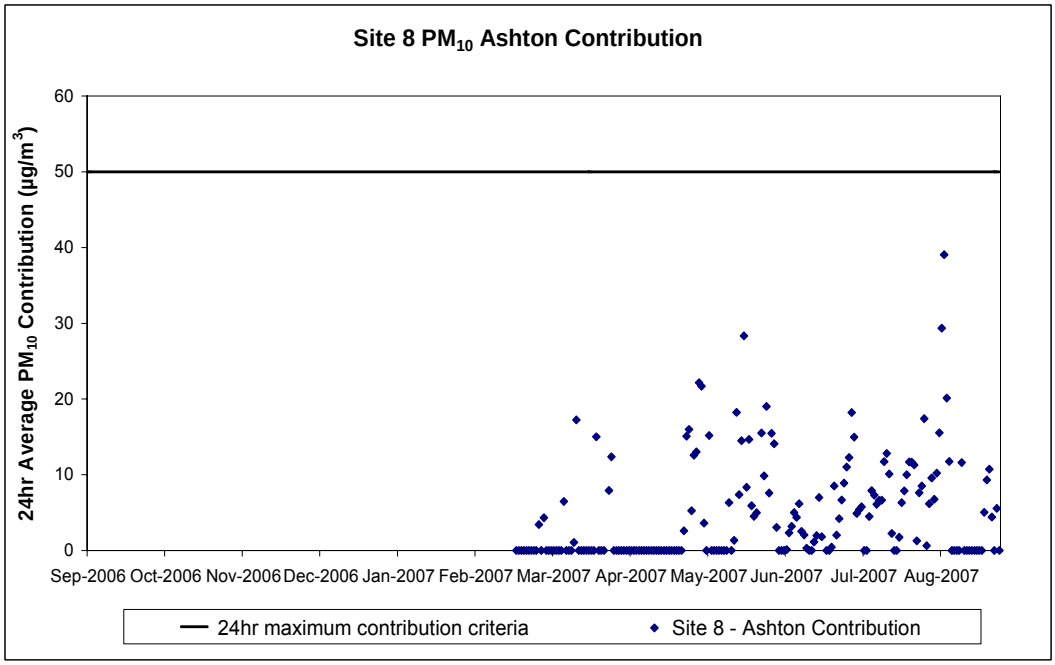
Site 3 remained in compliance with the community contribution criteria of 50µg/m^3 at all times.

Site 8 TEOM

Site 8 is located on the eastern side of Camberwell Village. As mentioned above the Site 8 TEOM was commissioned on 20 February 2007. From this date the site had recorded a 99% data recovery rate.



From the 20 February 2007, Site 8 showed compliance with the annual criteria of 30µg/m^3. Site 8 also complied with the maximum 24 hour criteria of 150µg/m^3.

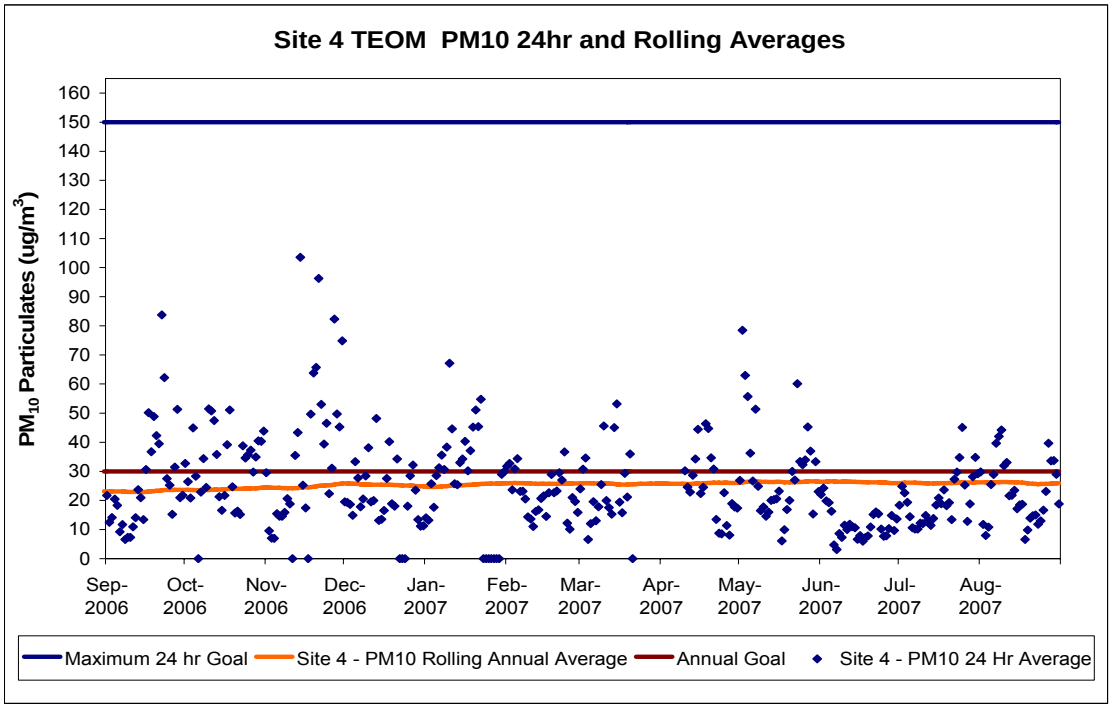


Note: Ashton Contributions are calculated where there is a NW wind direction otherwise the contribution is plotted as 0.

Site 8 showed compliance with the Ashton Contribution criteria of 50µg/m^3 throughout the period.

Site 4 TEOM (On-Site)

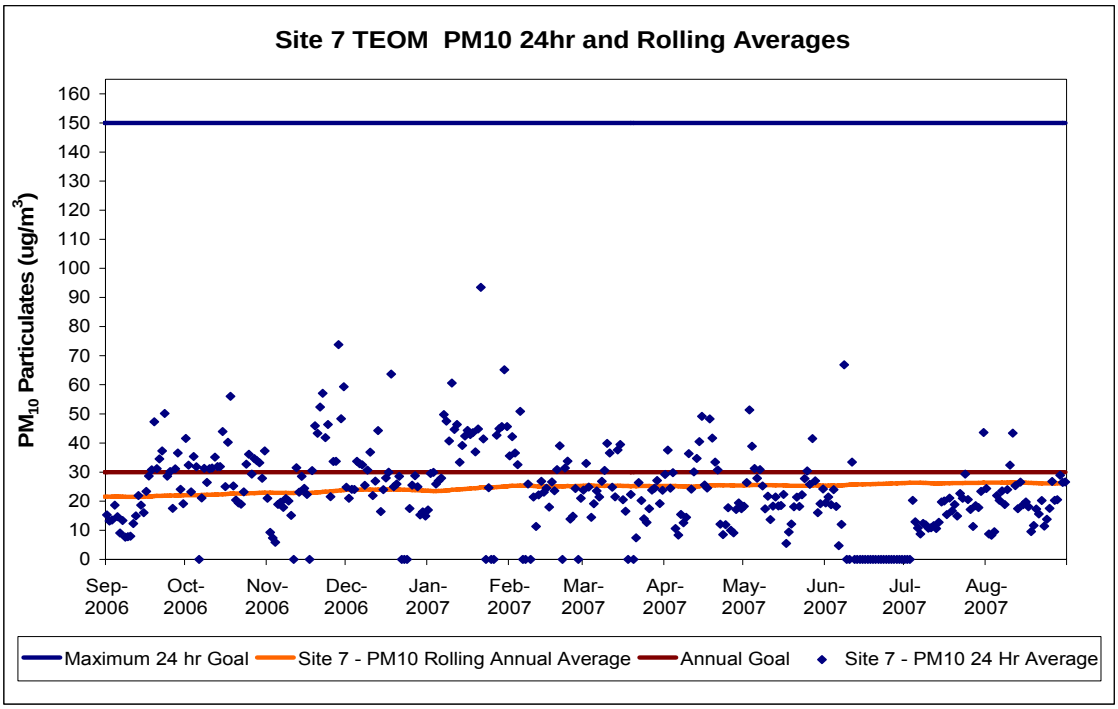
Site 4 is located on the eastern tip of the eastern emplacement area, next to Dam 5/6. 97 % of data was recovered at site 4 for the reporting period.



This site is used as a background monitoring for calculating the Ashton Contribution under NW wind conditions. Although the annual criteria of 30µg/m^3 is not expected to apply to onsite TEOMS the annual criteria was still achieved at site 4.

Site 7 TEOM (On-Site)

Site 7 is located adjacent to the Main Northern Railway at the country end turnout. The site is remote from mining operations. 89% of data was recovered from this site during the monitoring period. The decrease in data recovery for the period was due to damage caused to the unit during flooding experienced in June 2007. As a result of the location of the unit was submerged until flood waters subsided. The unit was damaged beyond repair and a loan unit had to be installed for a period of time until a new unit was installed at the site.



The annual criteria of 30µg/m^3 is not expected to apply to onsite TEOMS. The results from this monitor show why it is selected for most calculations of Ashton's Contribution. It is generally the lowest of the background TEOMs.

3.1.3.2 Total Suspended Particulate Matter (TSP)

Guideline values for TSP indicate that results are not to exceed 90µg/m^3 (annual mean).

The locations of High Volume Air Samplers to monitor TSP are detailed in **Figure 8** above. They are as follows:

Table 20. LOCATION OF TSP MONITORING STATIONS

Monitoring Station No	Location
1	Camberwell village (north)
2	Camberwell village (south)
3	Property east of Camberwell village
8	Camberwell village (east)

Historic Trends

Historic TSP results are available for a location close to Site 1 in Camberwell Village. The results for this site are shown below. They show historically prior to the commencement of the ACOL operations the annual average has exceeded the 90µg/m^3 (annual mean) criteria at various times.

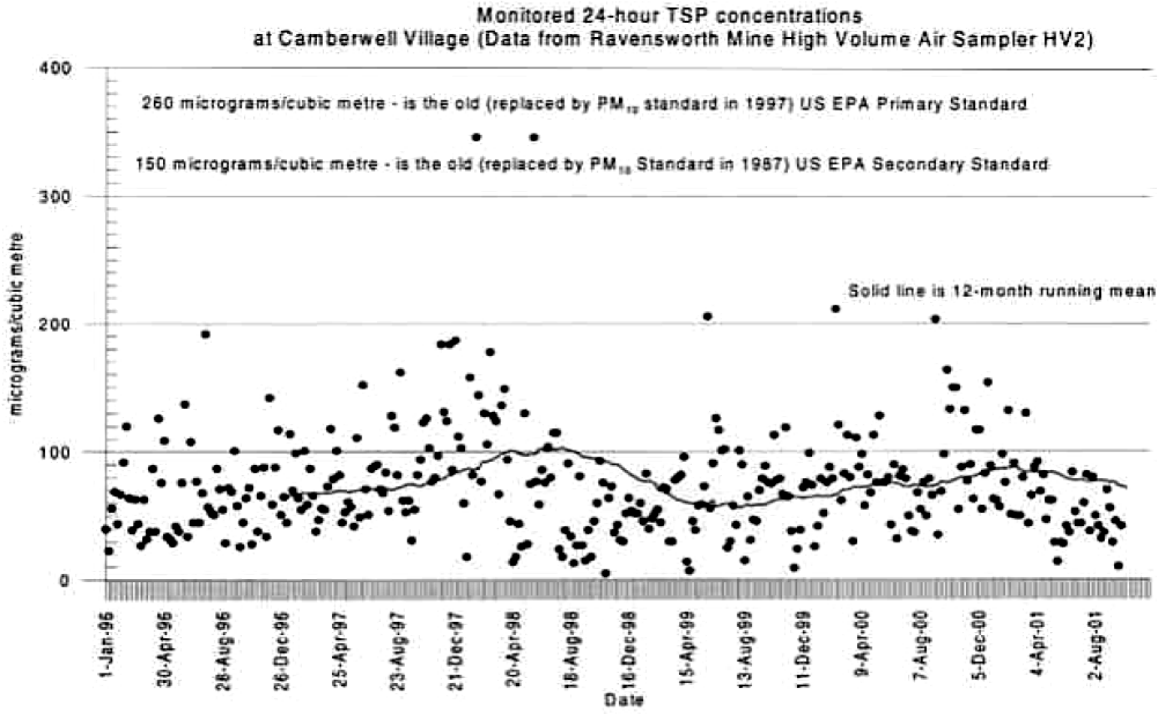
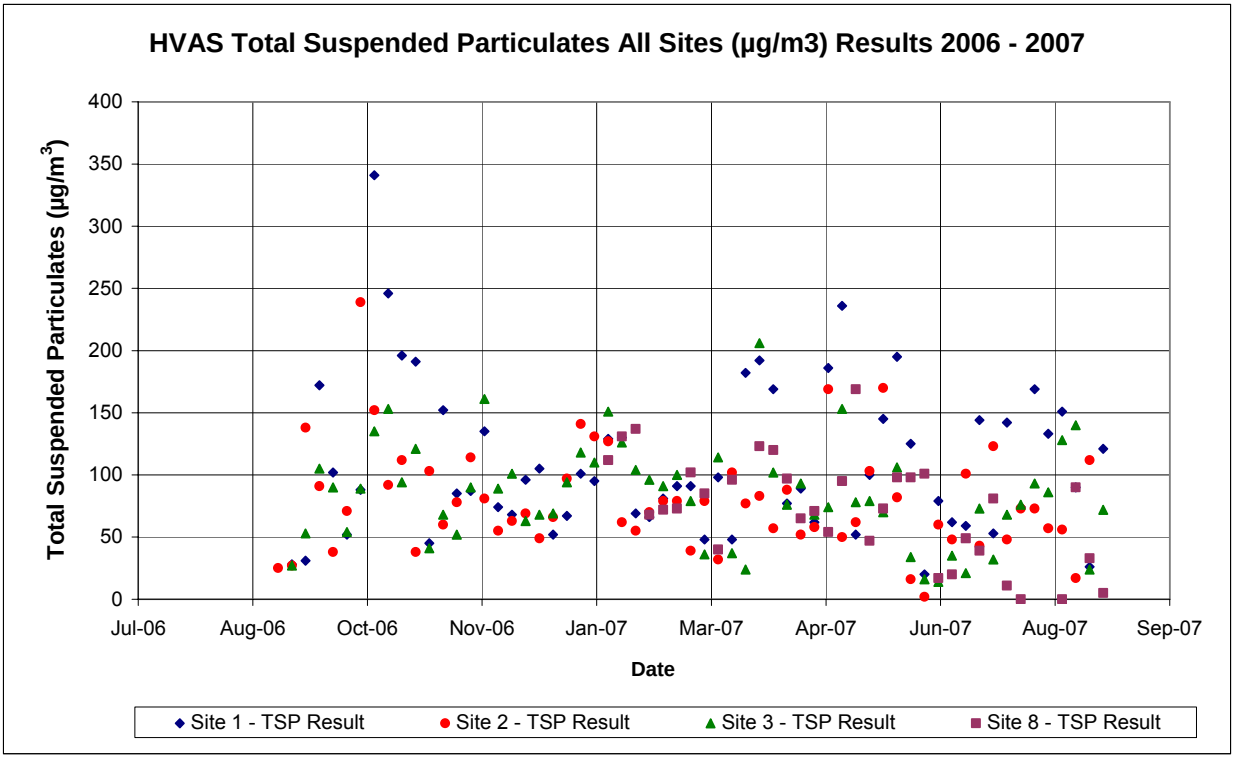
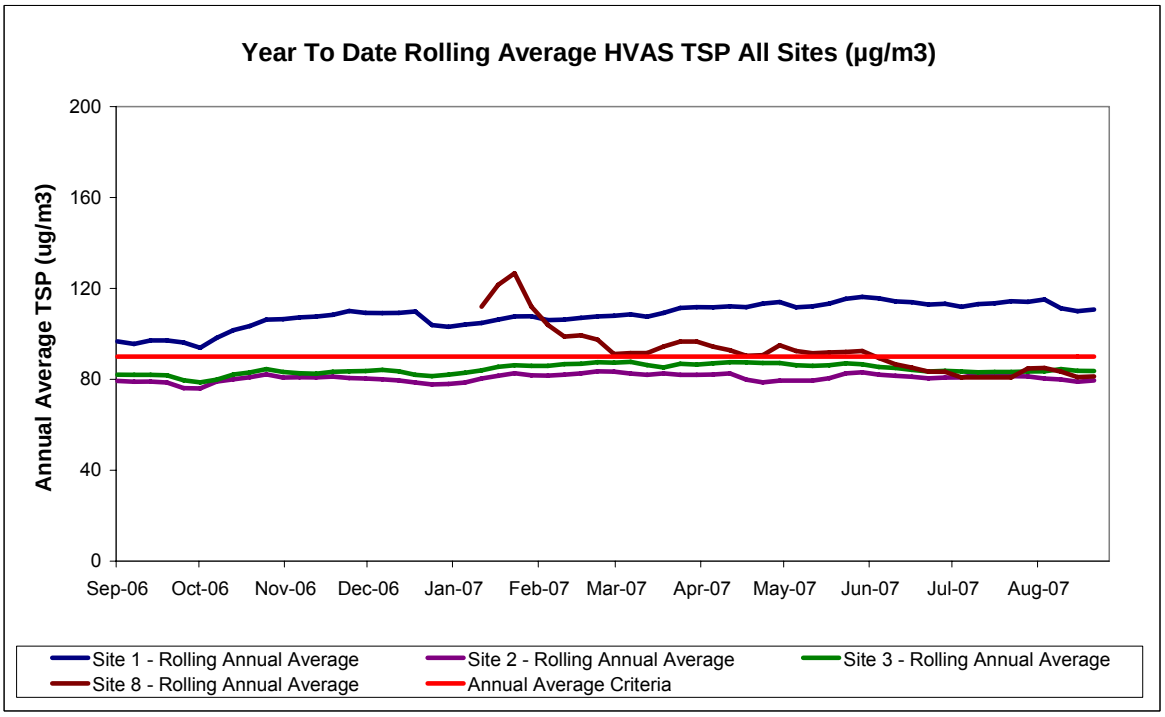


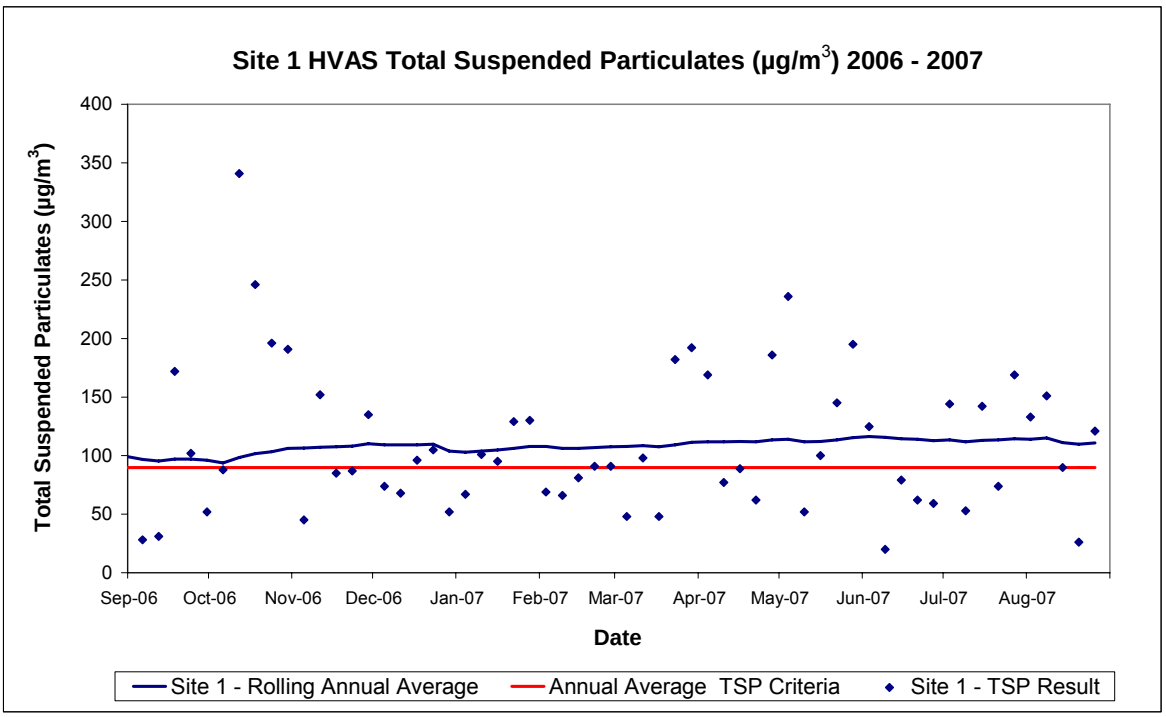
Figure 2

100% of data was recovered at sites 1, 2 and 3 for the reporting period. Site 8 was commissioned on the 17 January 2007. Since this date Site 8 registered a 92% recovery rate. Loss of data was the result of machine malfunction where the monitor was not running for the required 24 hours. This unit has now been replaced with a new unit. Data from TSP monitors were as follows:



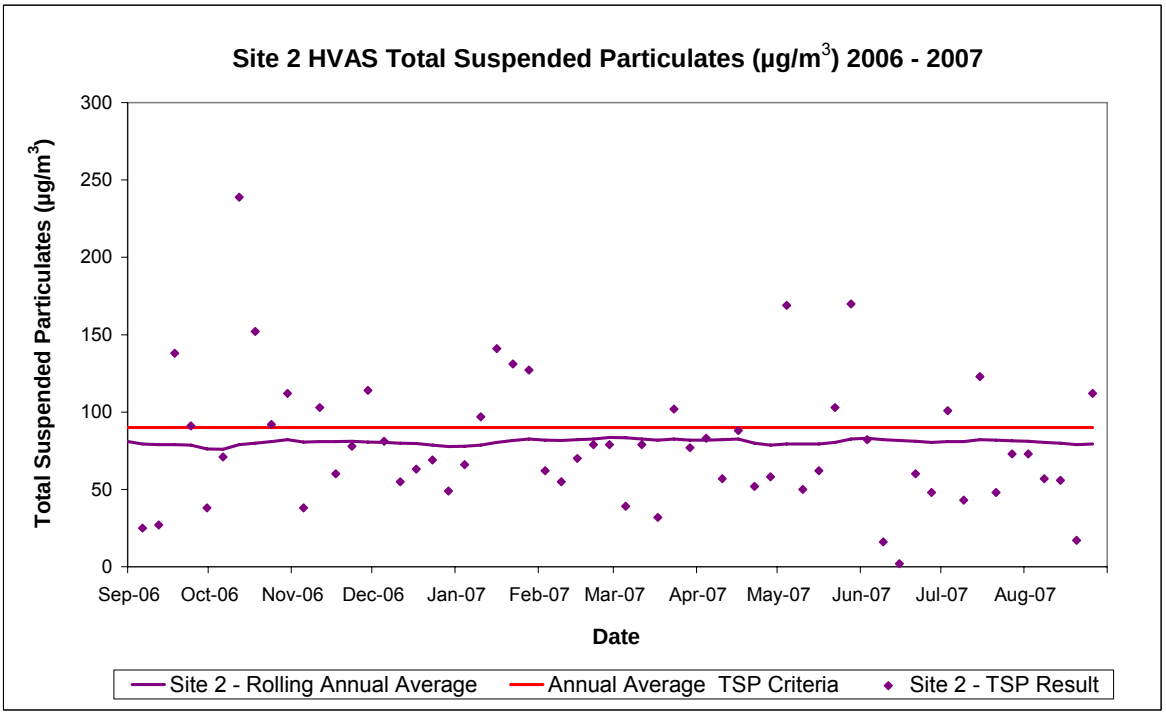


Site 1 HVAS



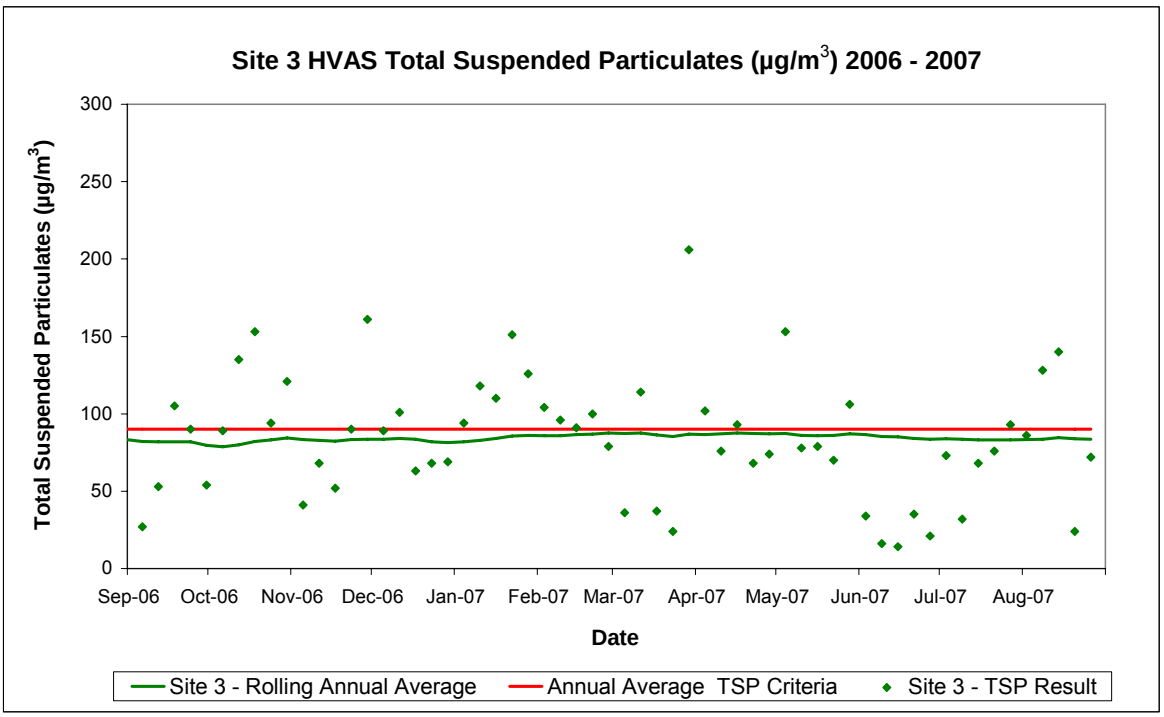
The rolling annual average for TSP at site 1 demonstrated non-compliance with the annual average criteria of 90µg/m^3. The final annual average was 110.7µg/m^3.

Site 2 HVAS



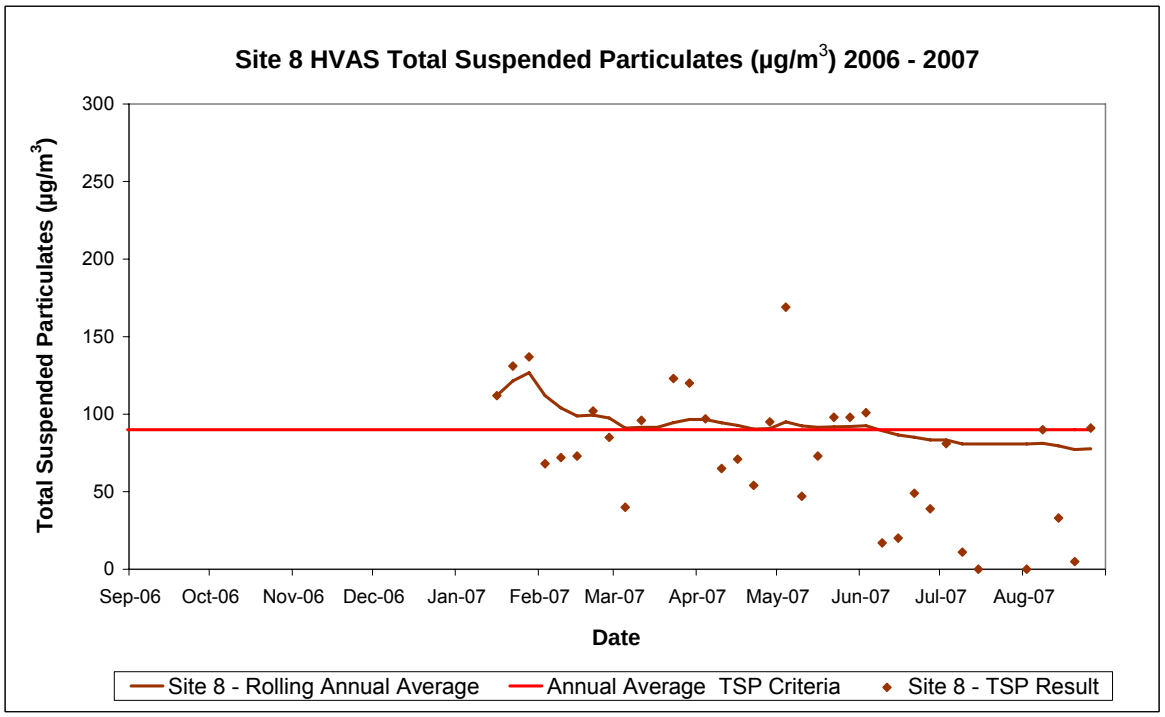
The rolling average TSP results for Site 2 was below the annual average TSP goal of 90µg/m^3 for the reporting period. The final annual average at Site 2 was 79.5µg/m^3.

Site 3 HVAS



The rolling average TSP results for Site 3 are below the annual average TSP goal of 90µg/m^3. The final annual average at Site 3 for the reporting period was 83.7µg/m^3.

Site 8 HVAS



The Site 8 HVAS was commissioned on the 17 January 2007. The annual average started at levels higher then the criteria due to the limited number of results being used to calculate the average. As more data was gathered the annual average progressed to below the criteria. The final annual average recorded at site 8 for the reporting period was 77.7µg/m^3.

3.1.3.3 Dust Deposition Gauges

The location of Dust Deposition gauges is detailed on **Figure 8**. They are as follows:

Table 21. LOCATION OF DUST DEPOSITION GAUGES

Monitoring Station No	Location
2	Ravensworth property west of open cut
3	Ravensworth property near Hunter River
4	Ashton property near Hunter River
5	New England Highway SE of Camberwell village
6	St Clements Church
7	TEOM site 1 - Camberwell Village
8	TEOM site 2 - Camberwell Village
9	TEOM site 3 – Property east of Camberwell
10	**On site** - TEOM site 4 (near East OB dump)
11	NE of Emplacement Area on Glennies Creek Rd
13	**On site** – TEOM site 7 (country end turnout)
14	TEOM site 8 – Camberwell Village

Data recovery for all depositional dust gauges is as follows:

Table 22. DUST DEPOSITION GAUGES – EXTENT OF CONTAMINATION

Gauge Number	Data Availability (%)	Data Loss
D2	100	
D3	75	Gauge removed due to progress of Narrama mine
D4	92	Dust gauge broken on way to laboratory
D5	100	
D6	100	
D7	100	
D8	100	
D9	100	
D10	100	
D11	100	
D13	100	
D14	100	

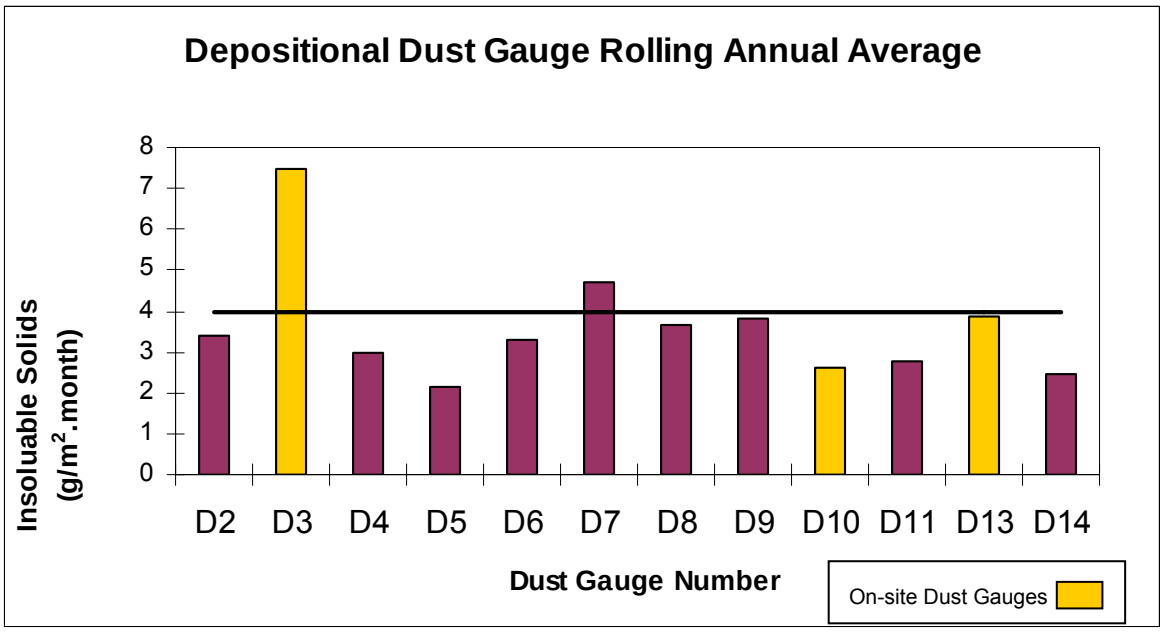
Note: Dust Gauge D14 is a Glendell owned and operated dust gauge that is situated within Camberwell Village adjacent to the Ashton Coal's monitoring location 8. Data has been collected for this site since September 2006.

The following table shows the annual average insoluble solids for each gauge over the 2006 – 2007 reporting period.

