



Centennial Coal



Annual Environmental Management Report 2014

Springvale Colliery

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Mining Titles/Leases: Springvale Mine only

CL377, ML1303, ML1323, ML1326, ML 1537, ML 1588, ML344, ML1424, MPL1314, EL 6974, A460

Springvale Underground Mine 2009 – 2016
MOP Approval Period
AEMR Reporting Period 1 January 2014 – 31 December 2014
Leaseholder Springvale Coal Pty Ltd
Mine Operator Springvale Coal Pty Ltd
Reporting Officer Natalie Gardiner
Title Environment and Community Co-ordinator
Signature

N. Gardiner

Date 25/2/2015

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1 Introduction

Springvale Mine is owned by Centennial Springvale Pty. Limited (as to 50%) and Springvale SK Kores Pty Limited (as to 50%) as participants in the Springvale unincorporated joint venture. Springvale Mine is operated by Springvale Coal Pty Limited (Springvale Coal), for and on behalf of the Springvale joint venture participants. Springvale Coal is the operator of the Springvale joint venture.

Springvale Mine is an existing underground coal mine producing high quality thermal coal for both domestic and international markets. It is located 15 kilometres to the northwest of the regional city of Lithgow and 120 kilometres west-northwest of Sydney in New South Wales. Underground coal mining commenced at Springvale Mine in 1995 following the granting of Springvale's development consent (DA 11/92) on 27 July 1992, pursuant to Section 101 under Part 4 of the Environmental Planning and Assessment Act 1979. DA 11/92 and its subsequent modifications remain in force and authorises the extraction of up to 4.5 million tons of run-of-mine coal per annum at Springvale Mine. The current development consent will expire on 28 September 2014. Development consent is required to ensure Springvale Mine continues to operate beyond this date. Figure 1 shows the locality of the mine with current workings.

Key areas associated with the operation include the pit top, rill tower and ROM pad, crusher house, conveyor system to Wallerawang and Mt Piper Power stations, ventilation shaft No.3, dewatering bores and the Springvale Delta Water Transfer Scheme.

This Annual Environmental Management Report (AEMR) details the environmental and community performance of Springvale Colliery for the 12 month reporting period of 1 January 2014 to 31 December 2014. It has been prepared in accordance with the industry guideline prepared by the NSW Department of Trade and Investment, Regional Infrastructure and Services –Resources and Energy (DTIRIS) (formerly the Department of Primary Industries – Mineral Resources), entitled Guidelines to the Mining, Rehabilitation and Environmental Management Process (Version 3, 2006).

Within this AEMR the operational aspects of the Springvale Colliery are discussed in Section 2.0. The environmental performance and community relations of the Springvale Colliery have been reported in Sections 3.0 and 4.0, respectively. Section 5.0 details the rehabilitation activities undertaken on site during the reporting period, while Section 6.0 describes activities as planned for 2015.

Reporting for Coal Services is undertaken in a Western Main AEMR/Annual Review.

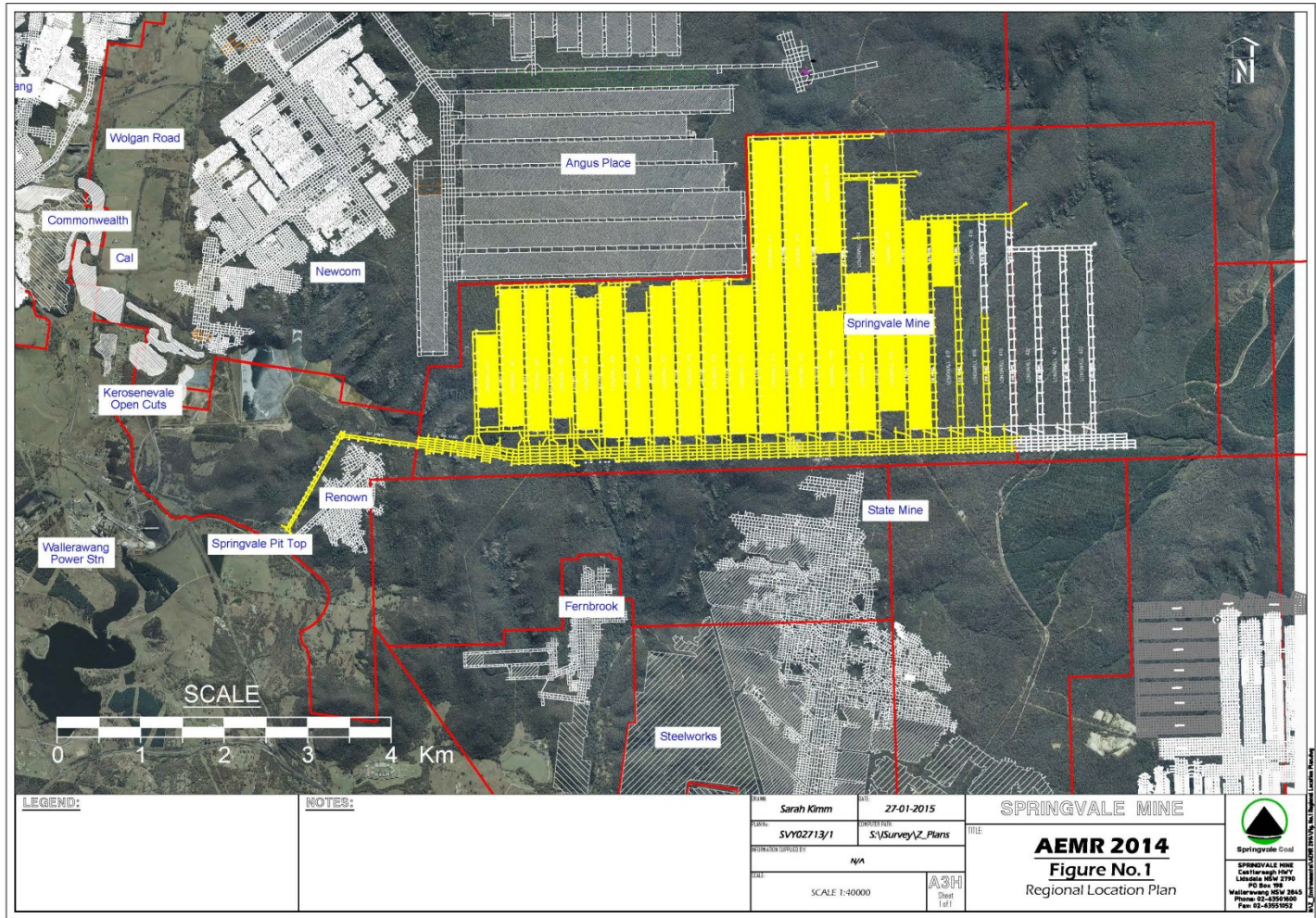


Figure 1 Locality Plan

1.1 Consents, Leases and Licences

1.1.1 Consents

Development Consent DA 11/92 for Springvale Mine was granted in 1992, under Section 101 of Part 4 the EP&A Act and permitted the construction and operation of an underground coal mine to extract high quality thermal coal from the Lithgow Seam. DA 11/92 provides for secure and cost effective transport of coal via an overland conveyor system to local power stations or to the export market via Lidsdale Siding Rail Loading Facility. The 1992 consent allowed for underground longwall mining with an annual extraction limit of 3.4 million tonnes per annum of Run of Mine (ROM) coal and associated infrastructure both surface and underground. Figure 2 Springvale surface infrastructure.

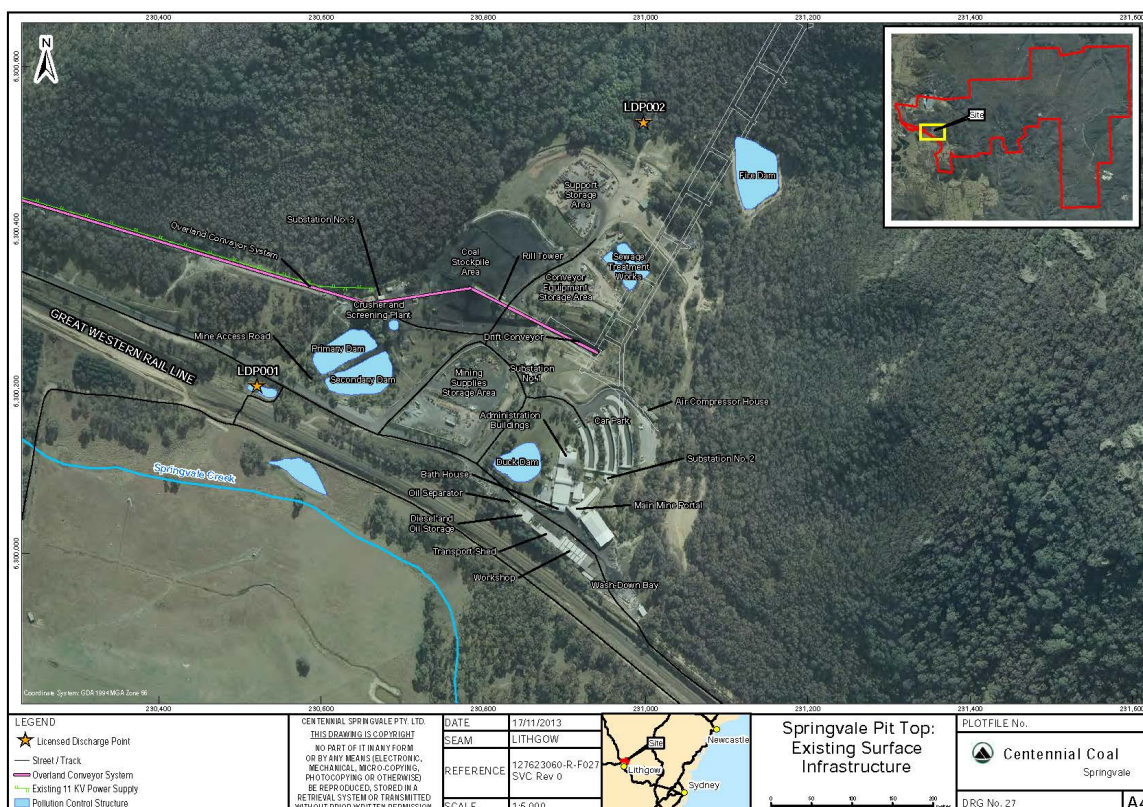


Figure 2 Springvale Surface Infrastructure

To facilitate continued mining operations at Springvale Mine, the 1992 development consent has been modified three times under the EP&A Act to permit for the development of supporting infrastructure.

The modifications are as follows:

- DA 11/92 Mod 1 in 1993 allowed for a number of amendments including augmentation of the pit top layout, a new mine entry, relocation of a conveyor route and use of the coal preparation plant (CPP) at the former Western Main Colliery (now the Springvale Coal Services Site);
- DA 11/92 Mod 2 in 1994 related to a change in the schedule of lands and tenements associated with the development consent;
- DA 11/92 Mod 3 related to the construction and operation of the Bore 8 dewatering facility and associated infrastructure; and
- DA 11/92 Mod 4 to allow for a coal production increase up to 4.5 Mtpa, an increase in workforce to 310 full time employees, an extension of time to 30 September 2015 and connection of the pit top to the Lithgow City Council sewer system.

Further development applications have been approved for Springvale Mine infrastructure by Lithgow City Council. Approval for LW415 to LW417 (EPBC 2011/5949) has been granted in accordance with the EPBC Act in March 2012.

During the reporting period, Springvale Colliery has not modified its development consent. A summary of the relevant consents applicable to Springvale is presented in Table 1.

The Springvale Mine Extension Project (SSD 5594) was submitted to the Department of Planning and Environment in 2014 and has been on public exhibition during the reporting period. An overview of the Project and associated documentation can be viewed on the Department of Planning and Environment Website.

Table 1 Springvale Development Consents

Document and Authority	Ref No.	Description	Issue/Consent Date	Duration Expiry
Initial Development Consent (DoP/Council)	11/92	Construction & operation of an underground coal mine, Construction & operation of an overland conveyor and Washery	27/7/1992	September 2014
Amendment to initial DC 11/92 (DoP/Council)	11/92	Modifications to pit top layout, storm water control, new mine entry, relocation of mine ventilation shafts, extension of existing Pacific Power road to access shafts, use of existing WMC Washery & relocation of conveyor route	29/6/1993	Enacted
Amendment to initial DC 11/92 (DoP/Council)	DA 11/92	Attachment "A" (the land description) replace with Attachment 1 Schedule of Land and Tenements.	11/4/1994	Enacted
Wallerawang Power Station Conveyor DA	326/02	Construction and Operation of a Coal Conveyor – Castlereagh Highway to Wallerawang Power Station	20/9/2002	Enacted
No. 3 Ventilation Shaft DA	461/02	Construction and Operation of a Ventilation Shaft Facility-Newnes Plateau Modification of DA for ventilation upgrade	23/1/2003 30/05/2012	Enacted
Longwall mining in 415 -417	2011/5949	EPBC Approval of mining LW 415-LW417	14/3/2012	19/2/2032
Bore 8 Dewatering Facility	DA/92 Mod 3	Construction and Operation of a dewatering facility (Section 75 W Modification)	8/3/2013	Enacted
Modification to Development Consent DA11/92	DA 11/92 Mod 4	Extension of Mining Operations until 30 September 2015. Increase in annual production output (4.5Mt) and site personnel	5/12/2013	30/09/2015
Springvale Extension Project EIS		Mining beyond September 2015	Pending	

1.1.2 Leases

Springvale Mine operates under a variety of mining authorities consisting of mining leases, coal leases, authorisations and exploration licences, each granted by the DTIRIS. The parts of these authorities which apply to Springvale Colliery and the Springvale Coal Services Site are shown in Figure 3.

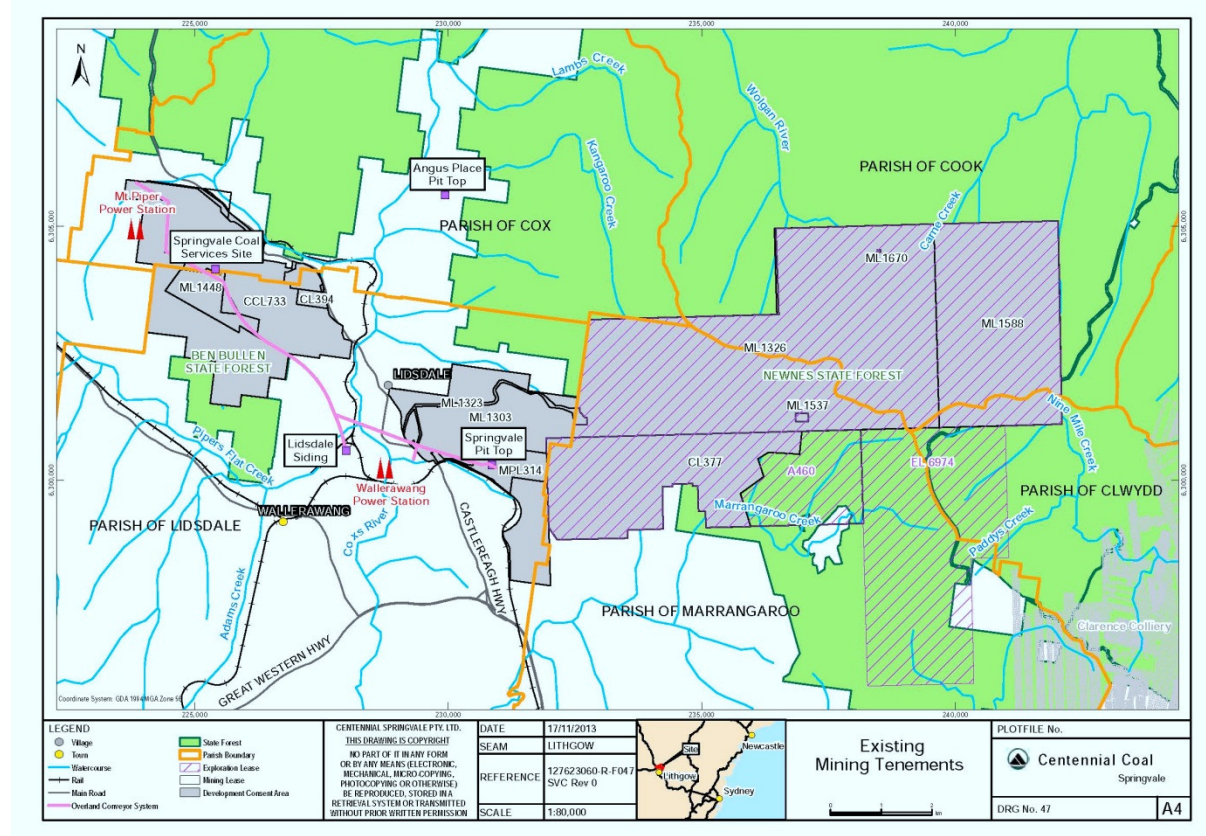


Figure 3 Mining Tenements

Longwall mining is currently undertaken within ML 1326. The underground mine is accessed through ML 1303 at the pit top.

In December 2010 Conditional Approval was granted for the removal of 29.97 ha of ML 1326 from the Springvale Mine holding and the simultaneous addition of this area to the Angus Place Colliery holding. ML 1326 expires on 13 August 2024 and while the 1992 development consent grants development consent for the area of the northern longwalls, to date, the existing underground workings have extracted fully up to LW416 only.

Springvale Coal Services site and the overland conveyor route are comprised within land covered by CCL733, and MPL 314 and ML 1352, respectively.

The Mining Operations Plan (MOP) covers all operational aspects for the site and is valid to November 2016.

The Springvale Mine and Western Main (Coal Services) Leases are detailed in Table 2 and Table 3 respectively.

Table 2 Springvale Mining Leases

Springvale Mine	Expiry Date	Area (Ha)
Coal Lease 377	09/04/2025	1,105
Authorisation 460	06/06/2015	1,105
Mining Lease 1303	15/12/2034	713
Mining Lease 1323	3/8/2035	30.24
Mining Lease 1326	18/08/2025	2,157
Exploration Licence 6974	13/12/2017	4,381
Mining Lease 1537	25/06/2024	4.13
Mining Lease 1588	19/10/2027	975.5
	Total Area	10,470.87

Table 3 Western Main / Coal Services Mining Leases

Western Main	Expiry Date	Area (Ha)
Consolidated Coal Lease 733	03/07/2027	723.5
Mining Lease 204	270/5/2033	10.12
Mining Lease 564	02/05/2023	19.75
Mining Lease 1319	05/07/2035	1.5
Mining Lease 1352	22/06/2015	8.16
Mining Lease 1448	31/05/2035	95.16
Coal Lease 361	16/07/2032	14.26
Coal Lease 394	27/05/2034	17.0
Mining Purposes Lease 314	3/8/2035	96.4
	Total Area	985.85

1.1.3 Licences

Centennial Springvale holds Environmental Protection Licence (EPL3607) under the Protection of the Environment Operations Act (1997) (copy of EPL in Appendix 5).

During the reporting period EPL 3607 was modified on three occasions.

1. Requirement for direct toxicity assessment as a pollution reduction program and attachment of conditions associated with rainfall events (variation dated 12/4/2014)
2. Change in requirement to dispose of sediment from the settling ponds of the SDWTS (variation dated 23/10/2014)
3. Change in Mining scale (variation dated 10/12/2014)

The environmental reporting and monitoring activities undertaken at the Springvale Colliery, in accordance with EPL 3607 are discussed in **Sections 3.3** (Air Quality) and **3.5** (Surface Water Pollution).

1.1.4 Other Regulatory Requirements

Springvale Mine has a number of other regulatory requirements for operation. These consist of approvals, licences, permits and certificates as listed in Table 4. In early 2006, Springvale Coal obtained Subsidence Management Plan (SMP) approval to extract the LW411 to LW418.

Table 4 Other Approvals held during the Reporting Period

Type	Regulatory Authority	File / Approval Number	Issue Date	Details
Mining Operations Plan	DTRIS	MR Reference 09/8465	24/05/2010	The Mining Operations Plan is a working reference for the activities of the mine in accordance with the guidelines of the DTIRIS for the period 2009 - 2016 inclusive. It is consistent with approved SMP commitments, EPL 3607 and the DA 11/92 consent. The objectives of the MOP are to meet statutory guidelines for reporting.
Groundwater Licences (Water Act 1912)	NSW Office of Water (NOW)	10WA118719 (WAL 36383)		Dewatering Bore 8
		10BL603519 (WAL 36383)	25/02/2010	Dewatering Bore 6
		10BL602017 (WAL 36443)	04/09/2007	Pit Top collection system
		10BL601863 (WAL 36446)	04/09/2007	Dewatering borehole Vent shaft compound
		10BL605395	17 June 2013	Stage 2 Infill Exploration
SMP Approval	DRE	08/8497	22/10/2010	Variation approval for the development and extraction of LW411- LW418
Section 95 Certificate	Office of Environment and Heritage (OEH)	1117191	02/08/2010	Undertake geotechnical and geophysical investigations within a Newnes Plateau Shrub Swamp
Section 95 Certificate	OEH	1111270	10/02/2010	Hand removal of weeds within Newnes Plateau Shrub Swamp

Type	Regulatory Authority	File / Approval Number	Issue Date	Details
Dangerous Goods licence	WorkCover NSW	35/027897	-	Dangerous goods on premises
Radiation Gauge	OEH	29346	12/02/2004	Licence to Sell/possess

1.2 Mine Contacts

The contact details for Springvale personnel responsible for environment management and community relations, along with details for community complaints and enquiries have been provided in **Table 5**.

Table 5 Primary Contact Springvale Colliery

Contact	Position	Contact Details
Primary Contacts		
Jacques Le Roux	Mine Manager	T: (02) 6350 1613
		F: (02) 6355 1502
Natalie Gardiner	Environment and Community Co-ordinator	T: (02) 6350 1672
		F: (02) 6355 1502
Community Enquiries/Complaints		
Springvale Enquiries and Community Complaints		T: (02) 6350 1640

1.2.1 AEMR 2013 Actions

The 2013 AEMR resulted in an acceptance letter of the AEMR from NSW Department of Trade and Investment, Regional Infrastructure and Services (DTIRIS).

Table 6 Status of 2013 AEMR Actions

AEMR 2013 Actions	Status
Additional hydrocarbon studies	Additional studies were proposed from the Phase 2 contaminated land studies undertaken. The scope of this work is currently being discussed and budgeted for.
Re-format production and waste summary per Table 8.2 AEMR	Section 2.4 has been updated in the 2014 AEMR to include the relevant table.
Table 8.5 Maintenance Activities needs to included	Section 5 has been updated in the 2014 AEMR to include the relevant table.

1.3 Plans Required under the Guidelines

Table 7 presents the plans required for Springvale Colliery under DRE guidelines for producing AEMRs. Additional figures are shown in Table 8. These plans are located in Appendix 5 of this report.

Table 7 Plans required under DRE Guidelines

Plan Required	Appendix Reference Number
Proposed Mining Activities (Production Budget)	Plan 4
Proposed Rehabilitation	Plan 5
Conceptual Mine Closure Plan (Final rehab)	Plan 6

Table 8 Additional figures included for the AEMR

Plan Required	Appendix Reference Number
Regional Location Plan	Figure 1
Mine Production 2014	Figure 2
Dust Monitoring Sites	Figure 4
Environmental Monitoring Locations (Newnes Plateau)	Figure 5
Springvale Surface Plans	Figures 6A & 6B
Subsidence Protection Zones	Figure 7
Subsidence Monitoring Plans	Plan 7
Springvale-Delta Transfer Scheme	Figure 8
Completed Rehabilitation	Figure 9

2 Operations during the Reporting Period

2.0 Report on Proposed 2014 Mining Activities

As documented in the 2013, Table 9 provides a summary of the key activities which were proposed to be undertaken in 2014

Table 9 2014 Significant Activities

Activities undertaken in 2013	Activity Status
Complete extraction of longwall 416.	Longwall 416 commenced on the 25 th of September 2013 and was completed on the 19 th of August 2014. Longwall 417 commenced on the 11 th of October 2014 and is planned to be completed in June 2014.
Review the rehabilitation status of exploration drill sites on the Newnes Plateau.	A comprehensive review was undertaken in 2014 of exploration drill sites. 25 drill sites were visited to confirm rehabilitation status. Rehabilitation activities undertaken are documented in section 2.1. The investigation confirms there is no outstanding rehabilitation of drill sites. A number of the sites groundwater piezometers installed in them and are therefore accessed for monitoring purposes.
Conduct an annual Environment and Community risk assessment review.	An annual Environment and Community risk assessment review was conducted in November 2014 and is presented in Section 3.1
Upgrade the weather station on the Newnes Plateau.	Angus Place Colliery installed a weather station at the Ventilation Facility constructed on the Newnes Plateau. This installation is also used by Springvale Colliery to inform climatic conditions experienced. A weather station previously used by SCA was also taken over.
Prepare detailed design for a rising sewer line from the Springvale Pit Top to the Council sewer mains at Lidsdale.	Design and consultation works with Lithgow City Council were undertaken in 2014. An extension of time was granted by the Department of Environment until May 2015. Accordingly details on construction will be documented in 2015 AEMR.
Prepare and commence implementation of a noise management plan for the Springvale Pit Top.	The Noise Management Plan was submitted and approved by the Department of Environment on the 13 th of May 2014. Significant noise management works were undertaken in 2014 and are documented in section 3.11

2.1 Exploration

In 2014 there was no exploration drilling undertaken.

All exploration boreholes undertaken to date have been rehabilitated. Rehabilitation includes:

- Sealing/cementing the borehole (unless approval is received to leave borehole open due to groundwater monitoring device)

- The drill site surface is excavated (as close as possible) to the former pre-disturbed site. This includes re-contouring of the surface and stabilisation of the site (if required) to prevent erosion.
- All material associated with the drilling activities removed from the site

2.2 Land Preparation

During 2014 there has been no further land preparation works undertaken. Bore 8 land preparation works were undertaken in 2013. Further detail regarding the Bore 8 project is documented in section 2.3 below.

2.3 Construction

The construction of the Bore 8 Dewatering Facility commenced in the fourth quarter of 2013 following approval of the environmental assessment (MOD 3). The facility is required to facilitate the progress of coal extraction further to the east of existing workings and to ensure water levels are kept at safe and manageable levels. The bore will form a critical part of Springvale's existing dewatering system as longwall mining progresses through LW416 to LW419. Water pumped out of the underground workings at Bore 8 via pipelines to Wallerawang Power Station, forms part of the existing Springvale Delta Water Transfer Scheme. Construction at the Bore 8 was completed and following commissioned on the in 2013.

Rehabilitation associated with the Bore 8 construction is documented in section 5.1 while key findings from the Persoonia Hindii Research Program are documented in Section 5.4

As per MOD 4 the design works for the sewer upgrade are underway. Springvale engaged with Lithgow City Council in early and mid 2014 and encountered challenges in agreement of the scope of the upgrades required. In November an "Agreement in Principle" was reached between the parties. Springvale has now raised a Purchase order to Lithgow City Council for the upgrade of the Duncan Street Sewage Pump Station at Lidsdale. At the end of 2014 Springvale was finalising their requisite infrastructure changes to suit the Duncan Street Sewage Pump Station and submitted to Lithgow City Council the associated section 68 Development Application. Following consultation with the Department of Environment, an extension of time was granted by the Department of Environment until May 2015. Accordingly an update on the project will be provided in the 2015 AEMR.

2.4 Mining

Springvale Mine altered the longwall geometry of the existing mine plan to reduce the void width of LW416 and LW417 from 315 m to 261 m and increase the chain pillar width from 45 m to 58 m. The change in longwall dimensions of LW416 and LW417 results in a reduction in predicted subsidence parameters.

The mine layout is constrained by the lease boundary and subsidence protection zones designed to protect sensitive surface escarpment areas. Small-scale shotfiring occurs to maintain roadway clearance for longwall equipment movement through the panel in the event that convergence of the roof (roof bagging) with the floor (floor heave) occurs. If required, shotfiring is carried out in accordance with the Coal Mine Health and Safety Regulation 2006, the Explosives Act 2003, Explosives Regulation 2005 and AS 2817.1.

Entry to the mine is via two in-seam portals. These entries extend for approximately 2,500 m past the abandoned Renown Colliery workings prior to connecting with the five main roadways. The main mine entry is adjacent to the bathhouse and is a dedicated transport route; the other is used as a belt road with walking access for a second egress if required.

In 2014 coal was mined from Longwalls 416 and 417. Longwall 416 commenced on the 25th of September 2013 and was completed on the 19th of August 2014. Longwall 417 commenced on the 11th of October 2014 and is planned to be completed in June 2014. Also during the reporting period the gateroad and 400 mains development continued.

The total Run of mine (ROM) production from Springvale Colliery was 3,487,621 t.

Plans of recently mined areas are shown in Appendix 4.

Table 10 presents the production and waste summary at Springvale Colliery for the 2014 reporting period.

Table 10 Production and Waste summary

	MOP Prediction 2014	Actual 2014	MOP Prediction 2015
Topsoil Stripped (m ³)	0	0	0
Topsoil used/spread (m ³)	0	0	0
Waste Rock (t)	0	0	0
Ore (ROM coal) (t)	3,826,144	3,487,621	3,719,349
Processing Waste (t)	0	0	0
Product (t)	0	0	0

The variation in MOP predictions to actual production in 2014 can be attributed to the SMP variations undertaken since the preparation of the MOP and challenging geological conditions experienced throughout the year.

2.5 Minerals Processing

During the reporting period 2,311,037 t of ROM coal was washed at the Springvale Coal Services site producing 1,751,953 t product coal. Further details will be provided in the Springvale Coal Services - Western Main AEMR regarding production waste generated and soil material moved.

2.6 Waste Management

The major general waste streams from the mine include water, coal fines from surface runoff, packaging material including plastic, paper and cardboard, wood, waste oil, oil filters, oil drums, scrap metal, hoses, bottles (plastic and glass), sewage effluent, as well as general putrescible rubbish.

General waste is disposed of to landfill by licensed waste contractors. Recyclable materials, for example, plastic, paper and cardboard products, are recycled whenever possible at the site. Oil drums and filters are recycled with other waste metals, and are removed from site by a metal recycling company. Waste oil collected in the workshop is stored in an underground collection sump before being removed off site by a licensed contractor for recycling. Sewage is treated and applied to land in the on-site sewage treatment plant

Paper, plastic and cardboard are recycled both from bulk packaging from the store and site offices, either at the pit top or other infrastructure areas or transferred to a recycling facility.

Waste Management is managed in accordance with the existing MOP with all potentially hazardous material stored and/or banded appropriately in accordance with relevant standards. Where possible, all quantities of waste or recyclable material are quantified and recorded for benchmarking and continuous improvement purposes as well as reporting in accordance with the National Greenhouse and Energy Reporting Scheme.

Table 11 Waste Management Summary

Waste bins	Waste Management Summary
Total general waste	966.760 T
Total recycled waste	310.888 T
Recycled Waste (%)	32.16

A summary of the waste removed and recycled by the site is presented in Figure 4 and 5.

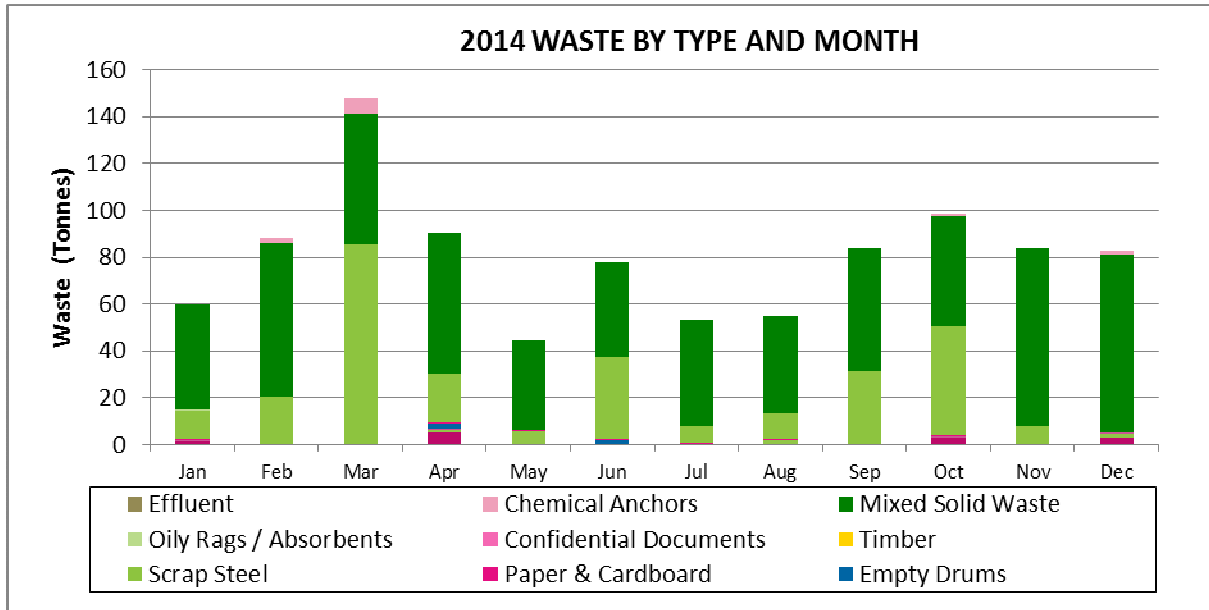


Figure 4 2014 Waste Management Summary

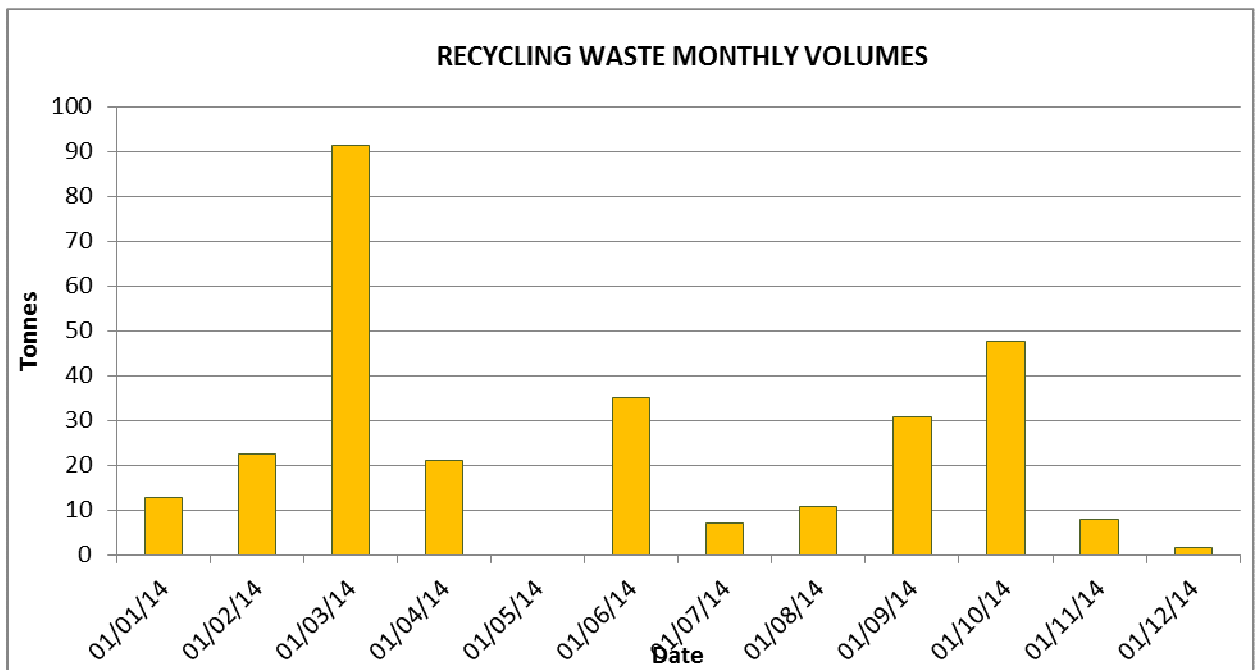


Figure 5 2014 Recycling Waste Volumes

2.7 Ore and Product Stockpiles

Coal is transported from the underground workings by the drift conveyor onto the temporary ROM coal stockpile area at the pit top via the Rill Tower. The stockpile footprint remains unchanged.

ROM coal is reclaimed from the coal stockpile area by two activators and two vibratory feeders. The feeders use vibration to feed the coal material onto the reclaim conveyor. The coal is then transferred from the reclaim conveyor to a steel frame fully clad crusher and screening plant.

The 50 mm product within the crusher and screening plant is collected in the underpan of the first stage of the screen and deposited directly onto a conveyor and subsequently transferred to the

overland conveyor system without further processing. The sizers reduce this coal to a nominal 50 mm product prior to transfer to the overland conveyor system for despatch off site. All crushed coal is transported off site and no reject material is generated at the pit top.

2.8 Water Management

The water management system at Springvale Mine site comprises surface (clean and dirty water) process, potable, waste and underground (clean and dirty water) mine water elements. The water balance assessment considered the consumption of water for underground processing, mine water transferred to Wallerawang power station, rainfall runoff, and transfers and water make of the underground workings.

2.8.1 Licenced Discharge Points

EPL 3607 defines the volumetric and concentration limits for water discharge offsite and the recording and reporting of data requirements. EPL 3607 currently also regulates the discharge of water at the Springvale Coal Services site. In accordance with EPL 3607, water is discharged from Springvale Mine through Licensed Discharge Points (LDPs). Currently Springvale Mine has seven LDPs on EPL 3607, the locations of which are shown in Figure 6.

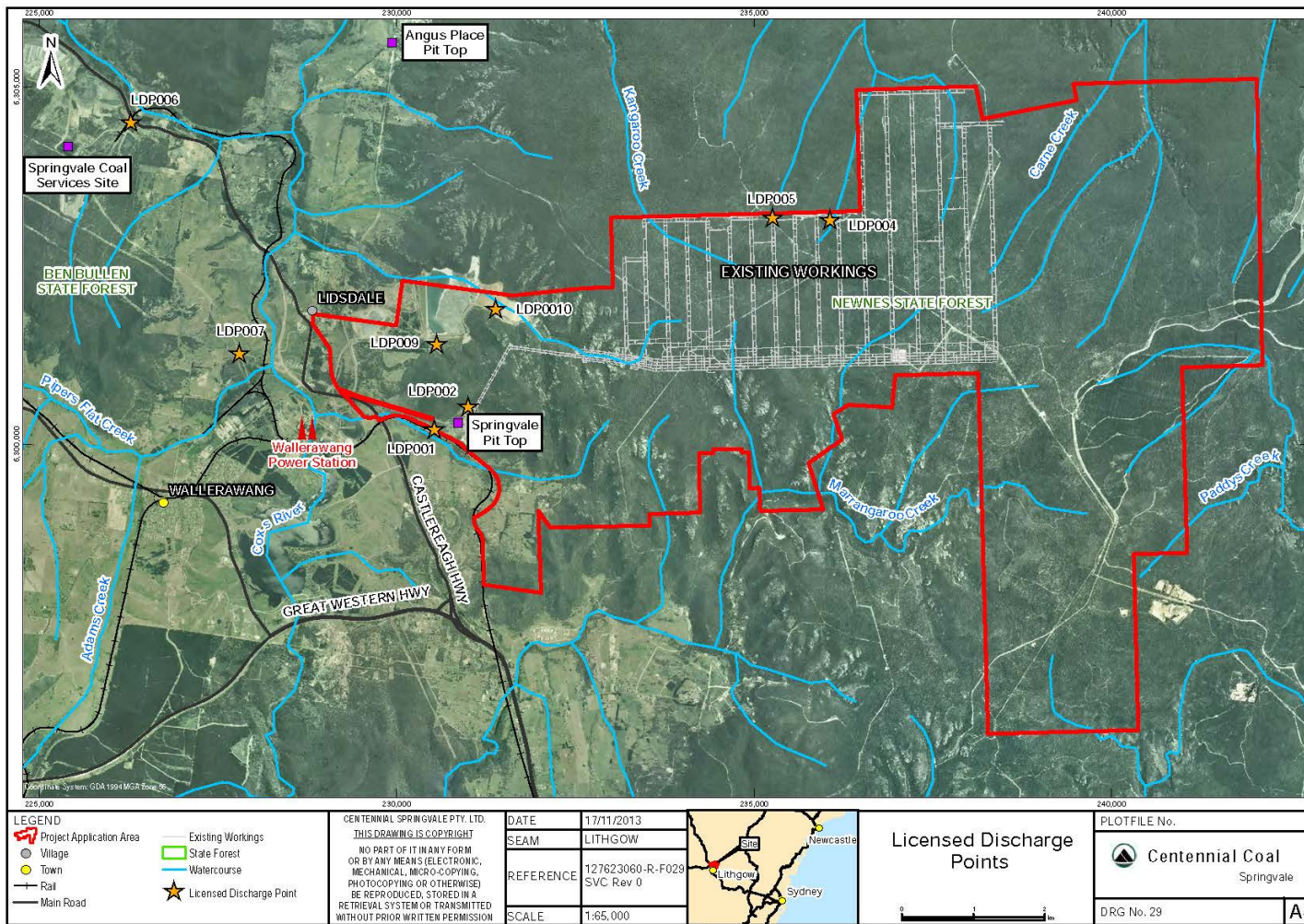


Figure 6 LDP Locations

The LDPs (and their volumetric limits) consist of the following:

- LDP001 (volumetric limit 10 ML/day) – discharge of surface water, mine water make and runoff from the Springvale pit top area into Springvale Creek through settling ponds
- LDP002– discharge of treated sewage effluent via a spray irrigation network to a designated utilisation area within the Springvale pit top area.
- LDP004 (volumetric limit 15 ML/day) – emergency discharge point situated on the Newnes Plateau into an unnamed tributary of the Wolgan River. This is situated in the Hawkesbury/Nepean Catchment. In the event of a shutdown of SDWTS or essential maintenance, discharge is permitted through this LDP.
- LDP005 (volumetric limit 15 ML/day) – emergency discharge point situated on the Newnes Plateau into an unnamed tributary of the Wolgan River. This is situated in the Hawkesbury/Nepean Catchment. In the event of a shutdown of SDWTS or essential maintenance, discharge is permitted through this LDP
- LDP006– discharge of runoff into Wangcol Creek through final filter lagoon located at the Springvale Coal Services site.
- LDP007 – discharge of runoff from the overland conveyor system, including coal fines, located at Brays Lane discharges into Coxs River
- LDP009 (volumetric limit 30 ML/day) – discharge from the SDWTS bypass point east of Kerosene Vale Ash Dam for discharge into Coxs River.
- LDP010 – emergency/maintenance discharge from the SDWTS, upstream of settling ponds near LDP009 for discharge into Coxs River.

Section 3.4 present relevant Water quality results. LDP6 and 7 and associated water management are discussed in the Western Main Coal Services AEMR.

2.8.2 Surface Water Management

Surface water storages for both clean and dirty water at the Springvale pit top and Newnes Plateau include the following dams,

- Fire Dam: Receives mine water from the Renown Colliery workings and existing Springvale Mine workings using the Fire Service Pipeline and the pit top collection system for storage and use as process water:
 - underground for continuous miners and longwall equipment and dust suppression; and
 - for surface facilities including the crusher and screening plant, vehicle washdown bay, maintenance and service workshop and for dust suppression; and
 - excess mine water from the Fire Dam is discharged through LDP001.
- Settling Ponds: Three settling ponds, referred to as the Primary, Secondary and the Duck Ponds, exist at the pit top and perform the following functions
 - The Primary or Stockpile Pond receives dirty water run-off from the crusher and screening plant and run-off from the contributing dirty water catchment. The Primary Pond overflows into the Secondary Pond.
 - The Secondary Pond receives dirty water overflows from the ROM coal stockpile area, the oil/water separator and the run-off from the contributing dirty water catchment.
 - Excess water from the Secondary Pond is pumped underground into Renown Colliery workings for purification via percolation through the workings for subsequent use as process water. If capacity is reached it may discharge to Springvale Creek via LDP001.
- Oil/Water Separator: Excess water from the Grit Trap, wastewater from the machinery wash-down bay, hardstand areas, oil storage areas, and workshop, and run-off from the contributing dirty water catchment is collected in a common wastewater collection drain, which gravity feeds to an oil/water separator unit. Water from the oil/water separator is transferred to the Secondary Pond. The oil/water separator is designed to accommodate a 1 in 5 year storm event, based on the first flush principle, without overflow. Oil and grease from the separator is disposed off-site by a licensed contractor.

Water storage levels are estimated based on level and historic data

Table12 Stored Water at Springvale Colliery

Water Storage	Volume Held (kL)		
	Start of Reporting Period	End of Reporting Period	Storage Capacity
Clean Water			
Duck Pond Dam	1,800	1,800	2,000
Fire Dam	8,000	8,000	8,000
Shaft No. 3 Emergency holding Dam	2,000	2,000	5,000
Dirty Water			
Crusher House Dam (Primary and Secondary)	5,000	5,000	7,000
Sewage Water Ponds	1,000	1,000	1,000

As the dams operate in a consistent manner and are maintained as required there has been no change volume or storage capacity in 2014

In 2015 bathometric surveys will be undertaken at the Duck Dam, Fire Dam and Crusher Dam to assist in defining operating levels and storage capacities.

2.8.3 Surface Water Management within Newnes Plateau Infrastructure Sites

Each Newnes Plateau infrastructure site (Ventilation Shaft 3 Facility, Bore 8 Dewatering Facility, Substation) has its own surface water management system to ensure no dirty water discharges off site. Each site has clean water diversion bunds and level spreaders which divert clean storm water away from the disturbed areas. Sediment dams in the case of the Ventilation Shaft Facility 3 and the sump in the case of the dewatering bore facilities capture dirty water run-off from the respective sites for treatment prior to discharge of clean water off site.

2.8.4 Underground Water Management

Mine inflows, encountered during mining operations, require to be managed so that water levels can be kept at safe levels underground, and therefore operational risks can be reduced. Both clean and dirty water are generated underground. Clean water is water made from the goaf areas that do not experience machine movements. Dirty water comprises water that runs along roadways and mine inflows from production panels. The dirty water is collected into portable staging tanks and pumped into the existing workings for the sediment to settle out before being diverted to the clean water system for transfer to the surface.

The clean water from the existing workings runs under gravity to the submersible pumps to allow transfer of water to the surface at the two bore dewatering facilities, namely, Bore 8 dewatering facility and the Ventilation Shaft 3 borehole. Dewatered mine inflows at these bore sites are fed directly into the SDWTS for transfer to the Wallerawang Power Station for use in their cooling towers.

A maximum of up to 30 ML/day of mine water can be transferred to Wallerawang Power Station. If the power station is unable to take any water then the mine inflows are discharged into Coxs River via LDP009 in accordance with EPL 3607 volumetric limit of 30 ML/day. All discharges during the reporting period were through LDP009.

In the event that the SDWTS is unavailable for extended periods provisions exist in EPL 3607 to discharge mine inflows to the maximum of 30 ML/day each at LDP004 and LDP005 on Newnes Plateau. Discharges at LDP004 and LDP005 have not occurred since April 2010.

Underground water from the existing workings and Renown Colliery workings is also pumped to the surface via the pit top collection system to meet operational requirements, both for underground operations and surface facilities. All discharges are reported through LDP001.

2.8.5 Portable Water

Portable water is supplied to Springvale Mine from Lithgow City Council. This water is primarily used in the bathhouse and administration building. Additional drinking water for employees is sourced from a local commercial drinking water supplier, Neverfail Springwater.

2.8.6 Wastewater Collection and Treatment

Sewage and grey water at the pit top area is currently treated on site by a sewage treatment works. Sewage and grey water gravitate from the bathhouse and offices and is pumped to an oxidation pond and then to a maturation pond. The treated effluent is pumped via LDP002 to a sprinkler system in a 4 ha onsite utilisation area. The sprinklers are in four separate zones which are alternated to ensure full utilisation and to eliminate run off from the utilisation area.