Table 23. INSOLUBLE SOLIDS ANNUAL AVERAGE RESULTS (EXCLUDING CONTAMINATED GAUGES)

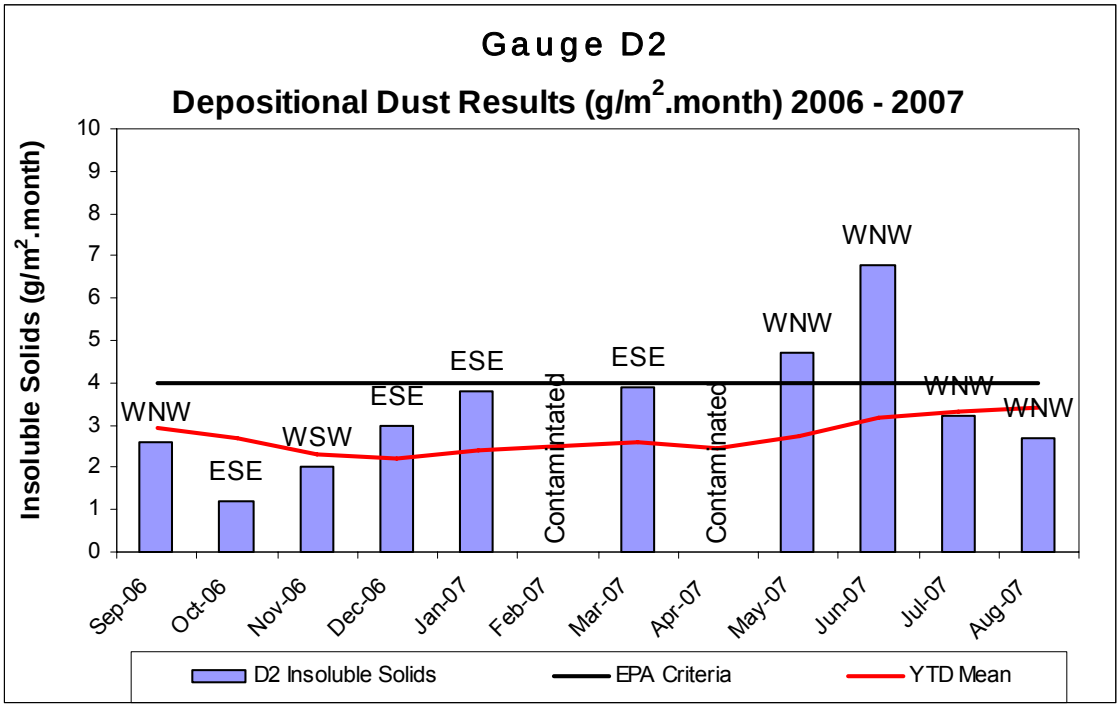
Dust Gauge	Annual Average EIS Background Values (g/m^2.month)	Annual Average 2006 – 2007 (g/m^2/month)
D2	3.5	3.4
D3	3.9	7.0
D4	1.6	3.0
D5	2.0	2.2
D6	1.5	3.3
D7	NA	4.7
D8	NA	3.7
D9	NA	3.6
D10 (on site)	NA	2.6
D11	NA	2.8
D13 (on site)	NA	3.9
D14	NA	2.4

The annual average dust deposition for all depositional dust gauges is as follows:

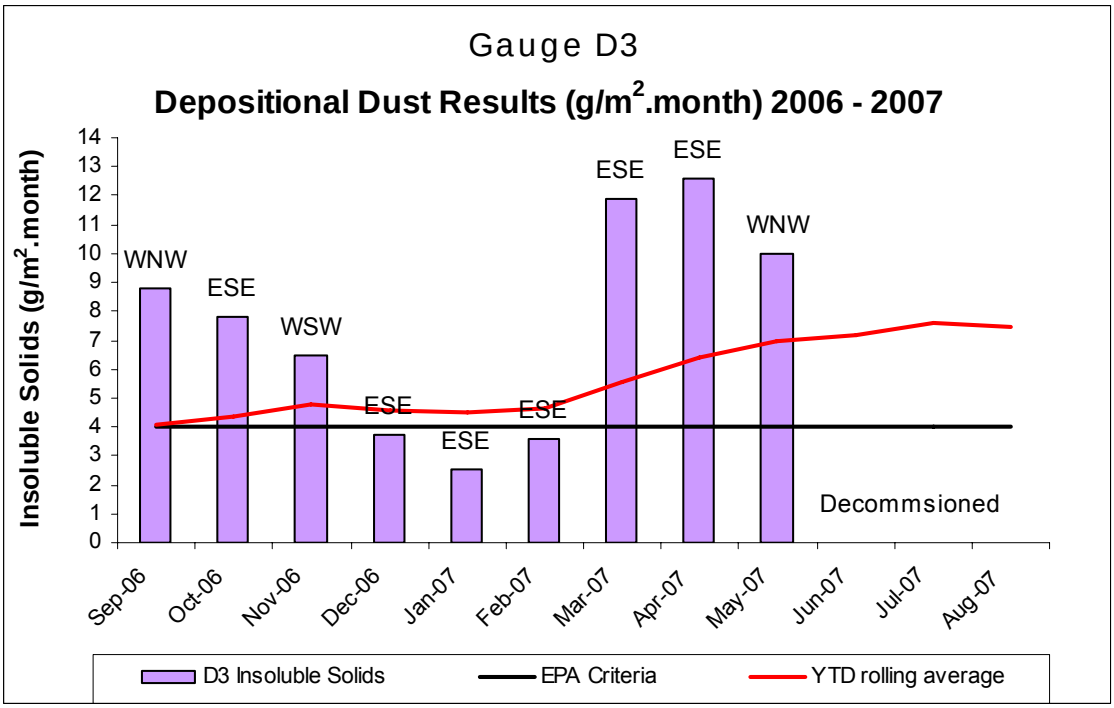


D3 and D7 exceeded the annual average criteria of $4g/m^2$. The year-to-date annual average for D3 and D7 were $7.49g/m^2$ and $4.73g/m^2$ respectively. D3 however is a Ravensworth-Narrama on-site gauge and the criteria is not expected to apply at this location. The remaining off-site dust gauges were all below the criteria.

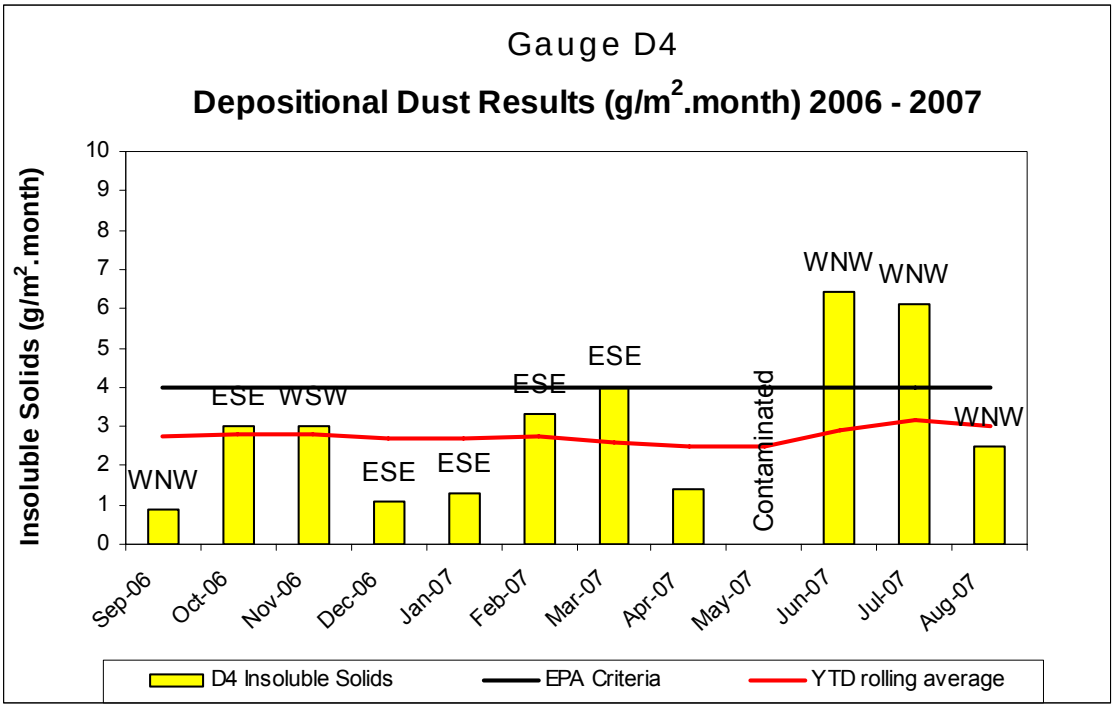
Results for individual dust gauges are as follows (excluding contaminated sites).



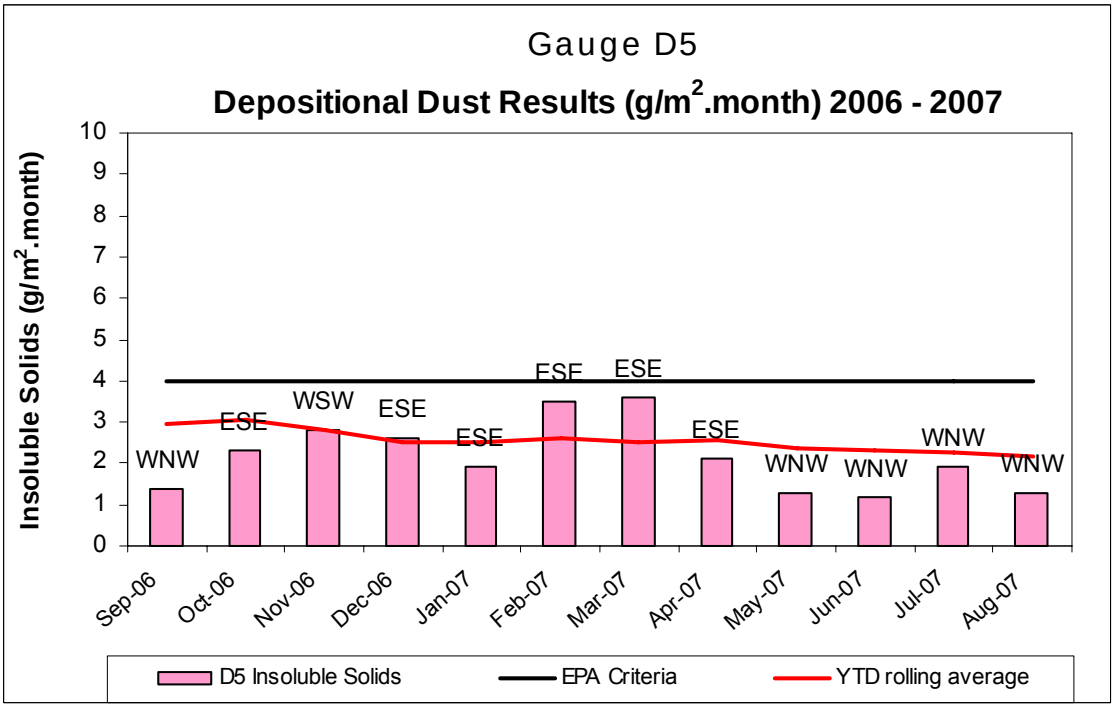
Depositional dust gauge D2 is located to the west of Ashton on Ravensworth property. Annual average results are below the criteria of 4g/m^2/month.



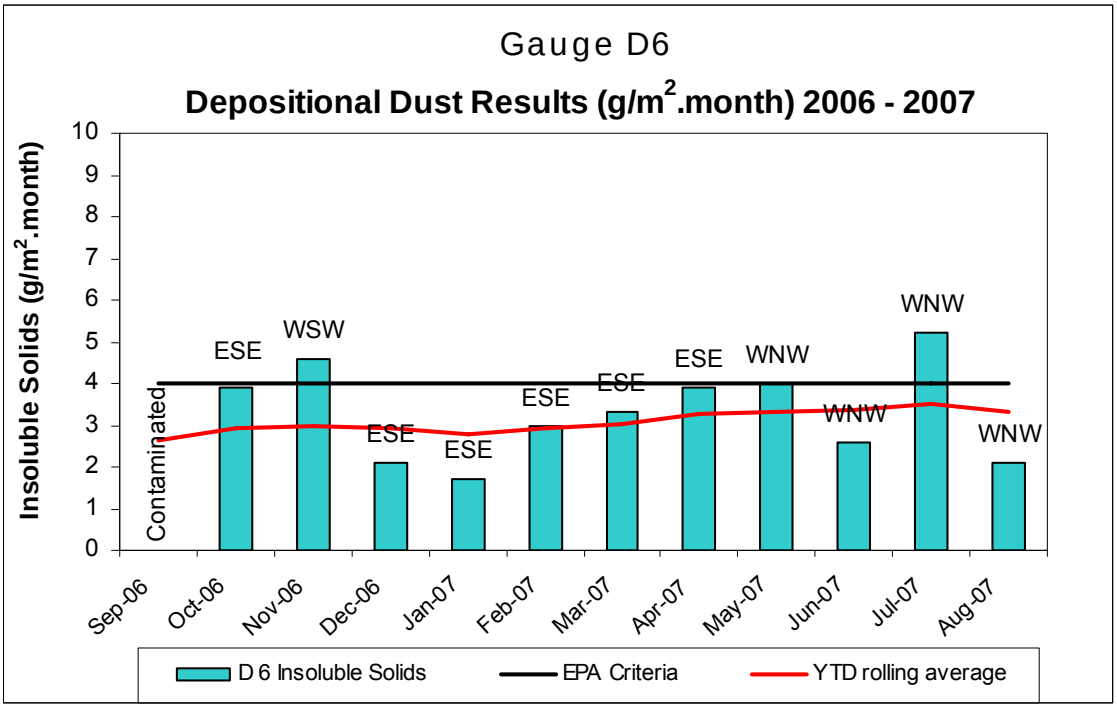
Depositional dust gauge D3 was located to the south of the Narrama Mine. However due to the progression of the Narrama Open Cut the gauge was removed in June 2007. Prior to removal, the annual average results were above the standard criteria. The high impacts on this gauge are associated with the close proximity of Narrama Open Cut. The criteria would not be expected to apply to this gauge.



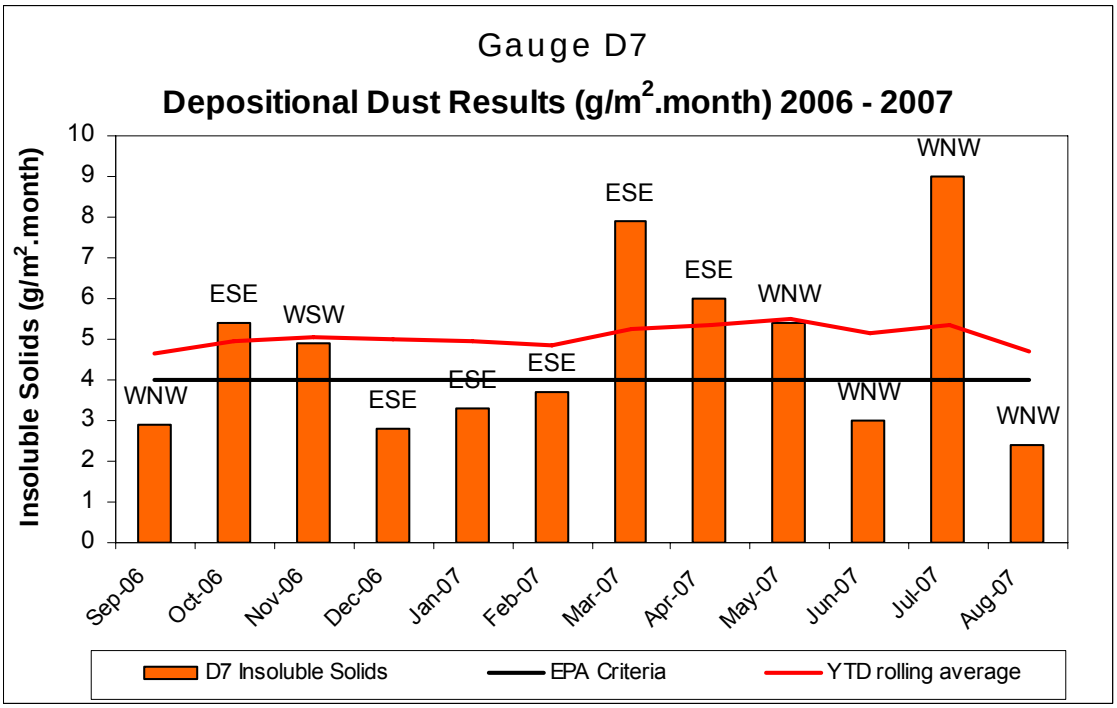
Depositional dust gauge D4 is also located to the south of the Ashton Mine near the Hunter River. Annual average results are below the criteria of 4g/m^2/month.



Depositional dust gauge D5 is located adjacent to the New England Highway approximately 4km south east of the Ashton Mine. Annual average results are below the standard criteria of 4g/m^2/month.

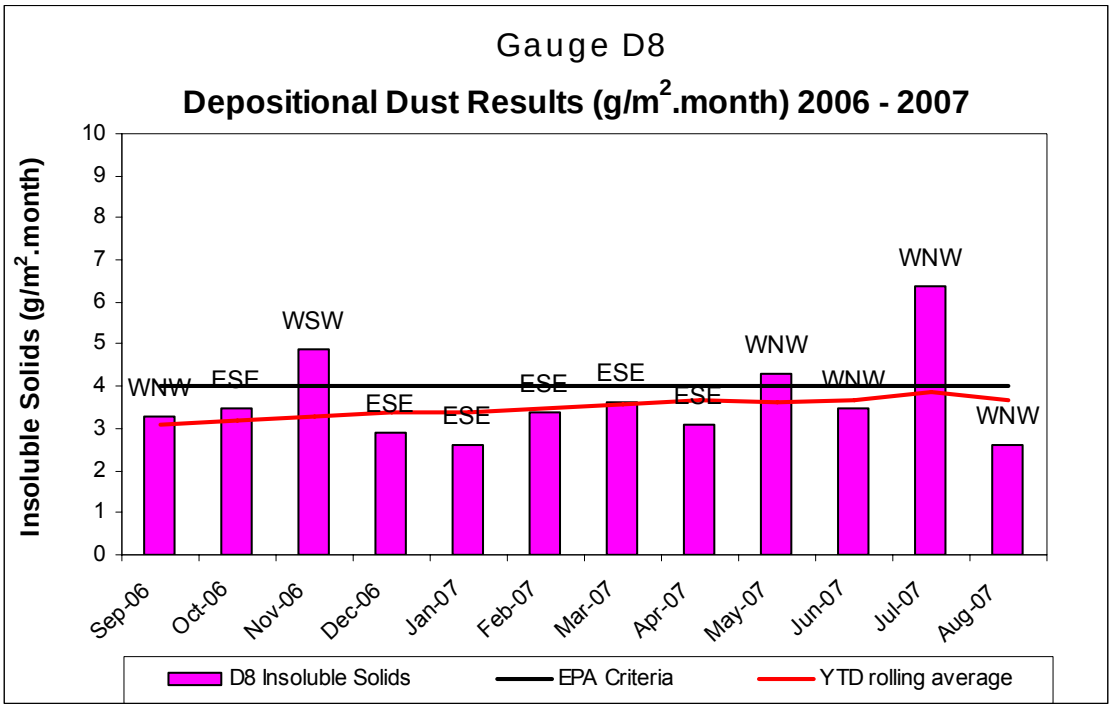


Depositional dust gauge D6 is located near St Clements Church in the village of Camberwell and is in close proximity to the Ashton Mine (approximately 500m from open-cut operations). Annual average results are below the criteria of 4g/m^2/month.

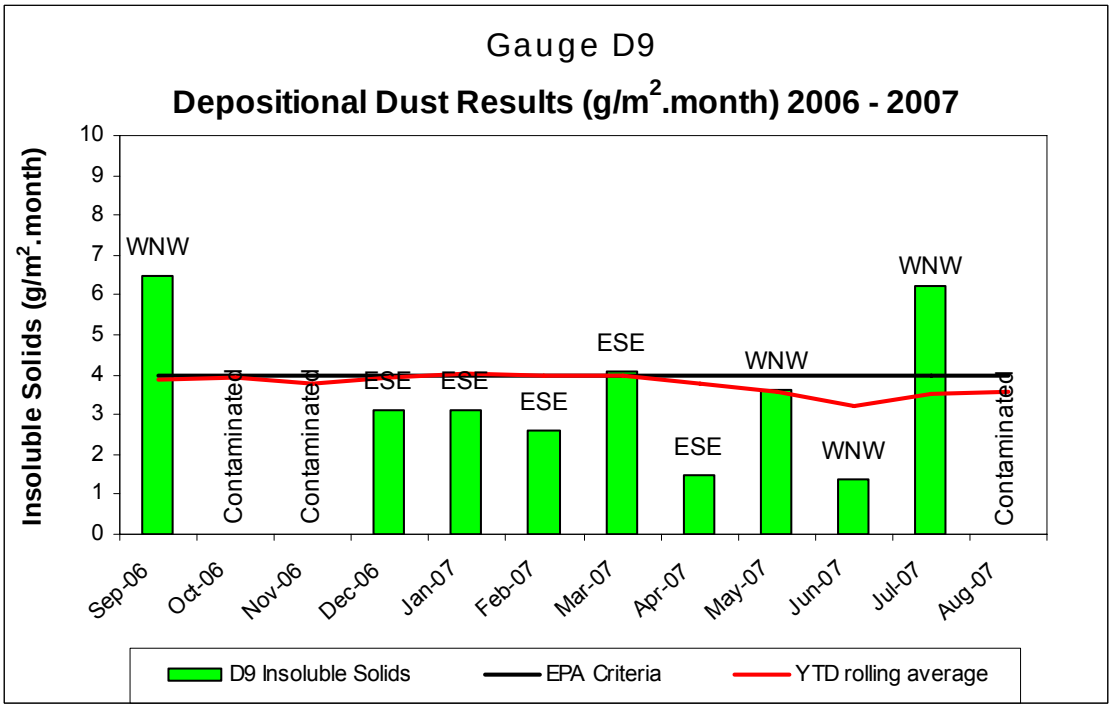


Depositional dust gauge D7 is located in the northern portion of Camberwell village and is in close proximity to the Ashton Mine (approximately 500m from open-cut operations). Annual average results are above the criteria of 4g/m^2/month. The higher annual average result seems to have been influenced by the fact that during months where winds were predominantly ESE, a

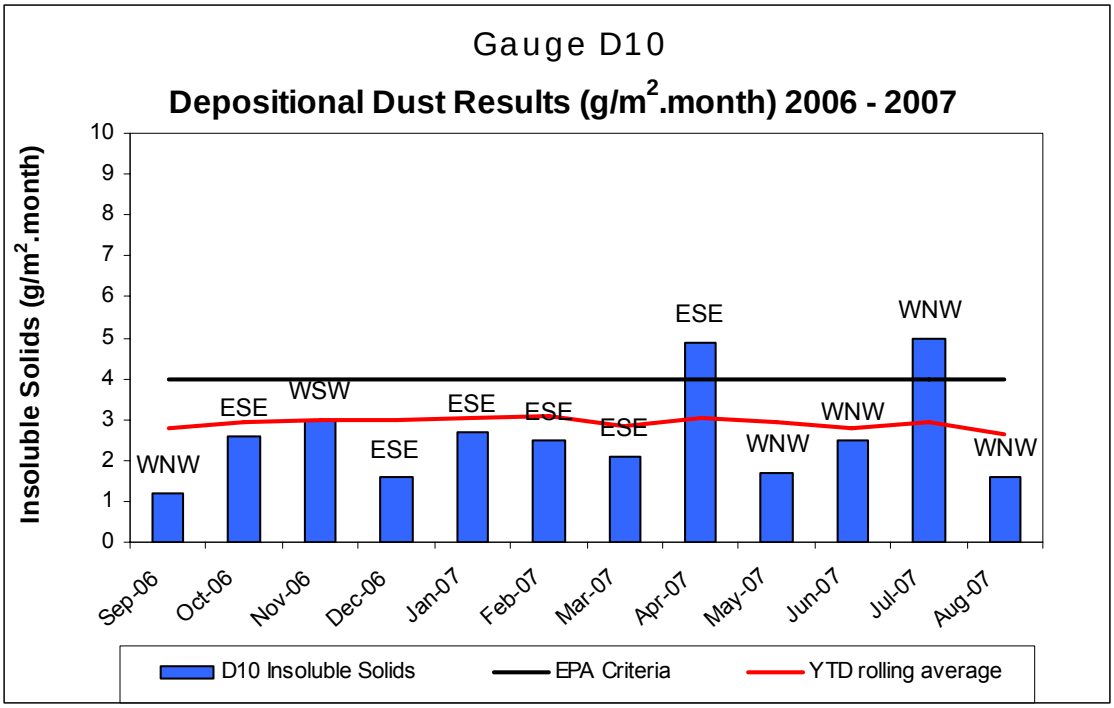
time when the gauge would not be greatly influenced by Ashton operations and be expected to lower as with gauge D6 and D8, the Depositional Dust results remained high.



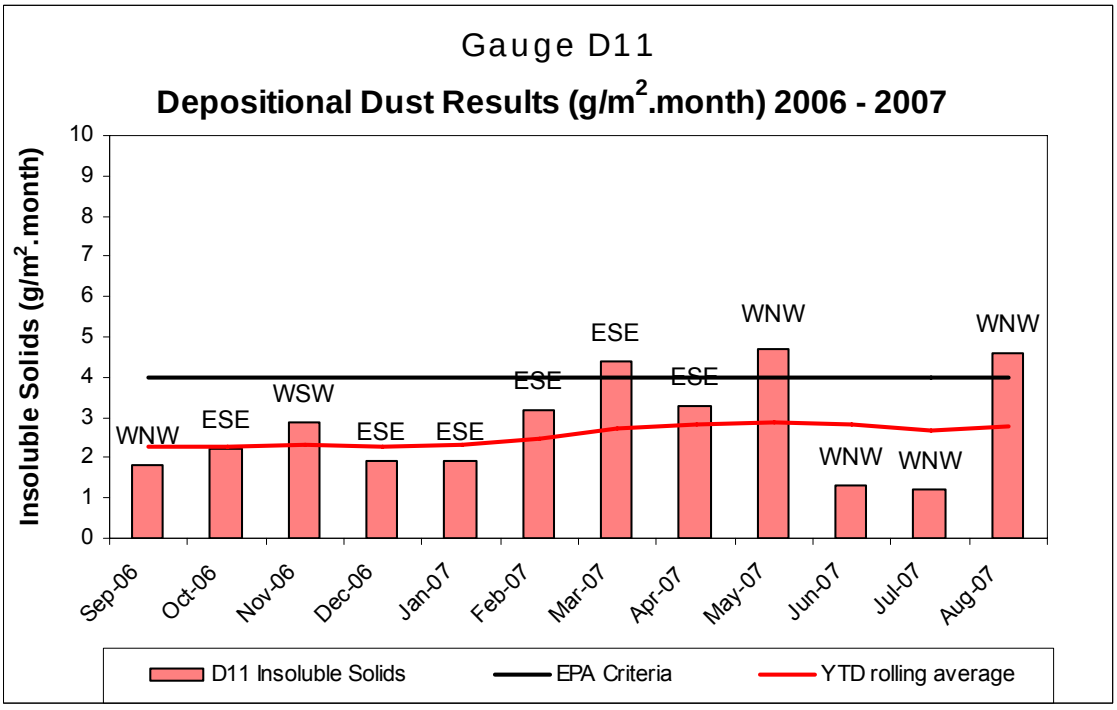
Depositional dust gauge D8 is located in Camberwell Village on the south side of the New England Highway. Annual average results are below the EPA criteria of 4g/m^2/month.



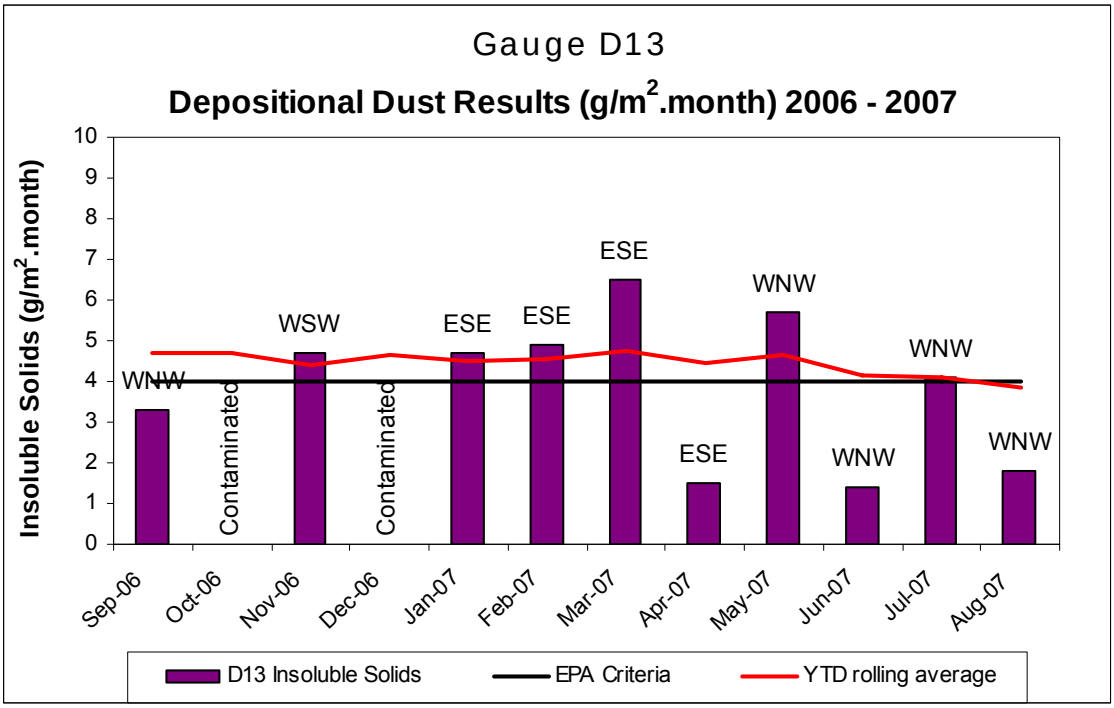
Depositional dust gauge D9 is located on a farming property immediately south east of the Eastern Emplacement Area. Annual average results are below the criteria of 4g/m^2/month.



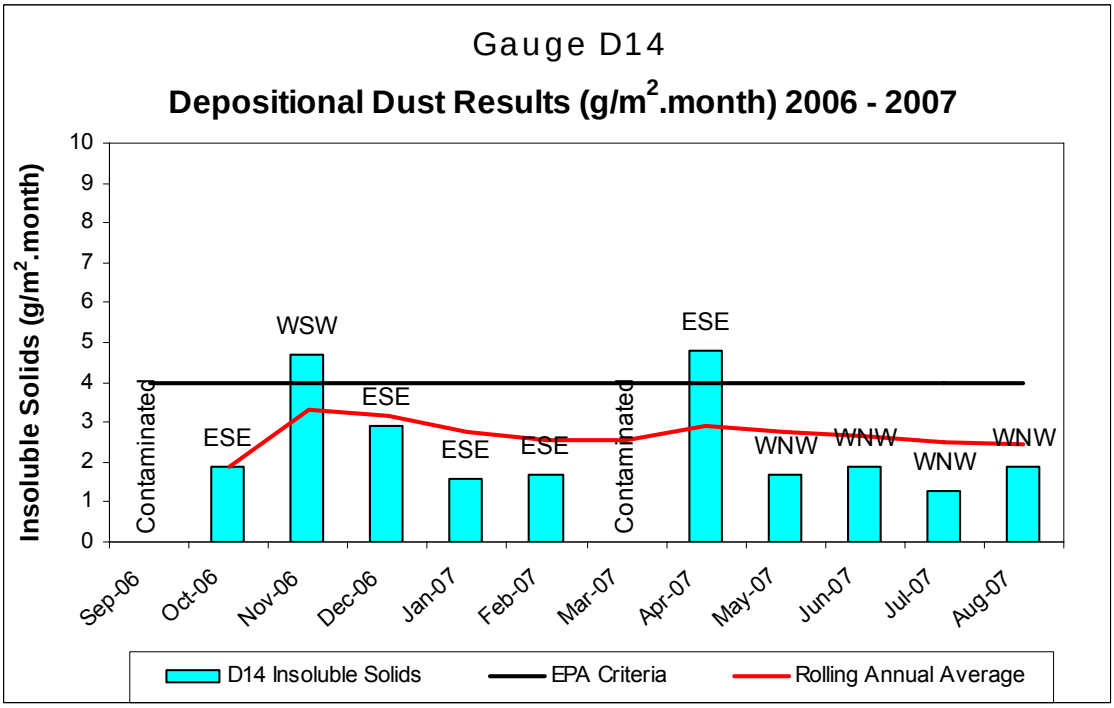
Depositional dust gauge D10 is located on-site between the Eastern Emplacement Area and the Main Northern Railway and is impacted by activities such as overburden dumping, dozer push and haul road traffic. This is considered to be an onsite gauge and the EPA criteria would not apply.



Depositional dust gauge D11 is located on Glennies Creek Road north east of the Eastern Emplacement Area in a grazing/farming area. Annual average results are below the EPA criteria of 4g/m^2/month.



Depositional dust gauge D13 is located north west of site adjacent to the western end turnout of the rail siding. This is considered to be an onsite gauge and the EPA criteria would not apply.



Depositional dust gauge D14 is located within the north eastern portion of Camberwell Village. Annual average results are below the EPA criteria of 4g/m^2/month.

3.2 EROSION AND SEDIMENT

3.2.1 Erosion and Sediment Management

All runoff from disturbed areas is collected in a series of sedimentation and settling dams established in accordance with the Erosion and Sediment Control Management Plan (ESCP). Monitoring indicates that these dams have been working effectively in controlling sediment flow. Gypsum has been used in drains where there is a high potential for sediment movement during heavy rainfall events. The Gypsum works by dropping the sediment out of entrainment in the overland water flow.

A sedimentation settling pond with a rock lined spillway has been installed at the inflow section of Dam 5/6 to reduce the level of sediment entering the dam. Turf has also been laid along the drain running to the settling pond to reduce sediment movement.

Major runoff storage dams are located in the following areas:

- On the north-west side of the CHPP (Process Water Dam and Settling Dam);
- On the eastern side of the Eastern Emplacement Area (Dam 5/6); and
- On the south-western side of the open cut area.