A modification application for the site (DA11/92 MOD 4), approved Springvale Mine's proposal to bypass the on-site effluent management system and pump sewage direct into the Lithgow City Council's main sewer services at the intersection of Wolgan Road and Duncan Street (Duncan Street pump station) in Lidsdale. These works are planned to be undertaken in 2015 following approval for an extension in time by the Department of Planning and Environment.

2.9 Hazardous Materials Management

The electronic database "CHEMWATCH" is a material safety data sheet database available at the pit top. Hardcopies of material safety data sheets are also kept in a site Chemical Data Register, which is maintained in the first aid room, store and statutory library at the Springvale pit top. Prior to new chemicals being allowed on site, the Material Safety Data Sheet for the chemical is reviewed in terms of potential health, safety and environment issues.

Acid-specific spill kits are available at strategic locations and an emergency eye wash is provided adjacent to the pH adjustment plant.

An explosives storage facility stores all explosives/detonators for the site.

Fuels and oils are stored in purpose built facilities with appropriate bunding and firefighting provisions. Diesel is stored in above ground banded tanks from where it is transferred to diesel pods for underground use or direct to machinery.

Oils are stored in purpose built facilities with appropriate bunding and firefighting provision. Oil absorbent materials are available to manage hydrocarbon spills. Spill kits are located at strategic places throughout the mine's operations. A licenced contractor is engaged to remove and recycle and/or dispose of used oil and grease products through appropriately licensed facilities.

Springvale Coal holds a radiation licence RR29346 for the nucleonic gauge in the coal handling plant, issued to protect the community and the environment from exposure to radiation.

2.10 Groundwater Extraction

2.10.1 Pit Top Collection System

The pit top is equipped with pipe works and a pumping system that draws water from existing Springvale Mine underground workings and Renown Colliery workings to the Fire Dam for storage of the mine water and subsequent use of the stored water for operational requirements underground and at the pit top surface facilities. There is also provision to pump water from one of the pit top settling ponds (Secondary Pond) to the Renown Colliery workings for de-silting via percolation through the workings for subsequent use as process water. The pit top collection system is licensed as a dewatering bore by the NSW Office of Water (10BL602017).

2.10.2 Springvale Delta Water Transfer Scheme and Bore Dewatering Facilities

The Springvale Holding is traversed by a network of predominantly trenched pipelines and power cables along existing tracks used for the management of mine inflows, and forms part of the SDWTS. The SDWTS also includes trenched pipes that extend into the Angus Place Colliery lease areas for the management of underground water at that mine.

To date the dewatering facilities have included dewatering Bores 1 to 5. Currently Bore 6 and Bore 8 dewatering facility are used to manage mine inflows. It is licensed as a dewatering bore by the NSW Office of Water (10BL603519).

An in-seam pumping system is available at the Ventilation Shaft 3 site for further dewatering of mine inflows, and is used as required. It is licensed as a mining dewatering bore by the NSW Office of Water (10BL601863).

2.10.3 Groundwater Extraction Rates

The total bore extraction volumes are shown in Table 13. The volumes are reported in financial year as this is a requirement of the NSW Office of Water (NOW) licence associated with each bore.

Table 13 Springvale bore extraction volumes

Bore Site	Licence No.	WAL No	Licence Extraction Limit (ML)	2013/2014
Bore 6 and Bore 8	10BL603519	WAL 36383	5,958	4556.835 ML
Shaft No.3	10BL601863	WAL 36446	3,300	745.6 ML
Pit Top Collection System	10BL602017	WAL 36443	585	511.7235 ML

The table above demonstrates compliance with the licence extraction limits stipulation by NSW for the 2013/2014 FY.

Raw data is presented graphically in Appendix 8.

3 Environmental Management and Performance

3.1 Risk Management

Environmental management at Springvale Colliery is undertaken through a risk driven methodology. Assessing risk against predetermined consequence and probability criteria allows for site resources to be deployed towards high risk or high consequence issues.

The environmental risk assessment was initially carried out during early 2004 and was reviewed in early 2006 as part of the MOP preparation. The latest Springvale risk assessment review was undertaken in November 2014.

This risk assessment concluded that the following aspects were considered significant environmental risks to the operation:

- subsidence related impacts on water dependent ecosystems
- subsidence related impacts on sensitive surface features
- impacts on ecology and endangered ecological communities
- groundwater depressurisation from underground mining activities
- potential groundwater contamination from underground mining activities
- surface water management at the pit-top area
- discharge water quality (pH) at LDP001
- discharge water quality at LDP09 & LDP10

The ability to obtain and maintain the required statutory and social licences to operate, the management of subsidence issues and the ability to dewater the underground workings were considered the highest business risks associated with environmental issues.

Table 14 Risk Management Summary

ENVIRONMENTAL RISK	Land preparation, vegetation & topsoil stripping	All construction activities including earth moving	Mine development and mining, surface & underground	Use/maintenance of roads, tracks and vehicles	Waste rock emplacement management	Mineral processing facilities and operations	Ore/product stockpiling and handling	Tailings impoundment management	water management including storm event contingencies	Hazardous materials & fuel, handling/spills management	Sewerage	Other infrastructure use and operation	Rubbish disposal	Rehabilitation activities	Rehabilitation maintenance, pending self-sustainability	Rehabilitated land and remaining features
air pollution, dust/other																
erosion/sediment minimisation																
surface water pollution																
groundwater pollution																
contaminated or polluted land																
threatened flora communities																
threatened fauna populations																
threatened species habitat																
weed control and management																
excessive noise, (intensity/time)																
vibration and air blast,																
visual amenity, stray light																
Aboriginal heritage																
natural heritage conservation																
spontaneous combustion																
bushfire																
mine subsidence																
hydrocarbon (fuel) contamination																
methane drainage/venting																
public safety																

3.2 Meteorological Monitoring

A summary of meteorological data collected from Springvale Colliery during 2014 is included in Table 15. The long term average rainfall data is presented in Table 16 for comparative purposes.

Table 15 Site weather data

Month	Mean Wind Velocity (m/sec)	Mean Wind Direction (°)	Minimum Air Temp. (°C)	Maximum Air Temp. (°C)	Total Rainfall (mm)
January	1.46	124.52	15.8	34.5	14.4
February	1.41	128.79	16.4	34.9	75.4
March	1.41	128.79	5.2	15.1	149.2
April	0.95	134.61	8	18	54
May	0.72	156.03	5	12	10
June	1.41	177.23	9	9	37
July	1.22	187.19	4	16	25
August	1.30	141.52	2	8	60
September	0.76	145.40	1.1	14.5	35.2
October	0.69	136.39	1	21	58.2
November	0.79	141.67	-0.5	36.3	40.4
December	0.95	171.52	5.4	30.3	171.8

3.2.1 Rainfall

The following table and figure compares observed rainfall on both the Newness Plateau to the Springvale Colliery station with long term data trends.

Table 16 Rainfall Data for Long Term Trends and Annual Rainfall

	Average Rainfall		Observed Rainfall		
	Newnes Plateau (mm)	Lithgow (mm)	Newnes Plateau (mm)	Lithgow Maddox Lane(mm)	Springvale Weather Station (mm)
January	82	83.8	34.5	9.2	14.4
February	130.4	80.2	7.5	85	75.4
March	76.2	65.5	185.4	155	149.2
April	43.8	42.5	54	63	54
May	47.2	49.9	14.8	14	10
June	84.6	49.4	47.6	43.2	37
July	43.8	50.7	37.8	33.6	25
August	53.3	64.5	94.4	56.4	60
September	48.4	53.2	40.6	35.2	35.2
October	65.6	67.3	59.6	51.6	58.2
November	106.5	72.6	51.2	36.8	40.4
December	112.2	73.9	247.4	160.4	171.8

Apart from three peaks in March, August and December, both plateau and Lithgow rainfall levels for 2014 remained below the Lithgow long-term average, and quite significantly so in the latter two-thirds of the year.

The year started out with January rainfall levels at approximately 9.2mm, which were comparable to the lowest recorded values in 12 years. Rainfall then increased through to March where the 2014 maximum of 185.4mm was recorded in March. This peak represents the first of two rainfall events in 2014 where rainfall levels exceeded the long-term average.

Rainfall levels then dropped off and receded below the long-term average in approximately May 2014. The rainfall continued to drop reaching a low of approximately 14mm in late May. The levels around this time are comparable to those recorded at the start of the year in January, which are some of the lowest on record.

Below average rainfall was recorded for the rest of winter through until August, when rainfall values exceeded the long-term average for the second and final time in 2014. The levels recorded at this peak (94.4mm on the Plateau) are not as high as those in March and they quickly recede back to a below average value of 35.2mm in August. The largest of the three rainfall peaks was recorded in December where rainfall levels reached 247.4mm on the Newnes Plateau. This is the highest monthly rainfall recorded in 2014.

Overall, 2014 was characterised by an overall very dry year with rainfall levels remaining well below the long-term average throughout the entire year apart from three peaks. Two of the peaks recorded in 2014 were well below peaks recorded in previous years at this time of year, while the peak in December is significantly higher than rainfall recorded at this time of year.

The lowest levels recorded around January and May is comparable to the lowest levels recorded in the past 12 years.

3.2.2 Temperature

The maximum temperature experienced at Springvale in 2014 was 36.3 in November. The minimum temperature experienced was also in November where -0.5°C was recorded.

3.2.3 Wind

Average wind speed during the reporting period was 1.09m/sec. Winds predominantly came from the south east during 2014. The 2014 wind rose is shown in Figure 7 below.

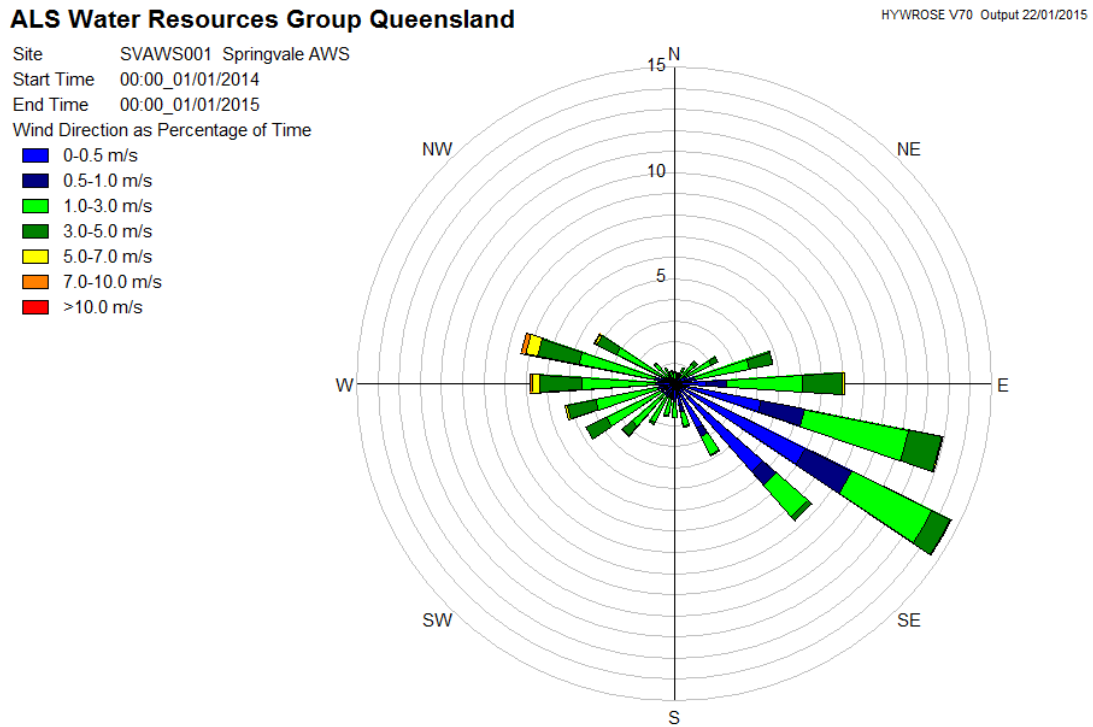


Figure 7: Windrose 2014

3.3 Air Quality

Potential dust sources from the Springvale Colliery operations include unsealed or dirty traffic areas, coal stockpiles, ventilation fans, and coal being conveyed. Dust controls used on unsealed or dirty traffic areas include the use of water carts, water cannons/sprinklers, and regular road sweeping. In December 2010 Springvale installed and commissioned a High Volume Air Sample (HVAS) measuring Total Suspended Particles (TSP) and PM10. The unit is located on an adjoining property on Springvale Lane. The system operates automatically for a 24 hour period every 6 days in accordance with the Australian Standards. There is no requirement for Springvale to monitor TSP and PM10, however this unit is providing valuable baseline data.

There is no recent history of fugitive dust complaints from adjoining residents nor has there been any regulatory notices issued requiring surface dust suppression. The Springvale Environmental Management System provides a platform for the maintenance and operation of dust control measures. Compliance monitoring is undertaken for due diligence and compliance purposes using independent contractors.

The Springvale Colliery pit top is situated against the Newnes State Forest and therefore is largely enclosed by native forest. Coal delivered to the ROM stockpile is wet with moisture levels ranging from 10-12% which acts to reduce particulate emissions. Other measures which are routinely employed at the Springvale Colliery to reduce emissions of particulate matter are the implementation of speed limits on internal roads, the enclosure of coal crushing and screening processes and material transfer by conveyor, the application of water sprays on the ROM stockpile and on open

areas at the site. In addition, paved and bitumen covered pit top areas are swept with a street sweeper twice per week to minimise dust loading.

3.3.1 Dust Monitoring

Condition P1.1 of the Springvale EPL requires the monitoring of dust gauges (DG).

Air Quality Results are presented in Appendix 1.

The following table presents a summary of dust results obtained during the reporting period. Figure 8 shows the mean result of both the dust gauges.

Table 17 Monthly Dust Gauge Results 2014

Month	DG1	DG2
January	2.4	0.6
February	1.4	0.8
March	0.9	0
April	1	0
May	1.2	0.5
June	0.8	0.6
July	2.5	0.5
August	1.3	0.7
September	0	0.1
October	1.1	1.1
November	2.8	0.7
December	1.9	ND*

*ND= Monitoring was undertaken at the correct frequency however no data could be obtained due to bottle being broken during the period.

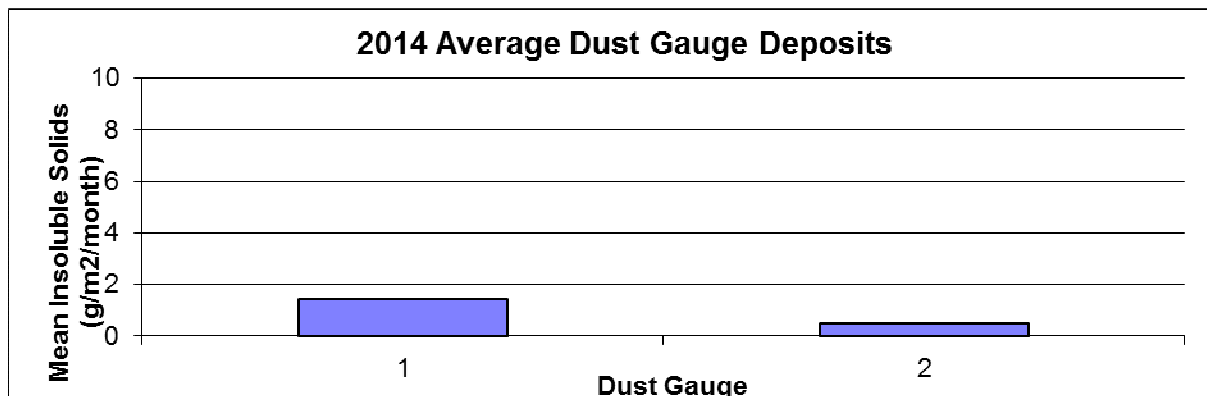


Figure 8 Mean Dust Result 2014

A comparison of the 2012, 2013 and 2014 dust monitoring results are presented in the following table.

Table 6 Annual Average Dust Monitoring Results

Springvale Dust Gauge	2012	2013	2014
DG1	1.55	1.63	1.44
DG2	1.16	1.09	0.51
AVERAGE	1.35	1.36	0.99

During 2014, dust results were slightly below the results of 2012 and 2013. The annual average insoluble solids for all dust gauges during 2014 were below the annual average of 4g/m²/month EPL guideline.

The HAVS monitoring system was commissioned late in 2010. Average results from the past 3 years are displayed in the table below.

Table 19 HVAS average results

AVERAGE	TSP (µg/m ³)	PM10 (µg/m ³)
2012	24	9
2013	17	7
2014	15	7

The annual average for TSP and PM10 is well below guideline limits of 90 and 30 µg/m³ respectively.

EIS (1992) Predictions \ Recommendations

The EIS predicted that Wallerawang Power Station would contribute 1g/m²/month deposited dust in the area, which is located approximately 1.5km from Springvale Pit Top. The main dust generating sources identified within the EIS area as follows:

- Coal product and reject stockpiles;
- Scraper, dozer and grader movements on overburden;
- Areas exposed prior to rehabilitation;
- Coal loading and hauling operations; and
- Vehicle movements on unpaved roads.

Additionally, road and traffic, residential developments and agricultural activities were predicted as being generally localised in area and duration and may contribute to deposited dust levels for Springvale Coal. The principle sources of airborne dust may potentially arise from the storage and transport of coal, which will be transported to the power station by conveyor soon after extraction. It is however noted that dust emanating from the transported coal is largely controlled as the coal has a moisture content of approximately 8%.

Airborne dust control measures recommended within the EIS are as follows:

- Water sprays fitted to the main coal stacking gantries and activated automatically to apply 2L/m²/hour of water over stockpile areas when wind speeds exceed 20–25 km/hr;
- Conveyor system (three-quarter's enclosed) and the section running past Duncan Street will be fully enclosed;
- Pit top access road will be sealed to restrict dust generation due to vehicle movements;
- The access road to the Washery site will be gravel and watered on an irregular basis given the low expected usage;
- Regular watering of the reject emplacement area; and
- Progressive rehabilitation of the reject emplacement area.

The results for 2014 show all dust gauges are well below the 4 g/m²/month annual average criteria. Based on the EIS prediction of Wallerawang Power Station contributing 1g/m²/month to the surrounding area, it may be viewed that the impact of Springvale Coal on air quality is minor, with the annual average for DG1 – DG2 being 0.99 g/m²/month during 2014.

The control measures employed by Springvale Coal during the reporting period were appropriate in controlling airborne dust, which included watering of unsealed roads & coal stockpiles and vacuum sweeping of sealed surfaces (both on an as required basis), plus the use of a predominately (fully) enclosed conveyor system. The current controls were assessed to be appropriate during the site specific particulate matter control best practice assessment conducted during 2012.

3.3.2 Greenhouse Emissions

Greenhouse gas emissions data for Springvale Mine inclusive of the Coal Services Washery is collected, audited and reporting under the National Greenhouse and Energy Reporting Act (NGER Act) with the main inputs being tonnes of coal produced, ventilation data, electricity consumption, and diesel consumption.

The following figure provides an overview of the breakdown of the main Scope 1 and Scope 2 greenhouse emissions for Springvale Colliery.

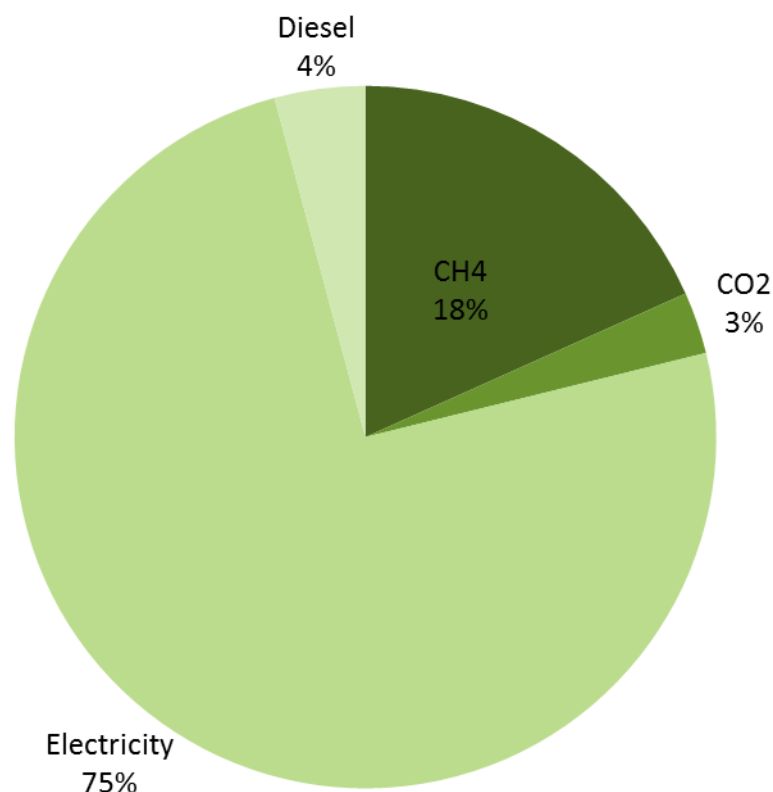


Figure 9 2014 Greenhouse Gas Summary

3.4 Erosion and Sediment Control

Most activities at the Springvale pit top are undertaken on relatively flat areas. In addition, high activity areas are sealed (e.g. car park areas). There are minimal exposed earthen areas at both sites. Internal unsealed roads are maintained to prevent dust, primarily through dust suppression sprays and water carts. Sediment fences are installed where required to filter sediment from drainage / seepage. Sediment is controlled by a series of dams and water treatment facilities at both sites. Water discharged is monitored for suspended solids.

3.5 Surface Water Quality

Surface water monitoring is undertaken in accordance with the conditions contained within EPL 3607 and results of the monitoring are reported on an annual basis to the OEHL via the EPA Annual Return.

Non-compliances that are reported via the Annual Return are available to be viewed on line on the EPA website via the link:

<http://epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=3607&id=3607&option=licence&searchrange=licence&range=POEO licence&prp=no&status=Issued>

LDP Water Quality Results are presented graphically in Appendix 2.

The water quality parameters for LDP001 are presented in Table 20.

Table 20 LDP001 Statistical Summary 2014

Pollutant	Unit of measure	Lowest sample value	Mean of sample	Highest sample value	Limit
pH	pH	6.34	8.06	8.56	6.5-9.0
Total suspended solids	milligrams per litre	<5	9.86	56	30
Oil and Grease	milligrams per litre	<5	0.5	6	10
Conductivity	microsiemens per centimetre	545.0	986.5	1240	NA
Filterable iron	milligrams per litre	<0.05	0.048	0.440	NA
Filterable manganese	milligrams per litre	0.004	0.0501	0.268	NA

The pH of discharged water from LDP01 ranged between 6.34 and 8.56, with an overall average of 8.06 for the reporting period. There was one pH exceedance on the 3rd of June 2014. This was caused by the acid dosing system not adjusting to low flows recorded at the discharge point. Subsequent to the exceedance the acid dosing system has been upgraded to adjust to variability in flow rates and pH levels using real time monitoring technology.

The TSS ranged from <5mg/L to 56mg/L during the reporting period with an average result of 9.86mg/L. One TSS exceedance occurred on the 12th of September 2014. The dirty water drainage channel and temporary pipe was inundated by fine wet coal slurry which flowed from the stockpile floor into the clean water drainage channel having been indirectly moved by the stockpile dozer movements about 15 meters away. Mitigation measures undertaken to prevent re-occurrence include more regular inspection of the coal stockpile drainage system by operators and independent contractors, upgrades to crusher house dam pumping system, review dam excavation and placement of coal fines in the stockpile area. Clean water from the fire dam will also be enclosed in a pipe past the stockpile area.

EC ranged from 545µS/cm to 1240 µS/cm with an average of 936µS/cm. This is consistent with previous years.

Filterable iron ranged from <0.05 to 0.440mg/L, with an average of 0.048mg/L; this is consistent with previous years. Average filterable manganese for the reporting period was 0.004 mg/L with a maximum of 0.268 mg/L recorded; this result is consistent with previous years.

The oil and grease results for 2014 were generally below the detection limit for the year. The maximum result was 6mg/L which is below the EPL criteria.

There were no discharge events from LDP004 and LDP005 on the Newnes Plateau during the reporting period.

Delta Electricity transferred the accountability for the discharge of mine water on the Delta Energy property to Springvale in August 2012. During periods when Delta Energy is unable to process the

mine water in the cooling towers, water is discharged through either licensed discharge point 9 or 10. Results from 2014 are presented in Table 21.

Table 21 LDP009 Statistical Summary 2014

Pollutant	Unit of measure	Lowest sample value	Mean of sample	Highest sample value	Limit
pH	pH	7.66	7.89	8.28	6.5-9.0
Total suspended solids	milligrams per litre	<5	4.377	49	50
Oil and Grease	milligrams per litre	<5	0.245	7	10
Aluminium (dissolved)	milligrams per litre	<0.01	0.013	0.06	0.45
Arsenic (dissolved)	milligrams per litre	0.003	0.022	0.032	0.024
Boron (dissolved)	milligrams per litre	<0.05	0.067	0.12	0.37
Conductivity	microsiemens per centimetre	960	1131.4	1260	1200
Copper (dissolved)	milligrams per litre	<0.001	0.001	0.012	0.007
Fluoride	milligrams per litre	1.1	1.287	1.4	1.8
Iron (dissolved)	milligrams per litre	<0.05	0.005	0.25	0.4
Manganese (dissolved)	milligrams per litre	0.002	0.008	0.012	1.7
Nickel (dissolved)	milligrams per litre	<0.001	0.004	0.02	0.047
Turbidity	nephelometric turbidity units	1	9.4	70	50
Zinc (dissolved)	milligrams per litre	0.005	0.011	0.023	0.05

The water quality results for LDP09 are graphed in Appendix 1.

The pH of discharged water from LDP09 ranged between 7.66 and 8.28 with an overall average of 7.89 for the reporting period. EC ranged from 960 $\mu\text{S}/\text{cm}$ to 12600 $\mu\text{S}/\text{cm}$ with an average of 1131 $\mu\text{S}/\text{cm}$. This is consistent with last year. The maximum oil grease level detected was 7mg/L which is below the EPL limit of 10mg/L.

The turbidity limit was exceeded during the reporting period. The weekly compliance sample was taken at a time when there was disrupted flow into the dams caused by two of the three input-bores not operating due to power failure caused by an electrical storm activity on the Newnes Plateau. All other concentration limits were with compliance at the time of sampling.

During the reporting period the electrical conductivity exceeded the EPL limit of 1200 $\mu\text{S}/\text{cm}$. The cause for the increase in levels was due to increased exposure of mine water make to goaf material underground. Various specialist assessments have been undertaken as part of the Springvale mine extension project which concludes that there are no adverse impacts from elevated EC levels. Power was restored at the dewatering bores as soon as practicable.

The arsenic concentration limit was also exceeded during the reporting period. Mobilisation of naturally occurring minerals within the geological sequence as a result of goaf water storage and subsequent dewatering of the mine. Investigation into the source was undertaken immediately. Treatment options have been researched and trialed regarding the removal of soluble arsenic from the discharge waters. The investigation is ongoing.

There were 2 copper exceedances during the reporting period. Mobilisation of naturally occurring minerals within the geological sequence as a result of goaf water storage and subsequent dewatering of the mine. An investigation was undertaken into the source of water contributing to the discharge point which caused elevated level of copper to be detected at the discharge point. The rates of extraction were subsequently modified to achieve compliance with the prescribed criteria.

Centennial is currently undertaking a holistic review of water management activities within the Western Region with the objective of meeting the agreed requirements of the Springvale Mine Extension Project.

LDP010 was utilized as a discharge point on one occasion during the reporting period due to maintenance on the SDWTS . This point is located upstream of settling ponds near LDP009 and not on the newness plateau. Results are presented below in Table 22.

Table 22 LDP10 Summary 2014

Pollutant	Unit of measure	Sample result	Limit
pH	pH	8.11	6.5-9.0
Total suspended solids	milligrams per litre	14	50
Oil and Grease	milligrams per litre	<5	10
Aluminium (dissolved)	milligrams per litre	0.05	0.45

Arsenic (dissolved)	milligrams per litre	0.017	0.024
Boron (dissolved)	milligrams per litre	0.06	0.37
Conductivity	microsiemens per centimetre	1170	1200
Copper (dissolved)	milligrams per litre	<0.001	0.007
Fluoride	milligrams per litre	1.2	1.8
Iron (dissolved)	milligrams per litre	<0.05	0.4
Manganese (dissolved)	milligrams per litre	0.023	1.7
Nickel (dissolved)	milligrams per litre	0.003	0.047
Turbidity	nephelometric turbidity units	13	50
Zinc (dissolved)	milligrams per litre	0.012	0.05

The data presented above demonstrates compliance with the EPL limits and shows consistency with results presented from LDP009.

Information regarding discharges from licensed discharge point 6 is contained in the Coal Services Annual Report.

EIS (1992) Predictions \ Recommendations

An extensive Surface Water Management System has been developed as part of the Springvale Coal Environmental Management System (SV-MS-027). This document, along with the Springvale Coal Subsidence Environmental Monitoring Program (SV-MS-036), identifies, describes and details the requirement which Springvale Coal must meet for surface water monitoring, analysis and reporting. Water pollutants monitored at LDP001 and LDP006 are TSS, EC, Iron (Filterable), Manganese (Filterable), Oil and Grease, Zinc and pH with Nickel and Total Hardness now also monitored at LDP006.

3.6 Groundwater Contamination

Major potential sources of groundwater pollution around the pit-top area are from hydrocarbon storage and dispatch. To eliminate this risk the underground fuel tanks were decommissioned and validated in 2009. They have subsequently been replaced with fully self-contained above ground storage facilities. A comprehensive Phase 2 hydrocarbon contamination assessment was undertaken

during 2011. Field work and laboratory analysis has been completed and a final report prepared by the consultants.

3.7 Contaminated Land

Major potential sources of groundwater pollution around the pit-top area are from hydrocarbon storage and dispatch. To eliminate this risk the underground fuel tanks were decommissioned and validated in 2009. They have subsequently been replaced with fully self-contained above ground storage facilities. A comprehensive Phase 2 hydrocarbon contamination assessment was undertaken during 2011. Field work and laboratory analysis has been completed and a final report prepared by the consultants.

3.8 Hydrocarbon contamination

Fuels and oils are stored in purpose built facilities with appropriate bunding and firefighting provisions. Diesel is stored in above ground bunded tanks from where it is transferred to diesel pods for underground use or direct to machinery. A licenced contractor is engaged to remove and recycle and/or dispose of used oil and grease products at licensed facilities.

3.9 Threatened Flora Swamps, Wetlands and Water Related Ecosystems

During 2005, Newnes Plateau Shrub Swamps were listed as Endangered Ecological Communities at a Federal and State level. On the 12th of May 2005, Temperate Highland Peat Swamps on Sandstone were listed as a Threatened Ecological Community (status Endangered) under the Environment Protection and Biodiversity Conservation Act 1999. Newnes Plateau Shrub Swamps are a subset of the Temperate Highland Peat Swamps on Sandstone. On the 15th of July 2005, Newnes Plateau Shrub Swamps were listed under Schedule 1 of the NSW Threatened Species Conservation Act 1995 as Endangered Ecological Communities.

There are six (6) Newnes Plateau Shrub Swamps within the Springvale Colliery SMP area. These are referred to as Kangaroo Creek Swamp, Junction Swamp, East Wolgan Swamp, Sunnyside East Swamp, Sunnyside Swamp, and Carne West Swamp.

3.10 Weeds

Major weed threats include Blackberry, Scotch Thistle, St. Johns Wart, which are targeted by the noxious weed control program within the monthly surface maintenance program. Weeds are targeted during the autumn and spring seasons. The weed control program mainly focuses on controlling weeds on the Pit Top, Overland Conveyor and Coal Services Sites.

A s95 certificate has been granted by OEH to enable weed control works (including hand removal of weeds) to be undertaken in both the East Wolgan and Narrow Swamps as a result of activities associated with previous mine dewatering operations. A suitably qualified contractor (Bush Doctor) continued to undertake these works in 2014.

Weed control works are carried out where required, as identified during the inspections of the Pit Top and disturbance areas of the Newnes Plateau. Weed species identified will be targeted for eradication.

3.11 Operational Noise

Springvale Mine received project approval DA 11/92 (MOD 4) dated 5 December 2013 from the NSW Department of Planning and Environment for continued operations up to September 2015.

During the reporting period, a noise management plan was developed and approved by the DP&E in accordance with the requirements of the consent.

A number of noise mitigation and management measures were installed during the reporting period. These included:

- Installation of noise attenuating mufflers on the stockpile dozer.
- Installation of "quacker" reverse alarms on the stockpile dozer during the daytime and use of a flashing light warning signal during the night-time to replace the existing reverse beeper.
- Restricted (gear box limited) the stockpile dozer to second gear (low speed) while reversing to reduce track slap.

- Regular (weekly) inspection of conveyor idlers and prompt replacement of damaged or highly worn idlers during maintenance.

Additionally cladding on the southern wall of the ROM conveyor drive building was installed. This is shown below in Figure 10.



Figure 10: Noise cladding installed in 2014

Project specific noise goals were established for the Environmental Assessment (refer Section 75W Modification to Development Consent DA 11/92 dated October 2013), and are produced in the following table:

Table 23 Noise Goals

Location	Day LAeq (15minute)	Evening LAeq (15minute)	Night LAeq (15minute)	LA1 (1minute) LAeq (15minute)
S1	45	44	42	52
S2	43	43	43	53
S3	50	41	41	60
S4 and S5	35	35	35	45
NF1 to NF9 (when in use)	50	50	50	N/A

These locations are shown in Figure 11.

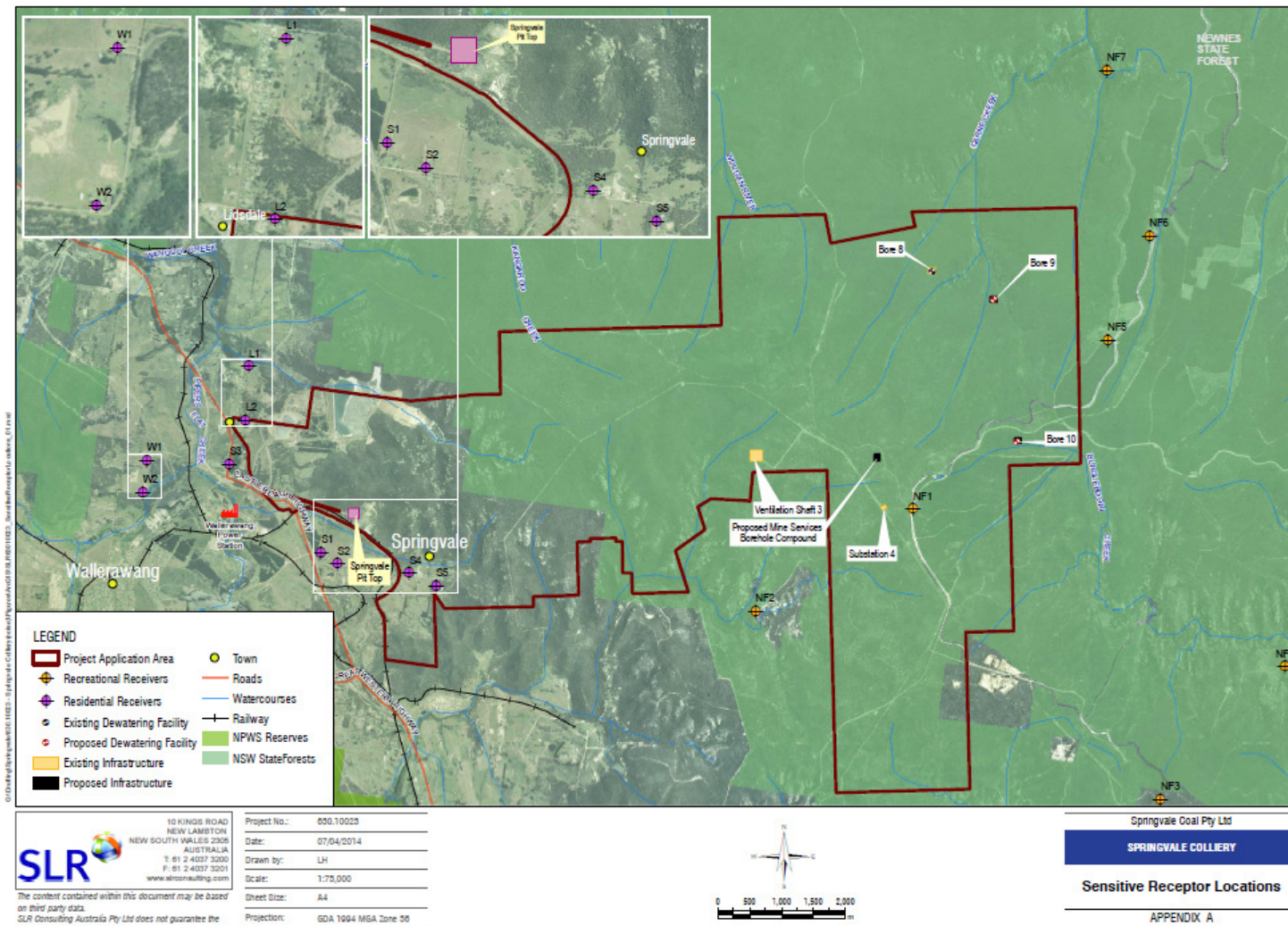


Figure 11: Sensitive Receptor Locations

Operator attended monitoring has been conducted at Springvale during the reporting period at two locations.

Location 1 (S1) represents residence off Springvale Lane, located approximately 620 metres southwest of the closest activities on the mine site and approximately 140 metres east of the Castlereagh Highway.

Location 2 (S2) represents residence at 31 Springvale Lane, located approximately 640 metres southwest of the closest activities on the mine site and approximately 330 metres east of the Castlereagh Highway.

The following table compares results of the operator attended noise monitoring with relevant noise goals. Results are shown graphically in Appendix 4.

Table: 24 Noise Monitoring Results Summary 2014

Location	Q1	Q2	Q3	Q4	Noise Goal
Day					
S1	40	42	<32	40	45
S2	38	42	31	41	43
Evening					
S1	40	38	32	43	44
S2	37	41	33	42	43
Night					
S1	40	41	36	44	42
S2	40	44	34	42	43

The table above indicated that compliance with the noise goals was achieved at both noise monitoring locations during all monitoring periods. It is noted that in Quarter 4 monitoring conducted in December was greater than the noise goal however as per the Industrial Noise policy Section 11.1.3, “A development will be deemed to be in non-compliance with a noise consent or licence if the monitored noise level is more than 2 dB above the statutory noise limit specified in the consent of licence condition.”

Measurements were also conducted of items of plant and equipment subject to noise mitigation measures to determine the effectiveness of the noise mitigation. A comparison of the measured sound power level from those implemented in the noise model as part of the Environmental Assessment is provided in the table below.

Table 25: Equipment Sound Power Levels

Plant and Equipment	Sound Power Level –dBA re 1pW		Reduction
	Prior to Mitigation	Post Mitigation	
Compressor House	105 dBA	93 dBA	7d BA
Run of Mine Conveyor Drives	111 dBA	101 dBA	9 dBA

Results of noise measurements show that mitigation measures implemented to date at the site have significantly reduced noise levels from the plant and equipment.

The noise model developed as part of this assessment has been updated based on the post-mitigation sound power levels of the subject plant and equipment. The operational noise emission levels from Springvale Mine are predicted to reduce by up to 1 dB at S1 and S2 during a temperature inversion and 1 dB at S1 under calm conditions. A reduction of less than 1 dB is predicted at S2 under calm conditions.

Springvale has commissioned the implementation of a real-time noise monitoring system at the Springvale site with the system currently in the process of becoming operational. As part of this process an investigation into the effectiveness of this system will be conducted in accordance with consent requirements of MOD 4.

3.12 Visual, stray light

Visual stray light is not considered to pose any potentially adverse environmental impacts at the Colliery due to the small surface footprint, locality, and the distance to neighbouring properties. There have been no complaints received in the operating life of the Colliery in relation to visual stray light.

3.13 Aboriginal Heritage

During 2014 several meetings were conducted with representatives from Gundungurra Tribal Council Aboriginal Corporation and Springvale Colliery along with representatives from Centennial mines. An update on Springvale Colliery's activities was provided along with details of proposed future exploration activities.

During 2014 Centennial Coal prepared a Western Region Aboriginal Cultural Heritage Management Plan in consultation with relevant stakeholders. This document provides to provide Centennial with a consistent approach to Centennial's consultation with the local Aboriginal communities regarding Aboriginal cultural heritage identification as well as identify consistent minimum standards and processes for Aboriginal cultural heritage identification, monitoring and management across Centennial's western operations. The plan was approved by the Department of Environment on the 23rd October 2014

Additionally during 2014 Centennial supported NADOIC Day.

EIS (1992) Predictions \ Recommendations

The archaeological survey undertaken as part of the EIS predicts that the shelters above the area proposed for Longwall mining are not at risk from subsidence. It is recommended that shelter sites be included in any subsidence monitoring programs as a check on their stability.

During the reporting period, no noticeable damage to these shelter sites was observed, nor damage caused by subsidence. These findings are representative of those predicted within the EIS.

3.14 Natural and European Heritage

Newnes State Forest occupies the area above the Springvale underground coal leases. The area is currently managed by Forests NSW who regularly carries out logging activities of both its pine plantations and native forests. In addition to logging activities, tracks are maintained by Forests NSW which attracts a large number of 4WD and trail bike riders. The area is also very popular for campers and bushwalkers. In 2006, the Newnes State Forest was gazetted as a hunting area for Bow Hunters.

An historical heritage assessment has been completed including a review of relevant Commonwealth, State and local historic heritage registers. The review of relevant registers included the National Heritage List, Commonwealth Heritage List, State Heritage Register, State Government Agency Heritage and Conservation Register and the Lithgow City Local Environmental Plan. No historic heritage items and/or National Heritage Places have been identified within the Springvale Colliery holding.

3.15 Spontaneous Combustion

The Lithgow coal seam has a low propensity for spontaneous combustion with no spontaneous combustion issues in relation to in-situ or for processed Lithgow seam coal. The highest risk of

spontaneous combustion in relation to Lithgow seam coal appears to be during stockpiling for periods greater than approximately 1 year. Springvale coal is generally stockpiled for less than 1 year. There have been no incidences of spontaneous combustion in the life of Springvale mine.

EIS (1992) Predictions \ Recommendations

As predicted within the EIS, no occurrences of spontaneous combustion were observed during the reporting period.

3.16 Bushfire

The majority of the land within the Springvale holding has been identified as Bushfire Prone Land. Fire history data from the Forestry Corporation of NSW indicates that the majority of bushfires in the area spread from the north and east of Springvale Mine due to the direction of dominant winds throughout the bushfire season. A number of fire trails exist across the Newnes Plateau, namely Sunnyside Ridge Road, Campbells Track and Maiyingu Marragu Trail. These act as containment lines mitigating a degree of bushfire risk to Springvale Mine's infrastructure.

Springvale Mine has established a Bushfire Management Plan (SV-MS-029 (2013)) and the associated Bushfire Management Procedure (SV-MS-029-WP-568 (2011)) in consultation with the NSW Rural Fire Service. These documents identify both the risks posed by bushfire to Springvale Mine assets, and control strategies to mitigate these risks.

In 2013 the devastating State Mine fire burnt through more than 46,000 hectares. The bushfire caused power outage and minor damage to mine infrastructure located on the Newnes Plateau. Several flora monitoring plots on the Springvale lease were affected by the bushfire. The effect the bushfire had on flora monitoring plots is discussed in Section 3.19.

In 2014 there were no bushfires affecting Springvale Colliery

EIS (1992) Predictions \ Recommendations

The EIS details the requirement for firefighting services to access water at the Pit Top and Washery in the event of a bushfire. Current bushfire controls include the Springvale-Delta Transfer Scheme, which pumps up to 30ML per day from Springvale Coal and Angus Place Colliery to Wallerawang Power Station. Along the pipelines length, fire hydrant points have been installed for use by fire services.

3.17 Mine Subsidence

An SMP application was submitted for LW411 to LW418 on the basis of 315 m width and was approved on 7 March 2006. Further changes in Longwall dimensions were granted by the SMP approvals in a number of variations (see table 26). One of the outcomes of the SMP Variation in 2010 (shortening of LW414) was the avoidance of Sunnyside Swamp.

Table 26 SMP Summary

SMP	Date	Description	Purpose of refinement
Initial SMP 04/1673	2006	SMP for LW411-418	Mining lease requirement for approved SMP prior to mining and in accordance with the approved dimensions of DA 11/92. Void widths of 315 m and longwalls lengths in excess of 3750 m.
Section 138 Approval (Coal Mine Regulation Act 1982)	January 2006		Approval to extract LW411 and LW412 within the Lithgow Seam.
SMP Variation	November 2008	Reduction in Length of LW 414-418	LW414 to LW418 shortened by 471 m to the south to avoid a geological syncline running through the northern extent of these longwall blocks. Also as a result of this mine design modification, sensitive surface features have been avoided, including hanging swamps and pagodas to the north of LW416 to LW418.
SMP Variation 08/8497	August 2009	LW 413 step around and reduction of LW 414	Step around of LW413 was approved to avoid existing geological constraints. LW414 shortened by approximately 700 m to the south due to anticipated geological conditions which could potentially lead to dangerous roof control issues and difficult mining conditions within the northern portion of LW414.
SMP Variation 08/8497	August 2009	Changes to LW 413 block dimensions	Variation to the take-off face position in LW413.
Clause 88 Approval	October 2009		Variation approval to extract LW414 within the Lithgow Seam.
SMP Variation 08/8497	2010	Reduction in length of LW 414	Based on monitoring results and feedback from stakeholder consultation, LW414 was shortened by in excess of 1,186 m. Dimensions were modified to avoid significant business interruption and production discontinuity. Another outcome of the shortening of LW414 was the avoidance of Sunnyside Swamp.
SMP Variation 08/8497	2011	Changes in Mine Plan dimensions of LW 416 and LW 417	Change of mine plan to reduce void width of LW416 and LW417 from 315 m to 261 m and increase of chain pillar width from 45 m to 58 m. The new dimensions were to improve underground stability and minimise the risk of environmental impact to surface features.

SMP Variation 08/8497	2012	SMP Variation LW415	Change in mine plan to reduce the length of LW415 due to geological conditions.
SMP Variation 11/3964	2012	SMP Variation LW416	LW416 was shortened based upon identification of lithology change, which posed a risk to mine safety, coal quality and production rates. Also as a result of this mine design modification, sensitive surface features have been avoided, including hanging swamps to the north of Longwalls 416.
SMP Variation OUT 12/27914	2013	SMP Variation LW 411-418	Reduction of IW416 Length to current Bore 8 Drive age
SMP Variation OUT13/2174	2013	SMP Variation LW 411-418	Change in mine plan dimensions for LW411–LW418. Increase of pillar length to 130 m.
SMP Variation OUT13/2174	2013	Extension in time SMP Approval	Variation to extend relevant SMP approvals until 28 September 2014.
SMP Variation OUT13/21877	2013	SMP Variation LW 411-418	Adjust 418 void dimensions to be consistent with 416-417
SMP Variation OUT13/37387	2013	SMP Variation LW 411-418	Reduction of LW 417-418 Length to be consistent with the Bore 8 Driveage
SMP Variation OUT14/9977	2013	SMP Variation LW 411-418	Increase LW cutting height up to 3.5m outside Newnes Plateau Shrub Swamp Buffer Zones (as defined by SEWPaC approval
SMP Variation OUT 14/15149	2013	SMP Variation LW 411-418	Extension of time to 30 September 2015.

3.17.1 Subsidence Monitoring

Extraction of LW416 commenced on 24 September 2013 and continued extraction until 18 August 2014. LW416 panel length was 2488m with extraction retreating 1893m during 2014. The extracted void width is 261m. Depth of cover across LW415 ranged between 370m and 430m.

Subsidence survey monitoring results for LW416 confirmed that subsidence results over LW416 are within the maximum predicted limits (1100mm) with a current maximum reading of 747mm over B line (Plan No. 7).