In addition, there are a number of minor runoff capture dams that intercept runoff water before it departs site. These dams also contain sedimentation control devices in the form of hay bales, silt fences, etc where required.

During the reporting period two off-site discharge events occurred. The first event occurred on the 21 March 2007 and resulted from a 1 in 75 ARI storm event where 52mm of rain fell over a 50 minute period. The high water load caused the southern drop structure of the Eastern Emplacement Area to blow out at the toe allowing water to run off-site. The water was rehabilitation runoff only and did not contain any mine water, the volume was minimal over land flow and did not reach any local streams. Following the discharge the drop structure was rebuilt. ACOL are currently in the process of having the drop structure assessed by structural engineers.

The second event occurred during heavy and prolonged rainfall on the 8 June 2007. Heavy flooding was experienced throughout the Hunter Valley. The Eastern Emplacement Area sediment dam overflowed via the designed spill way during the flooding. Again the water was rehabilitation runoff only and did not contain any mine water. During the event water was continuously pumped back to pit and the discharge was restricted to a single overflow event of less then one day.

3.2.2 Erosion and Sediment Monitoring

Visual inspections are undertaken on a regular basis and stream water quality results are presented in the following section. During the discharge event above water quality testing was completed to ensure no contaminants were leaving site.

3.3 SURFACE WATER POLLUTION

3.3.1 Surface Water Management

Ashton Coal has an approved Site Water Management Pan. Controls have been put in place in accordance with this plan to control potential causes of water pollution. These controls are considered to have been adequate for the reporting period.

3.3.2 Surface Water Monitoring

The water monitoring locations are detailed in Figure 2 as well as the following table:

Table 24. SURFACE WATER MONITORING LOCATIONS

Monitoring Station	Stream	Location
SM 1	Bettys Creek	Glendell land upstream of Ashton
SM 2	Bettys Creek	Just upstream of confluence with Bowmans Creek
SM 3	Bowmans Creek	Water pool at north west corner of mine lease
SM 4	Bowmans Creek	Water pool just downstream of New England Highway
SM 5	Bowmans Creek	Halfway down Ashton property
SM 6	Bowmans Creek	Just upstream of confluence with Hunter River
SM 7	Glennies Creek	Upstream of Ashton Mine
SM 8	Glennies Creek	Halfway down Ashton property
SM 9	Hunter River	Upstream of confluence with Bowmans Creek
SM 10	Hunter River	Downstream of confluence with Bowmans Creek
SM 11	Glennies Creek	Upstream of confluence with Hunter River
SM 12	Hunter River	Downstream of confluence with Glennies Creek
SM 13	Hunter River	Upstream of confluence with Glennies Creek midway between Bowmans Creek and Glennies Creek.
SM 14	Hunter River	Directly Upstream of confluence with Glennies Creek

Abbreviations used within Section 3.3 are as follows:

µS/cm	*microsiemens per centimetre*
mg/l	*milligrams per litre*
TDS	*Total Dissolved Solids*
TSS	*Total Suspended Solids*
EC	Electrical Conductivity

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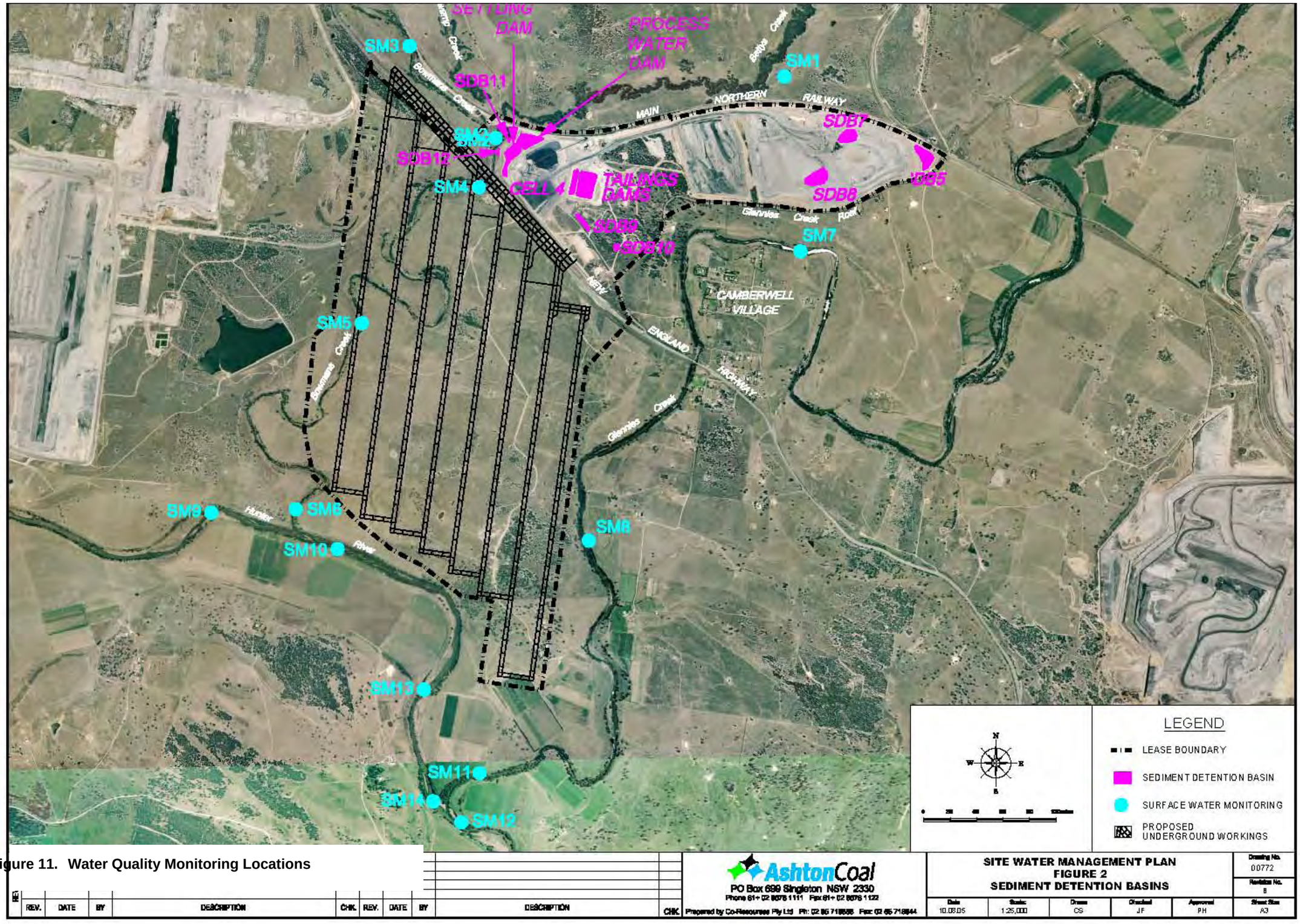

Figure 11. Water Quality Monitoring Locations

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3.3.2.1 Monthly Water Quality Monitoring Results

All monthly water samples were collected and analysed during the reporting period for pH, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Total Suspended Solids (TSS) Total Hardness ($CaCO_3$), and Oil and Grease (O & G). An additional comprehensive analysis was also conducted on a monthly basis at SM4 in Bowmans Creek.

pH

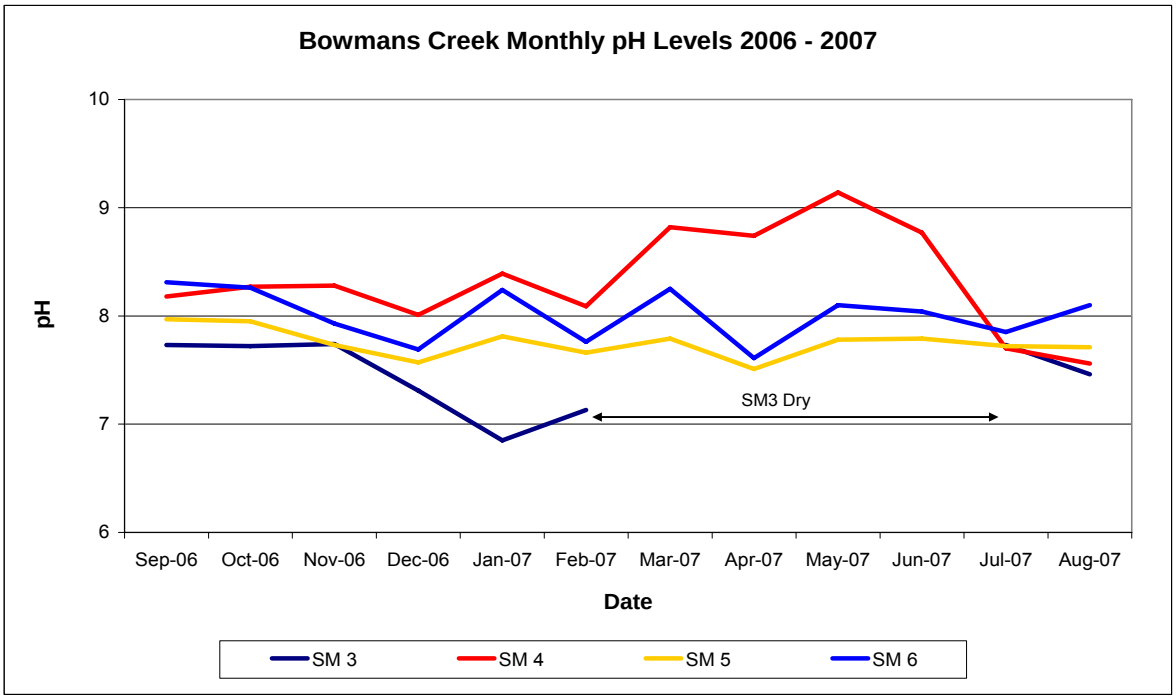
The results of monthly pH monitoring were as follows:

Table 25. PH RESULTS 2006 - 2007

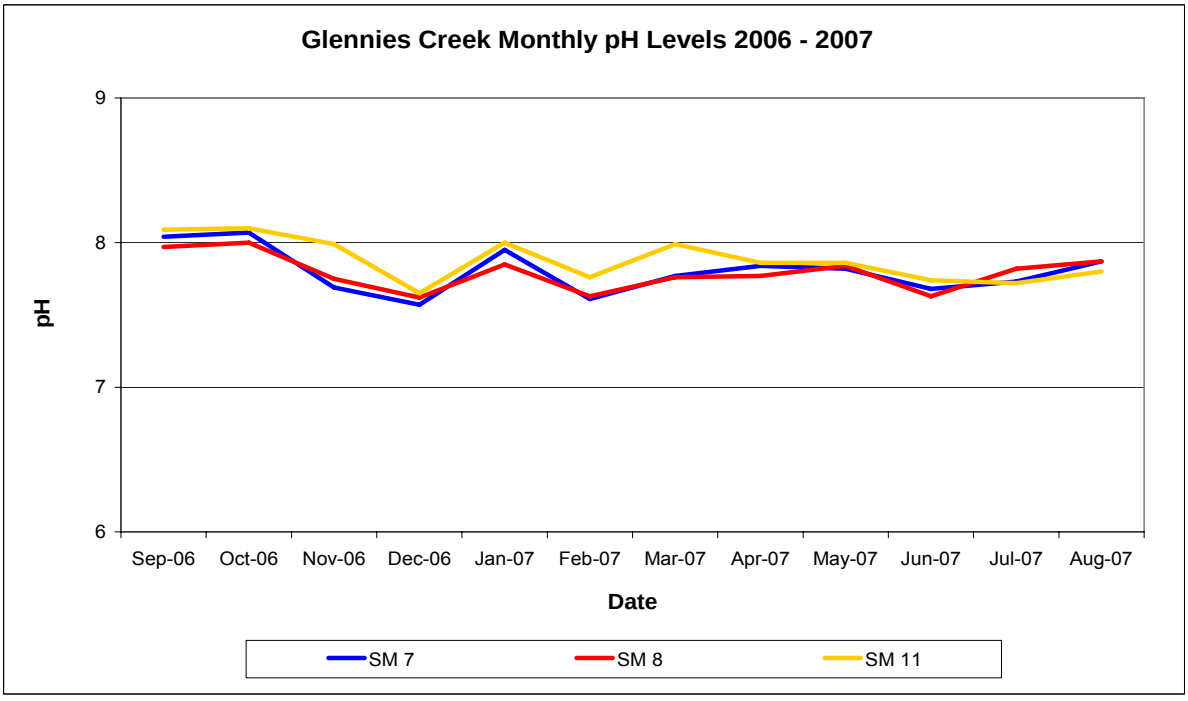
pH	SM 1	SM 2	SM 3	SM 4	SM 5	SM 6	SM 7	SM 8	SM 9	SM 10	SM 11	SM 12	SM 13	SM 14
Sep-06	Dry	Dry	7.7	8.2	8.0	8.3	8.0	8.0	8.3	8.3	8.1	8.1	8.4	8.4
Oct-06	Dry	Dry	7.7	8.3	8.0	8.3	8.1	8	8.2	8.3	8.1	8.06	8.3	8.5
Nov-06	Dry	Dry	7.7	8.3	7.7	7.9	7.7	7.8	8.1	8.2	8.0	8.0	8.3	8.2
Dec-06	Dry	Dry	7.3	8.0	7.6	7.7	7.6	7.6	8.0	8.0	7.7	7.7	7.9	7.9
Jan-07	Dry	Dry	6.9	8.4	7.8	8.2	8.0	7.9	8.3	8.4	8.0	8.0	8.3	8.3
Feb-07	Dry	Dry	7.1	8.1	7.7	7.8	7.6	7.6	8.3	8.0	7.8	7.8	8.2	7.6
Mar-07	Dry	Dry	Dry	8.8	7.8	8.3	7.8	7.8	8.3	8.3	8.0	7.9	8.3	8.4
Apr-07	Dry	Dry	Dry	8.7	7.5	7.6	7.8	7.8	7.9	8.0	7.9	7.8	8.0	8.0
May-07	Dry	Dry	Dry	9.1	7.8	8.1	7.8	7.8	8.1	8.1	7.9	7.9	7.9	7.9
Jun-07	Dry	Dry	Dry	8.8	7.8	8.0	7.7	7.6	8.0	8.1	7.7	7.6	8.0	8.1
Jul-07	7.2	6.9	7.7	7.7	7.7	7.9	7.7	7.8	8.0	8.0	7.7	7.8	8.0	8.0
Aug-07	Dry	Dry	7.5	7.6	7.7	8.1	7.9	7.9	8.5	8.5	7.8	8.4	7.9	8.5
Min	**7.2**	**6.9**	**6.9**	**7.6**	**7.5**	**7.6**	**7.6**	**7.6**	**7.9**	**8.0**	**7.7**	**7.6**	**7.9**	**7.6**
Av	**7.2**	**6.9**	**7.5**	**8.3**	**7.7**	**8.0**	**7.8**	**7.8**	**8.2**	**8.2**	**7.9**	**7.9**	**8.1**	**8.2**
Max	**7.2**	**6.9**	**7.7**	**9.1**	**8.0**	**8.3**	**8.1**	**8.0**	**8.5**	**8.5**	**8.1**	**8.4**	**8.4**	**8.5**

Monthly water quality monitoring in Bowmans Creek excluding SM4, Glennies Creek and the Hunter River indicated that pH levels throughout the reporting period were consistently within the neutral (min pH = 6.9) to slightly alkaline (max pH = 8.5) range. Due to ongoing drought conditions experienced during the period Bowmans Creek was reduced to a series of drying pools with some sites beginning to dry up. SM4 remained the most consistent water level due to it being recharged by groundwater and as a result experienced higher pH levels until flooding in June 2007 occurred. There was little variation in pH at all sites except SM4 with a maximum range of 0.9 pH units recorded at sites SM3 and SM14. The variation apparent at each site can be attributed to natural fluctuations in water pH as a result of rainfall runoff, evaporation, vegetation decay and fluvial sediment movements.

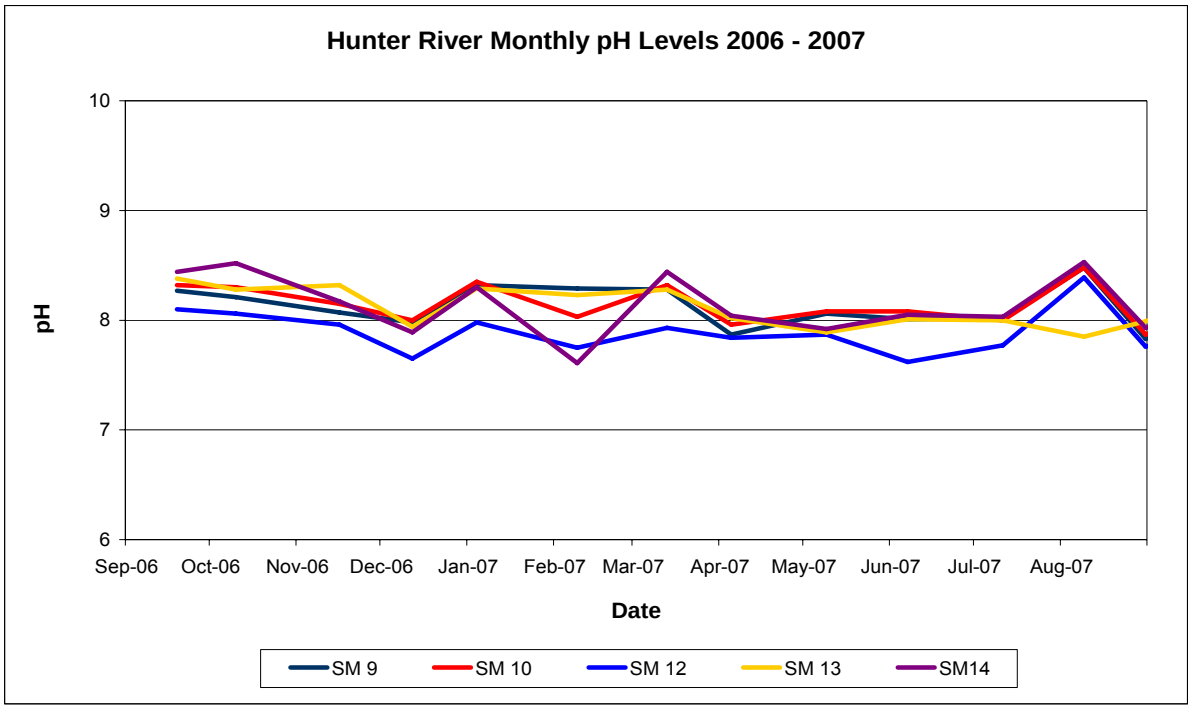
Monitoring locations SM1 and SM2 in Betty's Creek remained dry until heavy rainfall and flooding was experienced in June 2007.



pH levels in Bowmans Creek (SM3, SM5 and SM6) were neutral to slightly alkaline (ranging from 6.9 to 8.5 and remained within the acceptable recommended pH range. During the period SM4 was only recharged by groundwater resulting in a higher maximum pH of 9.1. Following the flood event in June 2007 the pH returned to neutral range.



Glennies Creek (SM7, SM8 and SM11) pH levels were neutral to slightly alkaline (ranging from 7.6 to 8.1) with little variation between sites, and remained within the acceptable recommended pH range. Slight pH fluctuations throughout the reporting period followed a very similar pattern across all sites.



pH levels in the Hunter River (SM9, SM10, SM12, SM13 and SM14) were neutral to slightly alkaline (ranging from 7.6 to 8.5) with minimal variation between sites, and remained within the acceptable recommended pH range. Similar to Glennies Creek slight pH fluctuations throughout the reporting period followed a very similar pattern across all sites. pH is slightly lower at SM12 as it is located aft the confluence of Glennies Creek. There is also a noted drop in pH at SM14 for February to be similar to SM12. SM14 is located just above the junction of Glennies Creek and the Hunter River. The drop in pH may be associated with the drought conditions and the lack of flow in the Hunter River above Glennies Creek. Prior to the June floods Glennies Creek was supplying all down stream flows to the Hunter River these flows may have recharge sample point SM14.

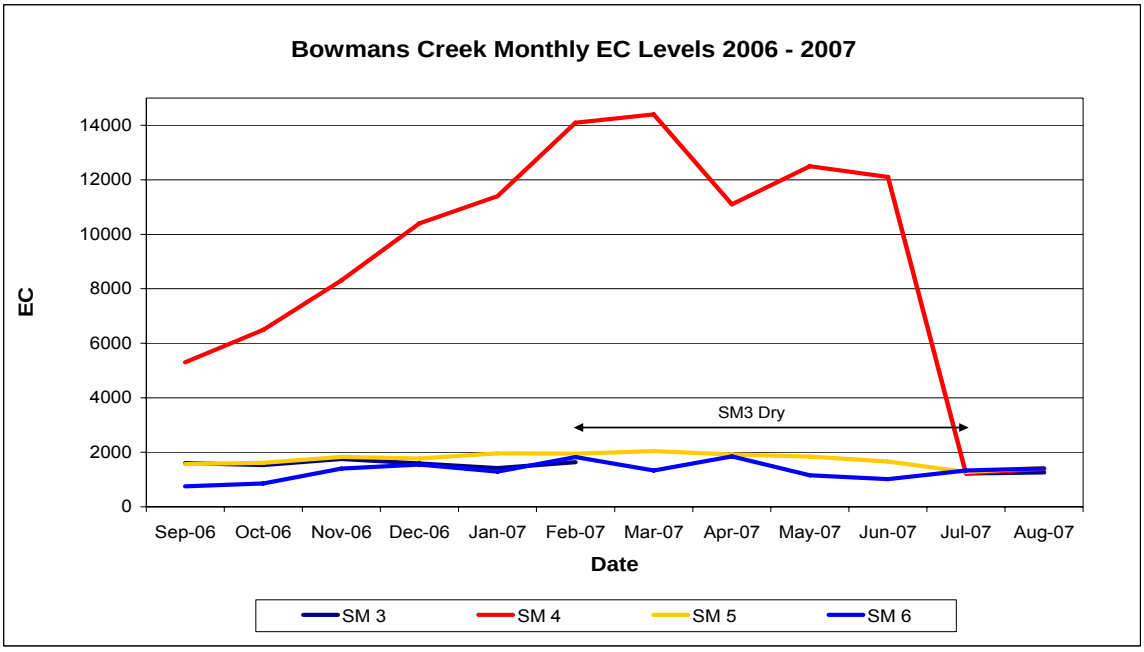
Electrical Conductivity (EC)

The results of EC monitoring are as follows:

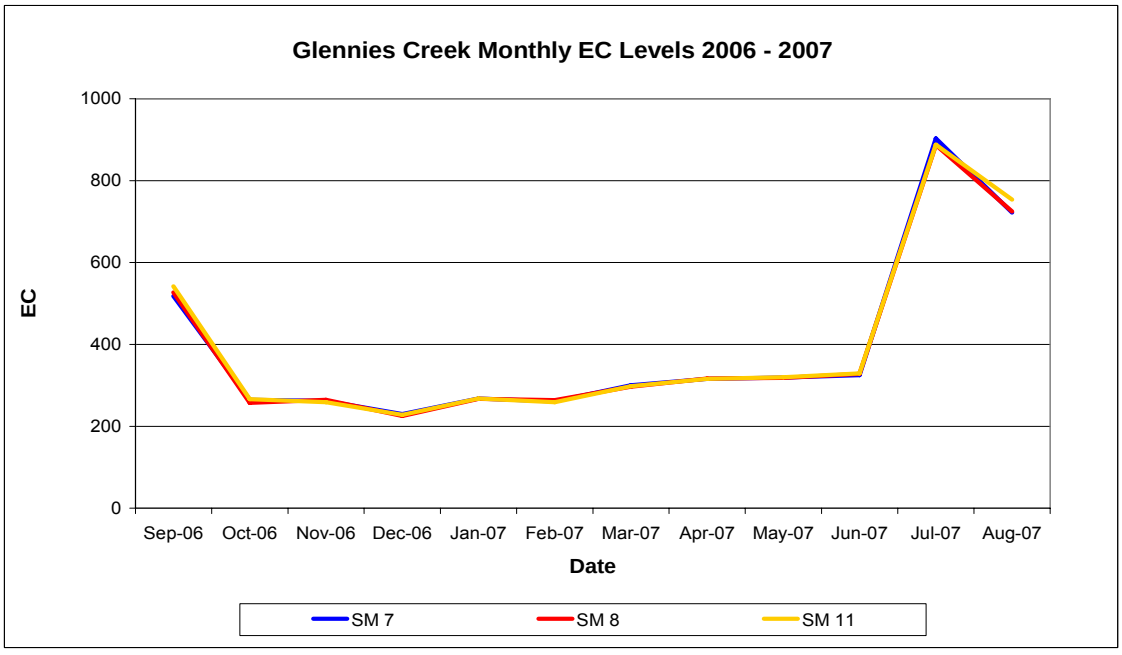
Table 26. ELECTRICAL CONDUCTIVITY RESULTS 2006 - 2007

pH	SM 1	SM 2	SM 3	SM 4	SM 5	SM 6	SM 7	SM 8	SM 9	SM 10	SM 11	SM 12	SM 13	SM 14
Sep-06	Dry	Dry	1600	5300	1570	750	518	527	646	692	542	569	639	642
Oct-06	Dry	Dry	1530	6490	1610	856	265	257	717	755	266	295	783	779
Nov-06	Dry	Dry	1750	8310	1830	1400	262	265	702	736	259	273	709	730
Dec-06	Dry	Dry	1590	10400	1770	1550	230	225	763	780	228	239	799	803
Jan-07	Dry	Dry	1420	11400	1960	1290	268	267	1100	1120	268	295	1060	1100
Feb-07	Dry	Dry	1640	14100	1950	1820	261	264	1060	1170	259	263	1080	266
Mar-07	Dry	Dry	Dry	14400	2040	1330	300	297	1110	1150	298	482	1140	1060
Apr-07	Dry	Dry	Dry	11100	1920	1850	316	317	994	1010	316	327	1000	1010
May-07	Dry	Dry	Dry	12500	1840	1160	319	318	991	1060	320	352	1020	690
Jun-07	Dry	Dry	Dry	12100	1660	1020	325	328	933	942	329	357	954	962
Jul-07	1800	1950	1220	1230	1280	1330	903	887	895	942	888	909	918	927
Aug-07	Dry	Dry	1260	1390	1430	1410	722	725	1030	1030	754	971	803	1060
Min	**1800**	**1950**	**1220**	**1230**	**1280**	**750**	**230**	**225**	**646**	**692**	**228**	**239**	**639**	**266**
Av	**1800**	**1950**	**1501**	**9060**	**1738**	**1314**	**391**	**390**	**912**	**949**	**394**	**444**	**909**	**836**
Max	**1800**	**1950**	**1750**	**14400**	**2040**	**1850**	**903**	**887**	**1110**	**1170**	**888**	**971**	**1140**	**1100**

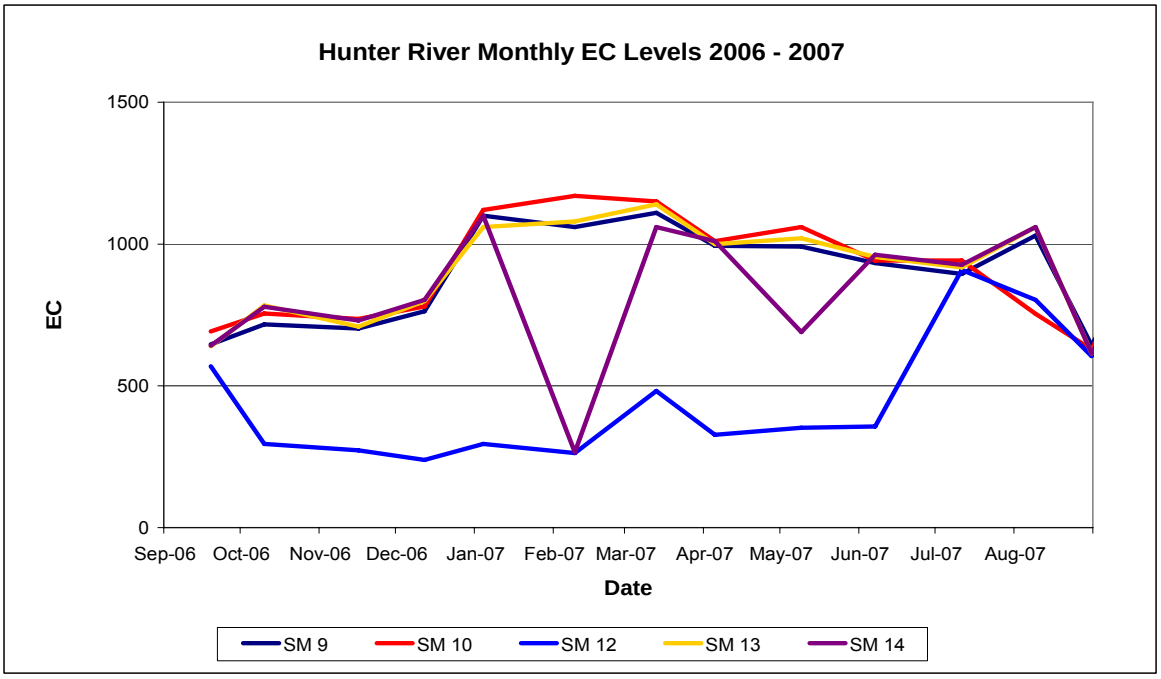
Monitoring locations SM1 and SM2 in Betty's Creek remained dry until heavy rainfall and flooding was experienced in June 2007.



Due to ongoing drought conditions experienced during the period Bowmans Creek was reduced to a series of drying pools. Electrical Conductivity in Bowmans Creek showed two distinct trends throughout the year. SM3, SM5 and SM6 all showed similar EC levels during the reporting period with averages of 1501µS, 1738µS and 1314µS respectively. Lower values recorded at SM6 in September and October can be related to interaction with the Hunter River. The second trend was seen at SM4 where EC increased steadily throughout the year until flooding occurred in June. The increased EC is due to SM4 being recharged by Permian groundwater.



The EC of water in Glennies Creek (SM7, SM8 and SM11) generally remained consistently low until the flood event in June 2007. Following the flooding EC levels increased sharply. All three sites trended together throughout the period indicating no impacts from Ashton Coal Operations.



The EC of the Hunter River upstream of Glennies Creek (SM9, SM10, SM12, SM13 and SM14) generally trended together excluding a decrease of 800 µS in February. SM14 is located just above the junction of Glennies Creek and the Hunter River. The drop in pH may be associated with the drought conditions and the lack of flow in the Hunter River above Glennies Creek, which allowed the Glennies Creek flow to migrate up stream to SM14. Prior to the June 07 floods Glennies Creek was supplying all down stream flows to the Hunter River. SM12 trended much lower than these four sites throughout the period mainly due to the addition of the lower EC Glennies Creek water upstream of the site.