Extraction of LW417 commenced on the 11 October 2014. LW417 panel length is 2488m and has currently retreated 780m. The extraction void is 261m. Depth of cover ranges from 370m to 430m across LW417. Extraction of LW417 will commence into 2015.

None of the measured subsidence effects have caused any surface cracking or erosion impacts to surface features on the Newnes Plateau including shrub swamps, fire trails and powerlines.

There are no anomalous surface movements that warrant investigation this stage.

EIS (1992) Predictions \ Recommendations

Subsidence monitoring results for LW415 are within predictions detailed in the EIS. These predictions for subsidence are detailed below:

- 33 (potential) longwall panels;
- Panels 1 – 2 to experience subsidence range from 40% of mined thickness (i.e. 1.2m) to 65% (i.e. 1.95m) and tensile strain between 5mm/m and 13mm/m;

- Panels 3 – 25 to experience similar subsidence levels (40 – 65%), although the depth of cover increases from panel 3 – 19 (e.g. panels 3 – 7 between 310 – 355m and panels 8 – 25 between 295 – 420m);
- Maximum subsidence over panels 3 – 19 (i.e. 40% of mined thickness or 1.44m); and Subsidence to occur within 6 – 9 months post extraction, with the majority of subsidence occurring within 4 months of the longwall passing a particular point.

3.18 Fauna Monitoring Results

As part of an on-going monitoring program at Springvale Colliery, detailed surveys of terrestrial vertebrate fauna populations have been undertaken on an annual basis, in spring, spring and summer. A total of eight sites within Springvale Colliery were surveyed for fauna during 2014. Three sites (SV3, SV4 and SV5) are within the original SMP Application Area and four sites are within the Extension Area (Gang Gang North, Gang Gang South, Barrier Swamp and Marrangaroo Swamp). All of the sites primarily sample wetland habitat (shrub swamps), but the surrounding woodland habitat is also surveyed. Site AP3 is included within the Springvale Colliery monitoring area as it is located on the boundary between Springvale and Angus Place Collieries.

The sites were surveyed between 4th and 18th April 2014, 11th August and 12th September and 15th and 19th December 2014.

The suite of sites surveyed in Springvale Colliery covers land where mining activities have occurred (treatment sites) and land that is considered as control. The suite of sites surveyed in Springvale Colliery has not been directly undermined, but two sites (AP3, SV3) monitor the effects from mining by being within the angle of draw of the mining activities.

Comparisons can be undertaken between data from the surveys of two (2) of the sites within the Springvale Colliery that are within the angle of draw and could potentially be affected by mining operations. The data from these sites can be compared with that from the sites in the Colliery, although this comparison is confounded by the impacts from the State Mine fire. The eastern part of the Colliery has not been mined at present and the data from these sites can be used as a basis of comparison of the swamps within the Colliery boundaries. For this report two sites were chosen that are potentially affected by the existing mining activities (AP3 and SV3) and the survey results are compared to the results from two sites relatively close by and sampling similar habitats (creekline and swamp). The sites chosen were SV4 and Gang Gang North.

The following data is used in this comparison: habitat characteristics; habitat complexity scores, bird and mammal biodiversity indices.

Table 27: Comparison of Results from Control Sites in the Extension Area and Treatment Sites

% Cover	Treatment	Control
Tree Cover	13	11
Tall Shrub Cover	25	33
Tall Sapling Cover	12	11
Low Shrub Cover	79	76
Low Sapling Cover	14	12
Fern Cover	66	45
Cutting Grass	40	49
Grass Cover	36	32
Forb Cover	37	70
Reed Cover	48	67
Vine Cover	2	1

Litter Cover	100	89
Log Cover	20	39
Rock Cover	16	2
% Tree Hollows	2	2

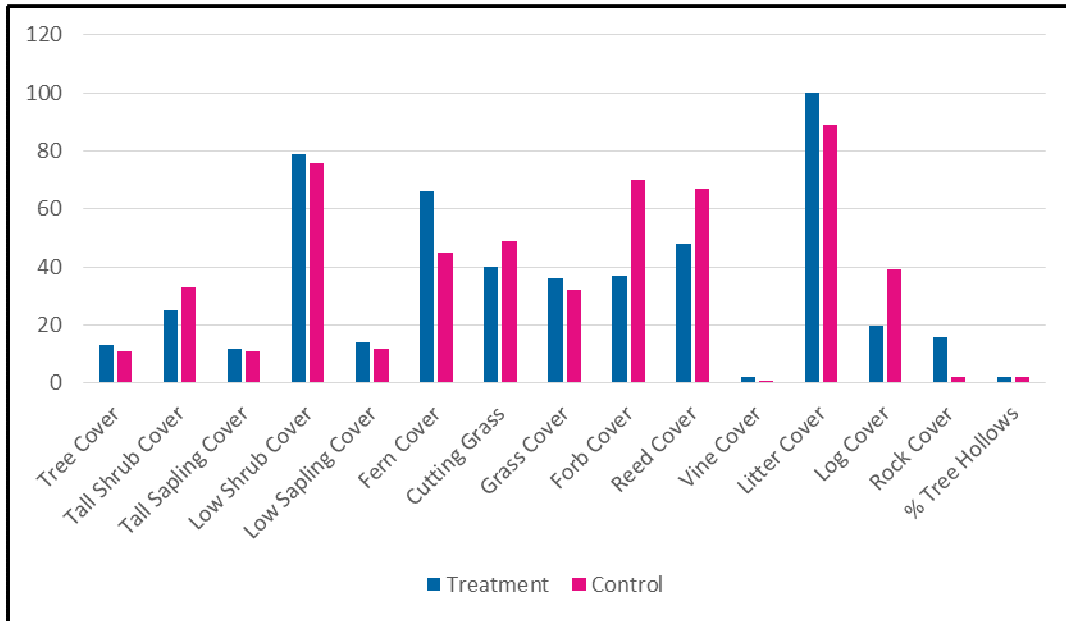


Figure 12: Habitat characteristics

A non-parametric Mann-Whitney Rank Sum Test shows that there are no significant differences between the biodiversity indices. However, the values from the treatment sites are consistently higher than that obtained from the control sites.

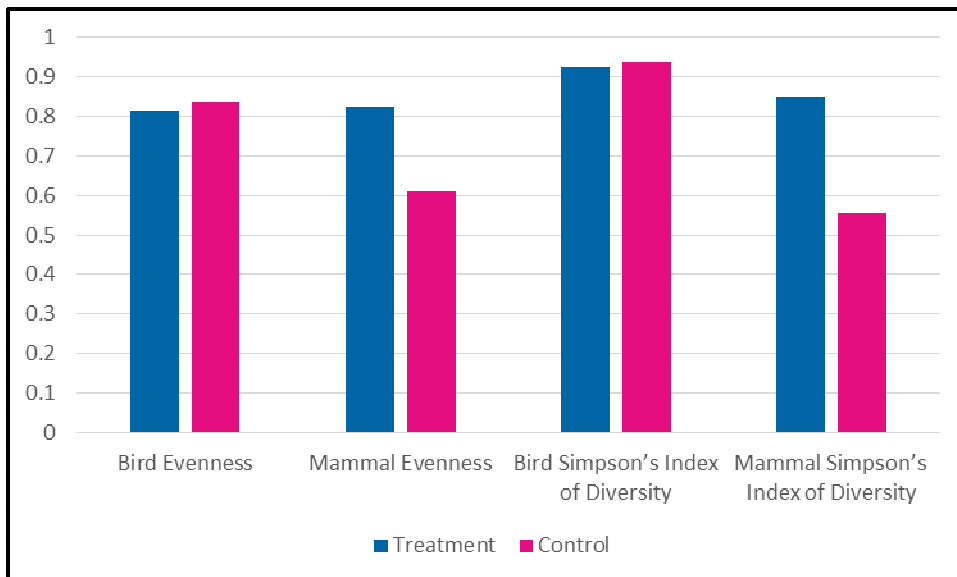


Figure 13 Biodiversity indices

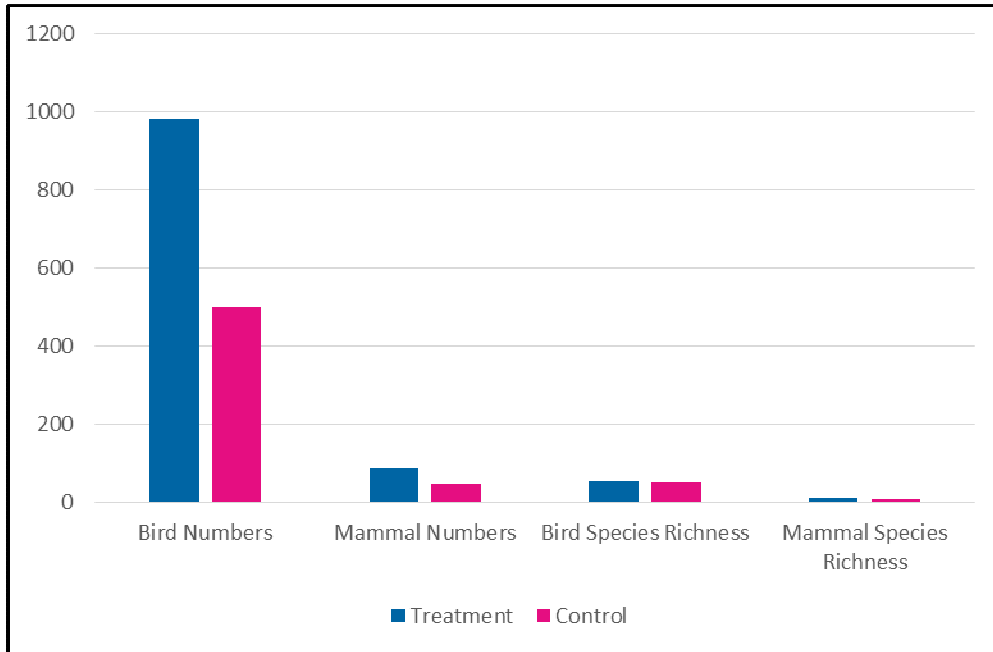


Figure 14 Numbers and Species Richness

The above analysis of the data obtained from the 2014 surveys shows that, at present, there appears to be no identifiable impacts from underground mining activities at Springvale Colliery.

Eight (8) threatened vertebrate species were located during the surveys (Eastern False Pipistrelle, Eastern Pygmy-possum, Blue Mountains Water-skink, Powerful Owl, Gang-gang Cockatoo, Scarlet Robin, Flame Robin and Varied Sittella), as well as a number of sightings of the Giant Dragonfly.

3.19 Flora Monitoring

All monitoring sites at Springvale are permanently marked with 20 x 20m plots within which vegetation abundance and condition was measured, with the exception of two sites (EW01 and NS01) where 10 x 40m quadrats are used instead. These latter sites differ from the others as the narrowness of the swamp makes a longer, thinner plot more appropriate.

At each site, researchers record all species within the plot; estimate cover/abundance using a modified Braun-Blanquet scale; and estimate condition of common species using a pre-determined condition scale.

Table 28 The modified Braun-Blanquet scale

Cover/abundance score	Interpretation
1	cover less than 5% of site and rare
2	cover less than 5% of site and uncommon
3	cover of less than 5% and common
4	cover of 5-20% of site
5	cover of 20-50% of site
6	cover of 50-75% of site
7	cover of greater than 75%

Table29 The condition scale

Condition ranking	Interpretation
1	severe damage/dieback
2	many dead stems
3	some dead branches
4	minor damage
5	healthy

The following table lists the flora monitoring undertaken by Springvale Colliery with reference to whether the site has been undermined.

Table 30 Flora Monitoring Locations

Swamp Name	Monitoring site	Date undermined
Kangaroo Creek Swamp	KC01	Jun-96
	KC02	Jun-96
Junction Swamp	NP005	Apr-03
	NP006	Apr-04
	NP007	Jan-09
Sunnyside Swamp	SS01	Unmined
	SS02	Unmined
	SS03	Unmined
	SS04	Unmined
West Carne Swamp	WC01	Unmined
	WC02	Unmined
	WC03	Unmined
	WC04	Unmined
Barrier Swamp	BS01	Unmined
Carne Central Swamp	CCS01	Unmined
Lower Gang Gang Swamp	LGG01	Unmined
Upper Gang Gang East	UGE01	Unmined
Sunnyside East Swamp	SSE01	Unmined
	SSE02	Unmined
	SSE03	Unmined
	SSE04	Unmined
Marrangaroo Swamp	MG001	Unmined
	MG002	Unmined

3.19.1 Weather

As previously discussed the weather conditions experienced over the Annual reporting period were below the long term trend. While some months (February and March) recorded above average rainfall, significantly drier conditions were experienced in July, September and November.

A heavy snowfall occurred in October 2015 which caused damage to the study area being notes. The impacts included tree falls, destruction of large branches and lodging of shrubs within the swamps. A number of vegetation monitoring plots were affected with large trees and branches falling across plots and collapse of the shrub canopy within a small number of plots. The spring survey commenced a week after this snowfall.

3.19.2 Species Richness

At Springvale, the highest species richness recorded in spring 2014 was at the burnt plots MG01 and LGG01, as well as the mined plot at Junction Swamp, NP005. This is a similar pattern to that recorded earlier in 2014. Sites with a rather lower level of species diversity include WC01, WC02, WC03, WC04, BS01, KC01 and SSE03. Four plots on the Springvale lease burned in October 2013, MG01, MG02, LGG01 and UGE01. These sites have all shown a significant increase in species diversity since the spring 2013 survey.

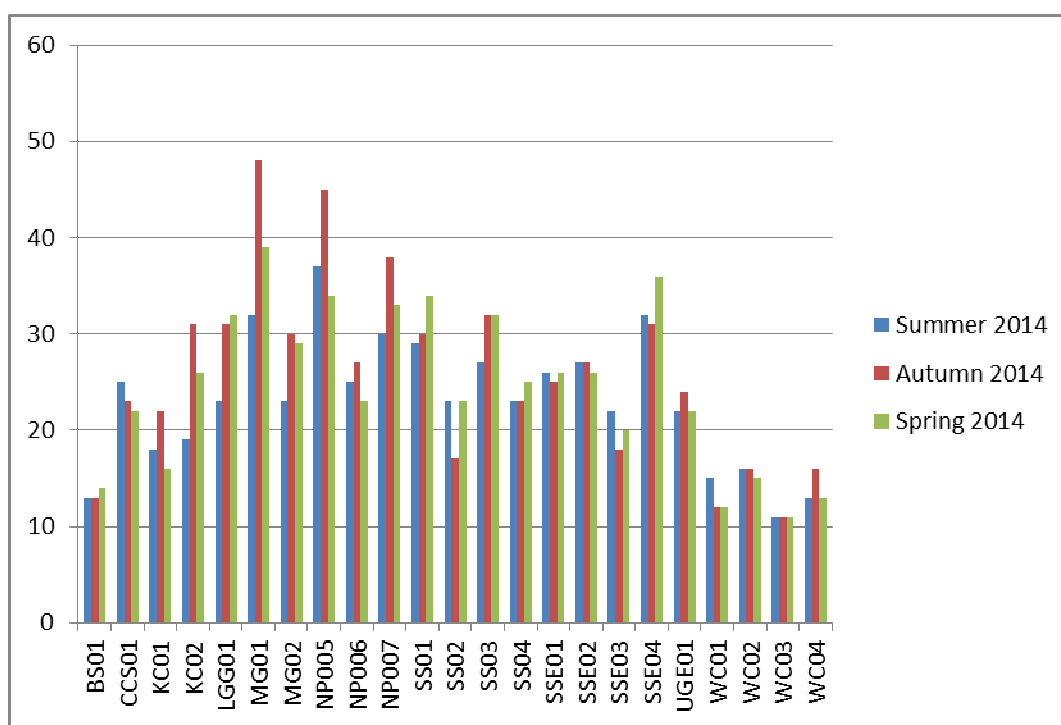


Figure 15. Species richness at Springvale 2014.

Across all Springvale plots in spring 2014 species richness was within 1 record of the autumn level for 10 of the 23 plots. At 5 sites species richness was somewhat higher in spring than in autumn, whilst at the remaining 8 plots species richness declined somewhat between autumn and spring. These latter plots included sites where extensive snow storm damage was recorded, KC01, KC02, NP005 and NP007.

3.19.3 Species composition

During 2014 a number of new species records were detected with the majority representing germination of soil stored seed at burnt sites. *Drosera peltata* was recorded at CCS01, *Dichelachne* sp., *Epacris obtusifolia*, *Euchiton involucratus*, *Poa labillardierei*, *Schoenus imberbis*, *Viola sieberiana* and *Xyris ustulata* at LGG01, the rare Oak-leaved Daisy Bush (*Olearia quercifolia*) and *Poa sieberiana* subsp. *sieberiana* at UGE01, the exotic grass (*Holcus lanatus*) *Hypericum gramineum* and *Patersonia fragilis* at SSE02 and *Banksia spinulosa*, *Celmisia longifolia* and *Eucalyptus radiata* were new records at WC04.

At the burnt Marrangaroo Swamp plots, *Aristida ramosa*, *Entolasia stricta*, *Epacris pulchella*, *Eriochilus cucullatus*, *Goodenia bellidifolia*, *Hakea propinqua* and *Lomandra glauca* were new records for MG01 with *Amphipogon strictus*, *Bauera rubioides*, *Drosera binata*, *Epacris pulchella*, *Goodenia bellidifolia*, *Sowerbaea juncea* and *Xanthorrhoea glauca* new records for MG02.

There were three new species records at KC02, *Arthropodium milleflorum*, *Eriochilus cucullatus* and *Poa labillardierei*.

3.19.4 Exotic Plant Species

Springvale plots generally have a low level of exotic weeds, with SSE02, SS03 and SS04 having a somewhat higher weed load than the other sites. The West Carne Swamp sites are almost always weed free and this state continued through 2014, despite evidence of drying sediments in this Swamp. The Barrier Swamp site BS01 has also been weed free during 2014. Weed species richness spiked in plots SS03 and SS04 in autumn 2014, in a similar response to that in the Angus Place sites, EW02 and NS02.

The disturbance history of SS03 includes damage to vegetation by pigs and rabbits, as well as incursion into the Swamp by recreational four-wheel drive vehicles following the transmission line easement which crosses the Swamp.

The main weed species in these plots is Catsear (*Hypochaeris radicata*) a widespread weed in the Central Tablelands of NSW which has wind borne seed. The next most common weed is Yorkshire Fog (*Holcus lanatus*), an exotic grass which frequents swampy ground in the New South Wales tablelands.

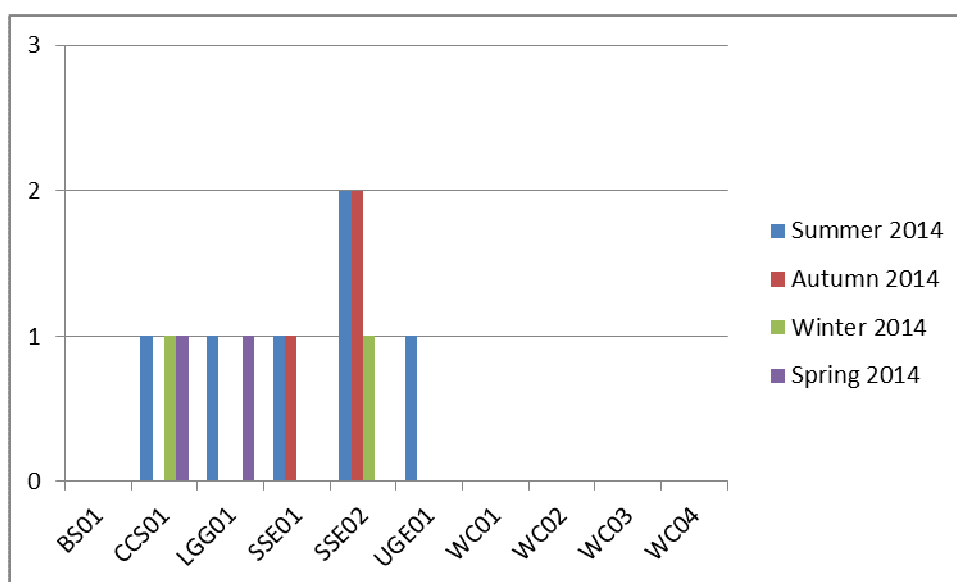


Figure 16. Exotic species richness at selected Springvale plots 2014

Conclusions

The results presented in this report show trends in plant species richness, plant condition and weed distribution which is consistent with previous annual reports.

Fluctuations in condition and cover/abundance scores are consistent with seasonal conditions and a normal response to the October 2013 bush fire. In particular there was a seasonal spike in species richness at a number of sites in autumn following good rainfall in February and March. In spring, there was a decline at plots most severely impacted by the October 2014 snow storm.

During 2014 changes relate to seasonal conditions and the impact of the October 2013 bush fire and subsequent recovery from that fire. The weather conditions which prevailed after the bush fire with a sequence of soaking steady rainfall in November meant that erosion of exposed organic sediments in the swamps did not occur. At some swamps seedling germination has meant that a number of previously unrecorded species have been recorded at survey sites.

Weed populations in the plots most affected by weed invasion showed a declining trend over the 2013-2014 period despite a spike in autumn 2014 associated with a germination response to rainfall.

3.20 Groundwater Monitoring Strategy

As part of the environmental management plans for Springvale Colliery, an intensive monitoring programme has been implemented on the Newnes Plateau to detect any impacts from underground mining on the groundwater regime, and in particular the Newnes Plateau Shrub Swamps (NPSS). The greater monitoring programme incorporates NPSS and groundwater monitoring locations above both Springvale Colliery and the adjacent Angus Place Colliery, the monitoring locations within the Springvale mining lease boundary include the following main aspects:

- Groundwater levels are monitored in 10 swamps, with a total of 24 swamp piezometers.
- Flow from Junction Swamp is monitored through a v-notch weir, and flows in Sunnyside Swamp and Carne West Swamp are indicated by pool depth monitors.
- The groundwater level in the regional shallow aquifer is measured in 22 piezometers, which have been installed on the ridges between the swamps.
- Hydrogeological conditions in the geological sequence above the working seam are monitored by multi-level piezometer arrays, installed in 11 boreholes across the entire spatial extent of mining lease boundary.
- A basic weather station provides climatic data on the plateau.
- Water quality data is recorded in 10 piezometers across 4 swamps

Data are recorded at various frequencies as follows:

- The swamp and aquifer piezometers, data are automatically recorded every three hours.
- Surface water level data in pools and weirs are automatically recorded every hour.
- Multilevel piezometers generally record data once per day.
- Dipped aquifer piezometers are measured at each data collection trip (monthly).
- Barometric data are recorded automatically every three hours for correction of piezometer data.
- Swamp water quality data are recorded monthly.

Results are presented graphically in Appendix

3.20.1 Swamp Water Levels

Overall the water level patterns recorded in swamps which have been undermined, and those which have not been undermined show similar trends. A characteristic Type A trend and a characteristic Type C trend is identifiable from the hydrographs. These two trends remain the same whether the swamp has been undermined or not.

As no mining influenced water level fluctuations can be identified in any of the monitored swamps (both undermined and baseline) it is accurate to say that mining at Springvale has not led to any identifiable water level impacts on the monitored swamps, and that all undermined swamps display water levels which can be likened to baseline behavior.

The following sections provide an overview of data trends for swamp water levels as per the current SMP Area.

Sunnyside West Swamp

There is one piezometer installed in Sunnyside West Swamp the details of which are shown in Table 31.

Table 31: Sunnyside West Swamp Piezometer Information

Piezometer	Mined Status	Swamp Type	Monitoring Commencement
SW1	LW413B and LW414	Type A	26/07/2007

The water levels at Sunnyside West Swamp show a strong response to rainfall and commenced the current review period at or below the level of the logger, which is situated at 2.2mbgl. The water level

had been in a period of overall decline since approximately February 2013 and this is the reason for a very low water level in January 2014.

The first water level rise in the piezometer occurs in mid-March 2014 in response to above average rainfall. The water level rises to a maximum of 0.72mbgl and then rapidly drops off. This peak represents the highest water level recorded in this piezometer in 2014. A second peak is recorded in mid-September, when the water level rose to 0.862mbgl before a rapid and constant recede to the most recently recorded levels.