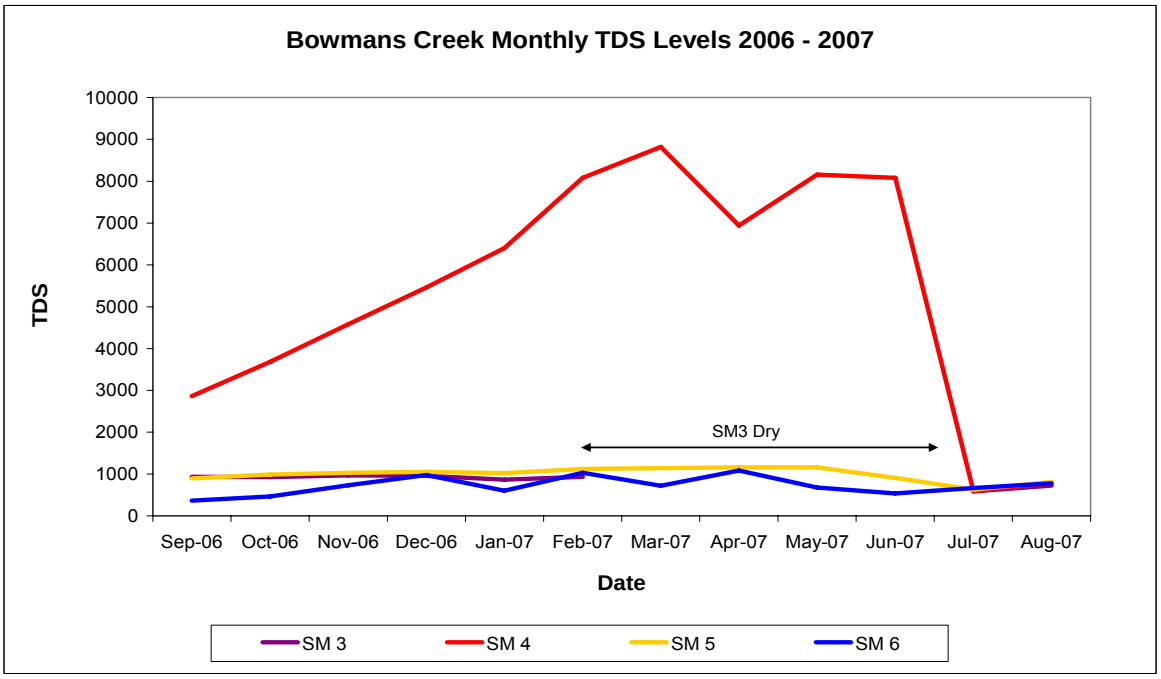
Total Dissolved Solids (TDS)

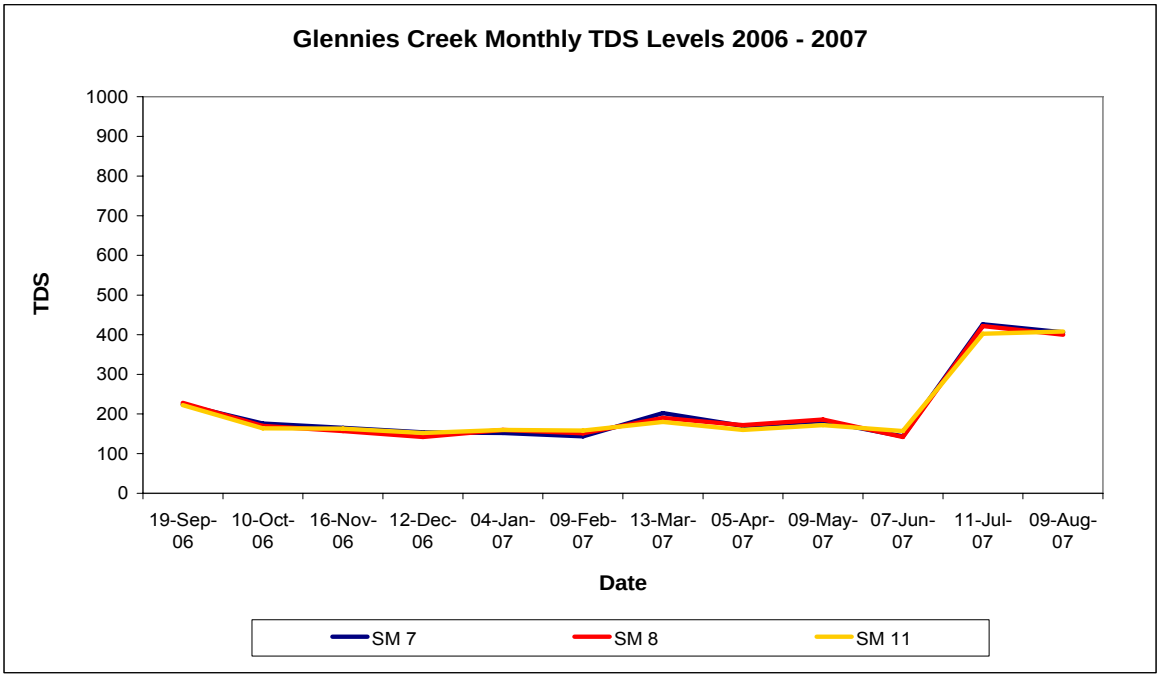
Monthly TDS results are as follows:

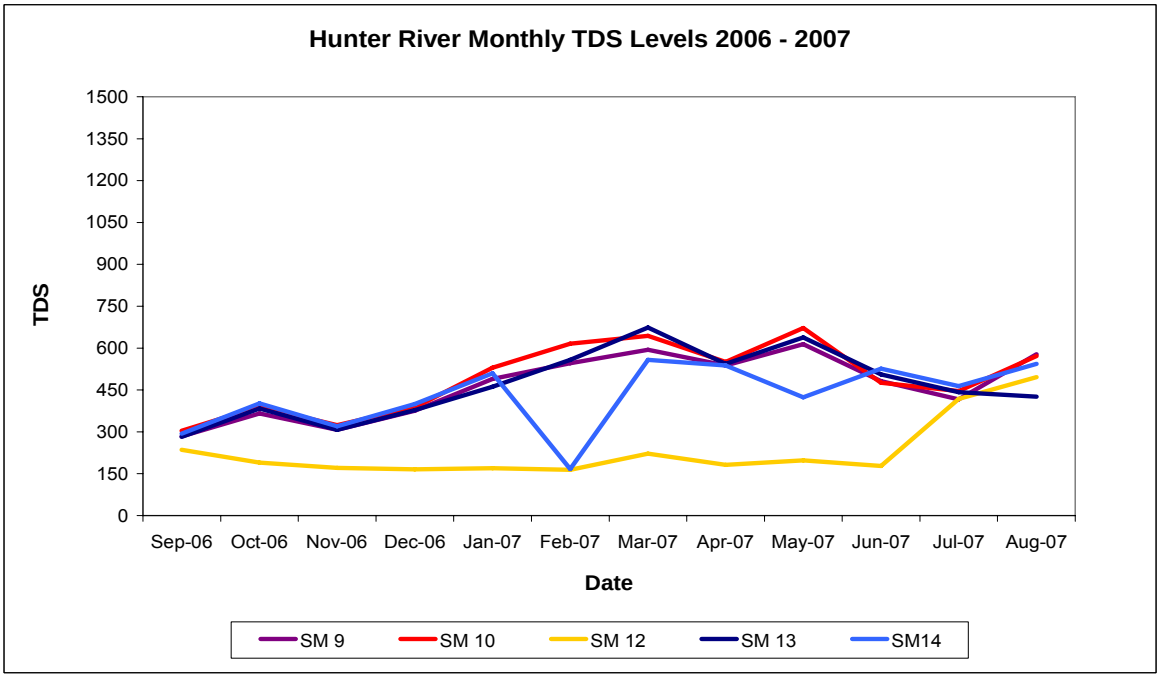
Table 27. TOTAL DISSOLVED SOLIDS RESULTS 2006 - 2007

pH	SM 1	SM 2	SM 3	SM 4	SM 5	SM 6	SM 7	SM 8	SM 9	SM 10	SM 11	SM 12	SM 13	SM 14
Sep-06	Dry	Dry	1600	5300	1570	750	518	527	646	692	542	569	639	642
Oct-06	Dry	Dry	1530	6490	1610	856	265	257	717	755	266	295	783	779
Nov-06	Dry	Dry	1750	8310	1830	1400	262	265	702	736	259	273	709	730
Dec-06	Dry	Dry	1590	10400	1770	1550	230	225	763	780	228	239	799	803
Jan-07	Dry	Dry	1420	11400	1960	1290	268	267	1100	1120	268	295	1060	1100
Feb-07	Dry	Dry	1640	14100	1950	1820	261	264	1060	1170	259	263	1080	266
Mar-07	Dry	Dry	Dry	14400	2040	1330	300	297	1110	1150	298	482	1140	1060
Apr-07	Dry	Dry	Dry	11100	1920	1850	316	317	994	1010	316	327	1000	1010
May-07	Dry	Dry	Dry	12500	1840	1160	319	318	991	1060	320	352	1020	690
Jun-07	Dry	Dry	Dry	12100	1660	1020	325	328	933	942	329	357	954	962
Jul-07	1800	1950	1220	1230	1280	1330	903	887	895	942	888	909	918	927
Aug-07	Dry	Dry	1260	1390	1430	1410	722	725	1030	1030	754	971	803	1060
Min	**1800**	**1950**	**1220**	**1230**	**1280**	**750**	**230**	**225**	**646**	**692**	**228**	**239**	**639**	**266**
Av	**1800**	**1950**	**1501**	**9060**	**1738**	**1314**	**391**	**390**	**912**	**949**	**394**	**444**	**909**	**836**
Max	**1800**	**1950**	**1750**	**14400**	**2040**	**1850**	**903**	**887**	**1110**	**1170**	**888**	**971**	**1140**	**1100**

TDS results closely reflect EC results.




Glennies Creek Monthly TDS Levels 2006 - 2007
TDS
1000
900
800
700
600
500
400
300
200
100
0
19-Sep-06
10-Oct-06
16-Nov-06
12-Dec-06
04-Jan-07
09-Feb-07
13-Mar-07
05-Apr-07
09-May-07
07-Jun-07
11-Jul-07
09-Aug-07
Date
SM 7
SM 8
SM 11


Hunter River Monthly TDS Levels 2006 - 2007
TDS
1500
1350
1200
1050
900
750
600
450
300
150
0
Sep-06
Oct-06
Nov-06
Dec-06
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Date
SM 9
SM 10
SM 12
SM 13
SM14

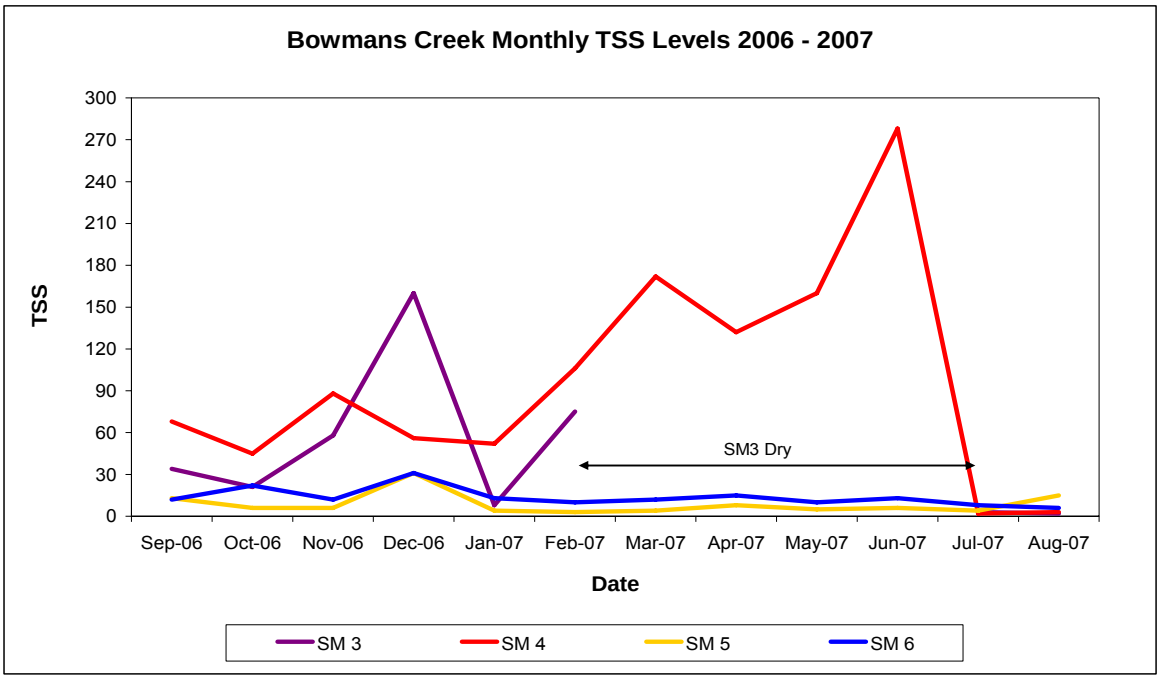
Total Suspended Solids (TSS)

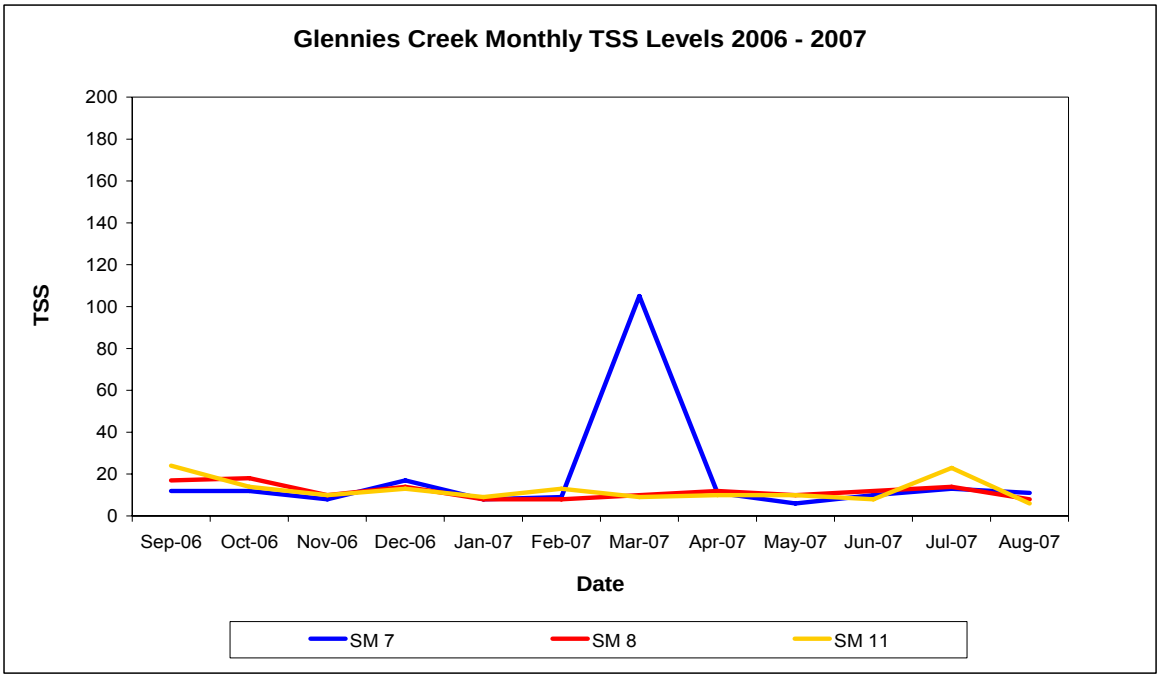
Monthly TSS results are as follows:

Table 28. TOTAL SUSPENDED SOLIDS RESULTS 2006 - 2007

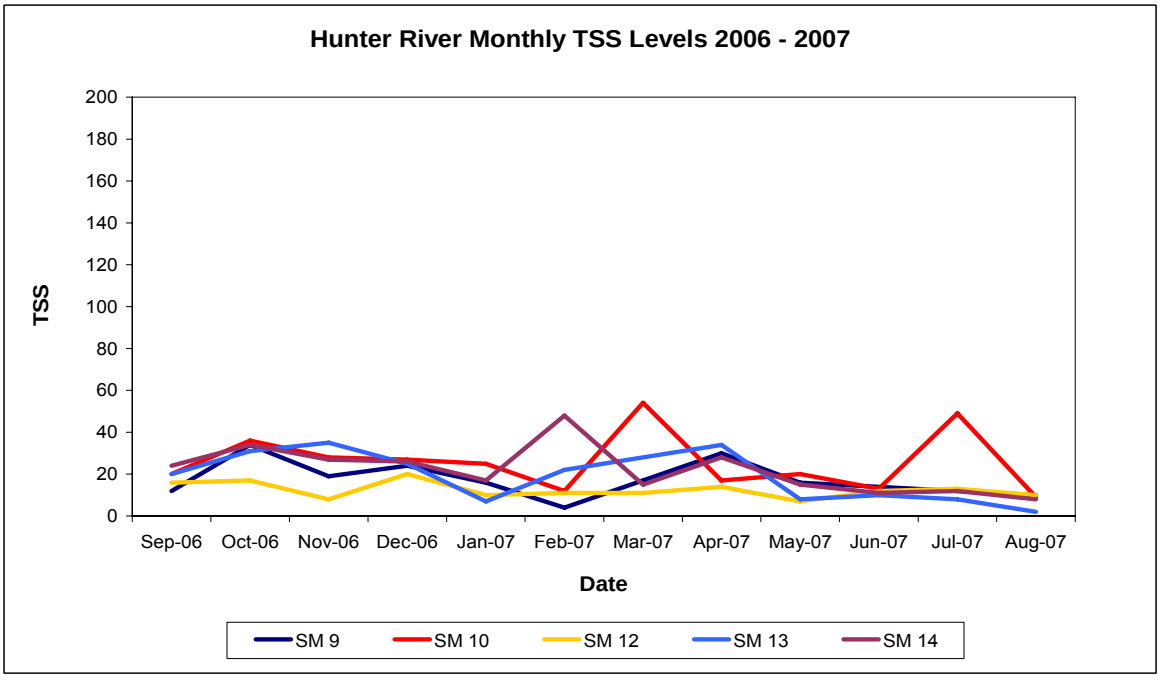
pH	SM 1	SM 2	SM 3	SM 4	SM 5	SM 6	SM 7	SM 8	SM 9	SM 10	SM 11	SM 12	SM 13	SM 14
Sep-06	Dry	Dry	34	68	13	12	12	17	12	20	24	16	20	24
Oct-06	Dry	Dry	21	45	6	22	12	18	34	36	14	17	31	34
Nov-06	Dry	Dry	58	88	6	12	8	10	19	28	10	8	35	27
Dec-06	Dry	Dry	160	56	31	31	17	14	24	27	13	20	25	26
Jan-07	Dry	Dry	8	52	4	13	8	8	16	25	9	10	7	17
Feb-07	Dry	Dry	75	106	3	10	9	8	4	12	13	11	22	48
Mar-07	Dry	Dry	Dry	172	4	12	105	10	17	54	9	11	28	15
Apr-07	Dry	Dry	Dry	132	8	15	11	12	30	17	10	14	34	28
May-07	Dry	Dry	Dry	160	5	10	6	10	16	20	10	7	8	15
Jun-07	Dry	Dry	Dry	278	6	13	10	12	14	13	8	12	10	11
Jul-07	13	18	3	2	4	8	13	14	12	49	23	13	8	12
Aug-07	Dry	Dry	2	3	15	6	11	8	10	9	6	10	2	8
Min	**13**	**18**	**2**	**2**	**3**	**6**	**6**	**8**	**4**	**9**	**6**	**7**	**2**	**8**
Av	**13**	**18**	**45**	**97**	**9**	**14**	**19**	**12**	**17**	**26**	**12**	**12**	**19**	**22**
Max	**13**	**18**	**160**	**278**	**31**	**31**	**105**	**18**	**34**	**54**	**24**	**20**	**35**	**48**

While there are fluctuations in TSS results these are not linked to potential impacts from the Ashton site activities.





The sample taken on the 13 March 2007 at SM7 showed elevated TSS levels. This site is located up stream of Ashton Coal and therefore not affected by Ashton Coal's mining activities.



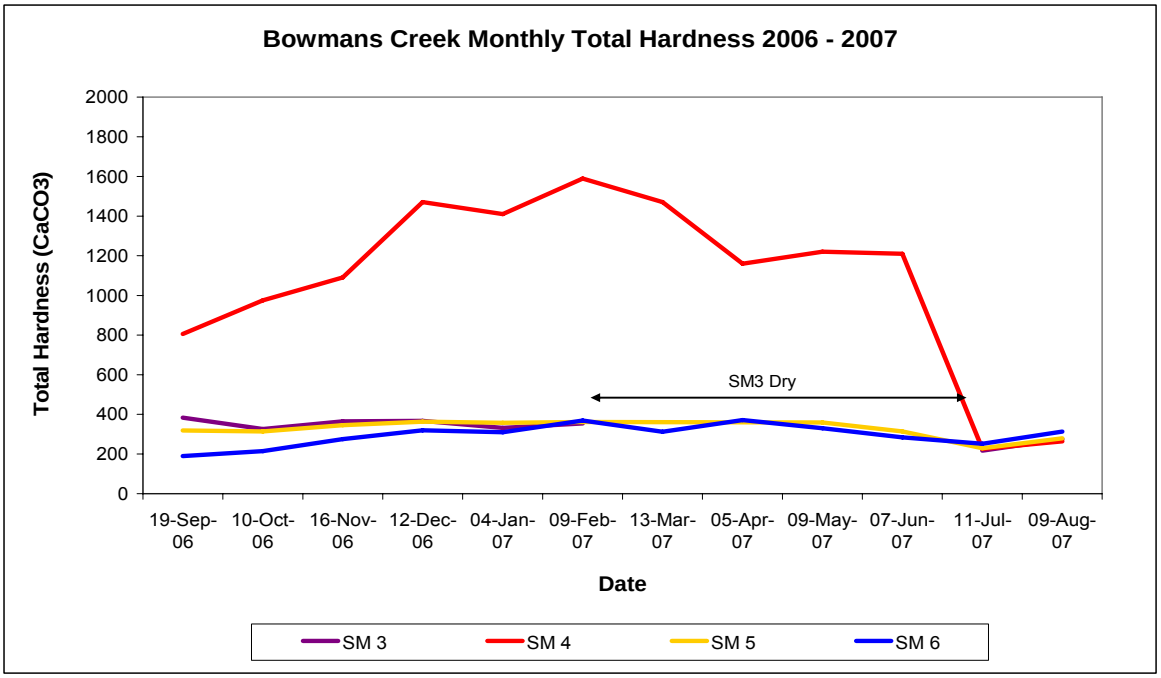
Total Hardness ($CaCO_3$)

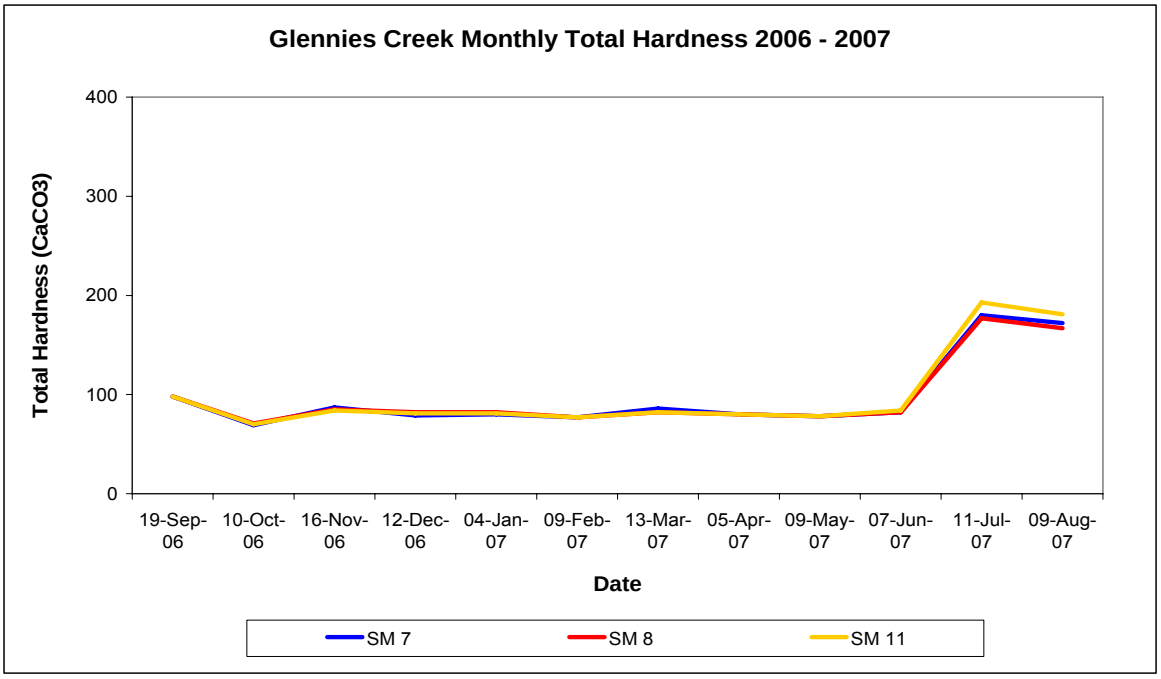
Monthly Total Hardness results are as follows:

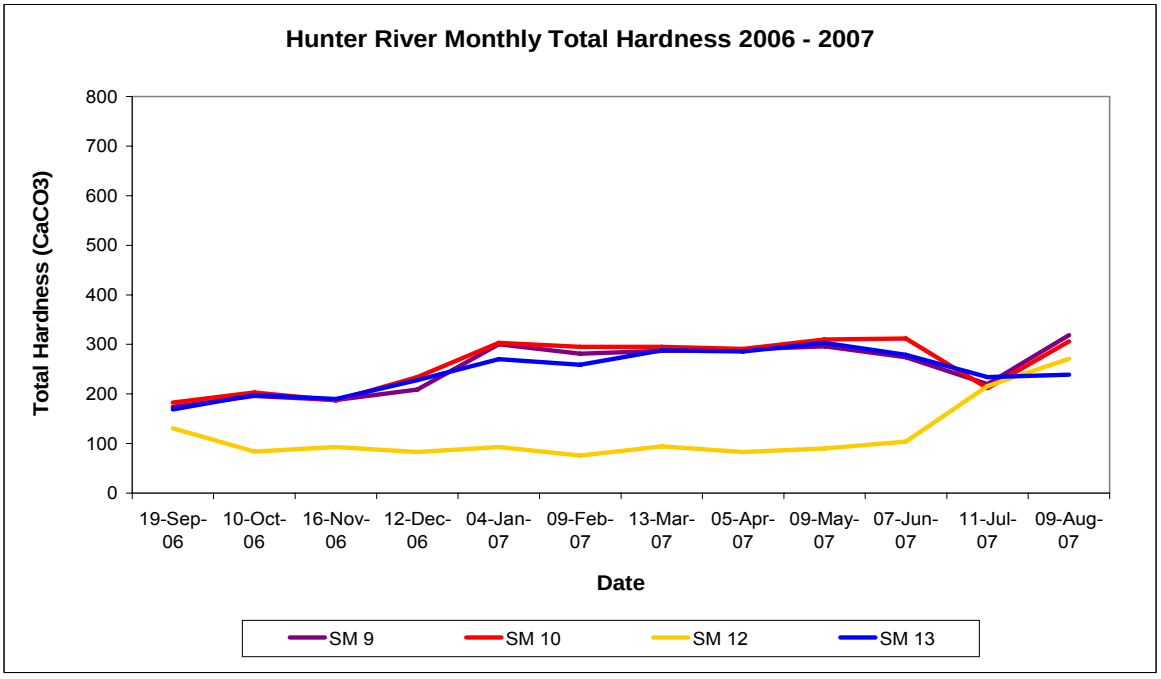
Table 29. TOTAL HARDNESS RESULTS 2006 - 2007

pH	SM 1	SM 2	SM 3	SM 4	SM 5	SM 6	SM 7	SM 8	SM 9	SM 10	SM 11	SM 12	SM 13	SM 14
Sep-06	Dry	Dry	383	805	319	190	98	98	174	183	98	131	169	174
Oct-06	Dry	Dry	326	975	314	214	69	71	196	203	70	84	198	202
Nov-06	Dry	Dry	365	1090	345	275	87	85	188	187	84	93	190	188
Dec-06	Dry	Dry	367	1470	363	320	79	82	209	234	81	83	228	231
Jan-07	Dry	Dry	332	1410	357	310	80	82	300	303	81	93	270	288
Feb-07	Dry	Dry	355	1590	362	369	77	77	281	295	77	76	259	76
Mar-07	Dry	Dry	Dry	1470	361	312	86	82	287	295	82	94	288	268
Apr-07	Dry	Dry	Dry	1160	360	371	80	80	290	291	80	83	286	288
May-07	Dry	Dry	Dry	1220	359	330	78	78	296	310	78	90	303	195
Jun-07	Dry	Dry	Dry	1210	314	284	82	82	274	312	84	104	279	291
Jul-07	283	303	217	226	229	252	180	177	220	212	193	216	234	229
Aug-07	Dry	Dry	275	264	279	313	172	167	319	306	181	271	239	294
Min	**283**	**303**	**217**	**226**	**229**	**190**	**69**	**71**	**174**	**183**	**70**	**76**	**169**	**76**
Av	**283**	**303**	**328**	**1074**	**330**	**295**	**97**	**97**	**253**	**261**	**99**	**118**	**245**	**227**
Max	**283**	**303**	**383**	**1590**	**363**	**371**	**180**	**177**	**319**	**312**	**193**	**271**	**303**	**294**

With the increase in pH, EC and TDS at SM4, an increase in hardness of the magnitude observed would be expected.




Glennies Creek Monthly Total Hardness 2006 - 2007
Total Hardness (CaCO3)
400
300
200
100
0
19-Sep-06
10-Oct-06
16-Nov-06
12-Dec-06
04-Jan-07
09-Feb-07
13-Mar-07
05-Apr-07
09-May-07
07-Jun-07
11-Jul-07
09-Aug-07
Date
SM 7
SM 8
SM 11


Hunter River Monthly Total Hardness 2006 - 2007
Total Hardness (CaCO3)
800
700
600
500
400
300
200
100
0
19-Sep-06
10-Oct-06
16-Nov-06
12-Dec-06
04-Jan-07
09-Feb-07
13-Mar-07
05-Apr-07
09-May-07
07-Jun-07
11-Jul-07
09-Aug-07
Date
SM 9
SM 10
SM 12
SM 13

Oil and Grease

Monthly Oil and Grease results are as follows:

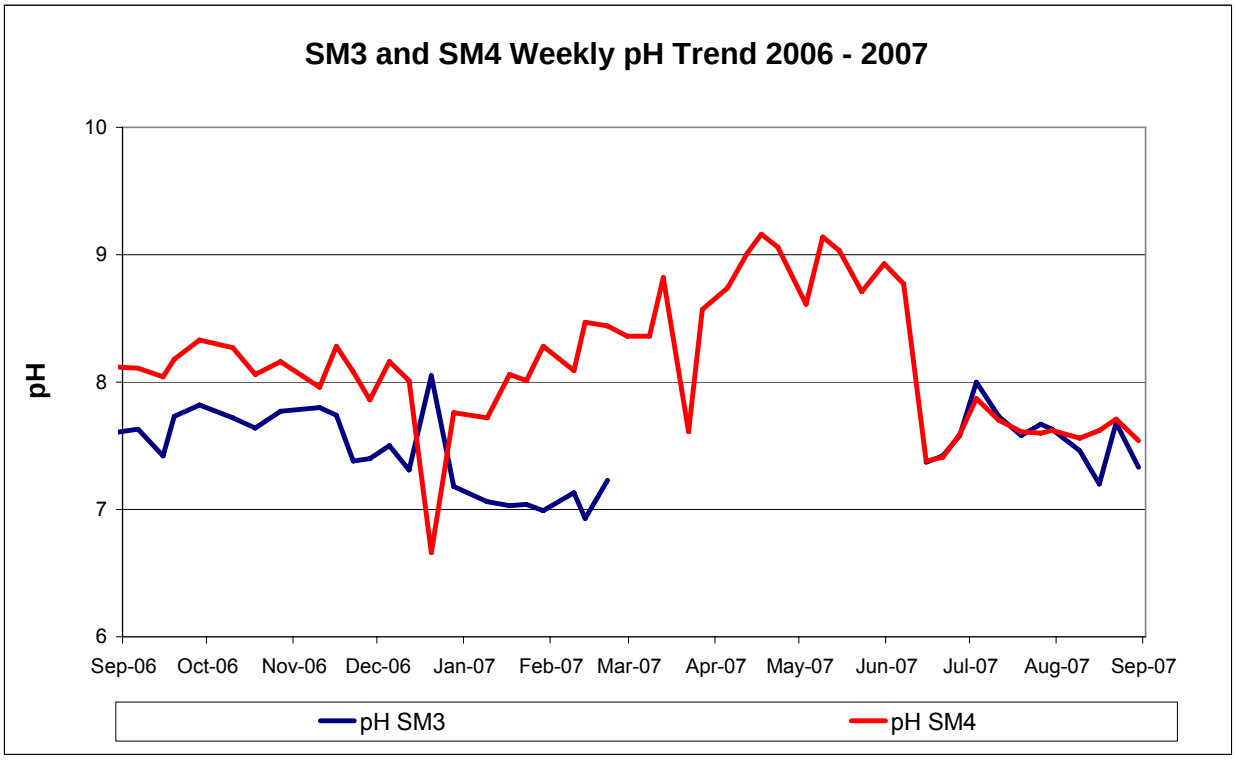
Table 30. TOTAL OIL & GREASE RESULTS 2006 – 2007

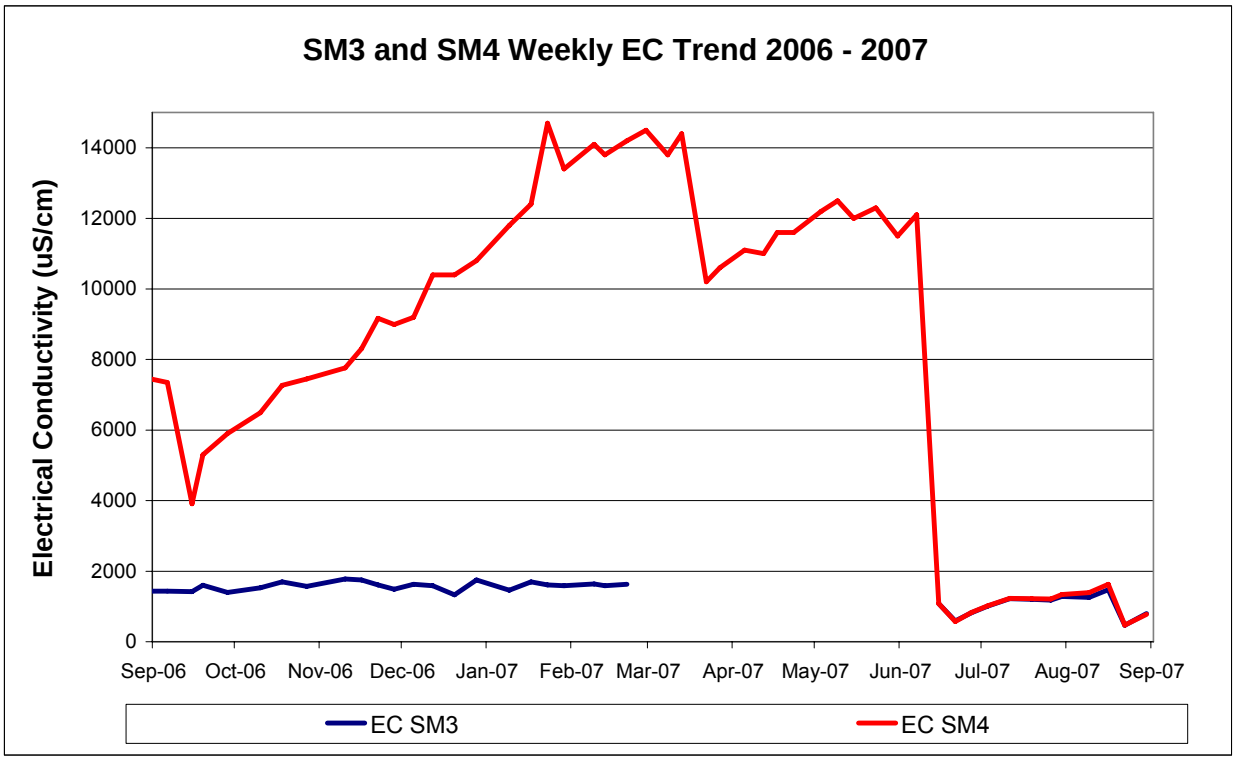
pH	SM 1	SM 2	SM 3	SM 4	SM 5	SM 6	SM 7	SM 8	SM 9	SM 10	SM 11	SM 12	SM 13	SM 14
Sep-06	Dry	Dry	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Oct-06	Dry	Dry	<5	6	<5	<5	<5	7	5	<5	12	<5	<5	<5
Nov-06	Dry	Dry	<5	<5	<5	<5	<5	<5	- - -	<5	<5	<5	<5	<5
Dec-06	Dry	Dry	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Jan-07	Dry	Dry	<5	- - -	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Feb-07	Dry	Dry	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Mar-07	Dry	Dry	Dry	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Apr-07	Dry	Dry	Dry	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
May-07	Dry	Dry	Dry	<5	<5	<5	<5	<5	<5	<5	- - -	<5	<5	<5
Jun-07	Dry	Dry	Dry	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Jul-07	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aug-07	Dry	Dry	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Min	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Av	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Max	<5	<5	<5	6	<5	<5	<5	7	5	<5	12	<5	<5	<5

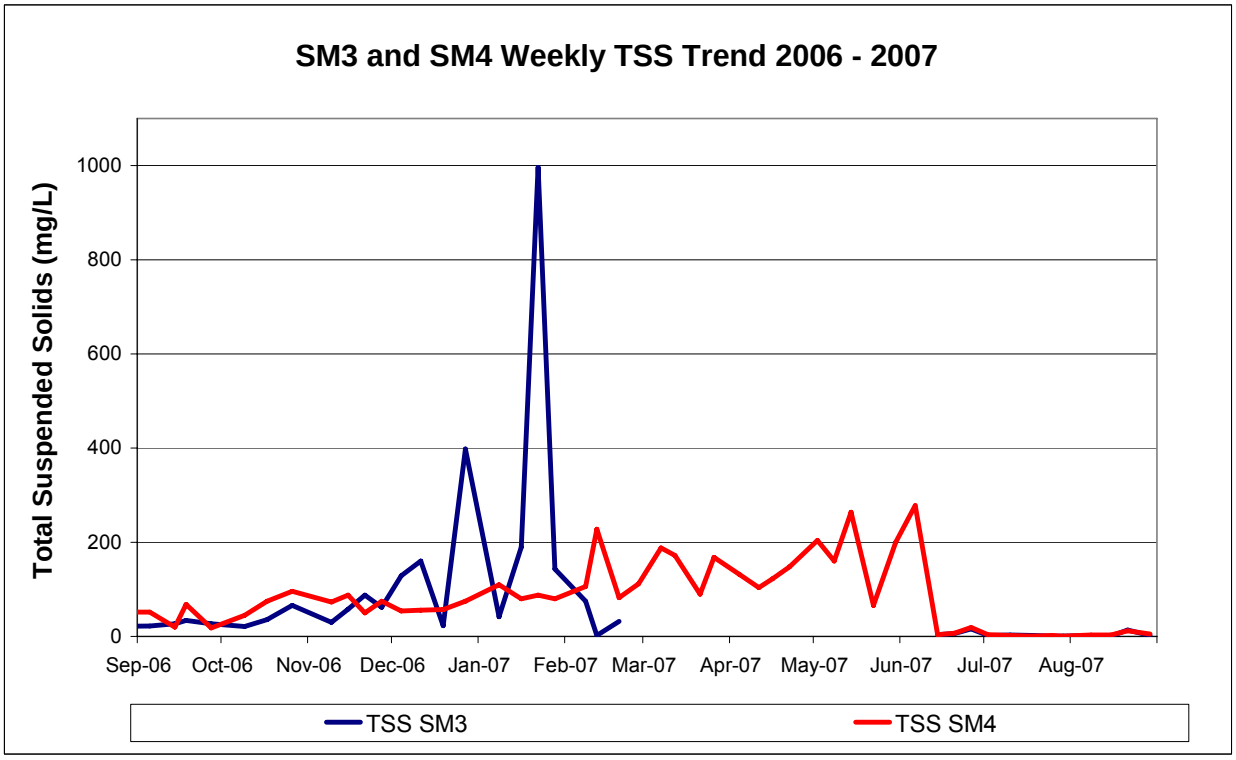
There were only four records of hydrocarbons at all of the sites in the past year. These being SM4, SM8, SM9 and SM11 and all recorded on the 10 October 2006. The lack of any results above laboratory quantification limits suggests that there were no hydrocarbon impacts to the surface waters surrounding the Ashton Operation at the times of sampling. The four samples at sites SM3, SM6, SM11 and SM13 are likely to be an anomaly caused by natural organic substances analytically interfering with the oil and grease analysis.

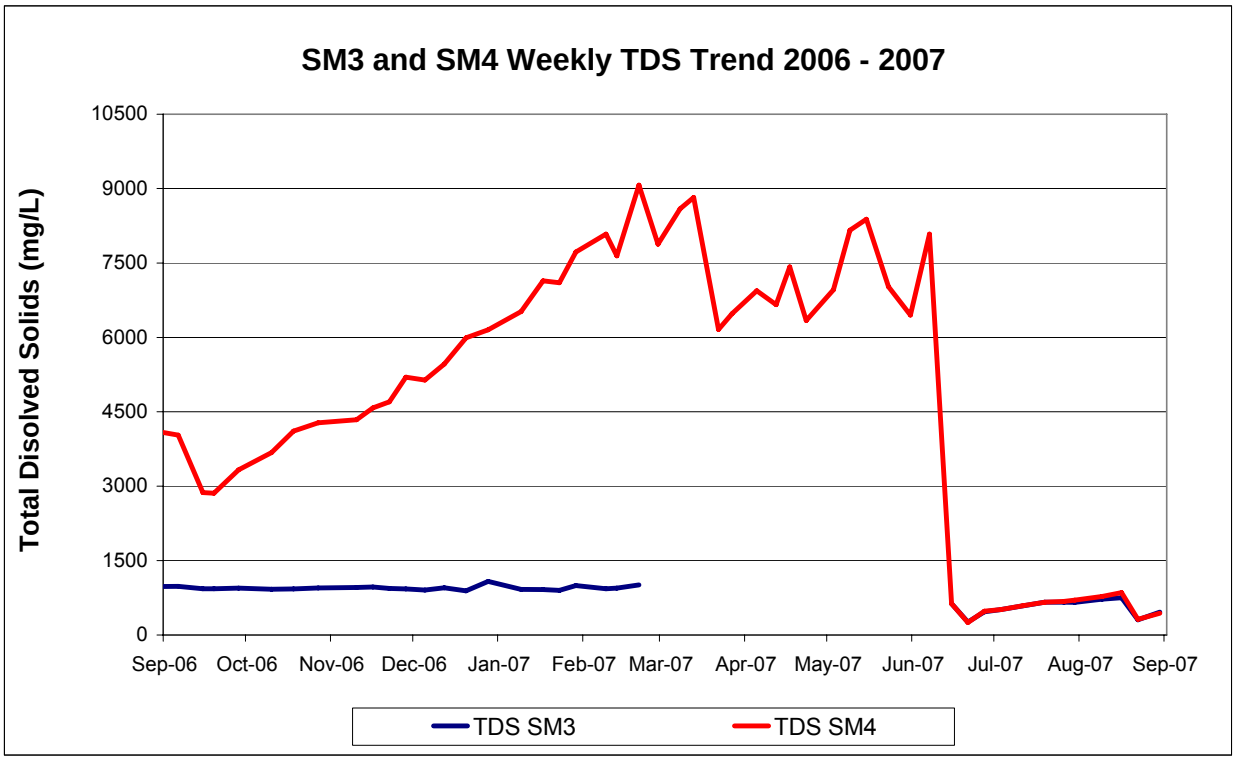
3.3.2.2 Weekly Water Quality Monitoring Results

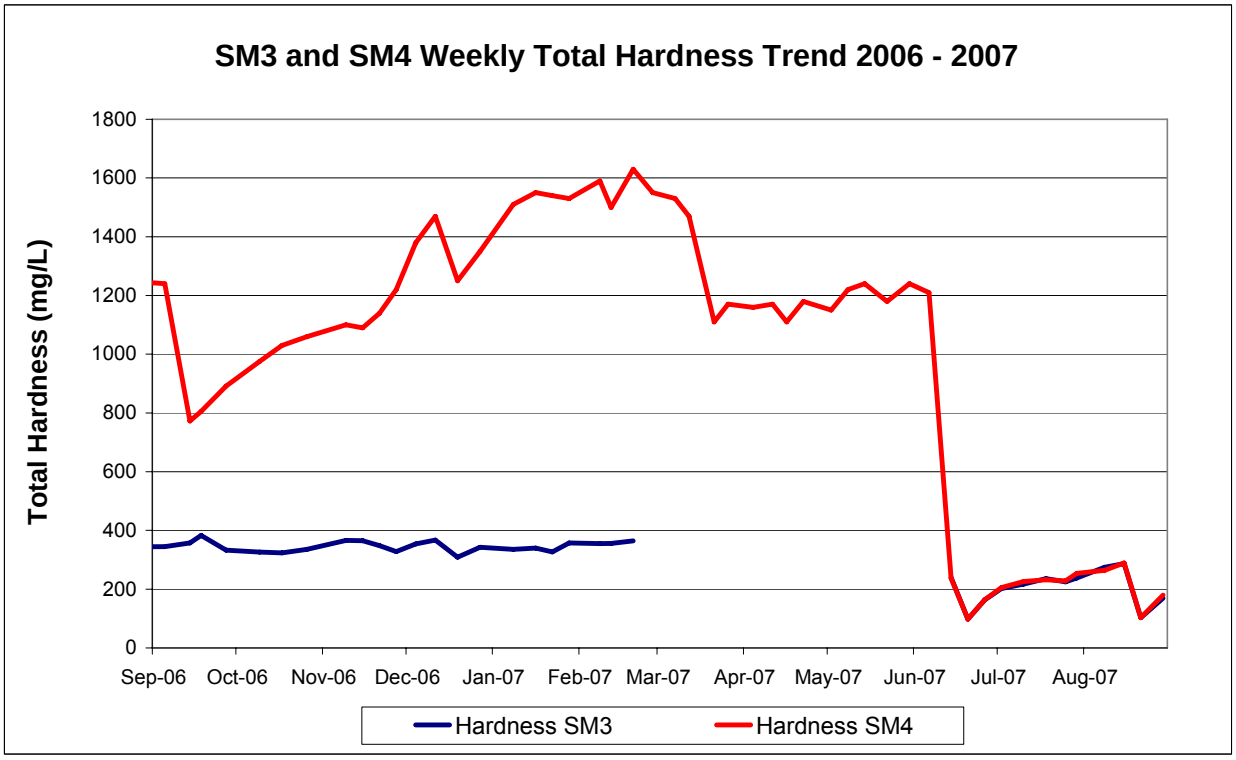
Weekly water samples were collected and analysed during the reporting period for pH, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Total Suspended Solids (TSS) Total Hardness ($CaCO_3$) and Oil and Grease (O & G). The purpose of sites SM3 and SM4 are to determine if the process water dam located adjacent to Betty's and Bowmans Creek is discharging dirty water into the creek system. The results of this monitoring indicates that there were no discharges during the monitoring period. As mentioned above SM4 showed a gradual increase in EC over the reporting period until flood waters in June recharged the creek. This increasing trend has been attributed to groundwater connection within the pool.




SM3 and SM4 Weekly EC Trend 2006 - 2007
Electrical Conductivity (uS/cm)
14000
12000
10000
8000
6000
4000
2000
0
Sep-06
Oct-06
Nov-06
Dec-06
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
EC SM3
EC SM4


SM3 and SM4 Weekly TSS Trend 2006 - 2007
Total Suspended Solids (mg/L)
1000
800
600
400
200
0
Sep-06
Oct-06
Nov-06
Dec-06
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
TSS SM3
TSS SM4


SM3 and SM4 Weekly TDS Trend 2006 - 2007
Total Disolved Solids (mg/L)
10500
9000
7500
6000
4500
3000
1500
0
Sep-06
Oct-06
Nov-06
Dec-06
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
TDS SM3
TDS SM4


SM3 and SM4 Weekly Total Hardness Trend 2006 - 2007
Total Hardness (mg/L)
1800
1600
1400
1200
1000
800
600
400
200
0
Sep-06
Oct-06
Nov-06
Dec-06
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Hardness SM3
Hardness SM4

3.4 GROUND WATER POLLUTION

As required by Consent Condition 9.2 (d), a groundwater reports has been prepared by an independent expert covering the reporting period 2 September 2006 to 1 September 2007. This report has been included in Appendix 2.

3.4.1 Summary

The report included in Appendix 2 details the monitoring and other work carried out as part of the groundwater management activities for the project. The results of monitoring are presented, together with analysis of trends displayed by the data. The groundwater response to the mining operations has been compared with impacts predicted for this stage of mining in the EIS and the SMP for LWs 1 to 4.

There has been a significant expansion of the groundwater monitoring network during the 2006-2007 year, with up to 91 piezometer bores monitored at some stage during the period. Most attention was directed towards the underground mine. The subsidence monitoring network of multi-level vibrating wire piezometer bores and shallow standpipe piezometers was completed. Further monitoring bores were installed between the mine and the Glennies Creek alluvium to the east. Finally, a comprehensive drilling program to better define the extent and nature of the Bowmans Creek alluvium aquifer system was initiated during the review period.

The monitoring frequency was intensified in the early stages of underground mining, above that specified in the GWMP, until the groundwater system response became clear. It is proposed that the monitoring frequency will now in most cases revert to that outlined in the GWMP.

Groundwater inflows to the underground have been monitored closely for both volume and water quality (EC). Net groundwater inflows have been calculated by a water balance approach, from measured flow rates in various points in the water management system, and allowing for water imported form operation of the longwall. Average total groundwater inflows to the underground mine during the reporting period were 0.4 ML/d (4.6 L/s) compared with 0.45 ML/d (5.2 L/s) predicted in the EIS for this stage of mining.

Seepages into the eastern rib-line of the underground mine closest to Glennies Creek (TG1A) have been isolated from other inflows and continue to be monitored separately, with a high level of accuracy. The seepages have an average EC of about 2000 µS/cm, compared with typical ECs of 5000-8000 µS/cm for groundwater in the Permian coal seams. The reduced EC in TG1A seepage is believed due to a component of seepage from Glennies Creek alluvium in the total seepage inflows. The average rate of seepage from the Glennies Creek alluvium calculated during the reporting period was under 1.8 L/s, less than the rate of 2.0 L/s predicted in the EIS for this stage of mining.

Large drawdown responses have been observed in restricted area local to LWs 1 and 2 in the underground mine, in the Pikes Gully seam and to a lesser extent in the overlying coal measures. Drawdowns in the alluvium have been limited to the small area between the mine and Glennies Creek. The magnitude of drawdown to date (0.5m at WML120B) is much smaller than the 1.3m drawdown predicted for this location in the EIS at this stage of mining. No mining related drawdown has been observed in either Hunter River or Bowmans Creek alluvium.

Extensive water quality monitoring has shown variable salinity in both the alluvium and the Permian coal measures, some exchange of groundwater between the two units. The groundwater in the alluvium is generally more saline than surface water in Hunter River, Bowmans Creek and Glennies Creek. Generally, groundwater in the coal measures is much more saline, but at some sites in the Bowmans Creek valley the groundwater in the upper levels of the Permian is at similar or lower salinity to the alluvium.

Flow ceased in Bowmans Creek during the drought, prior to the major rainfall event in June 2007. During the no-flow period, water in disconnected pools was sustained by baseflow seepages, which led to increases in salinity, to a high of 14,000 µS/cm in one instance.

pH of all groundwaters is generally close to neutral.

The groundwater model has been modified to allow for more precise representation of the expected changes in permeability above the longwall panels. Additional model layers have been introduced (13 layers compared with 7 in the EIS studies), and smaller cell size (25m x 25m compared with 100m x 100m in the EIS studies) have been incorporated. The amended model is beong re-calibrated against the measured impacts of mining LWs 1 and 2, and will be used to model mine plan options for future mining of the Pikes Gully seam beneath the Bowmans Creek alluvium.

In conclusion, the monitoring program has been carried out in accordance with the GWMP and the requirements detailed in the Consent conditions. Impacts have in all aspects been at or below those predicted for this stage of mining in the EIS and the LW1-4 SMP.

3.5 CONTAMINATED AND POLLUTED LAND

There are no known areas of contaminated or polluted land at the Ashton Coal Project.

3.6 THREATENED FLORA AND FAUNA

3.6.1 Flora and Fauna Management

Condition 3.46 of the Development Consent requires the preparation of a Flora and Fauna Management Plan (FFMP), which was approved by the Director General of DIPNR. The phase 2 FFMP was approved by DEC, DoP, DNR and DPI in August 2006. Autumn and Spring Fauna monitoring was conducted during the period as part of the Flora and Fauna Management Plan. A pre-clearance survey was also conducted for the remaining woodland area within the Open Cut Mine. No fauna species (threatened or otherwise) were identified during the pre-clearance survey.

3.6.1.1 Conservation Area

A draft Plan of Management for the conservation area has been submitted to DECC NPWS. ACOL is currently finalising the plan with DECC NPWS. Monitoring of the flora and fauna of the conservation area has been ongoing, with the instalment of a number of nest and bat boxes. While the agreement has not yet been finalised the area is being managed as intended in the agreement, the area has been fully fenced to exclude grazing and sign posted as a conservation area.

3.6.2 Fauna Monitoring

Fauna habitat surveys were carried out in both the spring and autumn seasons during the reporting period. These surveys are continually assessing the habitat value and species and abundance and diversity within ACOL lands. The main focus of the monitoring is the southern woodland (voluntary conservation area) which consists of open grassy woodland dominated by *Allocasuarina luehmannii*. Sub-dominant species include *Eucalyptus crebra* (narrow-leaved ironbark), *Eucalyptus melliodora* (yellow box) and *eucalyptus fibrosa* (grey box).

A number of monitoring techniques are undertaken as part of the Fauna surveys. These include:

- Pitfall trapping. Ten permanent pitfall traps have been installed at four locations. Between surveys the traps are sealed.
- Elliot A Traps. 50 traps were placed along two transects to monitor small and medium terrestrial mammals.
- Hair tubes. 30 tubes were placed throughout the southern woodland for 10 nights to monitor small and medium terrestrial mammals.

- Elliot B Traps. Twenty traps were mounted on trees along the survey transects at approximately 2 metres above the ground. They were used to target small to medium sized arboreal mammals.
- Hair funnels. Ten funnels were mounted on tree trunks along the transects for ten nights targeting arboreal mammals.
- Targeted amphibian surveys were undertaken.
- Two Anabat echolocation call detectors were used over two consecutive nights to record and identify bat calls.
- 10 minute diurnal bird point surveys were conducted over four days.
- Targeted Grey-Crowned Babbler, Speckled Warbler and Hooded Robin surveys were conducted (see 3.7.3 below).
- Spotlighting was undertaken.
- Nest boxes. A total of 28 nest boxes and 14 bat boxes have been installed on ACOL property and these boxes were monitored for species use.

There were no significant changes in species abundance or diversity identified during the reporting period. Flora surveys indicate that the Southern Woodland is regenerating slowly, however this is generally dominated by Bull oak. There was a decrease in observed reptile species from 2 (spring) to 0 (autumn). Terrestrial and arboreal mammal monitoring indicated the presence of brushtail possum. The common eastern froglet was heard calling and four bat species were recorded during the period. Two more common bird species were also identified within the Southern Woodland (*Phaps chalcoptera* (zebra finch) and *Circus approximans* (swamp harrier). These slight variations in species diversity can be attributed to change in season and weather conditions rather than an improvement in habitat diversity. Revegetation works in the Southern Woodland will be conducted in the 2007-2008 reporting period with the aim of increasing the habitat potential of the Southern Woodland.

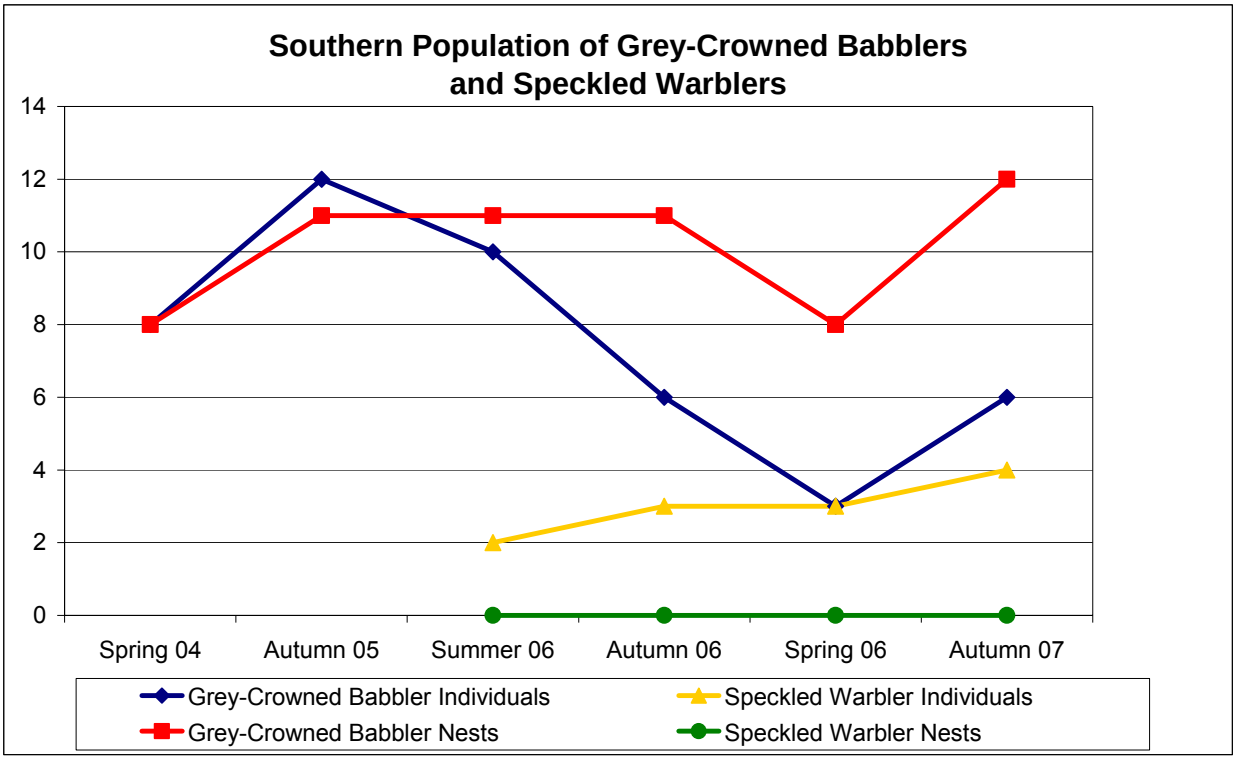
Figure 12. Ringtail Possum Nest Box and Pit fall Trap Southern Woodland

3.6.2.1 Significant Fauna Species

A total of 3 threatened bird species have now been identified within the Southern Woodland. The speckled warbler and grey-crowned babbler have been identified in the Southern Woodland in previous reporting periods and have continued to reside in the Southern Woodland throughout 2006 and 2007. During the spring surveys hooded robins were observed foraging in two locations within the Southern Woodland. During the following autumn survey the hooded robin was not observed. Targeted hooded robin surveys will be conducted during each survey.

During the autumn survey the grey-crowned babbler population has shown an increase in size from the previous spring survey of 3 to 6 individuals and 8 to 12 nests. The figure below shows the trend in the southern grey-crowned babbler population over the past three years. Ongoing monitoring of the grey-crowned babbler population will be conducted. Revegetation works in the Southern Woodland will be conducted in the coming reporting period to increase the habitat potential of the woodland.

A small speckled warbler population has been observed in the Southern woodland over the past three survey periods. During the autumn survey a total of 4 individuals were observed, an increase of 1 individual since the spring 2006 survey. No nests have been identified within the Southern Woodland. It would appear that the speckled warblers are using the Southern Woodland as a foraging resource rather than a nesting site at this stage.



3.6.2.2 Nest Boxes

A total of 28 nest boxes and 14 Bat boxes have been installed within ACOL property. The nest boxes target a number of different species. They are monitored biannually for resident fauna, evidence of use and presence of pest species.

Scat and hair analysis indicated the presence of *Trichosurus* species in six of the nest boxes within the Southern Woodland. This is most likely to be brushtail possum due to its common occurrence during nocturnal surveys. There has been no evidence of use in the bat boxes to date. At the time of the spring 2007 survey, chicken mesh was attached to the entrance of the bat boxes to improve the landing surface.

There has been no population analysis conducted yet as insufficient data has been collected at this stage of the monitoring program.

3.7 AQUATIC ECOLOGY MONITORING BOWMANS AND GLENNIES CREEEKS

As required by Consent Conditions 3.19 and 3.20 under Development Application DA No 309-11-2001-i issued by the Minister for Planning, aquatic ecological monitoring was undertaken during the reporting period. The study follows on from initial creek sampling studies undertaken for the EIS (MPR 2001) and preliminary monitoring studies for mining impact (ERM 2006). This monitoring will now be ongoing during the Spring and Autumn periods.

As there are no specific expected impacts on creek morphology or function arising from the present approved long wall extraction (Panels 1 to 4), the studies completed during the period incorporate monitoring sites more or less evenly spaced along the two creeks with upstream, mid stream and downstream sites. In terms of overall study aims, the Aquatic Ecology Monitoring study endeavours to answer the following questions:

- Are there measurable differences in aquatic ecological attributes between creek pools upstream, alongside and downstream of mining operations?
- Are observed differences directly attributable to mining impacts or can differences be attributed to spatial (between-site) and/or temporal (between-survey) differences?
- Do the creeks provide (and continue to provide) suitable aquatic habitat?
- Do the creeks continue to provide suitable fish passage?

3.7.1 Sampling Methods

The adopted sampling methods are based on existing methods being utilised for monitoring long-term aquatic ecological change in several of the Illawarra coal mining catchments (e.g., BHP Billiton 2001). The study follows the National River Process and Management Program River Bio-assessment Manual methods (NRPMP 1994) as adapted for the National River Health Program (now referred to as the AusRivAS method (Turak et al 1999).

The AusRivAS protocol provides a number of definitions of sites and habitats within sites for selection of sampling locations and recommends that, wherever possible, two habitats (riffles and edges) be sampled at each site. The following AusRivAS definitions are relevant and sampling has conformed to these definitions:

- A site is "a stream reach with a length of 100 m or 10 times the stream width, whichever is the greater"
- A riffle habitat is "an area of broken water with rapid current that has some cobble or boulder substratum". However, "sampling riffles where the substratum consists predominantly of large boulders may be difficult and may not produce reliable results".
- Edge habitat is "an area along the creek with little or no current".

Given the location of a number of the study sites in reaches of creeks where there are predicted to be periods of little or no connecting flow between pools or where there are predicted to be no riffle sections available for sampling, it was decided that only pool 'edge' samples would be sampled, as riffle samples could not be guaranteed for all (or possibly even for most) sites at all sample times.

The final adopted design includes the following features:

- Sampling the aquatic macro invertebrate fauna of a minimum of three creek pools in each creek twice a year (in Spring and Autumn) using the AusRivAS sampling, sorting and identification protocols.
- Estimation of fish occurrence by a combination of bait-trapping, dip netting and observation, with all captured fish identified in-situ and immediately released.
- Depth profiles of basic water quality parameters: Temperature, Electrical Conductivity (salinity), water acidity (pH), Dissolved Oxygen and Turbidity, at each site during each sampling run.
- Recording of changes in creek riparian condition and of aquatic plant distribution within the study areas at each sampling time.

The particular reach selected for sampling within each of the sample locations was selected on the basis of it being (i) a reach with high drought resistance (generally based on pool size, depth and riparian cover) and (ii) a reach with high aquatic habitat diversity; ideally deep pools connected by gentle riffles, abundance of stream bed litter, presence of snags, presence of aquatic vegetation and good extent of cover of overhanging riparian vegetation.

Seven sites were selected and sampled with a view to assessing within- and between-creek variability:

BCUp Bowmans Creek Upstream. Located upstream of mine lease area, approximately 1.3 km upstream from New England Highway. This is also an Ashton Coal water quality monitoring site (SM3).

BCLW5 Bowmans Creek Upstream Intermediate site located at creek bend overlying Longwall 5.

BCLW7 Bowmans Creek Downstream Intermediate site about 1.2 km downstream from BCLW5, overlying Longwall 7. Also Ashton Coal water quality monitoring site (SM5).

BCDown Bowmans Creek Downstream located about 200m upstream from Hunter River confluence. Ashton Coal water quality monitoring site (SM6).

GCUp Glennies Creek Upstream about 50m downstream from church, and 300m upstream from New England Highway.

GCMid Glennies Creek intermediate located on bend at closest point to longwall 1 approximately 1.4 km downstream from New England Highway, and 500m upstream from Ashton Coal water monitoring site SM8.

GCDown Glennies Creek Downstream located approximately 1.5km downstream from GCmid, and 2km upstream from Hunter River confluence.

3.7.2 Monitoring Results

Sampling for the Autumn 2007 survey was delayed due to major flooding within the Hunter River catchment in June, and the eroding and scouring effects of this large scale event were evident in the destruction caused to instream channels and riparian zones. Probably as a result of flood scouring effects, pool morphology was fairly consistent between sites and across both creeks. The bed substrata at all sites was firm sandy gravel with some cobble beds, and minimal fine sediment, and there were significant deposits of mud on the levee banks, numerous large uprooted Willow and Casurina trees in both riparian creek environments and sections of bank erosion.

There were no submerged or emergent macrophyte beds observed, and only small fragments of *Myriophyllum* and *Elodea* were retained from sampling. With regards to emergent plants, Cumbungi was common throughout the study area (despite occurring in low quantities in each location), and Common Reed was present at Glennies Creek upstream. Spike Rushes (*Juncus spp*) and River Clubrush (*Schoenoplectus validus*) were also common along both creeks, and were included as edge habitat due to submergence by higher than normal water levels.

With regard to water quality, conductivity was generally elevated in Glennies Creek (mean ± SE 692 ± 11.9 µS/cm) compared to Bowmans Creek (898 ± 15 µS/cm) , although all were much lower than Bowmans Creek low flow results obtained over the previous two years. Dissolved oxygen values (study mean of 58.2 ± 0.6% sat) were below ANZECC (2000) range for the protection of aquatic life of 85 to 110% saturation set for lowland rivers.

There was an overall higher diversity of macroinvertebrate taxa recorded from Glennies Creek (34 taxa) compared to Bowmans Creek (25 taxa), with 18 taxa common to both creeks. Site SIGNAL index scores ranging between 4.1 and 4.7 for Glennies Creek (moderately impaired range) and 3.0 to 4.0 for Bowmans Creek (in the severely impaired range).

The introduced fish, Plague Minnow (*Gambusia holbrooki*), was found in both creeks. Three native fish were retained in fish traps with one positively identified as a Flathead Gudgeon. The other two were juvenile gudgeons with one most probably a Cox's Gudgeon. No threatened species as currently listed under the NSW Fisheries Management Act 1994 (FMA) were found or observed in the study, and no protected fish, as listed under the FMA, were found or observed.

Figure 13. Flathead Gudgeon

Figure 14. Bowmans Creek Upstream site (BCup), looking upstream, note flood debris

Figure 15. BCLW5 looking downstream showing bank erosion and fallen Casurinas.

Figure 16. Glennies Creek intermediate site GCMid.

Many Casurinas and Willow trees in this creek section had been uprooted, and bank erosion was common due to the June floods.

3.8 WEEDS

3.8.1 Weed Management

The Weed Management Plan has been revised under consent condition 3.7 and approved by the Department of Planning. Weed surveys of the southern woodland are conducted biannually during the flora and fauna surveys. Weed spraying during the period focused on galenia located on the Glennies Creek Road environmental bund. Green Cestrum works were also continued for the first month of the reporting period following on from works commenced in the pervious reporting period.

3.8.2 Weed Monitoring

An extensive weed survey and Annual Weed Monitoring Report was undertaken during the reporting period to identify the location and severity of all weed species within ACOL property. A number of high priority weed species were identified which included:

- African Boxthorn – a noxious weed which is widespread throughout the site,
- Bathurst Burr – a noxious weed identified as isolated clumps in alluvial soils,
- Prickly Acacia – a noxious weed found in isolated clumps along the Bowmans Creek riparian zone,
- Blackberry – a noxious weed confined to two small infestations in the riparian zone of the Hunter River and Glennies Creek,
- Green Cestrum – a noxious weed found extensively along the riparian zone of Glennies Creek and a small stand in the riparian zone of the Hunter River
- Sweet Briar – a noxious weed occurring throughout site as isolated plants.
- St John Wort – a noxious weed identified in two isolated infestations near Glennies Creek

ACOL have planned weed control works for 2008, which aim to concentrate on some of the specific species above, in particular the African Boxthorn, Green Cestrum and St John Wort.

3.9 BLASTING

3.9.1 Blast Management

Due to the proximity of the Main Northern Railway, Glennies Creek Road and the village of Camberwell to the mining operations area, the Blasting and Vibration Management Plan (BVMP) along with a complex series of controls have been established to ensure that blasts conform to the criteria defined in the Development Consent and the EPL.

Blasting times are limited to the hours of 9am to 5pm Monday to Saturday inclusive by the Development Consent, but the EPL also states that blasting cannot occur on Sundays or public holidays without the prior approval of the EPA. During the reporting period no blasts were conducted on Sundays or Public Holidays.

To ensure that ground vibration does not exceed criteria at receptor locations, the Maximum Instantaneous Charge (MIC) is calculated for each blast at the design stage. Procedures are also in place to ensure that sufficient depth of crushed stemming material is also placed in the collar of each blast hole to minimise the effects of air blast (air overpressure).