The observed trend is similar to that observed during previous years since monitoring at this site began in 2007. The trend is as expected in that it follows the pattern of only showing responses following significant or above average rainfall events.

Sunnyside Swamp

There are four piezometers installed in Sunnyside swamp, the details of which are shown in Table 32.

Table32: Sunnyside Swamp Piezometer Information

Piezometer	Mined Status	Swamp Type	Monitoring Commencement
SS1	Not Undermined	Type C	12/05/2005
SS2	Not Undermined	Type C	12/05/2005
SS3	Not Undermined	Type C	12/03/2010
SS4	Not Undermined	Type C	12/03/2010
SS5	Not Undermined	Type C	12/03/2010

SS1 has shown a relatively steady trend throughout the review period, which is consistent with previous years. Water levels were approximately 0.25mbgl in January 2014 and peaked at around April and August (0.17mbgl and 0.15mbgl respectively) after two periods of above average rainfall experienced at the same time. Water levels then declined slightly and remained steady at around 0.15 to 0.22mbgl for the remainder of the year. Sampling events are evident from the rapid drop and subsequent recovery in water levels and as such, this data set should be interpreted through consideration of the upper water level trends.

SS2 has also shown relatively steady water levels throughout 2014 and is characterised by two peaks in March and August separated by regression in the intervening months. Water levels were approximately 0.37mbgl in January 2014 and approached ground level following a period of rainfall in March 2014. Water levels subsequently show a gradual decline over remainder of the year rising to approximately 0.24mbgl in August. Sampling events are also evident in SS2 and rapid response to rainfall events can be seen.

SS3 commenced the year with a water level at or below the bottom of the piezometer. Similar water levels have been observed in this piezometer over the monitoring history. As with all of the other piezometers installed in this swamp, rises in water level were observed in March and August when water levels rose to (approximately 0.7mbgl and 0.1mbgl respectively). Following both peaks, and when the rainfall levels returned to below average levels, the water level in the piezometer receded to the base of the piezometer.

SS4 has shown steady water levels throughout 2014 and it is comparable to previous review periods fluctuating at or around ground surface. The data set shows groundwater levels to be above ground; however, this is likely due to a small discrepancy in the logger depth setting used for calibration. The water levels at SS4 began 2014 in decline, due to below average rainfall in 2013. As displayed in the other piezometers installed in this swamp, the water level in SS4 shows two significant rises, one around March and the other around August. These increases in water level are a direct result of the above average rainfall recorded around this time. The water level in SS4 at the end 2014 was higher than what was recorded at the start of the year.

SS5 water levels have shown a very similar pattern to those at SS4 with a greater response to rainfall. As with all Sunnyside piezometers, a significant reduction in water levels is evident at SS5 during the end of 2013 and into January 2014 where water levels dropped from approximately ground level to around 0.72mbgl. Water levels subsequently increased due to the elevated rainfall during March 2014 and fluctuated between ground level and 0.2mbgl before declining and increasing again in August to just above ground surface.

Sunnyside East Swamp

Three piezometers are installed into Sunnyside East Swamp as shown in Table 33.

Table 33: Sunnyside East Swamp Piezometer Information

Piezometer	Mined Status	Swamp Type	Monitoring Commencement
SSE1	Not Undermined	Type A	12/03/2010
SSE2	Not Undermined	Type C	12/03/2010
SSE3	Not Undermined	Type C	12/03/2010

SSE1 is the deepest of the three piezometers installed at Sunnyside East and has shown water levels to be typically 0 to 0.1m above the logger throughout 2014. These levels indicate that the sensors are measuring trapped water in the base of the piezometers. Therefore, these measurements are not representative of the water level in the surrounding horizon. Historically this site has shown some strong responses to rainfall but only after prolonged rainfall and higher than average seasonal rainfall. No responses to rainfall were observed in SSE1 in 2014. This is not uncommon for this piezometer, as frequently in previous years the water level in the piezometer remains unresponsive for durations of 8 to 10 months.

The water level in SSE2 has showed a continued decline which started in March 2013. The onset of this decline coincides with a prolonged period of below average rainfall, which has continued up to March 2014. Two water level responses are observed in this piezometer in 2014 - one in early April where the water level rose by approximately 0.23m, and one in December as a result of the above average December rainfall.

SSE3 water levels have shown a very similar pattern to those in SSE2 with a decline from approximately ground level during the latter half of 2012 and commencing the current review period at around 1.7mbgl. During 2014, SSE3 showed definitive responses to the two significant rainfall events of 2014 – in March and August, where water levels rose to approximately 0.84mbgl and 1.01mbgl respectively. Overall, during 2014 the water levels showed a characteristic rainfall influenced trend only rising after prolonged and significant rainfall events.

Carne West Swamp

There are four piezometers installed into Carne West Swamp as shown in Table 34.

Table 34 Carne West Piezometer Information

Piezometer	Mined status	Swamp Type	Monitoring Commencement
CW1	Not undermined	Type C	12/05/2005
CW2	Not undermined	Type C	12/05/2005
CW3	Not undermined	Type A	14/10/2011
CW4	Not undermined	Type A	14/10/2011

For the Type A section of Carne West (CW3 and CW4), no water levels were recorded in these piezometers in 2014. Since monitoring was initiated in these piezometers, these monitoring points only respond to significant and prolonged rainfall events. Characteristic responses for these piezometers comprise rapid rises and subsequent declines in water level to a depth below the base of the piezometer. As described previously, a prolonged period of below average rainfall occurred from approximately March 2013 to March 2014. The hydrographs indicate that the influence of this period of below average rainfall was significant enough to lower water levels to a point where the two above average rainfall periods in 2014 did not result in observed water levels above the bottom of the piezometers in CW3 and CW4.

The water levels observed in CW1 and CW2 have shown significant drops throughout 2014, especially in CW1. The water level in this piezometer started 2014 in decline at a level of

approximately 0.29mbgl. This decline started in March 2013 and continued throughout 2014 until the water level reached the bottom of the piezometer (approximately 0.92mbgl) in mid-July. This level represents the lowest water level since monitoring began. Two periods of increasing water level are recorded in this piezometer (in March and August) which coincide with the above average rainfall during these periods. However, it appears that the water levels in this piezometer now display trends that are more rainfall dependent as opposed to predominantly groundwater dependent, which has been the case for the entire monitoring period from 2005 up to 2014.

The water level in CW2 was approximately 0.33mbgl at the beginning of January 2014, and finished the year at approximately 0.64mbgl. This represents a drop of approximately 0.31m. The most recent water level represents the lowest level since monitoring began.

Carne Central Swamp

There is one piezometer installed in Carne Central Swamp as shown in Table 35.

Table 35 Carne Central Swamp Piezometer Information

Piezometer	Mined status	Swamp Type	Monitoring Commencement
GG1	Not Undermined	Type C	14/10/2011

Water levels measured at the Carne Central piezometer (CC1) have shown a steady trend at around ground level since data collection commenced in 2011. Sampling events are evident in the data set with sampling frequency increasing from June 2013, as such; interpretation of this data should be undertaken with consideration of monthly maximums. The groundwater level at the start of 2014 was in decline for January and February. At this point, the water level rose rapidly to approximately 4cm above ground level, and apart from a slight decline in October, remained relatively stable at this level for the duration of 2014. The current intensity of water sampling appears to be impacting on the quality of data recorded and consideration should be given to reverting to the original monitoring frequency.

East Wolgan Swamp

East Wolgan Swamp is located above the eastern extend of the current Angus Place longwalls. East Wolgan Swamp has been undermined by Angus Place Colliery longwalls 960 and 970. The swamp is the down gradient extension of the Junction Swamp above the neighbouring Springvale Colliery, and is a licensed discharge point (LDP004) for Springvale. LDP004 is currently only used for emergency discharge. There were no recorded discharge events into the East Wolgan Swamp during the review period.

The water level at East Wolgan swamp is monitored at WE1 and WE2 . Over the reporting period the water levels in WE1 and WE2 have generally been below the base of the piezometer, responding only to extreme rainfall events in March and August.

The water levels in piezometers WE1 and WE2 have generally remained at or below the base of piezometer since mid-2009.

3.20.2 Regional Shallow Aquifer Water Levels

On the whole, water levels in the standpipe piezometers which monitor water levels in the regional shallow aquifer display stable trends which fluctuate as normal and in the same manner as previous years. No identifiable mining impacts in the shallow aquifer have been recorded.

Manually Monitored Standpipe Piezometers

The manually dipped piezometer (RSS) is shown in Table 36.

Table 36 Manually Dipped piezometer locations

Monitoring Point	Easting	Northing	Monitoring Frequency	Monitoring Commence Date	Monitoring Depth (mbgl)	Data Recording Method
RSE	236840	6304191	Every two months	20/12/2005	Unknown	Manual dip

The RSE standpipe piezometer is situated in the north-west region of the site and is monitored by manual measurements approximately bimonthly. The hydrograph shows that water levels in this piezometer respond to rainfall with fluctuations between 49 and 50.5mbgl. The most current water level is comparable to the level when monitoring began in 2010. No water level fluctuations linked to mining have been identified during 2014, or in the previous years.

Continuously Monitored Piezometers

Standpipe piezometers equipped with water level pressure transducers and data loggers are installed over a large spatial extent of Springvale mining lease boundary. Some of the standpipe piezometers at Springvale are located next to multilevel vibrating wire piezometer installations, in areas that have not been mined, while several stand-alone standpipe piezometers have also now been installed.

Table 37 Manually Dipped piezometer locations

Monitoring Point	Easting	Northing	Monitoring Commence Date	Hole Depth (mbgl)	Data Recording Method
SPR1111	240404	6303692	14/12/2011	60.9	Pressure transducer
SPR1112	240852	6302995	15/12/2011	50.0	Pressure transducer
SPR1113	240625	6302160	13/02/2012	60.6	Pressure transducer
SPR1109	239186	6303314	14/12/2011	60.1	Pressure transducer
SPR1108	241045	6301305	04/11/2011	76.1	Pressure transducer
SPR1107	239739	6302330	04/11/2011	55.6	Pressure transducer
SPR1110	238699	6302635	14/12/2011	65.8	Pressure transducer
SPR1101	238484	6303627	14/11/2011	47.4	Pressure transducer
SPR1106	239980	6304227	15/12/2011	86.2	Pressure transducer
SPR1104	239746	6303184	04/11/2011	47.0	Pressure transducer
SPR1210	239677	6300052	31/05/2013	131.2	Pressure transducer
SPR1211	239677	6300052	31/05/2013	133.8	Pressure transducer
SPR1301	239275	6299271	26/05/2014	86.7	Pressure transducer
RSS	238072	6303500	01/12/2005 to 14/12/2011	Unknown	Manual Dip
			14/12/2011		Pressure transducer

In general, observed trends in previous years continued for 2014 in all but two monitoring points (SPR1110 and SPR1101, discussed below), without any significant anomalies. An overall continuation of a gradual declining trend with occasional and minor steps in the water levels was observed in the majority of piezometers. One piezometer (SPR1210) shows minor decline, but is less pronounced than other piezometers. Four piezometers show a general stable trend with the water level remaining similar to previous years.

RSS shows a response in April and September 2014 following the March and August rainfall events. RSS and SPR1211 are shown to rise by approximately 1.68m and 0.65m respectively. Both of these sharp rises are followed by a similar sharp decline back to corresponding levels before the rise began. These rises can be attributed to a significant rainfall event that occurred at the same time that the water level rise was recorded.

The overall slight declining trend can be attributed to the predominantly very dry year. Rainfall levels are below average and this is manifested in the shallow regional aquifer as slightly reduced water levels as recorded by these piezometers.

Standpipe Water Level Interpretation

The three standpipe piezometers closest to LW415, which was mined during this review period, are the following:

- RSS (directly overlying LW415)
- SPR1101 (directly overlying LW416)

- SPR1110 (directly to the east of LW416).

RSS is located directly overlying LW415. Apart from a sharp slight rise in April and September, the water levels in this piezometer maintained a steady trend throughout 2014. This trend is comparable to the response observed in previous years.

SPR1101 has shown a depressurisation/storage response with the passing of LW415. This response occurred prior to the current reporting period. The replacement of SPR1101 with a deeper piezometer is currently underway.

While SPR1110 is also located to the east of LW416 panel, a declining trend is observed in this piezometer prior to the current review period, followed by generally stable water levels. It is possible that SPR1101 is responding to longer term climatic trends (no response is observed to individual rainfall events).

Overall, water levels in the standpipe piezometers that monitor water levels in the regional shallow aquifer display trends that fluctuate as normal and in the same manner as in previous years. With the exception of SPR1101, no identifiable mining impacts in the Perched Groundwater System have been observed.

Vibrating Wire Piezometers

Multi-level vibrating wire piezometers (VWPs) have been installed in boreholes across the mining lease boundary area to monitor pore pressures at various levels in the overburden and coal measures lithologies. Most of the VWPs are located in the centre of the current workings at Springvale Colliery, in the area that is currently being mined, or will be mined over the next few years.

For the analysis and interpretation of groundwater levels in this report, only VWP monitoring points in the vicinity of the active longwall extraction during 2014 have been analysed, these being SPR48, SPR49, SPR50, SPR66 and SPR67, as shown in Table 38.

Table 38 Vibrating Wire Piezometer Locations

Monitoring Point	Easting	Northing	Monitoring Frequency	Monitoring Commence Date	No.of Functioning Piezometers	VWP Setting Depth (mbgl)
SPR48	237217	6304198	Daily	28/11/2007	8	30, 50, 70, 90, 110, 140, 170, 200
SPR49	237245	6303199	Daily	09/06/2008	8	30, 50, 80, 110, 150, 200, 250, 295
SPR50	238293	6304147	Daily	01/12/2007	2	30, 50
SPR66	239824	6301994	Daily	30/09/2009	8	35, 80, 130, 180, 230, 290, 348, 372
SPR67	238709	6302283	Daily	28/09/2009	8	35, 50, 70, 90, 110, 160, 200, 260

Vibrating Wireline Piezometer (VWP) SPR48 is located above the LW412/LW413 chain pillar and monitors the piezometric pressures across eight formations. Over 2014 the piezometric pressures are observed to remain within historical variation levels.

Over the reporting period, the remaining five functional sensors show the continuation of trends established in 2010 and have been recording stable piezometric pressures.

3.21 Surface Water Monitoring Results

Surface water flows are monitored at three discharge points at Springvale – Junction Swamp, Sunnyside Swamp and Carne West Pool. The data at these monitoring points is consistent with that observed in previous years monitoring showing no discernable effects from mining. Both peak flows and base flows appear unchanged from the previous reporting period.

3.21.1 Surface Water Levels

Surface water levels at Springvale are monitored at three separate locations as detailed below:

- Junction Swamp – flow is measured here through a V-notch weir.
- Sunnyside Swamp – flows are interpreted through pool depth monitors.
- Carne West Swamp – flows are interpreted through pool depth monitors.

Carne West Pool

A pool depth monitor was installed at the bottom end of Carne West Swamp on 30 May 2012. Pool data depths show characteristic spikes which correspond to rainfall. Pool depths were generally low during the 2014 period, and regularly dropped below the level of the gauge, consistent with below average rainfall. Despite pool water level falling below the level of the sensor, there is still flow observed coming out of the lower end of Carne West Swamp.

It is noteworthy that spikes in pool depth do not always have a clear, immediate relationship to individual rainfall readings. Progressive increases in pool depth during periods of below average rainfall indicate that there is considerable storage retained in the swamp alluvium/peat, and a delayed release of this water to the stream is occurring. The lag appears to vary between a few days to a few weeks.

There are no mining impacts indicated by the monitoring results over the review period. Surface water flow behaviour has not changed when pre-mining and post mining behaviour are compared.

Junction Swamp

Throughout 2014, there were no recorded flow events. In previous years, flow events corresponded with periods of intensive rainfall at the same time. Discharge at Junction swamp occurs very infrequently and this has been the case since 2003. Flow events are only recorded during periods of high rainfall intensity, and rainfall of such intensity did not occur during 2014.

Mining impacts: There were no observed mining impacts indicated by the monitoring results over the reporting period.

Sunnyside Swamp

Pool depth data show characteristic peaks which correlate to rainfall intensity and downstream flow gauging, as would be expected. Early in 2014, maximum peaks were recorded around March when rainfall was also displaying above average levels.

During the latter part of the current reporting period, baseline pool depth fell steadily due to below average rainfall. During this period, intermittent small spikes in discharge volume are manifested in the data. These spikes also correspond directly to rainfall intensity.

The pattern of pool depth fluctuations correlates with the patterns observed from the v-notch data in previous years. This implies that there is no significant change in the behaviour of stream flows and that the fluctuations are behaving as normal. It is expected that pool depth will broadly relate to creek discharge, but the relationship between them has not been established at present.

LW413 lies approximately 300 m west of the weir. The stream record shows no impact of mining on flows. LW414 commenced approximately 100 m south of the upstream end of the swamp in February 2011 with no impacts evident on the flows. Longwall 415 commenced during early 2012, and extraction has now continued south to beyond the headwaters of Sunnyside Swamp. There has been no evidence of any mining impact from LW 415 during the reporting period. Peaks in water depth shows that the maximum water level in the pool is controlled by rainfall. Base level flows appear unchanged from the last reporting period and for the duration of 2014.

3.21.2 Surface Water Quality

Stream flows are monitored fortnightly for flow, pH, electrical conductivity, manganese, iron and temperature and monthly for total suspended solids. If there is no flow, no quality parameters are monitored.

East Wolgan

East Wolgan Swamp is located in proximity to Longwall 411. There has been no mining in the vicinity of this site.

During the reporting period both east Wolgan upstream and downstream were flow monitoring sites had no flow. As such there are no water quality results to present. This is consistent with no emergency discharges occurring throughout the reporting period.

Wolgan River

Wolgan River Upstream and downstream are located north of east Wolgan swamp and outside the SMP area. There has therefore been no mining influence in this area.

Table 39 Wolgan River Swamp Flow summary 2014

Upstream							
	Flow (kL/day)	pH	Electrical Conductivity (µS/cm)	Manganese Filt (mg/L)	Iron Filt (mg/L)	Temperature (°C)	TSS (mg/L)
Min	46	5.69	4	<0.001	0.17	5.1	<10
Max	989	7.78	230	0.472	0.38	16.6	<10
Avg	276.8	6.67	32	0.031	0.26	11.0	<10
Downstream							
	Flow (kL/day)	pH	Electrical Conductivity (µS/cm)	Manganese Filt (mg/L)	Iron Filt (mg/L)	Temperature (°C)	TSS (mg/L)
Min	219	5.90	28	<0.001	0.20	4.5	<10
Max	12983.0	7.09	80	0.021	0.81	18.5	<10
Avg	2233.7	6.55	37.9	0.008	0.38	11.7	<10

Sunnyside Swamp

Sunnyside Swamp is located above Longwall 414. An SMP variation was submitted to avoid undermining this swamp. There has been no mining in the vicinity of this swamp during the reporting period.

Table 40 Sunnyside Swamp Flow summary 2014

Upstream							
	Flow (kL/day)	pH	Electrical Conductivity (µS/cm)	Manganese Filt (mg/L)	Iron Filt (mg/L)	Temperature (°C)	TSS (mg/L)
Min	51	5.54	12	0.002	0.11	6.9	<10
Max	713	8.94	310	0.071	0.75	21	16
Avg	1776	6.31	48	0.012	0.28	12.9	<10
Downstream							
	Flow (kL/day)	pH	Electrical Conductivity (µS/cm)	Manganese Filt (mg/L)	Iron Filt (mg/L)	Temperature (°C)	TSS (mg/L)
Min	22	5.78	13	<0.001	0.16	3.5	<10
Max	522	8.01	48	0.014	0.66	17	<10
Avg	162.8	6.70	31.1	0.004	0.41	11	<10

Carne West

Carne West Swamp is located above Longwall 418 and 419 which has not been undermined. Data is therefore collected for baseline swamp condition. There has been no influence from mining activities.

Table 41 Carne West Swamp Flow summary 2014

Upstream							
	Flow (kL/day)	pH	Electrical Conductivity (µS/cm)	Manganese Filt (mg/L)	Iron Filt (mg/L)	Temperature (°C)	TSS (mg/L)
Min	0	5.04	12	0.009	0.17	5.1	<10
Max	244	6.94	34	0.028	0.238	16.6	<10
Avg	96.4	5.62	20.4	0.017	0.26	11.0	<10
Downstream							
	Flow (kL/day)	pH	Electrical Conductivity (µS/cm)	Manganese Filt (mg/L)	Iron Filt (mg/L)	Temperature (°C)	TSS (mg/L)
Min	ND	5.73	18	0.014	0.28	6.4	<5
Max		7.06	38	0.030	0.47	15.6	120
Avg		6.26	22.8	0.24	0.39	11.0	38.5

Flow was too low to record using the pygmy flow meter throughout the reporting period therefore No data (ND) can be reported.

Summarising the 3 sites presented in tables 39 to 41:

In 2014 the minimum pH is slightly lower than the ANZECC & ARMCANZ (2000) default trigger value range for pH (6.5 – 9). The average for both the upstream and downstream sites is within the guideline value.

The Electrical Conductivity is generally far lower than the ANZECC & ARMCANZ default trigger value applicable to NSW upland rivers (350µS/cm). There were 2 results reported with which are considered inconsistent with historic data trends.

The defined trigger value in the ANZECC/ARMCANZ 2000 guidelines for total manganese is 1.9mg/L for NSW upland rivers. All results obtained during the reporting period were below this value.

The ANZECC/ARMCANZ guidelines indicate that there is insufficient data to define a reliable trigger value for iron. To this end, the Canadian guideline is referenced by the ANZECC/ARMCANZ guidelines at a level of 0.3mg/L and is adopted. While the results obtained are above this value, similar data is observed as baseline condition in Carne Swamp indicating the results are within the natural range for Newnes Plateau.

The results show that surface water flows continue to be received downstream of the mining area. The quality of this water appears to be unaffected by any potential mining impact associated with the extraction / subsidence caused by mining.

Surface water quality monitoring results are generally consistent with typical characteristics of NSW upland rivers and tributaries which are close to the catchment water watershed.

3.22 Methane drainage / ventilation

The Lithgow coal seam is particularly low in methane gas content and therefore no active management such as methane drainage is required. However, for mine safety reasons monitoring is carried out for mine ventilation gasses.

3.23 Public Safety

Springvale Mine also has an approved Public Safety Management Plan to manage public safety in all surface infrastructure areas. This has been developed during Subsidence Management Plan applications and updated where required.

These Plans include the following controls:

- providing, where practical, fencing and warning signage around the pit top area, and security staff patrols on a regular basis; and
- Should subsidence pose a potential public safety risk, warning signs will be erected and subsidence repairs will be completed as soon as practicable. All actions will be completed as per the Trigger Action Response Plan.

During 2014 there were no variations in Springvale's approach to managing aspects associated with public safety

3.24 Feral Animals

There were no issues of concern during the 2014 regarding feral animal control.

4 Community Relations

4.1 Environmental Complaints

There were two community complaints during the reporting period. Both these complaints were in relation to low frequency noise. A specialist was engaged by Centennial to investigate the source of the noise causing concern in addition to consultation with relevant community members, Lithgow City council and EPA. There is an overlap with this complaint with Clarence Colliery therefore the two operations have been working together on the investigation. The specialist report is currently being prepared to outline key findings.

4.2 Community Liaison

4.2.1 Western Region Community Consultative Committee

A Community Consultative Committee (CCC) has been established to monitor the operations and provide a forum whereby the community can communicate with the mine operators and be kept up to date with the progress of the mine.

In 2012 the established Angus Place CCC was combined to also include Springvale Coal. Furthermore in October 2014 the CCC was also expanded to include Western Coal Services.

The combined Angus Place, Springvale and Western Coal Services CCC to facilitate a single channel of communication about current operations in the area.

The committee is composed of:

- An independent chairperson;
- Four representatives from Centennial Coal, including the Environment and Community Officer;
- One representative from Council; and
- At least three representatives from the local community.