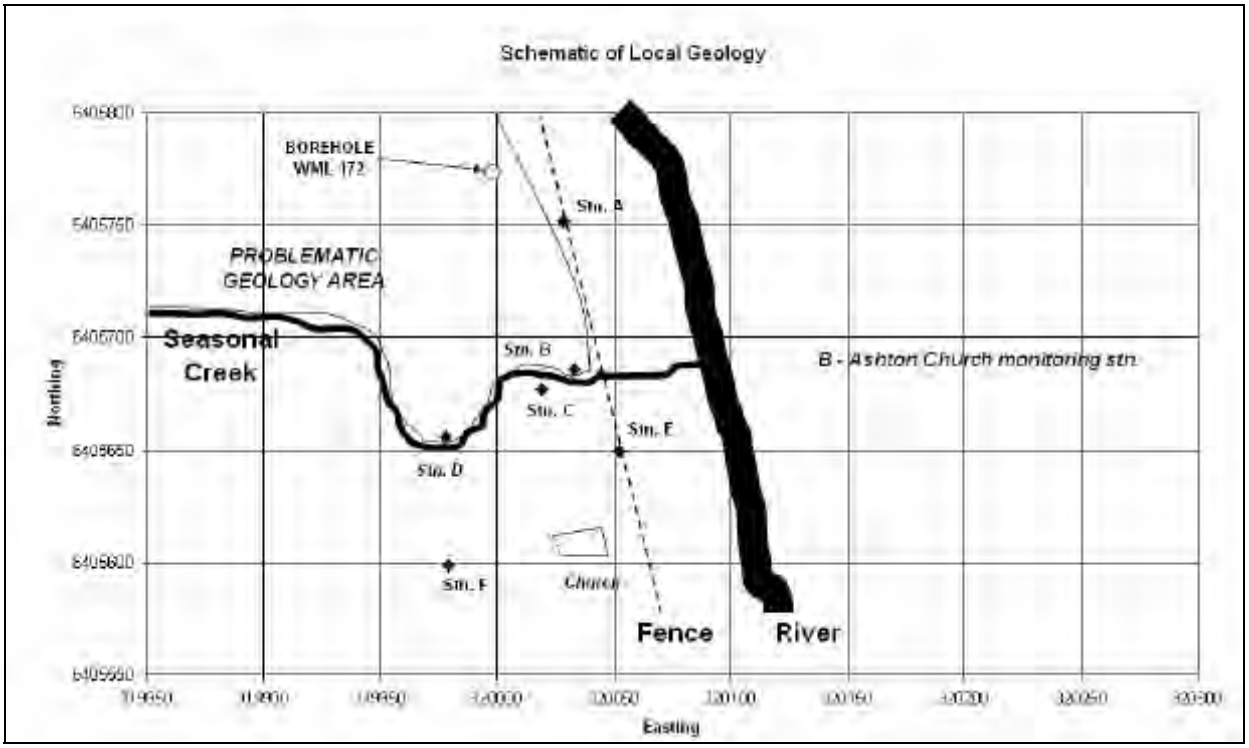
The BVMP also requires the completion of a Blasting Environmental Checklist prior to each blast. This checklist ensures that meteorological conditions are appropriate for the blast to occur. There are also checklists for Community Notification and Notification of the Common Management Committee when the common requires closing.

The Road and Rail Closure Management Plan (RRCMP) also requires the closure of Glennies Creek Road or the New England Highway if any part of the road comes within the 500 metre zone of exclusion that is required to be established around each blast. If any blast is within 200 metres of the Main Northern Railway, then ACOL seek possession of the railway for the duration of the blast. This ensures that no rail traffic enters the zone of exclusion within a blast period.

The residents of Camberwell village and all occupiers of buildings within two kilometres of blasting locations are provided advance notice of planned blasting events on the Ashton website (www.ashtoncoal.com.au) and, excepting where they have requested to be removed from the contact list, at least one hour prior to each blasting event, by telephone.

In February 2007, unusually high vibration results were being recorded at the St Clements Church blast monitor. These results were not consistent with other monitoring points in the area. ACOL contracted Enviro Strata Consulting Pty Ltd to undertake an assessment of the anomaly. By placing a number of blast monitors in the vicinity of the Church monitor (as shown below) it was found that a discontinuity was apparent in the geology surrounding the Church. Furthermore test drilling indicated that the Lower Barrett seam (lowest of the seams mined at ACOL) outcropped at this discontinuity in close proximity to the Church blast monitor effectively channelling the vibration to the site. As shown in the figure below a drainage path exists

between the Church monitor and the Church building creating the discontinuity. From the results recorded during the assessment it was identified that sites on the southern side of the discontinuity showed a significantly lower vibration than the sites on the northern side. Following the conclusion of the assessment ACOL applied to the DoP and the DECC to have the statutory monitor relocated to Site F shown below. Approval was received from DoP on the 3 August 2007 and subsequent acknowledgement from the DECC was recieved to relocate the monitor and backdate the Church results to the data recorded at Site F for the reporting period.



Two structural reassessments were carried out on St Clements Church during the reporting period. The first was conducted by Parsons Brinkerhoff in March 2007. This indicated that cracking occurring in the Church walls was the result of active clay soils that were shrinking around the outside of the Church as a result of low soil moisture content leading to a “bending” of the foundations of the Church. Upon receiving the report the local church representative questioned the findings. Ashton approached the Diocese to provide a structural engineer that they recommended to reinspect the Church. The Diocese provided Bill Jordan and Associates, a structural engineering firm with experience dealing with heritage churches in the Hunter Valley. Bill Jordan and Associates were commissioned to complete a second structural assessment of the Church. It was identified in this inspection that the cracking observed in the Church was consistent with cracking caused by active clay soils. No cracking was identified to be caused by blast vibration. It was also noted that the blast vibration levels recorded at the Church site would be too low to cause damage to the structure. Mitigation measures were suggested to prevent and repair cracking that had occurred to date, including the placement of sprinklers on the western side of the Church to increase the moisture content of the active clays. Following heavy rainfall in June 2007 cracking that had worsened during the dry summer and autumn months began to self heal.

3.9.1.1 SODAR Meteorological Monitoring Project

Certain meteorological conditions can lead to enhanced blast overpressure levels and potentially result in blast exceedences. The extent of this enhancement is determined by temperature and wind gradients up to 1000m in altitude that require specialised meteorological and modelling equipment to record and predict the effects. The SODAR project involves installing and operating this equipment to determine the enhancement.

The SODAR project is an approved Australian Coal Association Research Project (ACARP), in which the coal industry is contributing funds to purchase the monitoring equipment. Ashton Coal is a Joint Venture partner in this project.

Instrumentation has been installed and commissioned on a property off Lemington Rd in the Hunter Valley. The sounding equipment located at Lemington consists of two items:

- A SODAR, which measures wind velocity
- A RASS, which measures temperature

As of June 2007 the SODAR became operational, and provides real-time wind velocity data at 10 minute intervals. This data is transmitted to a server (SentineX repository) operated by Advitech

Standard methods of data transfer after logging into the SentineX repository are:

- Viewing real-time data at which is updated at 10 minute intervals
- Download of this data at 10 minute intervals either on request or automatically
- Download of a CSV file that contains 24 hours of data from 3am to 3am

Following a six-month delay in obtaining a radar frequency licence, which has now been granted, the RASS unit is now being constructed, and was commissioned in July 2007. The temperature data from the RASS will then be immediately available to users using the data connection that has been established for the transfer of wind velocity data.

3.9.2 Blast Criteria and Monitoring

The Development Consent defines the following criteria:

"The Airblast overpressure level from blasting operations carried out in or on the premises must not exceed:

(a) 115dB (Lin Peak) for more than 5% of the total number of blasts during each reporting period; and

(b) 120dB (Lin Peak) at any time

At any residence or other noise sensitive receiver such as the St Clements Anglican Church and Camberwell Community Hall

The ground vibration peak particle velocity from blasting operations carried out in or on the premises must not exceed:

(a) 2mm/s for more than 5% of the total number of blasts carried out in or on the premises during each reporting period; and

(b) Exceed 10mm/s at any time

At any residence or other noise sensitive receiver such as the St Clements Anglican Church and Camberwell Community Hall."

It should be noted that there is a difference between the requirements of the Development Consent and the Sites Environmental Protection Licence (EPL). Condition No L7.3 of EPL 11879 requires the ground vibration peak particle velocity not to exceed **5 mm/s** for more than **5%** of blasts carried out on the premises within the 12 months of the reporting period, with no blast to exceed 10 mm/second.

Ashton has therefore adopted the following goals for ground vibration:

- Not more than 5% of blasts to exceed 2 mm/s; and
- No blast to exceed 10mm/s at the nearest residence.

However only exceedences of the EPL conditions will be immediately reportable to the EPA.

A total of 185 blasts took place during the reporting period. Comprehensive blast monitoring results are presented in **Appendix 4**.

The locations are detailed hereunder:

Table 31. LOCATION OF BLAST MONITORING STATIONS

Monitoring Station No	Location
1	Camberwell village (north)
2	St Clements Church

Table 32. SUMMARY BLAST MONITORING RESULTS

	St Clements Church		Camberwell Village	
	Vibration	Overpressure	Vibration	Overpressure
Results Captured	182	170	175	167
Data Recovery (%)	98%	92%	95%	90%
Results >2mm/s	8		8	
Results >2mm/s (%)	4.3%		4.3%	
Results >5mm/s	0		0	
Results >5mm/s (%)	0%		0%	
Results >10mm/s	0		0	
Results > 115dB		9		10
Results > 115dB (%)		4.9%		5.4%
Results > 120bB		2		2

Note: Results >115dB are inclusive of the results >120dB

At the end of the reporting period exceedence of the 5% criteria for overpressure was recorded at Camberwell Village with a result of 5.4%, it should be noted that these results are inclusive of the two shots included in the >120dB category. When rounded to whole numbers the result falls within the 5% criteria.

During the period, there were also two exceedences of the 120dBL overpressure limit, occurring at both St Clements Church and Camberwell Village. These exceedences were related to two blasts.

The first was a shot fired on the 26 April 2007 from which overpressure results were 122dBL at the Church monitor and 122dBL at the Village monitor. The high rreadings were the result of an unplanned change to the drill pattern. During the removal of the adjacent block the free face was over dug leaving a cavity in the wall. As a hole was planned to be drilled in this cavity the drill rig stepped back to the nearest flat ground and drilled an angled hole in order to reach the original hole toe. Due to the cavity and the inaccuracy of the angled hole the toe of the hole blew out of the free face when fired, creating the high overpressure reading. The corrective action implemented was that no angled holes, or any other changes to the designed pattern, are to be made without approval and replanning by the Drill and Blast Supervisor.

The second blast was fired on the 4 July 2007. Overpressure results recorded for the blast were 126dBL at St Clements Church and 132dBL in Camberwell Village. The high levels were the result of an unidentified exploration bore hole located within the shot. The borehole had

been covered over time but not sealed. A designed hole was drilled in close proximity to the borehole and when fired the energy from the explosives immediately escaped from the unsealed hole. The corrective action was to implement a procedure for identifying boreholes during the shot design phase. Since the implementation of this procedure, a number of boreholes have been identified within the shot design phase and the shot is designed to allow maximum distance from any loaded hole and a bore hole.

Both 120dB Overpressure exceedences were immediately reported to the DECC via phone and a detailed incident report sent. A letter of caution was received for the overpressure exceedence on the 26th April. While a penalty infringement notice and fine was received from The DECC for the blast overpressure exceedence on the 4 July 2007.

Table 33. OPERATIONAL CHANGES RELATING TO BLAST IMPACTS

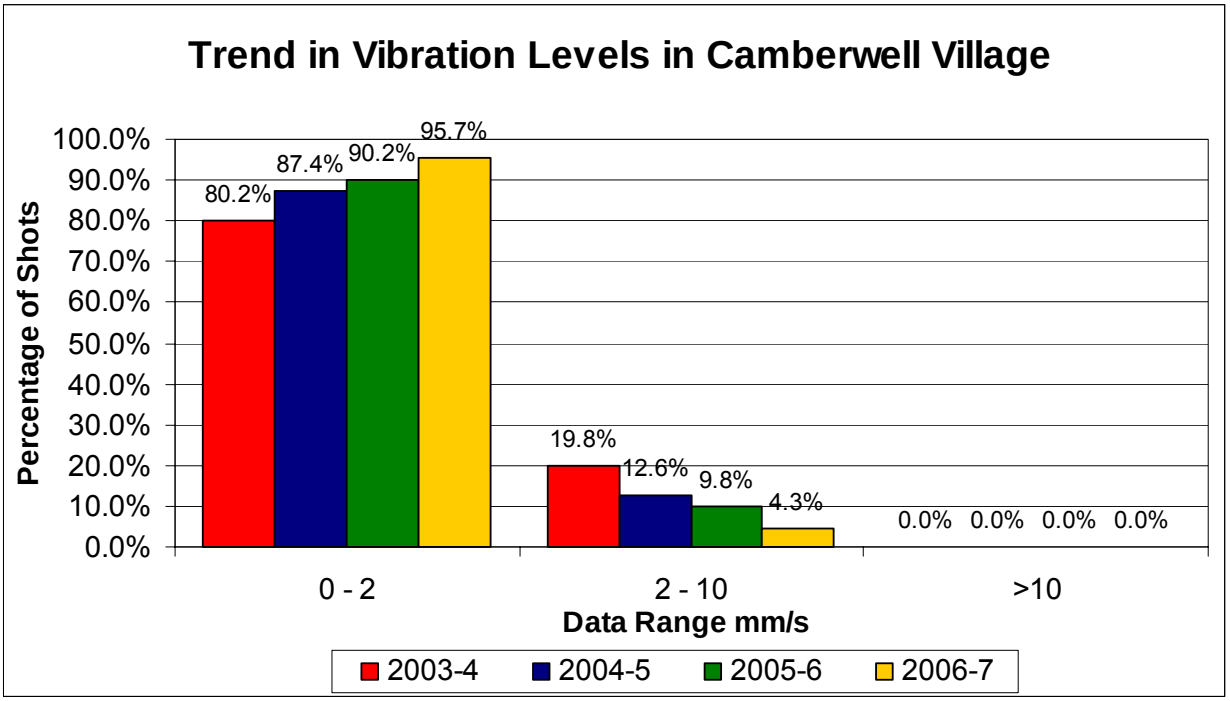
Date	Issue	Changes Undertaken
2/03/2007	Windy conditions not ideal for blasting	Blast cancelled
17/03/2007	Windy conditions not ideal for blasting	Blast cancelled
26/03/2007	Windy conditions not ideal for blasting	Blast cancelled
30/03/2007	Windy conditions not ideal for blasting	Blast cancelled
5/04/2007	Windy conditions not ideal for blasting	Blast cancelled
16/04/2007	Windy conditions not ideal for blasting	Blast cancelled
2/05/2007	Wind speeds increased with forecasts of strong winds after 12pm	Blast brought forward to 11am to prevent potential dust problems
22/05/2007	Windy conditions not ideal for blasting	Blast cancelled
29/05/2007	Windy conditions not ideal for blasting	Blast cancelled
31/05/2007	Windy conditions not ideal for blasting	Blast cancelled
1/06/2007	Wind conditions expected to increase by midday	Blast moved forward to 9am to reduce potential for dust impacts
17/07/2007	Windy conditions not ideal for blasting	Blast cancelled
1/08/2007	Windy conditions not ideal for blasting	Blast cancelled
8/08/2007	Windy conditions not ideal for blasting	Blast cancelled
10/08/2007	Windy conditions not ideal for blasting	Blast cancelled
20/08/2007	Windy conditions not ideal for blasting	Blast postponed to 4:30pm when wind speeds decreased
29/08/2007	Windy conditions not ideal for blasting	Blast cancelled
31/08/2007	Windy conditions not ideal for blasting	Blast cancelled

3.9.3 Long-term Blasting Trends

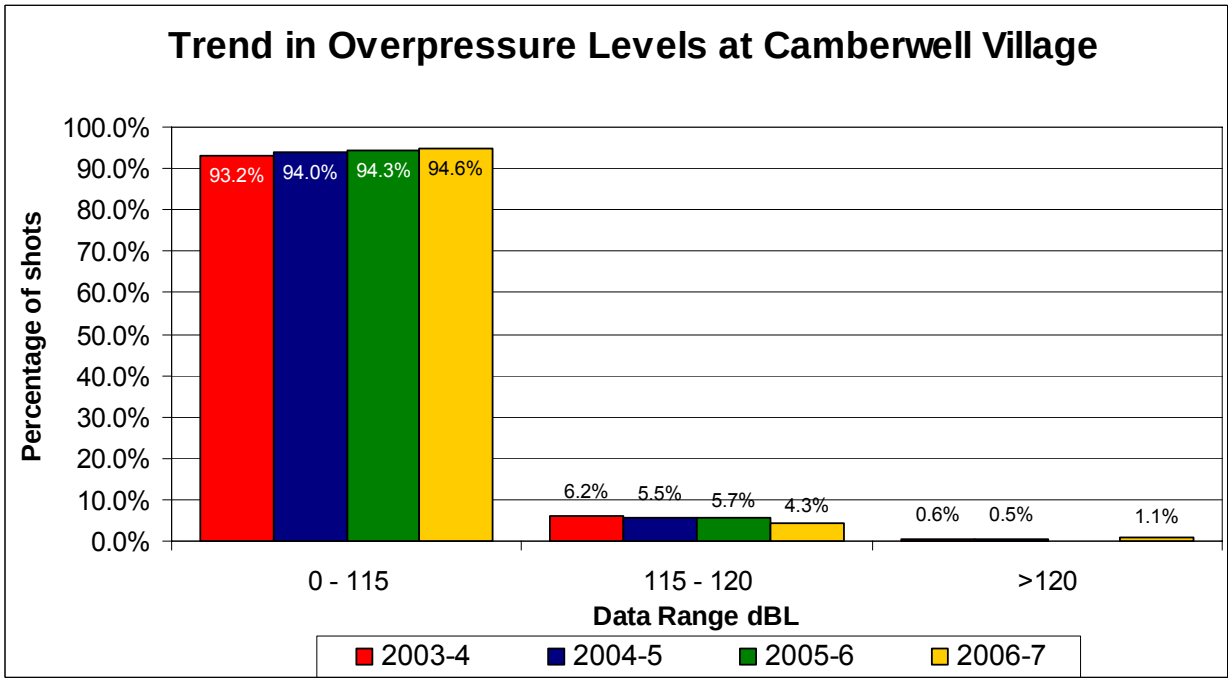
As indicated above Ashton Coal exceeded the DC and EPL criteria for overpressure in Camberwell Village where by no greater than 5% of blasts may exceed 115dBL at the nearest privately owned residence. Monitoring in Camberwell Village indicated that 5.4% of blasts exceeded 115dBL. This result includes the 120dBL exceedences, when these are excluded in the graphical presentations below the result is 4.3%. This is a significant improvement on

historic blast results. The figures below depict the trend in blast results over the past four reporting periods.

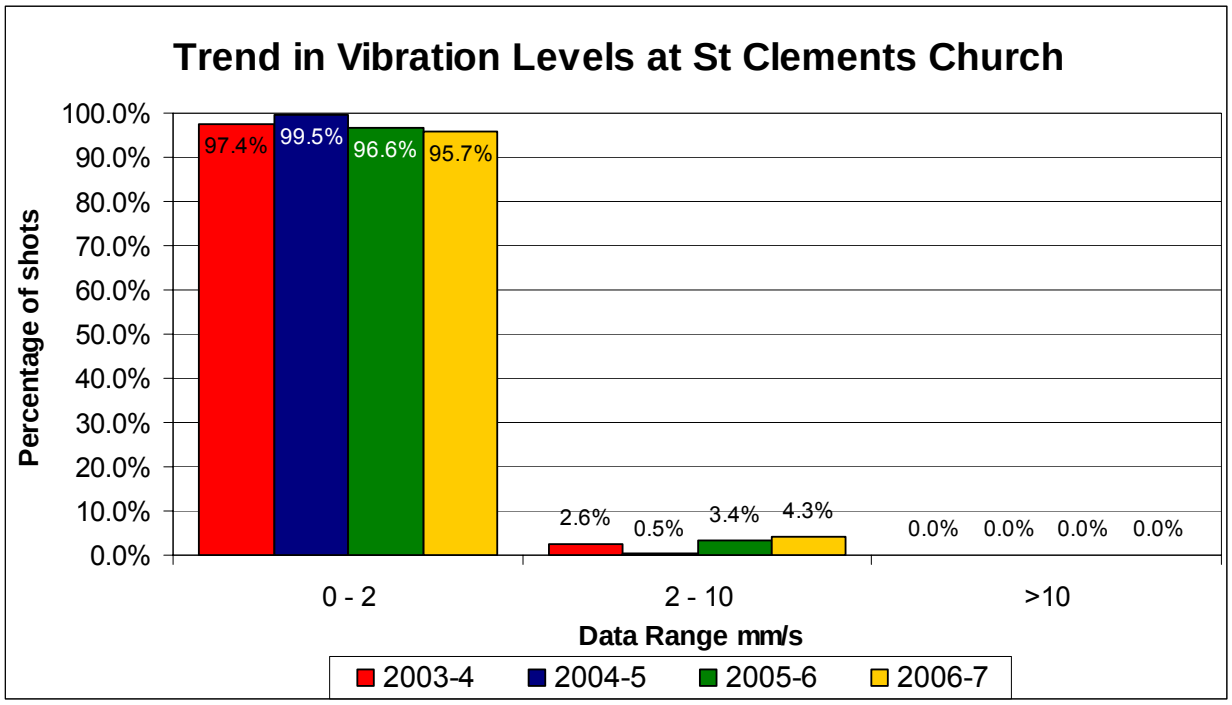
The trend in vibration levels at Camberwell Village is shown in the figure below. In 2006-07 vibration in Camberwell Village was in full compliance with the DC and EPL. This is the first year that full compliance has been achieved. To accomplish this, the MIC and the shot area of blasts located near the southern boundary was significantly decreased.



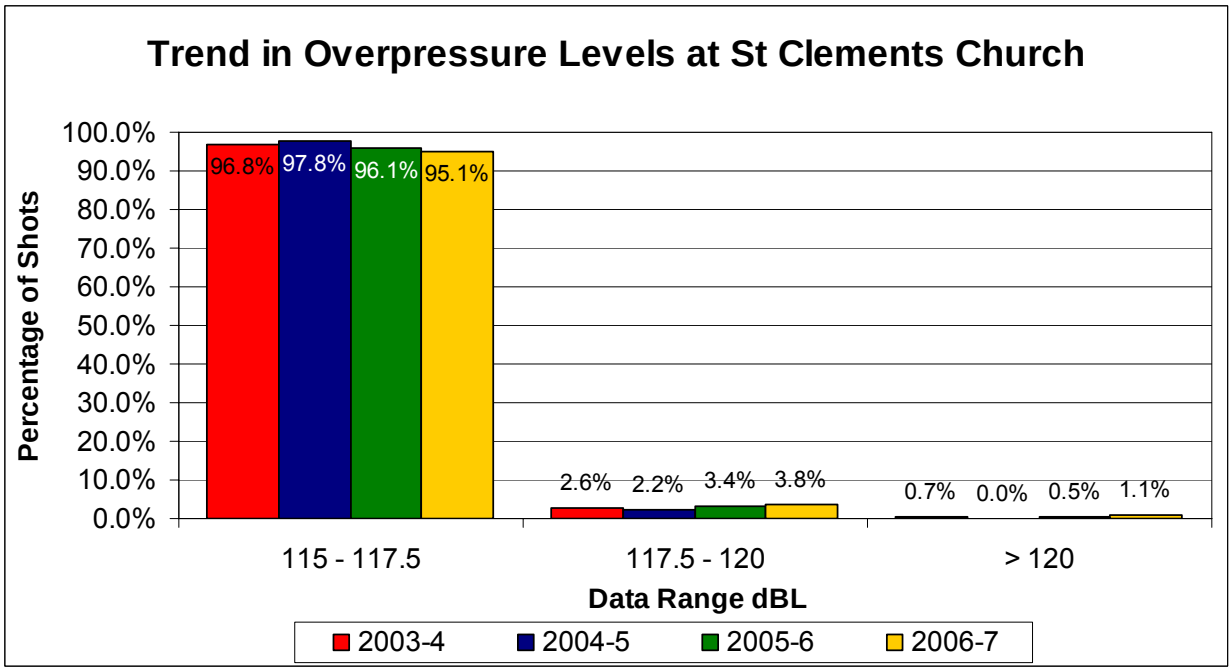
The figure below suggests that there has been a decrease in the overpressure results for the 2006-07 reporting period.



Vibration levels recorded at St Clements Church have increased slightly during the reporting period. Mining operations moved to the closet point to the Church resulting in the expected increase in vibration levels. Considering the decreasing distance from the church, changes to the shot design were implemented and full compliance with blasting criteria was maintained.



As with vibration, overpressure levels have increased slightly due to the closer proximity of mining during the reporting period. Overpressure levels remained in full compliance with DC and EPL criteria for the period.



3.10 OPERATIONAL NOISE

3.10.1 Noise Management

The Noise Management Plan for phase 2 of Ashton Coal's mining operations has been approved by the Department of Planning. As part of this plan a set of proactive and reactive mitigation measures have been identified to assist in reducing the noise impact from ACOL on the neighbouring residence. The inversion study conducted by Spectrum Acoustics during the previous reporting period indicated that even when a strong inversion (+7.5^{O}C/100m) is in place, trucks that are dumping on the northern side of the 135RL dump, Camberwell village falls in the acoustic shadow zone of the eastern emplacement. As a result ACOL has committed to restricting dumping at night to both the northern side and lower areas of the Open Cut, particularly when winds are emanating from the North West.

Major noise mitigation measures implemented during the reporting period include:

- A Sentinex real time noise monitor was installed in Camberwell Village during the reporting period. The Sentinex unit has the ability to separate the different sound waves collected at the microphone on a real time basis and identify the low frequency noise generally associated with mine noise. However due to the close proximity of the New England Highway this process has not been as effective as originally hoped. Further work is currently underway to be able to further separate the mine noise on a real time basis. The data is able to be analysed manually to determine the mine contribution and presents general noise trends. The system also continuously records noise. These files can be downloaded in 15min snippets and listened to, to determine noise contribution. The system has allowed ACOL to better manage the operations and determine the impact of different operational scenarios and weather conditions.

- A review of the noise model was conducted to redefine the acquisition and management zones for the operations. This was also undertaken in considering alternate mine plans being reviewed for the development of the new Mining Operations Plan.

- Intensive noise monitoring was undertaken prior to the commissioning of the new CHPP infrastructure, and following commissioning to identify any change in the operating noise levels for the operation.

- One new Cat 992G loader was purchased for operation on the ROM stockpiles. As this machine is quieter than the existing Cat 994 only the Cat 992 machines were operated on the OC stockpile after dark. After dark the Cat 994 was only able to be used on the Underground stockpile as it is located below ground level in the Arties pit.

- Construction of the eastern emplacement along Glennies Creek Rd as the priority dump location was undertaken during the period. The aim of this is to decrease the propagation of

noise down onto Camberwell village by building up the out dump first and providing a sound barrier to work behind.

There are also a number of standard operational controls under taken to reduce the noise impact on the Village of Camberwell, these are;

- During inversion and NW wind conditions (noise enhancing conditions) machinery is removed from the southern exposed faces and relocated to lower levels within the pit.
- After 6pm in the evening machinery is removed from the southern exposed faces and relocated to lower levels within the pit.

In addition to these standard practices a number of specific operational changes were made during the reporting period in response to either complaints or identified noise issues, these are presented in the table below.

Table 34. OPERATIONAL CHANGES REGARDING NOISE IMPACTS

Date	Issue	Changes Undertaken
15/04/2007	Noise complaint was received regarding a whining noise emitted from Ashton Coal	It was identified that the noise was coming from a rotary drill. The drill rig was shutdown
29/04/2007	Noise complaint received	Dumping operations on the Southern boundary were relocated to a lower area
30/04/2007	Noise complaint received regarding drill noise	Drill rig shutdown until repairs were finalised
2/05/2007	Noise complaint received regarding truck and dozer noise	Dumping operations on the Southern boundary were relocated to the northern face
3/05/2007	Noise complaint received	Dumping moved to lower areas
21/05/2007	Noise complaint received	Following inspection by Environmental Officer dumping operations were relocated
4/06/2007	Enquiry made from resident with agreement with ACOL regarding noise	Dumping operations moved from the Southern Bund Wall following inspection of Camberwell Village
3/08/2007	Noise complaint received following 7am start-up	Operations were kept at low levels throughout day to reduce noise levels
6/08/2007	Inspection of Camberwell Village indicated elevated noise levels due to dumping on Southern Bund wall	Dumping moved to northern face
8/08/2007	Noise complaint received	Haul traffic moved from Southern haul road to Northern haul road

3.10.2 Noise Criteria and Monitoring

Noise generated by the Ashton Coal Project must not exceed the limits specified in Condition 6.34 (Table 5), which is detailed hereunder, except as may be expressly provided by an EPA Licence,

Table 35. (DC TABLE 5) NOISE LIMITS (DB(A))

Location	Day	Evening	Night	
	$L_{Aeq(15\ minute)}$	$L_{Aeq(15\ minute)}$	$L_{Aeq(15\ minute)}$	$L_{Aeq(1\ minute)}$
Any residence not owned by the Applicant or not subject to an agreement between the Applicant and the residence owner as to an alternate noise limit	38	38	36	46

The above criteria do not apply when wind speeds are greater than 3m/s and/or there is an inversion in place of greater then 3^{O}/100m.

3.10.2.1 Noise Compliance Assessment Report

Condition 6.45 of the Development Consent requires a Noise Compliance Assessment Report to be submitted to DECC and DoP within 3 months of commencement of normal operations and on an annual basis thereafter in the AEMR. The Noise Compliance Assessment Report has been included in **Appendix 4**. The report summaries the findings of the quarterly attended noise monitoring conducted by Spectrum Acoustics as described below. As required by Development condition6.43e the ACOL noise model has been reviewed redefineing both the acquisition and management zones. Results of this review are presented in **Appendix 5**

Quarterly Noise Monitoring

Condition 6.44 of the Development Consent requires detailed noise monitoring surveys at potentially affected residences on a 3-monthly basis. All monitoring was performed by Spectrum Acoustics, utilising manned monitoring methods as specified in the EIS.

Quarterly noise monitoring results are as follows. Where exceedences of the EPL and DC criteria have occurred these are shown in red:

Table 36. 1ST QUARTER NOISE RESULTS NOVEMBER 2006 (20 & 21 NOVEMBER 2007):

ACP Noise Monitoring Results – 20 November 2006

Location	Time	dB(A) Leq	ACOL dB(A)	Comments	WS and Direction	Inversion °C/ 100m	ACP Noise Sources
Richards	6.05 pm	37	Inaudible	Mines other than ACP (37), birds (<30)	2.86 ENE	NA	
Stapleton	5.40 pm	43	31	Birds and insects (43), traffic on New England Highway (31), ACP (31)	3.55 ENE	NA	
Clark	5.20 pm	36	34	ACP (34), birds and insects (31)	3.99 ESE	NA	
Horadam	6.30 pm	55	Inaudible	Traffic on New England Highway (55), ACP inaudible	2.91 ENE	NA	
Moss	6.47 pm	58	Inaudible	Traffic on New England Highway (58), ACP inaudible	3.35 ENE	NA	
Richards	7.40 pm	38	Inaudible	Mines other than ACP (37), birds and insects (33)	3.13 ENE	NA	
Stapleton	7.17 pm	46	36	Birds and insects (45), train (38), ACP (36), traffic on New England Highway (30)	4.05 ENE	NA	
Clark	8.05 pm	39	36	ACP (36), insects (36), traffic on New England Highway (28)	2.66 ENE	NA	
Horadam	8.37 pm	52	Inaudible	Traffic on New England Highway (51), insects (46), ACP inaudible	1.97 ENE	NA	
Moss	8.21 pm	47	Inaudible	Traffic on New England Highway (46), insects (39), ACP audible (estimated contribution <35)	1.94 ESE	NA	
Richards	9.07 pm	40	Inaudible	Mines other than ACP (37), insects (36), train (30), ACP inaudible	1.44 ENE	NA	
Stapleton	9.24 pm	45	40	ACP (40), traffic on New England Highway (39), insects (39), train (32)	1.67 ENE	NA	
Clark	9.45 pm	44	39	Traffic on New England Highway (40), ACP (39), insects (38), train (33)	0.5 NNE	NA	

ACP Noise Monitoring Results – 21 November 2006

Location	Time	dB(A) Leq	ACOL dB(A)	Comments	WS and Direction	Inversion °C/ 100m	ACP Noise Sources
Richards	7.27 am	44	42	ACP (42), birds, insects and farm animals (37), traffic on New England Highway (35)	4.17 WNW	NA	
Stapleton	8.00 am	50	42	Traffic on New England Highway (47), birds and insects (45), exploration drill (43), ACP (42)	3.06 WNW	NA	
Clark	7.00 am	52	43	Traffic on New England Highway (48), birds and insects (45), exploration drill (44), ACP (43)	3.17 WNW	NA	
Horadam	8.20 am	52	Not measurable	Traffic on New England Highway (52), Birds and insects (38), wind on mic (40), ACP audible but not measurable	3.64 WSW	NA	
Moss	8.45 am	53	Inaudible	Traffic on New England Highway (52), wind on mic (45), ACP inaudible	2.52 WSW	NA	

During the day and evening of the 20 November winds were light to moderate from the North West. Noise monitoring recorded exceedences of Ashton Coal noise criteria on two occasions during this period. These were recorded during the 15 minute intervals beginning at 9:24pm (40dBL) and 9:45pm (39dBL). These exceedences were recorded when wind speeds had

dropped below 3m/s. Exceedences of Ashton Coal's noise criteria were also recorded during the morning survey period and 7:00am (43dBL) and 8:00am (42dBL) however this was when wind speed were greater than 3m/s. Under these conditions the noise criteria do not apply.

Table 37. 2ND QUARTER NOISE RESULTS FEBRUARY 2007 (28 FEBRUARY & 1 MARCH 2007):

ACP Noise Monitoring Results – 28 February 2007 – Day

Location	Time	dB(A) Leq	ACOL dB(A)	Comments	WS and Direction	Inversion °C/ 100m	ACP Noise Sources
Richards	12.05 pm	38	Inaudible	Wind on microphone (38), ACP inaudible	6.2 WNW	< +3	
Stapleton	2.52 pm	47	41	Traffic on New England Highway (43), ACP (41), wind (40).	4.7 NNW	< +3	Mine hum
Clark	12.25 pm	45	Not measurable	Road work on Glennies Creek Rd (44), wind (40), ACP audible not measurable	4.0 WNW	< +3	
Horadam	3.30 pm	47	Inaudible	Traffic on New England Highway (47), ACP inaudible	3.3 WNW	< +3	
Moss	3.12 pm	49	Inaudible	Traffic on New England Highway (49), ACP inaudible	2.9 WNW	< +3	

ACP Noise Monitoring Results – 28 February 2007 – Evening

Location	Time	dB(A) Leq	ACOL dB(A)	Comments	WS and Direction	Inversion °C/ 100m	ACP Noise Sources
Richards	6.00 pm	51	Inaudible	Birds and insects (50), mines other than ACP (40), traffic on N.E. Highway (30)	4.3 ESE	< +3	
Stapleton	6.38 pm	59	Inaudible	Birds (59), traffic on N.E. Highway (42), wind (40), ACP inaudible	6.1 ESE	< +3	
Clark	6.22 pm	45	Inaudible	Birds and insects (41), traffic on N. E. Highway (40), wind (38), ACP inaudible	5.3 ESE	< +3	
Horadam	6. 57 pm	48	Inaudible	Traffic on N. E. Highway (47), wind (40), ACP inaudible	5.3 ESE	< +3	
Moss	7.21 pm	50	Inaudible	Traffic on N. E. Highway (50), wind (40), ACP inaudible	3.9 ESE	< +3	

ACP Noise Monitoring Results – 28 February 2007 – Night

Location	Time	dB(A) Leq	ACOL dB(A)	Comments	WS and Direction	Inversion °C/ 100m	ACP Noise Sources
Richards	3.31 am	43	Inaudible	Mines other than ACP (43), insects (30), ACP inaudible	1.0 WSW	< +3	
Stapleton	3.58 am	40	<30	Traffic on N.E. Highway (37), mines other than ACP (37) insects (29), ACP (<30)	0.6 WSW	< +3	
Clark	3.05 am	41	Barely audible	Insects (37), mines other than ACP (37) and (30), ACP barely audible	0.2 WSW	< +3	
Horadam	4.35 am	40	Inaudible	Mines other than ACP (39), insects (33), ACP inaudible	1.1 N	< +3	
Moss	4.55 am	55	Inaudible	Traffic on N.E. Highway (55), mines other than ACP (36)	1.6 N	< +3	

During the 15 minute survey at 2:52pm, Ashton Coal noise levels were recorded above criteria (41dBA) however at the time wind speeds were above 3m/s (4.7m/s) where by the noise criteria do not apply.

Table 38. 3RD QUARTER NOISE RESULTS APRIL 2007 (26 & 27 APRIL):

ACP Noise Monitoring Results – 26 April 2007 – Day

Location	Time	dB(A) Leq	ACOL dB(A)	Comments	WS and Direction	Inversion °C/ 100m	ACP Noise Sources
Richards	3.40 pm	45	Faintly audible	Wind on mic. (45), birds (30), ACP dozer faintly audible	3.3 ESE	< +3	Dozer
Stapleton	4.40 pm	45	Inaudible	Traffic on New England Highway (44), wind (40), ACP inaudible	4.7 ESE	< +3	
Clark	4.05 pm	41	Inaudible	Traffic on New England Highway (40), wind (40), wind (32), ACP inaudible	3.7 ESE	< +3	
Horadam	5.02 pm	47	Inaudible	Traffic on New England Highway (47), ACP inaudible		< +3	
Moss	3.15 pm	55	Inaudible	Traffic on New England Highway (55), ACP inaudible	4.1 ESE	< +3	

ACP Noise Monitoring Results – 26 April 2007 – Evening

Location	Time	dB(A) Leq	ACOL dB(A)	Comments	WS and Direction	Inversion °C/ 100m	ACP Noise Sources
Richards	7.40 pm	44	Inaudible	Mines other than ACP (42), train (40), ACP inaudible	2.2 ESE	< +3	
Stapleton	8.45 pm	42	Inaudible	Traffic on N.E. Highway (42), wind (30), ACP inaudible	1.4 ESE	3.1	
Clark	8.03 pm	37	Inaudible	Mines other than ACP (31), traffic (31), train (30), insects (25) ACP inaudible	1.9 ESE	< +3	
Horadam	7.17 pm	42	Inaudible	Traffic (42), occ. impacts from other mines (30), ACP inaudible	2.1 ESE	< +3	
Moss	7.00 pm	52	Inaudible	Traffic (52), other mines (30), ACP inaudible	2.9 ESE	< +3	

ACP Noise Monitoring Results – 27 April 2007 – Night

Location	Time	dB(A) Leq	ACOL dB(A)	Comments	WS and Direction	Inversion °C/ 100m	ACP Noise Sources
Richards	4.10 am	38	Inaudible	Other mines (38), insects (26), ACP inaudible	1.4 SSE	< +3	
Stapleton	3.07 am	40	Inaudible	Traffic (40), other mines (30), ACP inaudible	1.6 SSE	< +3	
Clark	2.50 am	34	Inaudible	Other mines (31), traffic (31), ACP inaudible	1.2 SSE	< +3	
Horadam	3.45 am	47	Inaudible	Traffic (47), dog (35), ACP inaudible	1.5 SSE	< +3	
Moss	3.25 am	45	Inaudible	Traffic (44), other mines (37), ACP inaudible	1.7 SSE	< +3	

Throughout the survey period winds were from the South East. No exceedences were recorded during the day, evening and night-time circuits.

Table 39. 4TH QUARTER NOISE RESULTS AUGUST 2007 (31 AUGUST):

ACP Noise Monitoring Results – 31 August 2007 – Day

Location	Time	dB(A) Leq	ACOL dB(A)	Comments	WS and Direction	Inversion °C/ 100m	ACP Noise Sources
Richards	3.30 pm	43	Not measurable	Wind on mic (43), ACP audible not measurable	8.6 WNW	< +3	Mine hum
Stapleton	4.12 pm	>45	Not measurable	Wind on mic (>45), ACP audible not measurable	8.7 WNW	< +3	Mine hum
Clark	3.55 pm	>45	Not measurable	Wind on mic (>45), ACP audible not measurable	9.3 WNW	< +3	Mine hum
Horadam	4.30 pm	>45	Inaudible	Wind on mic (>45), ACP inaudible	7.6 WNW	< +3	n/a
Moss	4.47 pm	>45	Inaudible	Wind on mic (>45), ACP inaudible	6.9 WNW	< +3	n/a

ACP Noise Monitoring Results – 31 August 2007 – Evening

Location	Time	dB(A) Leq	ACOL dB(A)	Comments	WS and Direction	Inversion °C/ 100m	ACP Noise Sources
Richards	7.20 pm	42	40	ACP (40), train (38)	5.5 WNW	< +3	Dozer, haul trucks, mine hum
Stapleton	8.01 pm	49	49	ACP (49)	2.2 NNW	< +3	Dozer, haul trucks, mine hum, reverse alarms, impacts
Clark	7.44 pm	49	49	ACP (49)	4.2 NNW	< +3	Dozer, haul trucks, mine hum, reverse alarms, impacts
Horadam	8.20 pm	54	48	Traffic (53), ACP (48)	2.3 NNW	< +3	Haul trucks, mine hum
Moss	8.38 pm	54	45	Traffic (53), ACP (45), insects (43)	2.2 NNW	2.86	Haul trucks, mine hum

ACP Noise Monitoring Results – 31 August 2007 – Night

Location	Time	dB(A) Leq	ACOL dB(A)	Comments	WS and Direction	Inversion °C/ 100m	ACP Noise Sources
Richards	10.03 pm	38	Inaudible	Other mines (36), farm animals (35), ACP inaudible	1.6 WSW	6.08	
Stapleton	10.47 pm	47	<30	Traffic (47), other mines (35), ACP (<30)	3.9 WSW	4.65	Mine hum
Clark	10.30 pm	41	<30	Traffic (40), other mines (35), ACP (<30)	3.5 WSW	7.16	Mine hum
Horadam	11.05 pm	45	Inaudible	Traffic (45), ACP inaudible	3.1 WSW	4.65	
Moss	11.22 pm	48	Inaudible	Traffic (48), ACP inaudible	3.1 WNW	1.25	

The 31 August was dominated by strong North Westerly winds. These conditions are extremely noise enhancing for Ashton Coal. During the day and night period Ashton Coal was either inaudible or to low to measure. However during the evening period exceedences of Ashton Coal's noise criteria were recorded. As shown in the above table Ashton noise contribution was above criteria at 4 of the 5 sites at 7:44pm (49dBA), 8:01pm (49dBA), 8:20pm (48dBA) and at 8:38pm (45dBA). Wind speeds dropped at 8:00pm to below 3m/s. As a result only the results recorded at 8:01pm, 8:20pm and 8:38pm are exceedences of Ashton Coal's noise criteria. During this evening period when noise impacts tend to be higher due to atmospheric conditions, dumping at high levels and on the southern boundary is restricted.

3.11 VISUAL, STRAY LIGHT

Lighting issues on site are managed through the Lighting Management Plan (LMP).

Three types of lighting are utilised on site. They are:

- Fixed lighting utilised to illuminate the areas arrange the CHPP and open cut workshop;
- Mobile lighting plants utilised to illuminate the open cut, the overburden dump, the tailings disposal area and some maintenance operations; and
- Lighting equipped on mobile plant.

Fixed lighting is generally high pressure sodium vapour lights, which minimise the glare usually associated with “white” lights. Two lights (one at the CHPP and one at the open cut workshop) have been re-directed to minimise impact on traffic on the New England Highway.

Historically Mobile lighting plants have been the source of lighting complaints, particularly those stationed on the Eastern Emplacement Area. During the reporting period only five complaints regarding lights on the Eastern Emplacement Area were received. Four of these were received in September 2006. Following rectification of the dumping area no further complaints were received regarding this work area. The remaining lighting complaint was received in May 2007. Positioning of lighting plants to reduce off-site impacts is included in ACOL’s induction process to ensure employees and contractors are aware of potential impacts to Ashton’s neighbours.

3.12 ABORIGINAL HERITAGE

In June 2007 Ashton Coal submitted an application to secure a Heritage Impact Permit under *Section 90* of the *NPW Act 1974.* The permit application was submitted with a detailed management plan that aimed to where possible preserve and manage artefacts and only collect where necessary. While preservation is the ongoing aim of ACOL, due to the nature of subsidence impacts and the potential for emergency remediation works being required due to safety related issues the submission was for a blanket S90 over the entire UG area. It was requested that the life of the Permit be granted for the maximum of 10 years subject to extension for the life of the underground mine. The total time for completion of underground activities is anticipated to be 18 years. The underground workings will require four passes to access the various seams thus the subsidence impacts will be cumulative over time. It is proposed that the Aboriginal Heritage Management Plan will be review at the completion of extraction of each seam.

The management plan was developed in conjunction with relevant community groups, Ashton Coal and Angela Besant of Insite Heritage. The plan will be revised at the end of mining of each seam, by all parties and any subsequent adjustments made to the management plan will be

lodged with the DECC. The plan aims to minimise impact on Aboriginal relics and the integrity of sites while retaining the maximum possible site/s in situ.

The management plan may result in the surface collection of some artefacts which may be impacted by ripping of cracks due to subsidence. There may also be some limited excavation of sub surface deposits where necessary. The artefacts collected as part of this process will be redeposited within the relevant site and an updated site card lodged with DECC.

This management plan is applicable to the subsidence zone for longwall panels 1-4 only. Sites and areas of potential archaeological deposits located outside of the subsidence zone are not covered by this management plan.

As at the end of the reporting period the S90 had not been granted. ACOL is currently undergoing consultation with the DECC and Aboriginal Groups in an attempt to secure the S90. All sites are currently being monitored and managed in accordance with the management plan and as at the end of the reporting period no sites have been impacted by Longwall subsidence.

Consultation with the Indigenous Community

Most of the consultation during the reporting period involved the development of the management plan for the Underground area.

The following groups were contacted via telephone and invited to attend a site meeting at Ashton Coal on 28th February 2007 to discuss the archaeological subsidence management plan for Longwalls 1-4 and visit some of the recorded sites:

- Junburra Consulting formerly Upper Wonnarua Tribal Council, Wonnarua Tribal Council and Upper Hunter Wonnarua Council.
- Lower Wonnarua Tribal Council
- Aboriginal Native Title and Heritage Consultancy (formerly Combined Council of Hunter Valley Traditional Owners)
- Wonnaruah Local Aboriginal Land Council
- Wonnaruah Nation Aboriginal Corporation
- Attempts were made to contact Mr Barry Anderson (Lower Wonnarua Tribal Council) but were unsuccessful.
- Wonnarua Nation Aboriginal Corporation were not contactable and it is understood that they are not currently involved in cultural heritage management. In lieu of their involvement Wattaka Wonnarua Cultural Consultants were also consulted as the group's members were formerly part of the Wonnarua Nation group.

Representatives of the following groups attended the on site meeting on 28 February 2007:

- Upper Wonnarua Tribal Council
- Aboriginal Native Title & Heritage Consultancy
- Ungooroo Aboriginal Corporation and Wattaka Wonnarua Cultural Consultants were briefed in a separate meeting on 13 March 2007.

Copies of the draft Archaeological Subsidence Management Reports were forwarded to the following groups for their review:
Junburra Consulting

- Lower Wonnarua Tribal Council
- Aboriginal Native Title Heritage Consultants
- Wonnaruah Local Aboriginal Land Council
- Wattaka Wonnarua Cultural Consultants
- Ungooroo Aboriginal Corporation
- Wanaruah Aboriginal Custodians Corporation

There was support from all groups regarding the draft report. There was however additional consultation with Wanaruah Aboriginal Custodians Corp Ms Barbara Foot who rang to discuss the management plan. Angela Besant met with Barbara Foot to discuss the management plan. Mrs Foot agreed with the strategy of the plan however had concerns about a bowl in a tree and possible fish trap that she remembered being on the site when surveyed with Dan Witter. Angela Besant followed up the location of a bowl in a tree, and possible fish trap. It was communicated back to Mrs Foot that these sites would not be impacted by any remediation work as the fish trap was located within the creek and the creeks are not being undermined. The tree identified by Barbara Foot was not likely to be impacted because trees are not usually impacted by cracking of the scale anticipated in this stage of the project. Angela Besant agreed to take Mrs Foot and her son David on to the site when the next lot of work was being undertaken on the site, so that Mrs Foot can see how well or otherwise the methodology is working.

Consultation is still ongoing in relation to the most appropriate means of distributing benefits to the Wonnarua People. Following extensive negotiations with interested parties, Ashton commissioned the Native Title Claimant to identify the descendents of Sarah Madoo and to consult with them on the most appropriate mechanisms for distribution of benefits. This work is still being undertaken.

3.13 NATURAL HERITAGE

No items of natural or European heritage were identified during the EIS process as being likely to be disturbed by mining operations.

3.14 SPONTANEOUS COMBUSTION

A Spontaneous Combustion Management Plan has been prepared and implemented on site.

There has been no spontaneous combustion incidences within the ACOL Mining leases reported during the year or during the mine site history of operation.

During the reporting period ACOL have taken on the responsibility of an area of Macquarie Generations Ravensworth Void 4 area for the disposal of Tailings. This area has significant spontaneous combustion instances and is managed under the Tailings Emplacement Operations Plan. Part of this management includes regular monitoring by CHPP personnel and detailed survey of the area to record the location and severity of spontaneous combustion points. Photographic records of each area are also included in the report. The first survey was undertaken in July 2007 and identified 36 separate instances of spontaneous combustion within ACOL's area of responsibility. A strategy is currently being developed to control some of the more critical areas.

3.15 BUSHFIRE

A Bushfire Management Plan (BMP) has been developed and implemented on site. This BMP requires that a risk assessment be undertaken in consultation with the Singleton Rural Fire Service to assess the risks of fire breaking out, or entering on to the site, as well as the development of risk reduction measures. This risk assessment was completed prior to the commencement of the 2003 / 2004 fire season and all agreed actions have been implemented.

There were no outbreaks of bushfire on the project lands during this reporting period.

3.16 MINE SUBSIDENCE

The seam section mined at Ashton Underground Mine ranges along the length of Longwall 1 from 2.6m at the Southern start of the panel to 2.8m at the Northern end of the panel. The seam dips to the South West at a grade of up to 1 in 10. The overburden ranges in thickness from 65m at the start of the panel to a maximum of 90m and reduces to 35m at the Northern end of the panel. The final extraction void is nominally 216m with chain pillars 25m rib-to-rib at 100m cut-through centres.

Longwall operation commenced in February 2007 and was completed in October 2007. The progress of longwall extraction is shown in **Figure 17**.

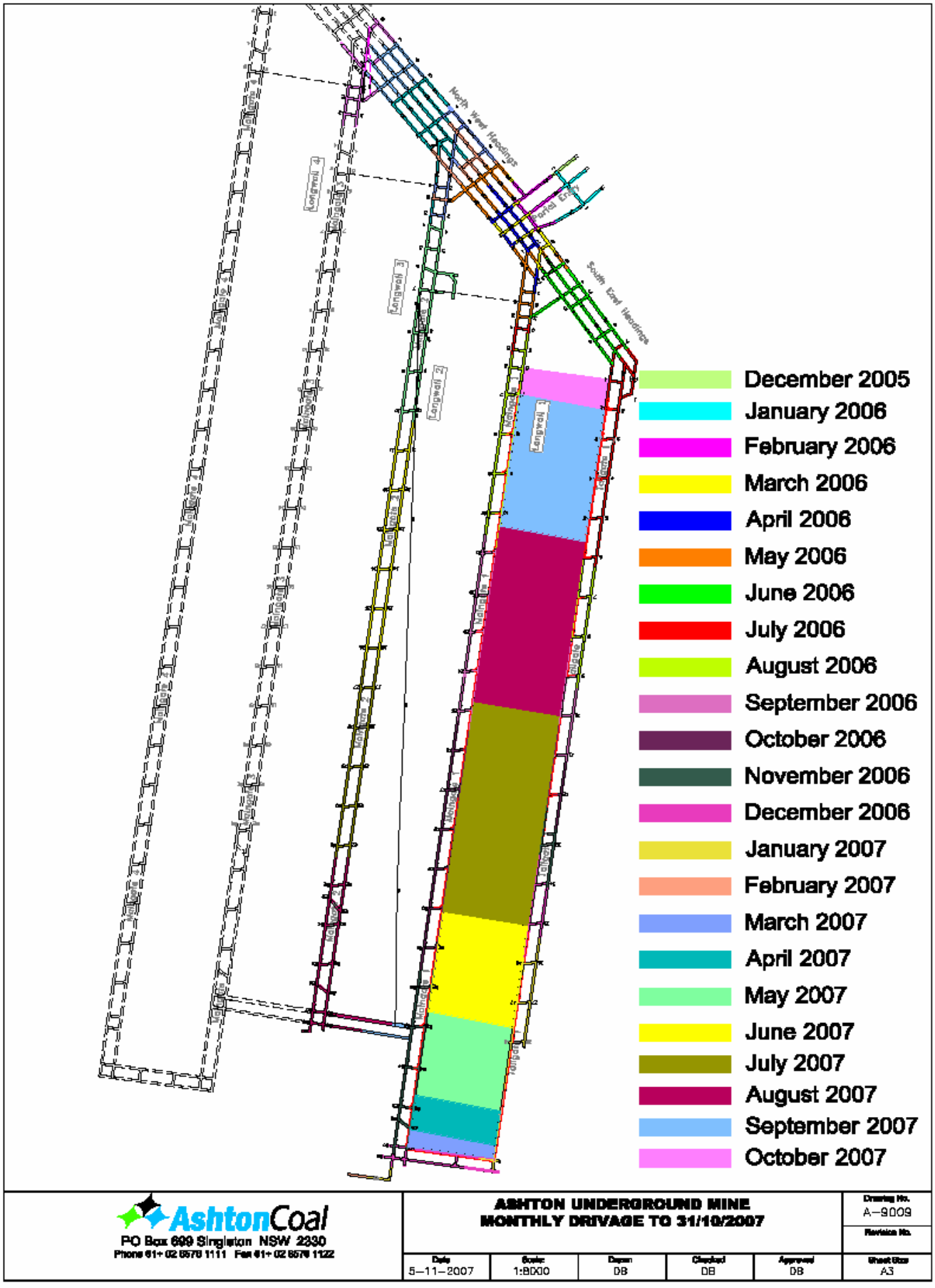


Figure 17. Progression of Longwall Extraction

3.16.1 Monitoring

Ashton Coal has monitored the subsidence movement on the surface during the extraction of Longwall 1 using two longitudinal subsidence lines over the start and finish of the panel, seven cross lines along the Tailgate side of the panel extending down the embankment towards Glennies Creek, and a diagonal line extending from the North East corner of the Longwall 1 to the New England Highway. A plan showing the location of the subsidence line is included as **Figure 18**.

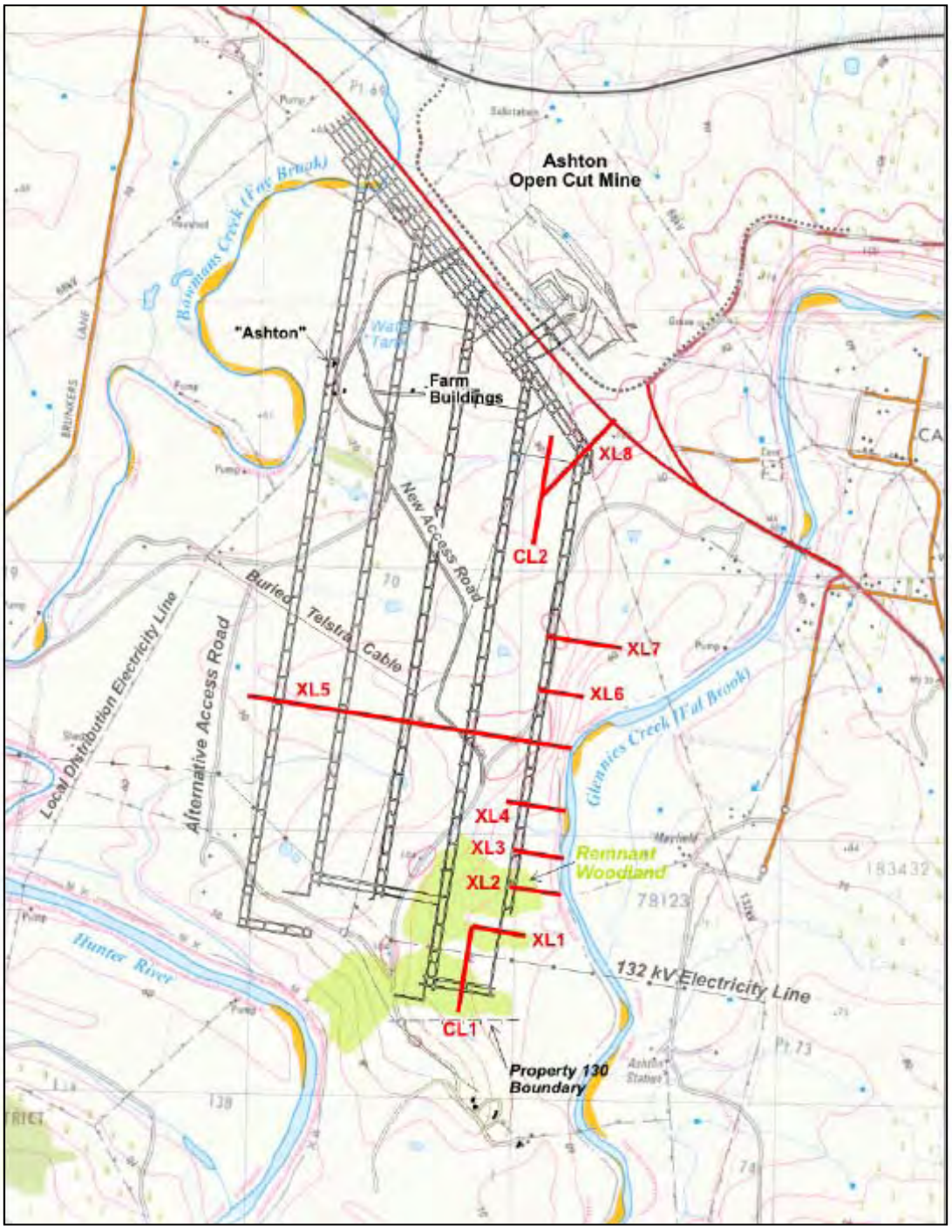


Figure 18. Subsidence Monitoring Cross Lines

The following table outlines the maximum subsidence parameters recorded during regular survey of subsidence lines as the longwall passed each location.

Table 40. SUBSIDENCE LEVELS

	Maximum Predicted	Maximum Measured	
North End of LW1		**CL2**	**XL8**
Subsidence (mm)	1800	1528	1500
Tilt (mm/m)	244	100	103
Horizontal Movement (mm)	>500	476	500
Tensile Strain (mm/m)	73	40	15
Compressive Strain (mm/m)	98	28	27
Remainder of LW1		**CL1**	**XL5**
Subsidence (mm)	1700	1318	1377
Tilt (mm/m)	141	60	75
Horizontal Movement (mm)	300-500	480	384
Tensile Strain (mm/m)	42	49	24
Compressive Strain (mm/m)	56	23	16

Additional monitoring was undertaken of fixed stations on 11kV powerlines crossing the longwall panel near the start of the panel. Survey monitoring was supplemented with visual monitoring of subsidence areas, powerlines and the adjacent steep slope. Subsidence information was reported and distributed to DPI Minerals, Energy Australia, and an adjacent land owner.

3.16.2 Impacts

Initial caving of LW1 was slow to develop due to the integrity of the immediate longwall roof resulting in delayed onset of surface subsidence. Surface cracking appeared and progressed over the chain pillars, however no direct connective cracking was identified. Cracking was apparent along the length of the Maingate however a large portion of Tailgate displayed no visible cracking. Cracks through the Voluntary Conservation Area were rehabilitated using a small excavator and skid steer loader. Cracked areas in open fields were remediated using a D6 dozer with ripping tynes. The extent of subsidence remediation at the goaf edge is outlined in **Figure 19**.

The Access Road to Property 130 was cracked and a diversion was put in place during the impact period until the road was repaired. Small farm dams in areas of shallow cover were dewatered before the longwall passed beneath and following subsequent rain events were observed to refill and hold water.

In general the maximum subsidence movements detected were less than those predicted. There was no indication of any significant lateral movement of the steep slope adjacent Glennies Creek or of the New England Highway cutting.

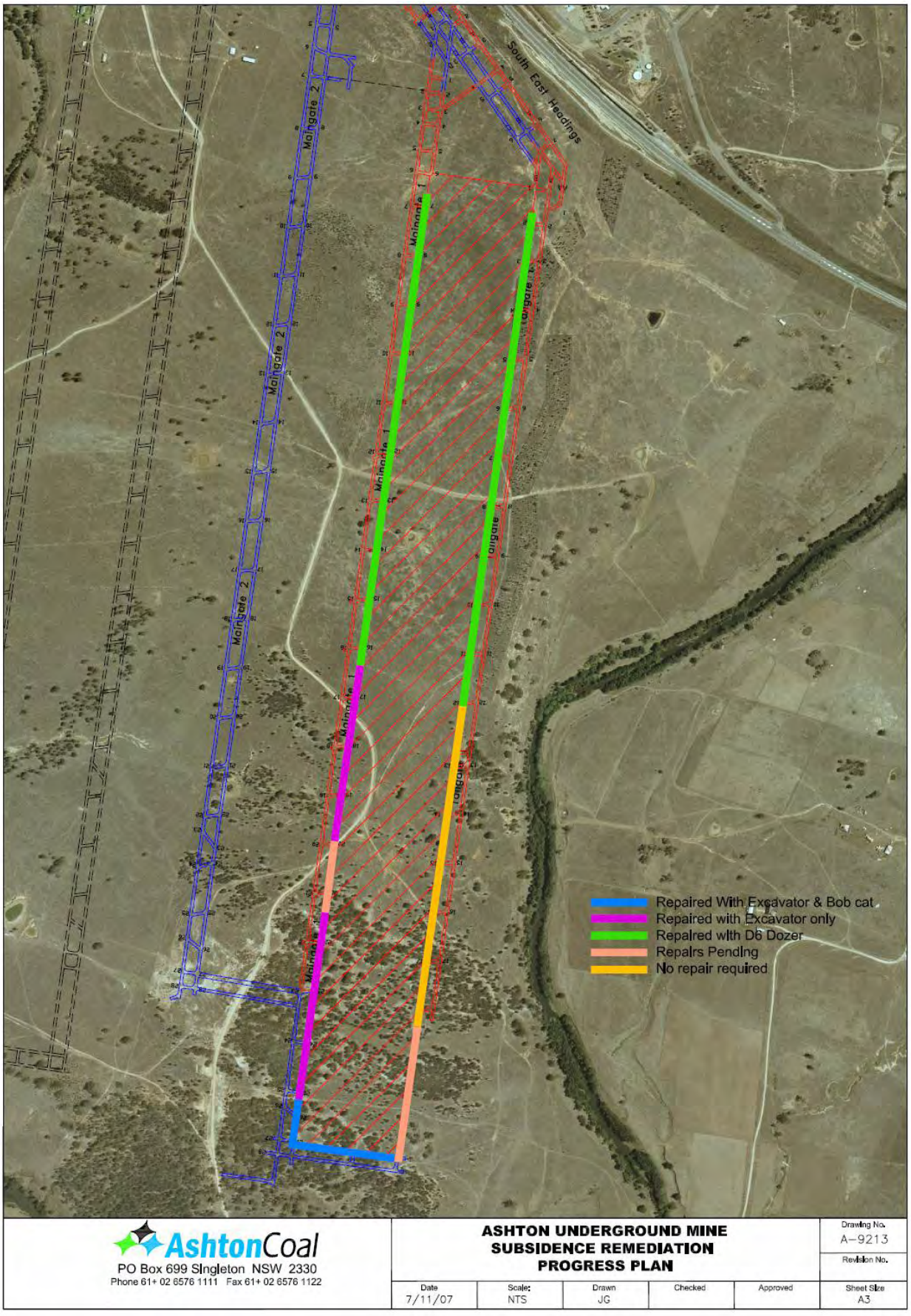


Figure 19. Subsidence Remediation Progress

Figure 20. Subsidence Cross Line XL5

Figure 23. Subsidence Crack

Figure 21. Subsidence Crack

Figure 24. Woodland Subsidence Remediation

Figure 22. Open Pasture Subsidence Remediation

3.17 HYDROCARBON CONTAMINATION

There have been several minor hydrocarbon spillages during the reporting period. All spillages were contained and promptly collected with appropriate absorbent products prior to any hydrocarbons moving offsite or out of immediate work areas. Any impacted soils were also collected.

3.18 METHANE DRAINAGE/VENTILATION

Mine ventilation has been occurring since May 2006 and the ventilation quantity is currently approximately 100 cubic metres per second with methane concentrations of 0.15% to 0.25% exhausting from the main fan, and nil Carbon Dioxide emissions.

During the reporting period a ventilation bore was constructed at the end of LW1. The borehole ventilates the maingate travel roadway inbye of the longwall face. This ensures a safe atmosphere and therefore safe use of the maingate roadway for pumping and general maintenance operations. The ventilation borehole will serve up to four Longwall panels.

The original plan for ventilation was to install an auxiliary fan and layflat ducting operating at the outbye end of the longwall face and force ventilating the maingate travel roadway inbye the longwall face. This system, although practical, is far more susceptible to failure due to unplanned and planned power outages, thereby causing the roadway to be unventilated. The ducting system is more complex and as such less reliable a ventilation system for the roadway. Ventilation using the borehole is therefore the preferred method. Originally ducting was considered the preferred option for ventilation of the first panels and that the ventilation borehole would not be required until subsequent panels. Reasons for the bore hole ventilation option to now be the preferred ventilation option include:

1. The shortening of LW1 panel has resulted in the proposed ventilation hole being able to be constructed within Ashton land ownership rather than private property.

2. A geotechnical exploration borehole in the vicinity of proposed ventilation hole shows favourable geotechnical conditions and low water make, hence improving circumstances for hole.

3. Mining conditions in the area show low water make which similarly show good conditions for borehole.

4. Due to the sandstone seam split it was previously uncertain where the faceline was going to be installed. Therefore, until recently it was difficult to assess feasibility and location of borehole.

Nil methane drainage activities (except one unsealed in-seam long hole which is exhausting methane) are in place or planned in the next 12 months.

3.19 PUBLIC SAFETY

There is a boundary fence around the open cut operations with signs warning that the area is subject to mining. Only one access road to the site is in general use and all visitors are directed to the ACOL office for further directions on the roads that they are permitted to access. All other vehicular access points are locked. A gate system that remains closed outside normal office hours has been installed to prevent ad hoc public access.

The safety of public travelling on trains or along the access roads alongside the railway has also been an area of focus. Procedures are in place to ensure the Main Northern Railway is clear of trains before blasting within 500 metres of the rail line, and to take possession of the rail line if blasting within 200 metres. This has occurred for every relevant blast in the reporting period.

The Camberwell common has also been closed to the public when blasting within 500m. Livestock and persons are moved to areas outside the blasting area.

The safety of public travelling along the New England Highway has been of major consideration when blasting within 500m. Due to the progression of Open Cut mining to the western portion of the pit a number of highway closures were undertaken during the reporting period. Highway closures are designed to impact on motorists for a maximum of 2 – 3 minutes.

The safety of public travelling along Glennies Creek Road has been a major consideration during the reporting period, with numerous closures of the road when blasting occurs within 500 metres. The Glennies Creek Road Environmental Bund has further isolated mining activities from the publics view increasing safety levels along the road.

An unexpected localised increase in seam dip on the western flank of the Camberwell Anticline has resulted in some failure of the southern highwall. Coupled with some increase in blasting induced ground vibration minor cracking has been observed in the pavement and surrounds of Glennies Creek Road. As discussed earlier in the document Glennies Creek Rd has now been diverted in this area.

Since the commencement of subsidence over the longwall area signage has been erected on the Right of Way (ROW) leading to property 130 on Ashton Property. An alternate access road has also been established and road closure signs are placed when possible subsidence impact may be experienced on the ROW. As detailed in the approved SMP Road Management Plan and Property 130 Management Plan, the tenants and owner of Property 130 are notified when any such impacts are expected to be experienced.