During the 2014 reporting period two CCC meetings were held on 8 April 2014 and 15 October 2014. Minutes from the meeting are available on the Centennial Coal website and at Wallerawang Library.

The Western Region Consultative Committee meet on a regular basis to find the best solution(s) to the following challenges:

- Respecting the local and regional environment;
- Minimising adverse impacts of mine operations on people, homes, and businesses;
- Supporting the economic, social and cultural life of the area; and
- Maintaining profitable and efficient mine operations that meet regulatory requirements.

Meetings will continue to be held during 2015.

The formation of the Springvale and Angus Place Collieries Community Consultative Committee was approved by the Department of Planning in 2012 with the first meeting held in December 2012. The guidelines for the establishment and operation of a community consultative for mining projects has been adopted the community consultative committee.

5 Rehabilitation

5.1 Buildings

In 2014, an additional transportable bathhouse and change room facility was installed. These buildings have been located within the disturbance footprint of the colliery.

5.2 Rehabilitation of Disturbed Land

Due to the underground nature of mining operations at Springvale, surface disturbance and the need for progressive rehabilitation is relatively minor compared to that required at an open cut mining operation. No major rehabilitation of the pit top and Newnes Plateau infrastructure is anticipated until site closure.

Springvale Mine has adopted a progressive approach to rehabilitation to reduce and mitigate potential environmental impacts. Facilities no longer required, for example, ventilation and dewatering facilities, are rehabilitated soon after decommissioning, to return disturbed land to the original landform. Rehabilitation followed up with periodic inspections and maintenance as necessary based upon evidence of endemic regrowth, weeds and soil disturbance. Rehabilitation acceleration techniques are undertaken, if required following approval from Forestry Corporation of NSW and in accordance with the Occupation Permit. Rehabilitation has been successfully undertaken at Bores 1 to 5 dewatering facilities, and will be undertaken for the recently decommissioned Bore 6 Progressive rehabilitation is also undertaken within exploration drill hole sites on completion of each exploration programme.

Rehabilitation works on Newnes Plateau involve the decommissioning of all surface infrastructure, grouting and sealing of boreholes, and dozer trimming of the area to facilitate appropriate drainage of surface runoff. Re-spreading of topsoil and re-seeding of the disturbed area is carried out with endemic native species where possible, to achieve a final land use of open forest. Rehabilitation has been successfully undertaken at Bores 1 to 5 dewatering facilities, and will be undertaken for the recently decommissioned Bore 6 Progressive rehabilitation. The services corridor for the bore 8 dewatering facility and drill sites disturbed during 2013 have been rehabilitated to allow natural regeneration to occur.

Minor rehabilitation activities are carried out at the pit top. This includes the seeding of the area surrounding the carpark and adjacent to the conveyor. Given that Springvale Mine is well established with no ongoing construction requiring the implementation of additional erosion and sediment controls, there is no requirement for the regular progressive rehabilitation at the pit top. It is envisaged that the current pollution control structures will remain in place for the life-of-mine.

During the reporting period there has been no change in disturbance footprint.

Flora surveys have been conducted along the Bore 8 pipeline during 2014. Forty-nine plant species were detected regenerating within the rehabilitated pipeline alignment. This is a high diversity of plant species to have emerged a relatively short time after completion of construction.

The majority of plants have regenerated from seed. Only one exotic plant was observed, Cudweed (*Gamochaeta calviceps*). Cudweed is an annual herb in the daisy (*Asteraceae*) family and is considered to be common in disturbed areas.

None of the plants detected are listed as threatened under the NSW Threatened Species Conservation Act. Whilst *Persoonia laurina* was observed to be regenerating by resprouting and from seed, the local rare geebung, *Persoonia hindii* was not observed to be regenerating within the pipeline easement. The pipeline location had been designed to avoid occurrences of *Persoonia hindii* at the southern end of the route. This population is marked and appeared to be in a healthy condition during the July 2014 survey.

Regrettably firewood collectors had been active in the area and had removed timber intended to stabilise disturbed soil surfaces along the alignment. Litter had also been disposed in the area, presumably by the firewood collectors. There may be a need to improve liaison between contractors and the Forestry Corporation to protect the integrity of rehabilitation works in the future.

5.3 Other Infrastructure

There was no other infrastructure available for removal during the reporting period. All established infrastructure is required for the continued operations of the mine.

5.4 Rehabilitation Trials and Research

Centennial Coal research program has been established to address the requirement for research of the protection and management options for the endangered shrub, *Persoonia hindii*.

A number of individuals of this species may be destroyed in the construction of Bore 8 on Springvale Colliery lease within the Newnes Plateau State Forest. The goals of this research are (1) quantitatively describe the distribution, population characteristics and habitat range of *P. hindii*, (2) collaborate with NSW Botanic Gardens to assess capacity to propagate and transplant plants from disturbed areas for germplasm preservation (3) based on population understanding identify potential cumulative impacts of development and other activities at a species range. The duration of this project will be approximately 12 months from acceptance and involves, field ecological surveys, field experimental work, desktop data collation and glasshouse propagation experimentation.

A subsequent low intensity monitoring program will continue for a further four years. The outcomes will (1) provide a means for reassessing key threatening processes and likely impacts for this species, (2) describe appropriate methods of retaining viable populations of *P. hindii* where development occurs, (3) expand mapping and understanding of species population size, distribution and characteristics in the region to allow effective conservation.

5.5 Further Development of the Final Rehabilitation Plan

With approximately 20 years of mining reserves at Springvale, the current final rehabilitation plan is conceptual (Appendix 5). The area of immediate focus in regard to rehabilitation activities is the Coal Services Site (Western Main) where shared land use between Lamberts Gully and Coal Services is being finalised. Please refer to the Lambert's Gully AEMR for further detail.

From 2013 to 2014 there has been no change in disturbance or rehabilitated land.

As outlined within the Springvale Mine Extension Project EIS and pending approval of the project the anticipated clearing works over the life of mine proposed on the Newnes Plateau are:

- the construction of two additional dewatering facilities, namely Bores 9 and 10;
- establishment of access tracks and ancillary 10 m wide infrastructure corridors to Bores 9 and 10 sites,
- comprising upgrade of the existing tracks and creation of new sections of tracks;
- the establishment of the mine services borehole area; and
- Duplication of the SDWTS to upgrade the pipeline network to a maximum capacity of 50 ML/day.

As a determination on the project has not been made and the MOP has not yet been modified or approved to accommodate these changes are not documented in the rehabilitation summary (table 43).

Table 43 Rehabilitation Summary

A: MINE LEASE AREA	Area Affected/Rehabilitated (Ha)		
	To Date	Last Report	Next Report (estimate)
A1: Mine Lease(s) Area SPRINGVALE MINE ONLY* ML1303, ML1326, ML1588, CL377, ML1323, ML1537, MPL1314 & ML1424 * Does not include Coal Services- Western Main	5,167.565 Ha		
B: Disturbed Areas			
B1: Infrastructure area Pit-top (16.43ha), Shaft 3 fan site (4.2ha), Bore 5 site (0.4ha), Bore 6 site (0.5ha), LDP4/5 (2.0ha); plus Bore 8 compound 2012 (1.5.ha)	25	25	25
B2: Active Mining Area,	0	0	0
B3: Waste emplacements	0	0	0
B4: Tailings emplacements	0	0	0
B5: Shaped waste emplacement (awaits final vegetation)	0	0	0
ALL DISTURBED AREAS	25	25	25
C: REHABILITATION PROGRESS			
C1: Total Rehabilitated Area Old fire dam (0.35ha), old dewatering bore sites x 4 (0.8ha), settlement pond site (0.25ha), bore 8 service corridor (2.2 ha)	7	7	7
D: REHABILITATION ON SLOPES			
D1: 10 to 18 degrees	0	0	0
D2: Greater than 18 degrees	0	0	0
E: SURFACE OF REHABILITATED LAND			
E1: Pasture and grasses	0	0	0
E2: Native forest/ecosystems	5	5	5
E3: Plantations and crops	0	0	0
E4: Other	0	0	0

Maintenance activities are summarised in the following table:

Table 44 Maintenance Activities on rehabilitated land

Nature of Treatment	Area Treated (ha)		Comment/control strategies/treatment details
	2014	2015	
Additional erosion control works (drains re-contouring, rock protection)	0	0.2	Water management maintenance works around the Pit Top Area
Re-covering (further topsoil, subsoil sealing etc.)	0	0	NIL
Soil treatment (fertiliser, lime, gypsum etc.)	0	0	NIL
Treatment/management (grazing, cropping, slashing etc.)	0	0	NIL
Re-seeding/replanting (species density, season etc.)	0	0	NIL
Adversely affected by weeds (type and treatment)	0.08	0.08	Hand Weed removal East Wolgan Swamp
	0.5	0.5	Weed spraying working will be conducted on the PIT Top and Newnes Plateau on an as required basis
Feral animal control (additional fencing, trapping, baiting etc.)	0	0	NIL

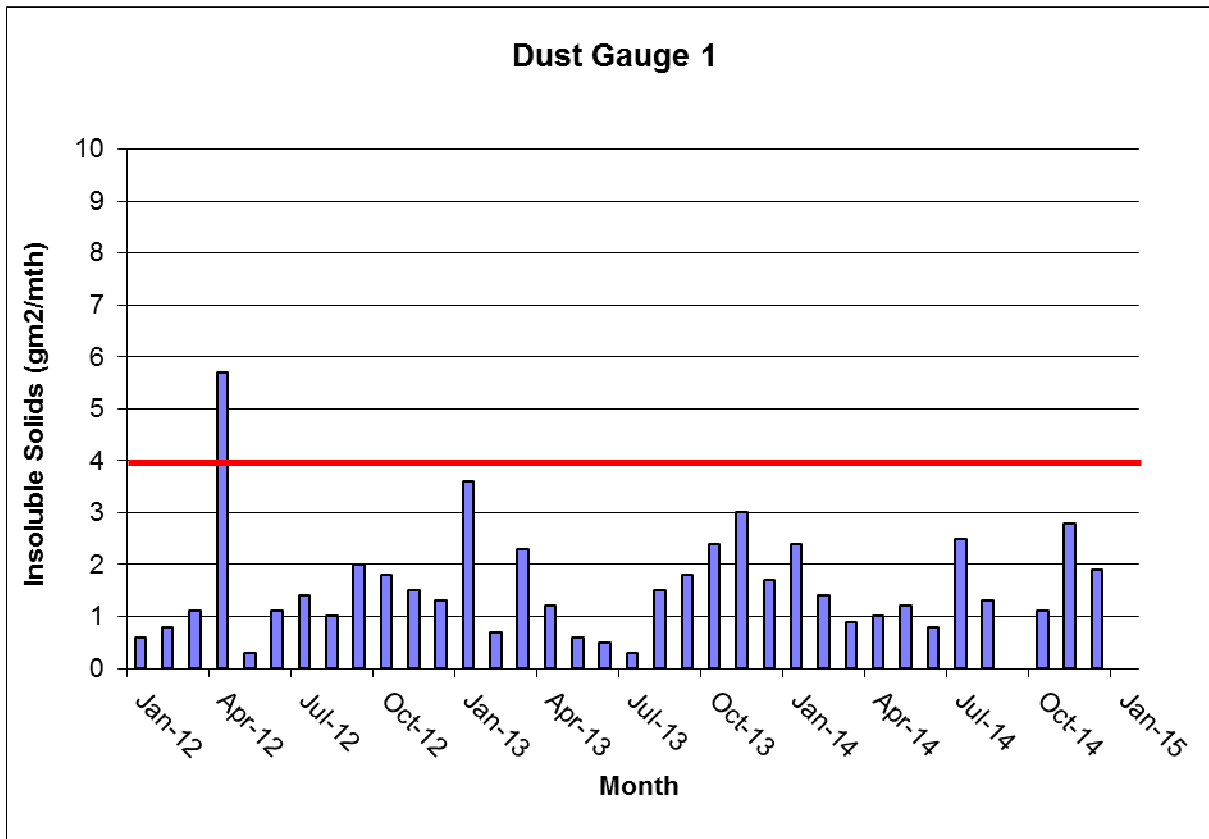
6 Activities Proposed in the next AEMR Period

During the 2015 AEMR reporting period, Springvale Colliery plans to carry out the following activities

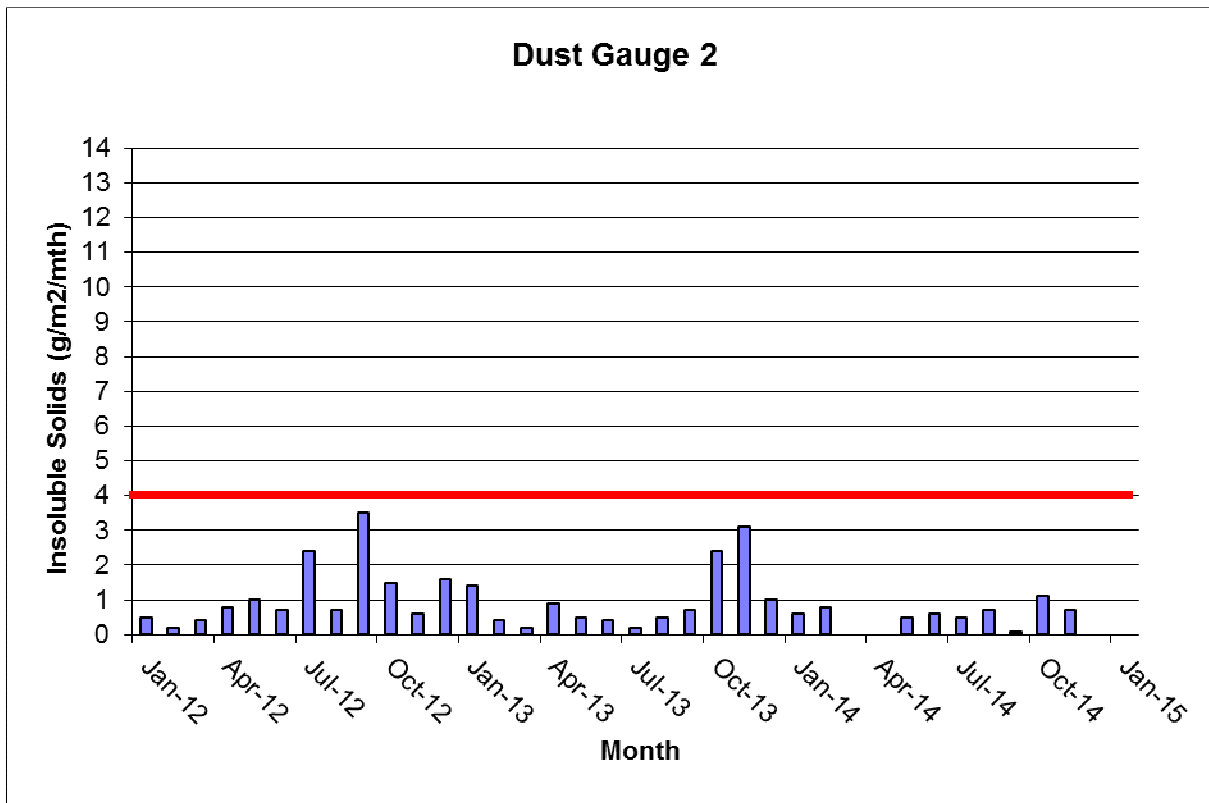
- Undertake bathymetric surveys of sediment dams
- Review clean water diversions
- Review weed management
- Commission effluent management system
- Undertake real time noise monitoring trial
- Complete extraction of Longwall 417

APPENDICES

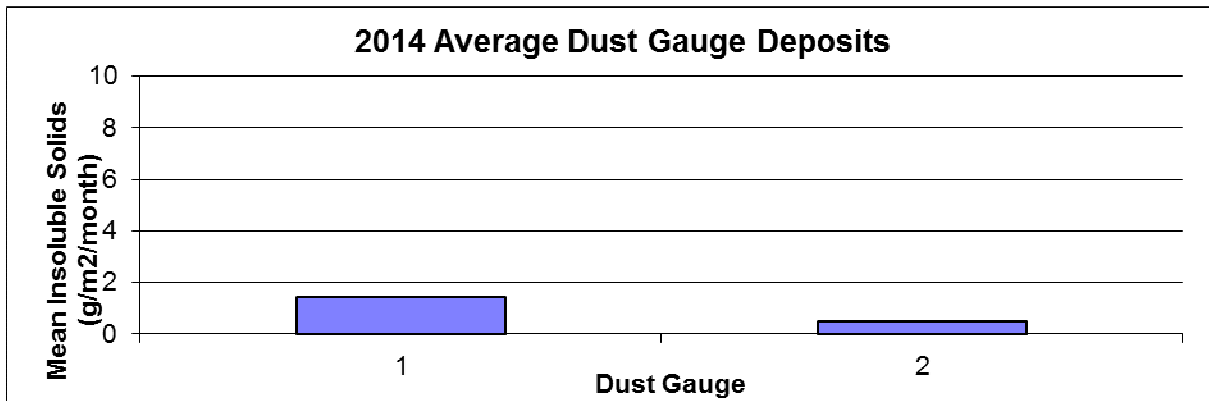
Appendix 1 – Air Quality Monitoring Results



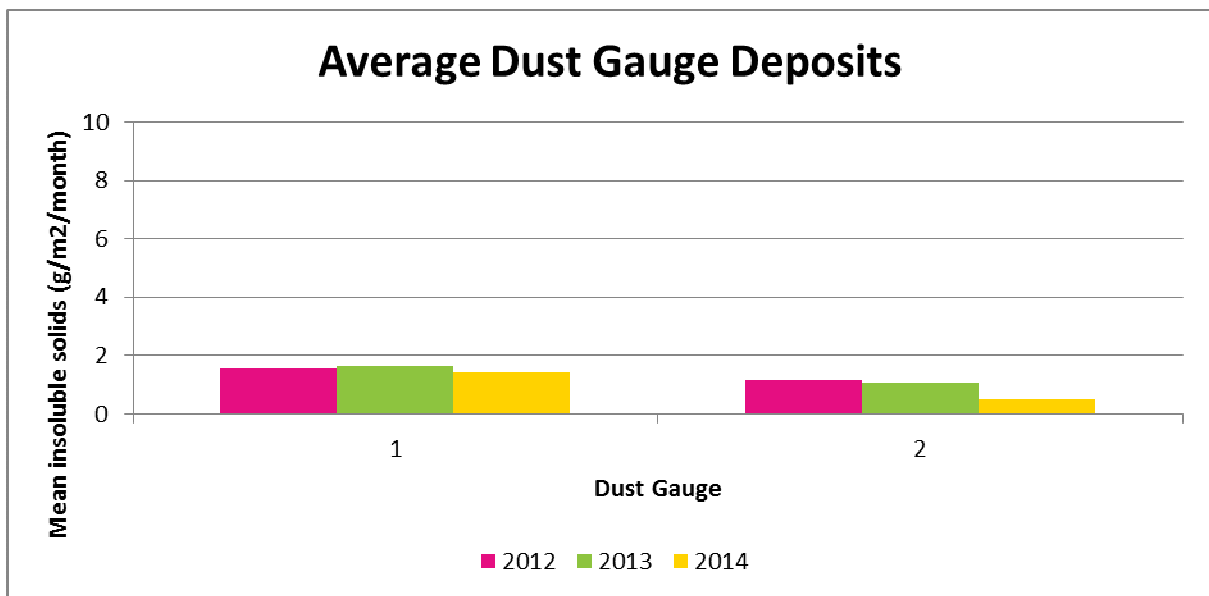
Graph 1: Dust Gauge 1 Jan 2012 to Dec 2014



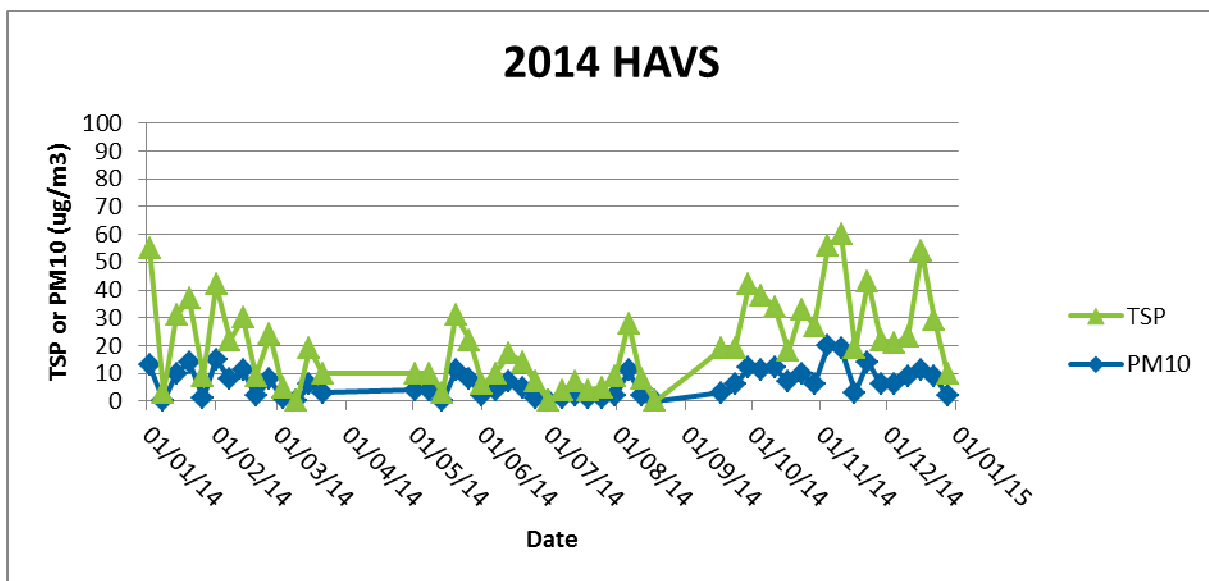
Graph 2: Dust Gauge 2 Jan 2012 to Dec 2014