3.20 OTHER ISSUES AND RISKS

No other risks or issues have been identified during the reporting period.

4.0 COMMUNITY RELATIONS

4.1 ENVIRONMENTAL COMPLAINTS

195 complaints were received during the reporting period. Changes have been made to the complaints procedure over the past 12 months and are detailed below. The complaint procedure is as follows:

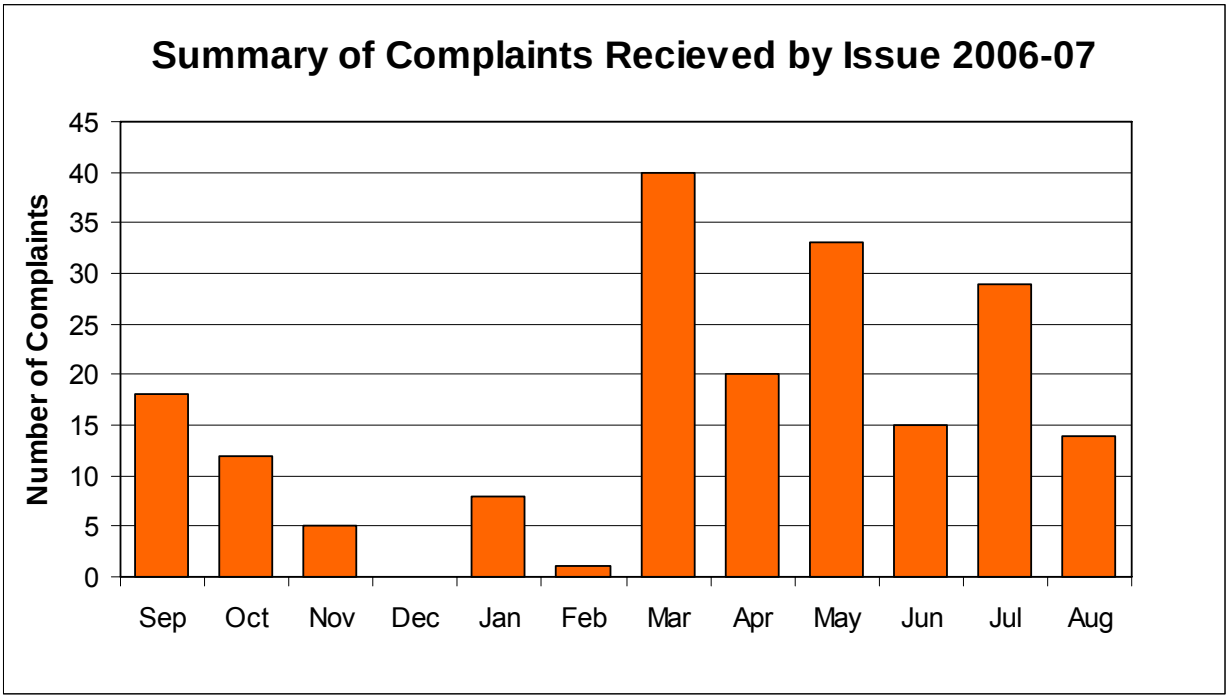
- During office hours, complaints are taken by one of the operations Environmental Management Team, investigated, acted on and the complainant is contacted back within 24 hours if required.
- During Out of Office Hours the dedicated telephone line is directed to the call centre.
- An Operator in Melbourne takes the call from the complainant and details the relevant information including the complaint particulars and the contact details of the complainant.
- The call centre Operator then calls the mine and contacts either the Open Cut Examiner (OCE) or the Maintenance Supervisor (MS) and passes on the details of the complaint.
- A text message is also sent to the Environment and Community Relations Manager and the Environmental Coordinator to ensure the complaint is responded to.
- The OCE or MS fill out an Out of Hours Complaint form which addresses the issue, possible solutions and final actions taken.
- If this occurs during the week, this sheet is given to the EO for a response within 24 hours.
- If this occurs on the weekend, the sheet is filed for Monday morning and the OCE or MS rings the EO with information about the complaint. The EO then rings the complainant within 24 hours.
- A monthly complaints report is emailed from the call centre to the environmental management team at the end of each month.

Community members who have agreements with Ashton Coal are able to lodge enquiries in the same way as a complaint. Their Enquiries are responded to in exactly the same way as a complaint and are logged and filed as an Enquiry.

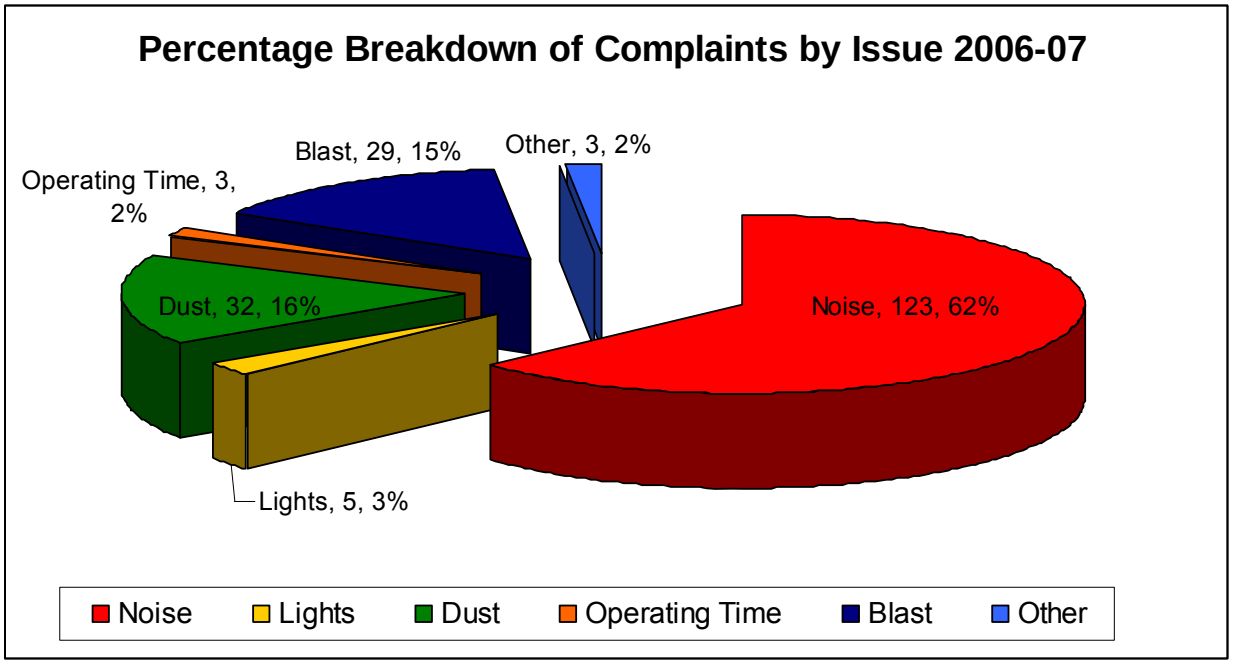
Complaints received during the reporting period were as follows:

Table 41. SUMMARY OF COMPLAINTS RECEIVED 2006 - 2007

Month	Noise	Lights	Dust	Operating Time	Blast	Other	TOTAL
Sep	9	4	4	0	1	0	**18**
Oct	2	0	2	1	6	1	**12**
Nov	2	0	2	0	1	0	**5**
Dec	0	0	0	0	0	0	**0**
Jan	1	0	7	0	0	0	**8**
Feb	1	0	0	0	0	0	**1**
Mar	26	0	10	1	2	1	**40**
Apr	17	0	0	0	3	0	**20**
May	27	1	1	0	3	1	**33**
Jun	14	0	0	0	1	0	**15**
Jul	15	0	2	1	11	0	**29**
Aug	9	0	4	0	1	0	**14**
TOTAL	**123**	**5**	**32**	**3**	**29**	**3**	**195**



The percentage breakdown by issue of the total complaints for the period is detailed below:



Noise complaints increased during the autumn and winter months. This corresponds to the onset of north westerly winds and consistent inversions during the colder nights. Ashton Coal commit to reducing the impact of noise from the Open Cut operations by restricting dumping after 6:00pm to lower, northern dumps. During favourable wind directions, ACOL have been focusing dumping operations on the southern wall. By completing this section to 135 RL it will provide a barrier between the remaining dumping operations and Camberwell Village for the remainder of the pit life.

During the reporting period quieter equipment has replaced some of the noisier trucks and loaders. A Cat 992G wheeled loader was purchased to load the CHPP module 1 ROM coal Hopper. This has allowed the Cat 994 wheeled loader to relocate to the Underground ROM stockpile which is concealed by the box cut highwall and the stockpile. The sound power level Leq for the Cat 992G is significantly lower at 112dBL compared to the Cat 994 at 120dBL.

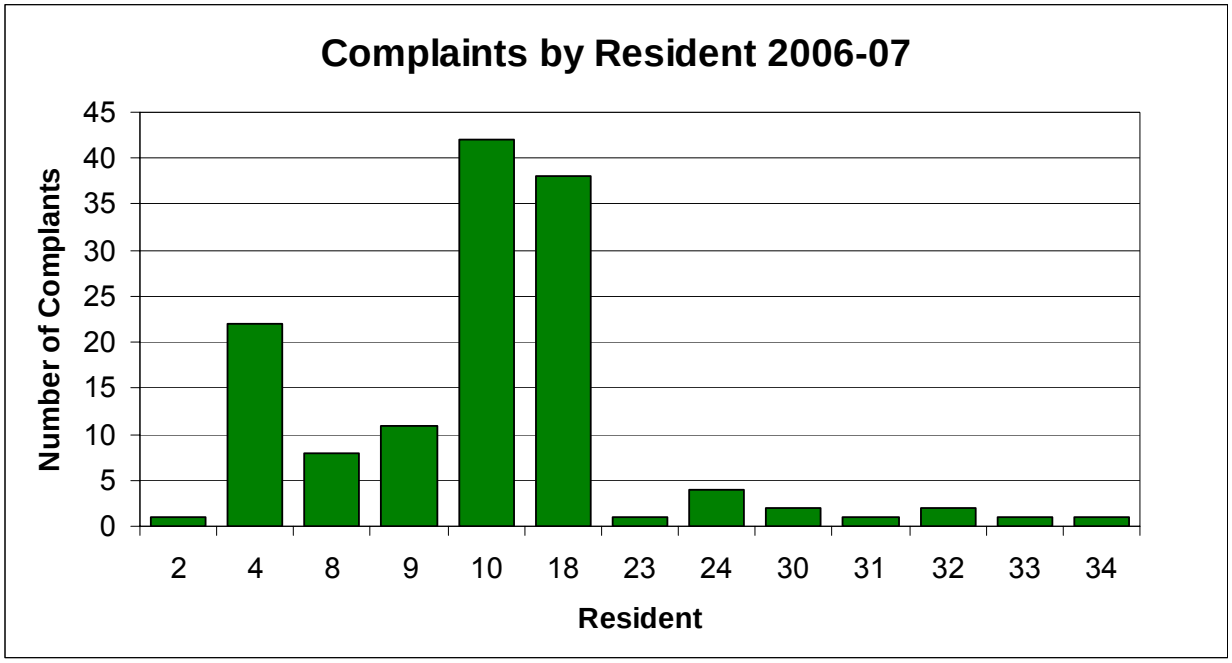
ACOL has also removed four Cat 777 (Leq 116) trucks from site and replaced them with two Cat 789 (Leq 114) trucks. The Cat 789's were chosen due to the increased capacity and the lower noise levels.

A number of complaints have specified noise from dozer operations. As a result ACOL have locked third gear out on all dozers. By reducing the maximum speed of the machines the noise associated with track clatter is reduced.

The figure below shows the number of complaints received from residents within Camberwell Village. Complaints received via the Department of Environment and Climate Change are not shown. A total of 61 complaints were received by the DECC during the reporting period. The

majority of these complaints corresponded directly to complaints received through the Ashton Coal complaints line.

42 of the 195 complaints were received from Resident 10. ACOL have now established a compensation agreement with this resident. Following the finalisation of the agreement complaints from this household have significantly decreased.



4.2 COMMUNITY LIAISON

On top of the community newsletters and Community Consultative Committee meetings Ashton Coal undertook to complete a community program aimed at reducing the impacts further from Coal mining within the area. Ashton Coal conducted a community survey during September to November 2006 to allow Senior Management at Ashton Coal gain an understanding of the issues and concerns faced by the residents of Camberwell Village. To achieve this, 5 teams were created each comprising of two members of Management. These teams were allocated 10-12 residents including both privately owned and rented properties. Each team contacted the residents to organise an appropriate time to participate in the community survey which comprised a questionnaire and general discussion. Of the 58 residents approached 27 agreed to take part in the survey.

The feedback received during the surveys provided the participants from Ashton with great insight into the problems affecting Camberwell Village and what issues need to be addressed to improve the relationship between the mine and the community. From the responses to the questionnaire it was found that dust impacts from the Open Cut mining in the Hunter Valley was the greatest concern, in particular its impacts on tank water. Although there are no health impacts from airborne dust entering household water tanks it was clear that the best way to relieve the impacts of the mining in the Hunter Valley on Camberwell was to clean both the

tanks and rooves of the privately owned houses in Camberwell. Furthermore any water lost during the cleaning process was replaced using town water from Singleton. Waterboys were also installed in households that requested them. The Waterboy is a 2m poly tube with a float attached to one end. The other end attaches to the internal outlet of the water tank. This

provides a floated extension to the outlet which forces water to be drawn from the top of the water column rather than the bottom. The figure below shows the Waterboy setup.

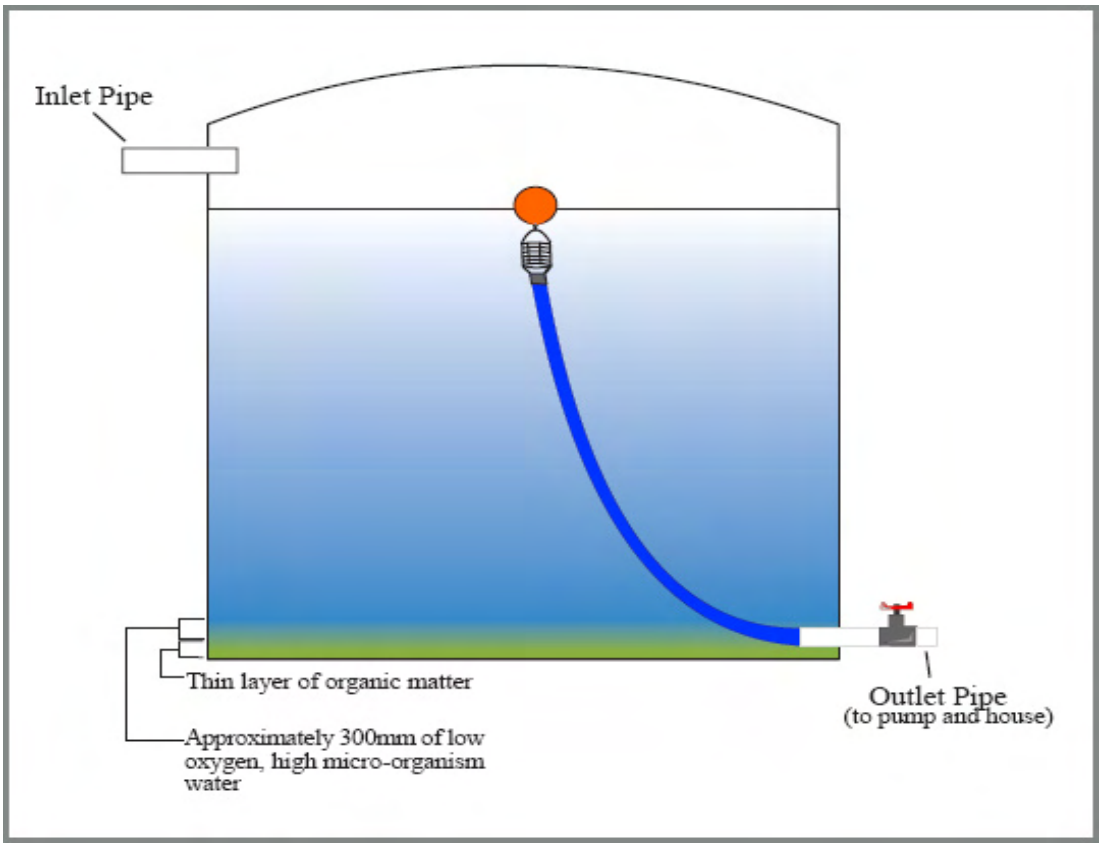


Figure 25. Water Boy Diagram

At the end of the community program, out of 30 privately owned households, all were contacted and offered to participate in the program. Of these, 24 received tank cleaning, 14 received roof cleaning and 9 had Waterboys installed.

CCC meetings were conducted quarterly during the reporting period. CCC members were provided with information on the project as well as updates on environmental monitoring and any future projects.

The CCC met on the following dates:

Table 42. COMMUNITY CONSULTATIVE COMMITTEE

Meeting Date	Items Addressed
5th September 2006	DoP presentation of audit report, Environmental Monitoring, Project Update.
5th December 2006	Environmental Monitoring, Glennies Creek Road, Subsidence Management Plan, CHPP construction Section 94 contribution.
6th March 2007	Peter Dundon groundwater presentation, Environmental Monitoring, Longwall Instillation, CHPP construction, Glennies Creek Rd, Mac Gen Tailings dam project.
19th Jun 2007	Environmental Monitoring, Mac Gen Taillings Dam commissioning, Section 94 contribution, CHPP module 2 commissioning.

The CCC has been actively involved in questioning our commitment to the village as well as asking questions on blast fume, stone dusting, water restrictions, rehabilitation, dust generation during blasts and expanding on the option for the S94 funding to be used for a community shed and BBQ's at the church. Vandalism at the Church forced a change in direction for the S94 funds towards Church improvements and Camberwell signage.

A series of newsletters have also been distributed amongst the local community detailing progress on the Ashton site. The dates of these newsletters were as follows:

Table 43. COMMUNITY NEWSLETTERS

Newsletter No	Issued	Contents
24	Sept 2006	Underground and Open cut update, Mac Gen update, Blasting Fume, CHPP update, Enviro and Rehab update.
25	Jan 2006	Community survey results and trends, Slope Stability Radar information, Glennies Creek Rd diversion, Mac Gen tailings project, CHPP construction, Rehabilitaion Environmental Monitoring Open Cut and Underground updates
26	May 2006	OGM rehabilitation trial, rehabilitation and enviro monitoring update, CHPP upgrade, Glennies Creek Rd Diversion and Mac Gen Tailings Project update, Open Cut and Underground updates.

During the reporting period donations from Ashton Coal to St Clements Church allowed the replacement of all windows around the Church. Future donations will provide for the painting and repair of the Church window frames.

5.0 REHABILITATION

5.1 OPEN CUT

Drought conditions continued throughout the reporting period. A brief respite was received during the winter months where consistent rainfall fell between May and August. Unfortunately this included a severe storm event which caused wide spread flooding throughout the Hunter Valley. Throughout the period a total of 18.5 hectares was rehabilitated with a further 1.5 hectares receiving maintenance works. As part of the rehabilitation works, a trial program was setup covering a total of 6 hectares. The trials aim is to assess the benefit of Organic Growth Medium (OGM) as a soil conditioner. The trial is covered in more depth below. The different processes used during the reporting period are as follow:

- Woodland Rehabilitation – a total of 5 hectares of the Eastern Emplacement area was rehabilitated as woodland. This was achieved through direct seeding. 3 of the 5 hectares formed part of the OGM trial. The remaining two hectares of native woodland was seeded directly into overburden to prevent the competition from weed species such as galenia. Gypsum was added to these areas as well to improve soil structure. At the end of the reporting period seedlings had emerged in these areas.

- Pasture Rehabilitation – a total of 13.5 hectares of pasture was seeded. 3 hectares formed part of the OGM trial. Pasture seed was applied with fertiliser at a rate of 50 and 300 kg/ha respectively. Gypsum was also spread at a rate of 4t/ha.

- Maintenance Works – a total of 1.5 hectares of existing rehabilitation was re worked due to the infestation of weeds and poor establishment of pasture species. Maintenance works were conducted in the same fashion as the pasture rehabilitation above.

- Tubestock Planting – a total of 1600 hybrid eucalypts (*E camaldulensis* X *E grandis* and *E camaldulensis* X *E globulus*) were planted as tree screens along Glennies Creek Road. 300 native species were also planted where small shrub species were required due to overhead powerlines. Watering of these species was conducted for the initial 2 months to allow establishment.

Figure 26. Wonnarua planting tubestock along Glennies Creek Road

Figure 27. Hybrid Eucalypt tubestock planted in April 2007

5.2 REHABILITATION TRIALS AND RESEARCH

In conjunction with Integra Coal, ACOL has committed to undertaking a rehabilitation trial aimed at assessing the benefits of using the soil conditioner Organic Growth Medium (OGM) as a substitute for traditional fertilisers and additives and to determine the ideal application rate for OGM on topsoil and overburden areas.

Background

Global Renewables Ltd (GRL) has integrated several world class technologies in the development of their Urban Resource – Reduction, Recovery and Recycling (UR-3R) Facility at Eastern Creek. The processing plant enables municipal solid waste and commercial waste to be used as a renewable urban resource for composts and soil conditioners. OGM is product certified under AS4454 for Composts and Soil Conditioners and has New South Wales Department of Primary Industries CA05 certification for phylloxera. To date OGM has been shown to benefit agricultural vegetation production and is expected to provide increases in vegetation growth on rehabilitated areas.

Materials and Methods

The ACOL OGM trial was conducted on the Eastern Emplacement Area. The OGM was applied to two substrates. The first consists of 100mm of topsoil spread across shaped overburden. The second comprises relatively inert overburden material. Consistent with Integra Coal Operations, two vegetation types (pasture and native tree seed mix) were applied to the two substrate types. The pasture mix consists of a number of exotic grass species aimed at establishing ground cover for future grazing land use. The tree mix includes a range of native Eucalypt, Acacia and Casuarina species consistent with the local habitat.

A total of 12 plots each 0.5 hectares in area are included in the trial. **Table 44** shows the breakdown of the plots into substrate, seed mix and OGM application rate. Figure 19 shows the location of trial plots. Due to a shortage of material and tight time frame for seeding plots 1, 2, 5, 6, 7, 8, 9 and 10 were not incorporated within the trial.

Table 44. SUBSTRATE, SEED MIX AND OGM APPLICATION RATES BY PLOT NUMBER

Application Rate	Topsoil		Overburden	
	Pasture	Native Trees	Pasture	Native Trees
0 (control)	3	4	16	15
50t/ha	11	18	20	14
100t/ha	17	12	13	19

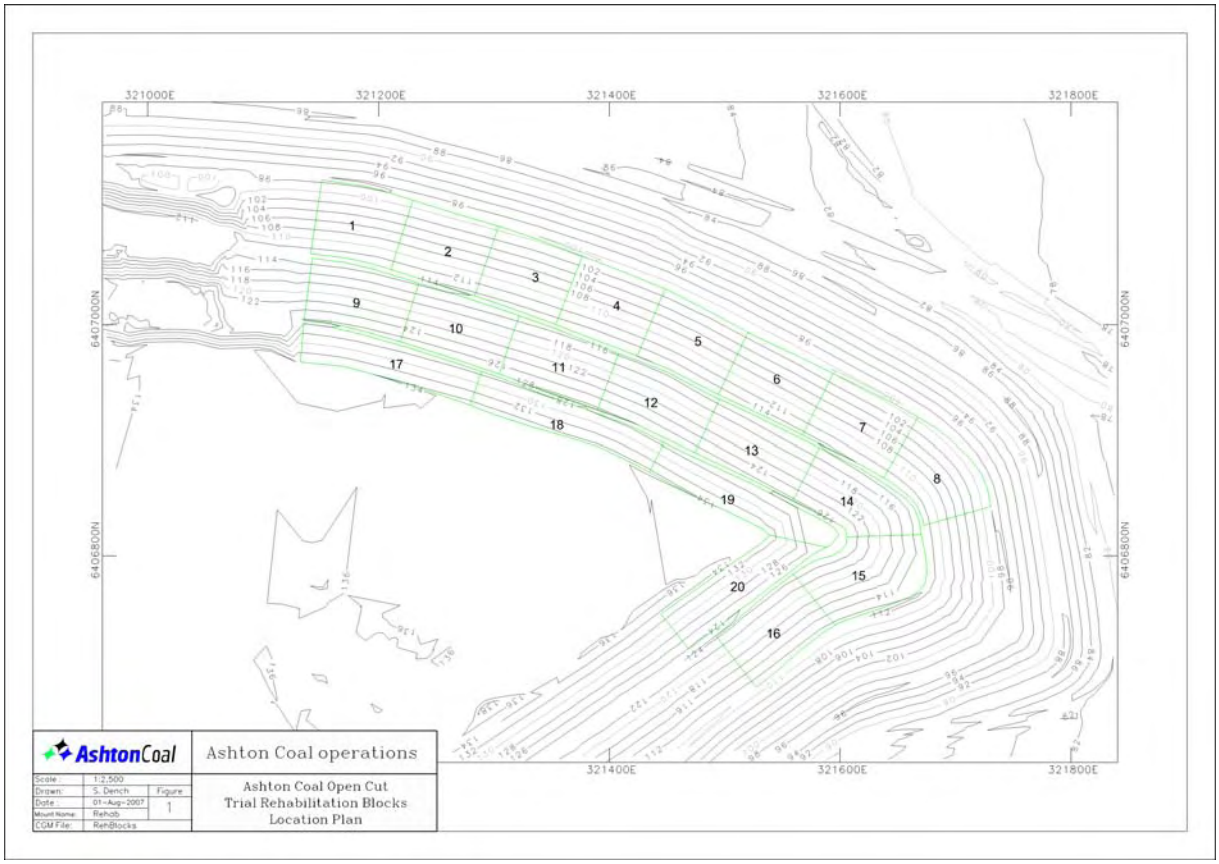


Figure 28. OGM Rehabilitation Trial Plots

The rehabilitation works were conducted using the following procedure:

1. Ripping to a depth of 300mm
2. Topsoil spreading to 100mm thickness
3. Spreading of OGM
4. Rock raking
5. Seed spreading

By rock raking after the OGM had been spread, it allowed the OGM to be incorporated in the top layer of soil.

Ongoing Monitoring and Proposed Outcomes

Monitoring of the trial plots will be undertaken over the next 2 years to identify the benefits of the OGM as a soil conditioner. Monitoring will include: biomass; species diversity; percentage cover and soil properties of the plots. Success of the OGM as a soil conditioner will rely on an increased biomass and percentage vegetation cover. The OGM is also expected to improve soil structure and quality to justify its replacement of fertilisers and soil additives such as gypsum.

Figure 29. OGM Stockpile and OGM spreader in action

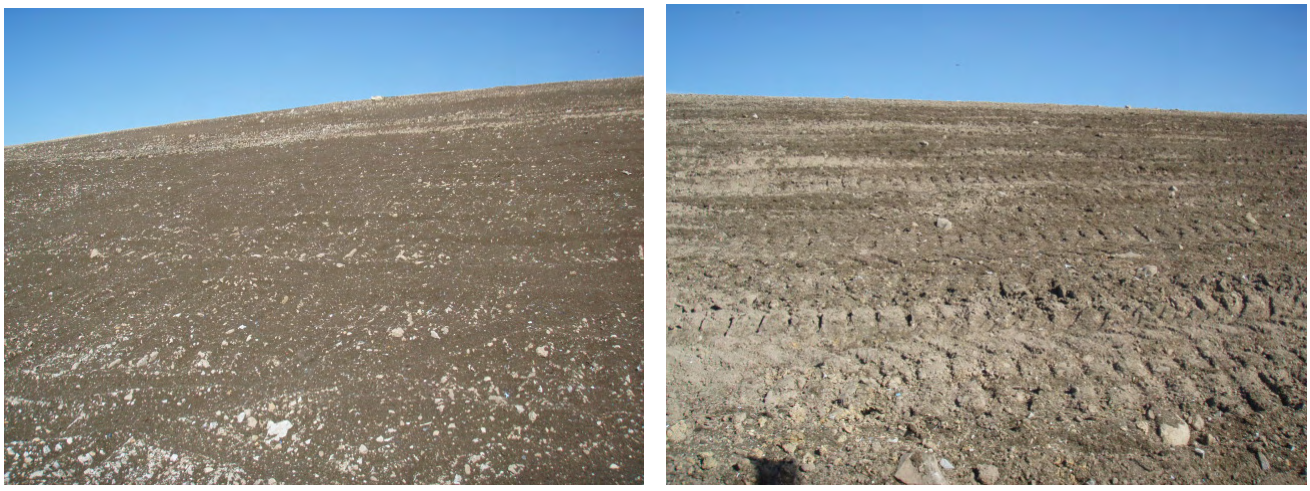


Figure 30. OGM spread at 100t/ha and incorporated using a rock rake

Figure 31. Block 17, 2 months after seeding and 4 months after seeding

5.3 FURTHER DEVELOPMENT OF THE FINAL REHABILITATION PLAN

The Mine Operations Plan is currently being reviewed with a new final rehabilitation plan being developed. This review includes slight changes to the final overburden emplacement topography to provide some visual landscape relief and the creation of several water management structures on the overburden emplacement.

5.4 REHABILITATION SUMMARY

Table 45. REHABILITATION SUMMARY 2006 – 2007

	Area Affected / Rehabilitated (hectares)		
	To Date	**Last Report**	**Next Report (estimated)**
A: MINE LEASE AREA			
Mine Lease 1529	128.7	128.7	128.7
Mine Lease 1533 (part overlies ML 1529)	883.4	883.4	883.4
B: DISTURBED AREAS			
B1 Infrastructure area	47.8	45.2	47
B2 Active Mining Area (Excluding B3 – B5)	25.4	22.8	25
B3 Waste Emplacement (Active / unshaped)s	59.1	54.3	60
B4 Tailings emplacements (active / uncapped)	0	0	0
B5 Shaped waste emplacement (awaits final vegetation)	22.1	40.5	16
ALL DISTURBED AREAS	154.4	162.8	148
C. REHABILITATION PROGRESS			
C1 Total Rehabilitated Area (except for maintenance)	39.9	21.4	75.9
D. REHABILITATION ON SLOPES			
D1 10 to 18 degrees	39.87	21.37	75.9
D2 Greater than 18 degrees	0	0	0

Table 46. REHABILITATION SUMMARY 2006- 2007

	Area Affected / Rehabilitated (hectares)		
	To Date	Last Report	Next Report (estimated)
E. SURFACE OF REHABILITATED LAND			
E1 Pasture and grasses	28.7	15.2	43
E2 Native forest / ecosystems	6.2	6.2	30
E3 Plantations and crops	0	0	5
E4 Other (includes nonvegetative outcomes)	3 (tree seed areas)	0.2	0

Table 47. MAINTENANCE ACTIVITIES ON REHABILITATED LAND

NATURE OF TREATMENT	Area Treated (ha)		Comment / control strategies / treatment detail
	Report Period	Next Period	
Additional erosion control works (drains re-contouring, rock protection)	1.0	1.0	Contour drains of the eastern emplacement area were reworked to provide more stable structures and an increased water capacity.
Re-covering (detail – further topsoil, subsoil sealing, etc)	1.5	10	Maintenance areas east of the southern drop structure were re-covered with topsoil prior to reseeding.
Soil treatment (detail – fertiliser, lime, gypsum, etc)	20	40	OGM application within trial area. Gypsum and fertiliser treatment to remaining rehabilitation areas.
Treatment / Management (detail – grazing, cropping, slashing, etc)	0	0	
Re-seeding / Replanting (detail – species density, season, etc)	1.5	5	Reseeding of Eastern Emplacement Area east of the southern drop structure.
Adversely Affected by Weeds (detail – type and treatment)	8	15	*Galenia spp*. On Glennies Creek Environmental Bund and around the infrastructure area
Feral animal control (detail – additional fencing, trapping, baiting, etc)			Kangaroo Cull conducted during December 2006. Stock proof fencing of the Conservation area was completed.

6.0 ACTIVITIES PROPOSED IN THE NEXT AEMR PERIOD

6.1 EXPLORATION

Anticipated Exploration for period to Aug 2008

Mining Lease 1533

- Open cut - No activity planned
- Underground - Planned to drill 15 holes (5 cored and 10 open holes)

Exploration Licences 5860 & 4918

- Exploration commencing with 16 holes planned (7 cored and 9 open holes)

6.2 REHABILITATION

Approximately 40ha of rehabilitation will be undertaken during 2008 this will incorporate the first section of the top of the Eastern Emplacement Area and the completion of both the northern and southern drop structures. Maintenance will also be undertaken on some areas of existing rehabilitation.

Tube stock planting will be undertaken on areas of existing rehabilitation of the Southern face of the Eastern Emplacement, and also some replacement planting along the New England Highway bund.

A tree corridor will be fenced between Glennies Creek and Bowmans Creek on the Ashton property (the land to the West of the New England Highway over the underground operation). This property was previously cleared for agriculture and is currently grazed by cattle. The fenced tree corridor will allow the exclusion of cattle and the reestablishment of a treed area for fauna movement between the two main creek systems.

6.3 WATER MANAGEMENT

Investigations will be undertaken in to the installation of a fine coal recovery system within the CHPP. This system will allow more effective recovery of fine coal and reduced water losses through the tailings circuit.

6.4 OTHER ACTIVITIES

Other activities planned for the next AEMR (2007 – 2008) period include:

- Gain approval for the new consolidated site MOP. This new MOP aims to remove the existing Open Cut and Underground MOP's and their numerous variations and consolidate them into one MOP. This will remove duplication within the systems.
- Continue to advance the southern face of the Eastern Emplacement Area up to RL 135 ahead of the rest of the pit to provide a barrier to work behind;
- Finalise the process required for declaration of a Conservation Area in the Southern Woodland; and
- Production and submission of the Subsidence Management Plan for Longwalls 5-7.

DISTRIBUTION

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Annual Environmental Management Report 2006 - 2007

20 February 2008

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