Graph 3: Annual Mean 2014

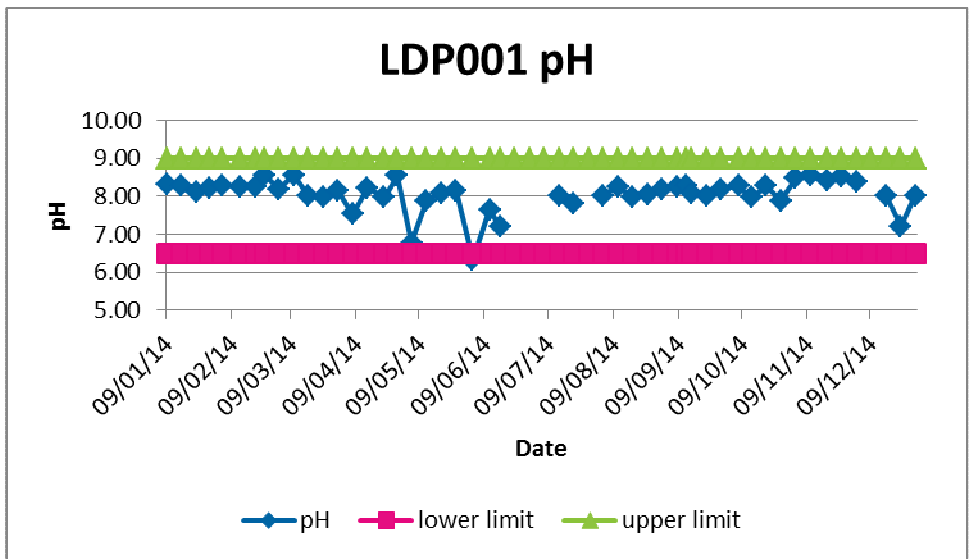


Graph 4: Annual Mean Comparison 2012 to 2014

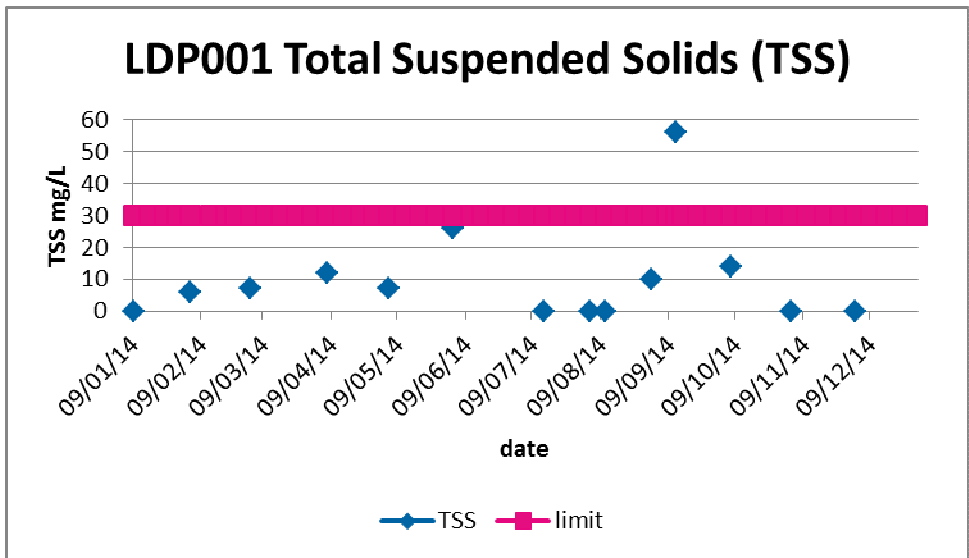


Graph 5: TSP and PM10 2014

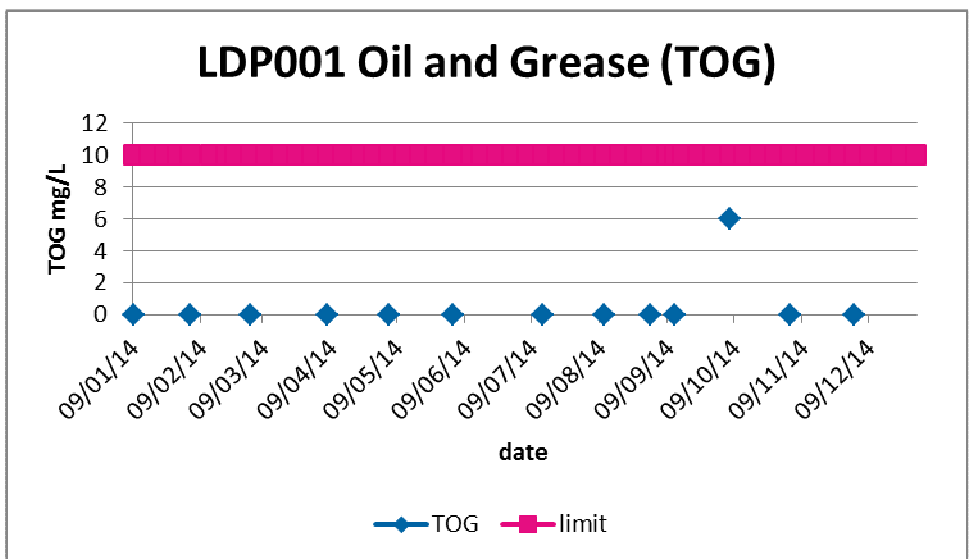
Appendix 2 – LDP Water Quality Monitoring Results



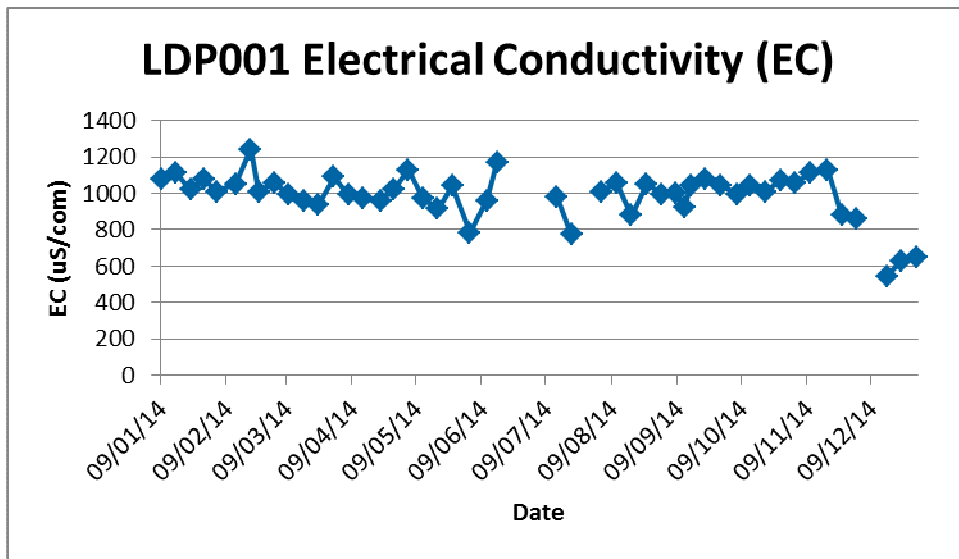
Graph 1 LDP001 pH 2014



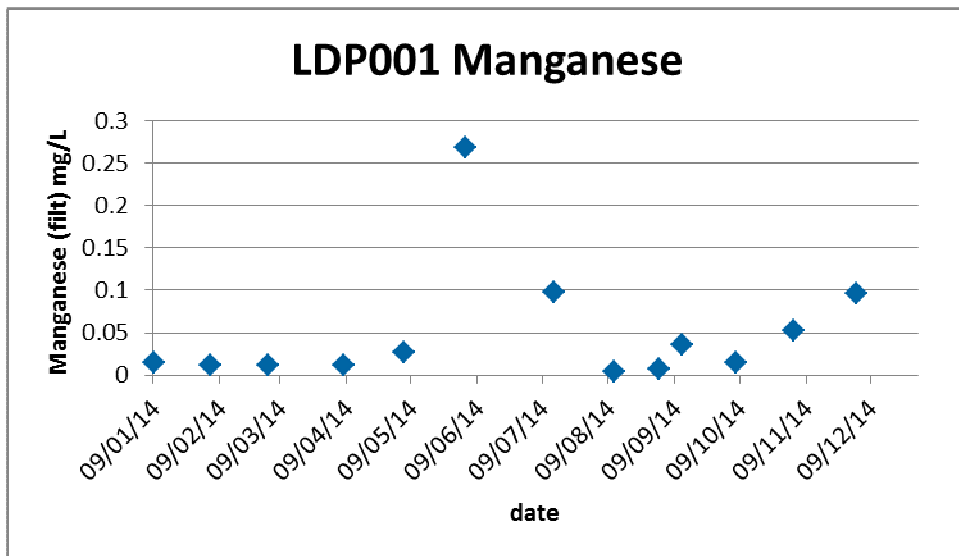
Graph 2 LDP001 TSS 2014



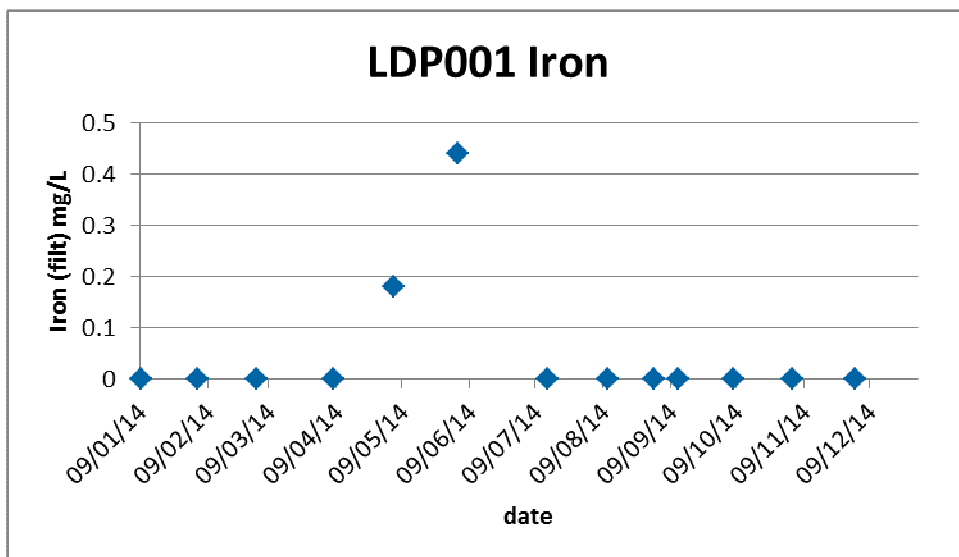
Graph 3 LDP001 TOG 2014



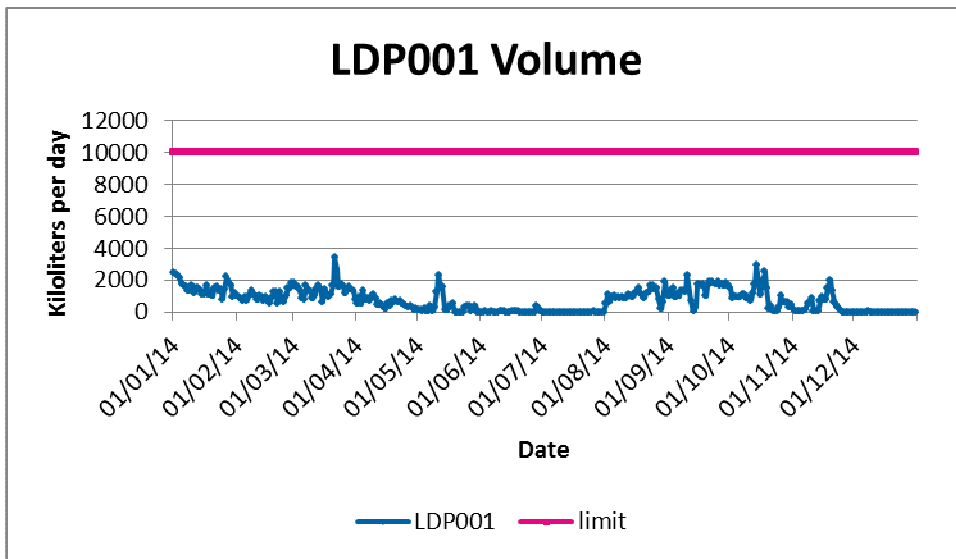
Graph 4 LDP001 EC 2014



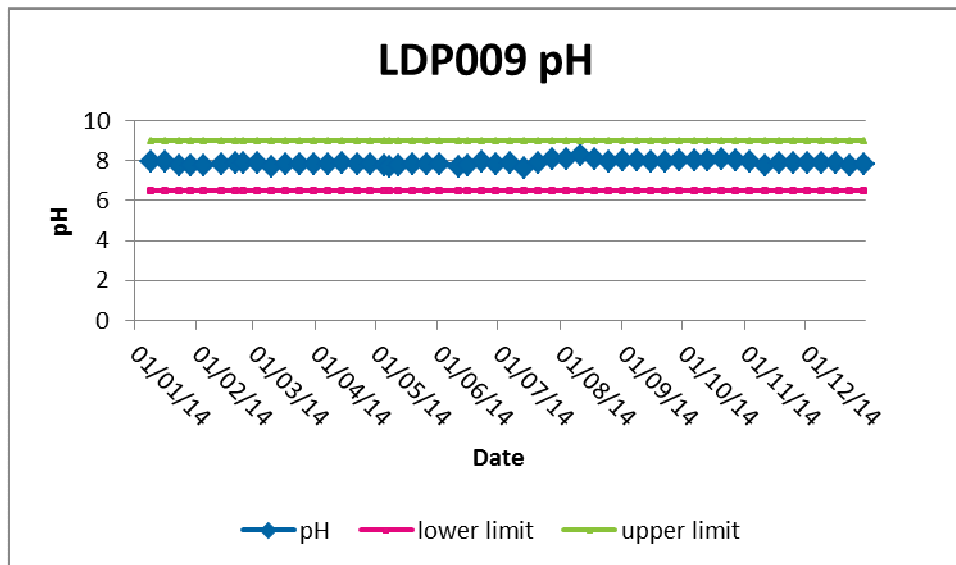
Graph 5 LDP001 Manganese 2014



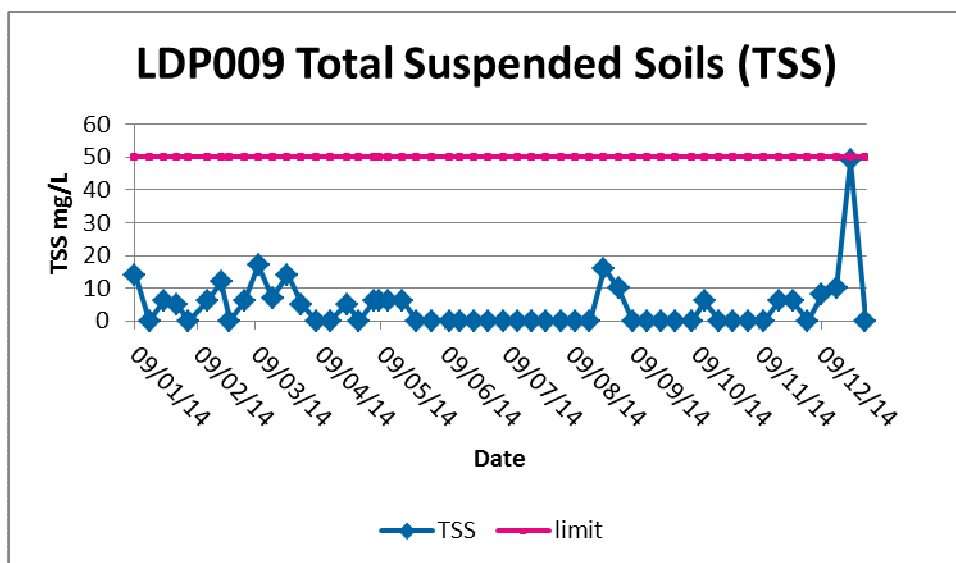
Graph 6 LDP001 Iron 2014



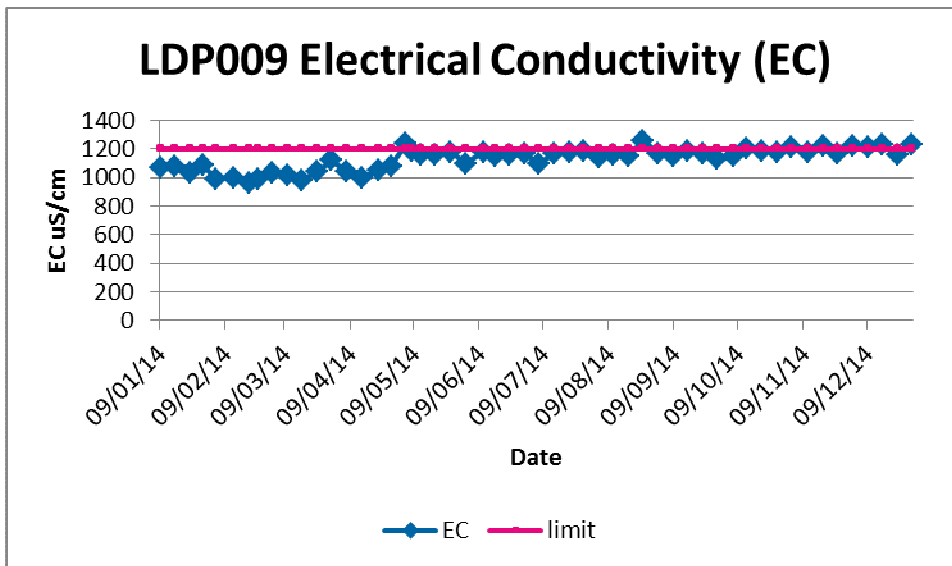
Graph 7 LDP001 Volume 2014



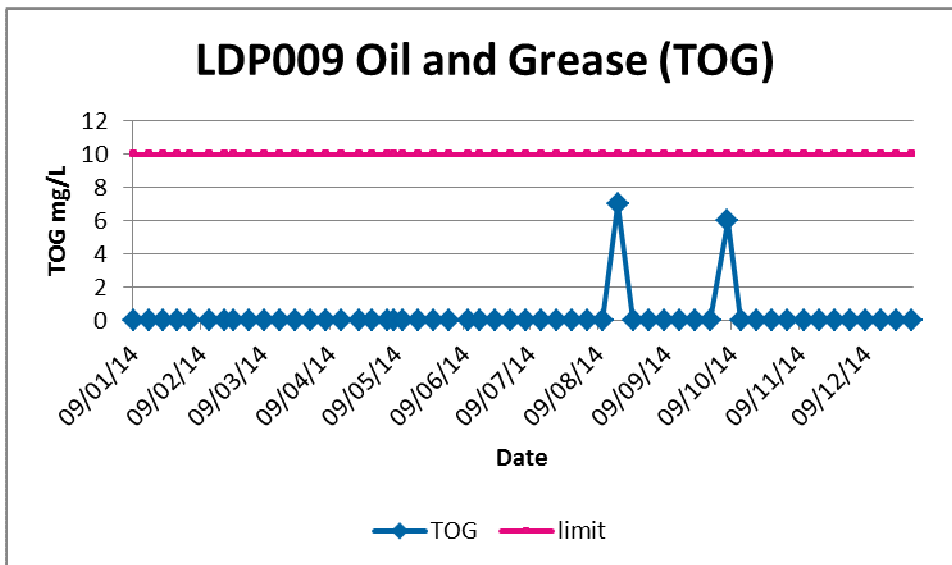
Graph 8 LDP009 pH 2014



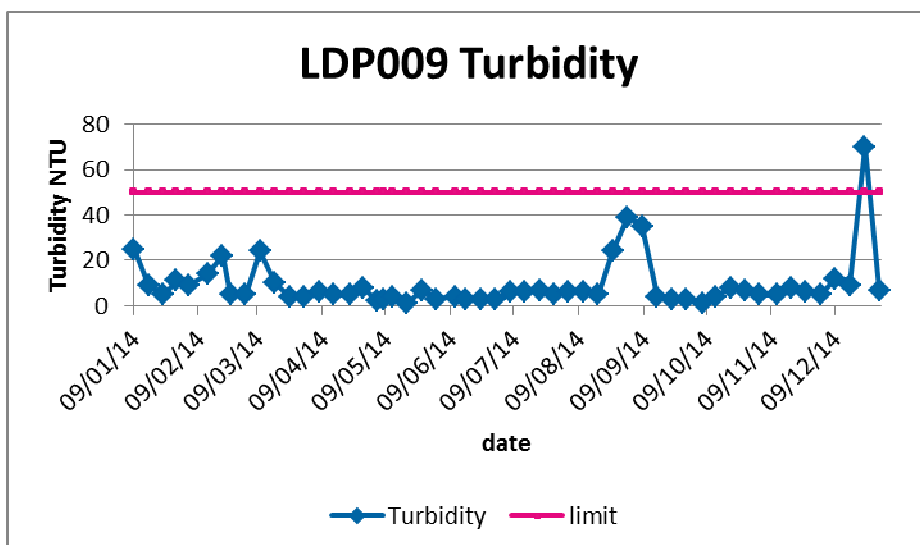
Graph 9 LDP009 TSS 2014



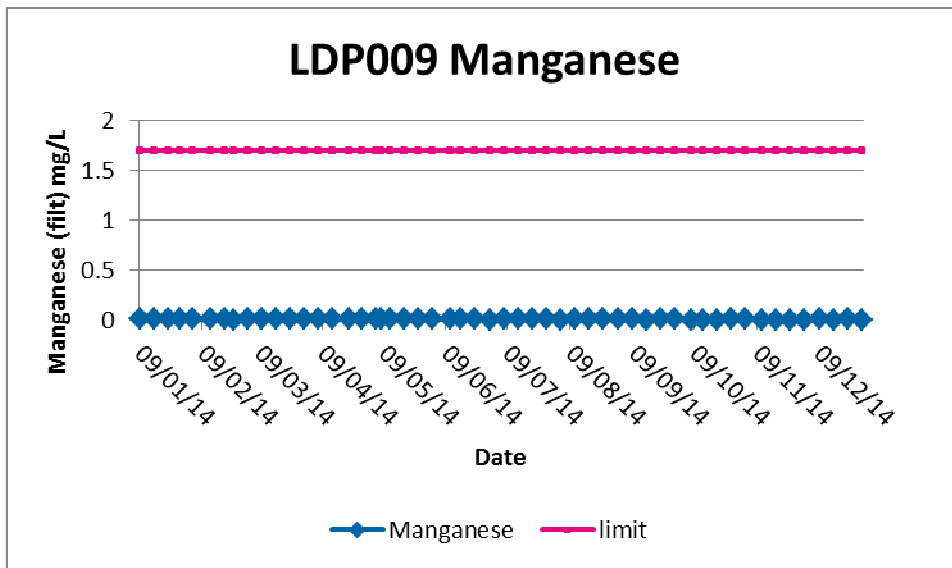
Graph 10 LDP009 EC 2014



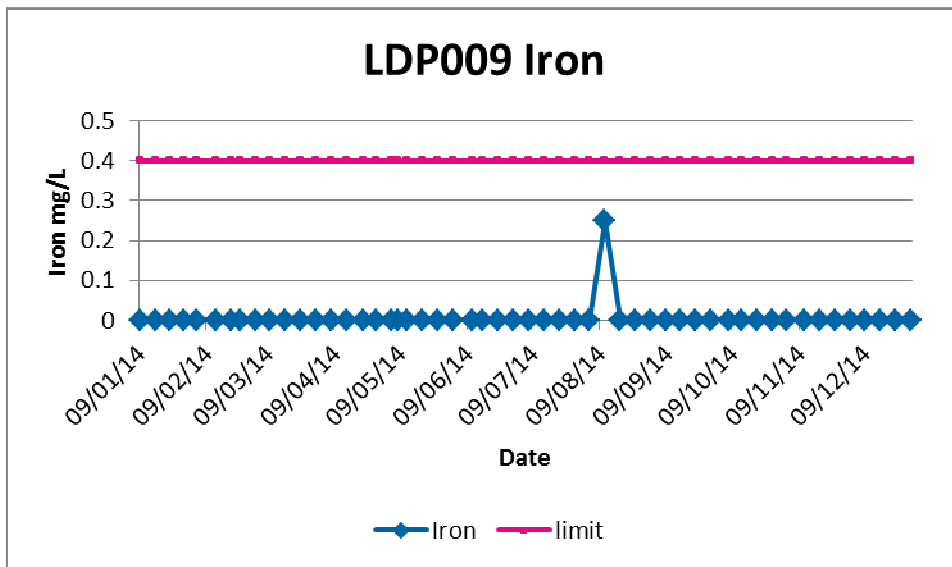
Graph 11 LDP009 TOG 2014



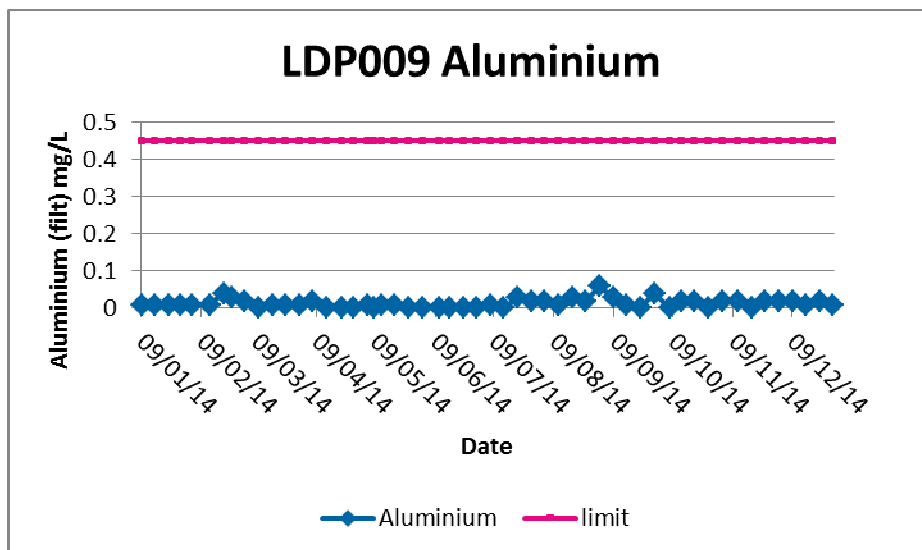
Graph 12 LDP009 Turbidity 2014



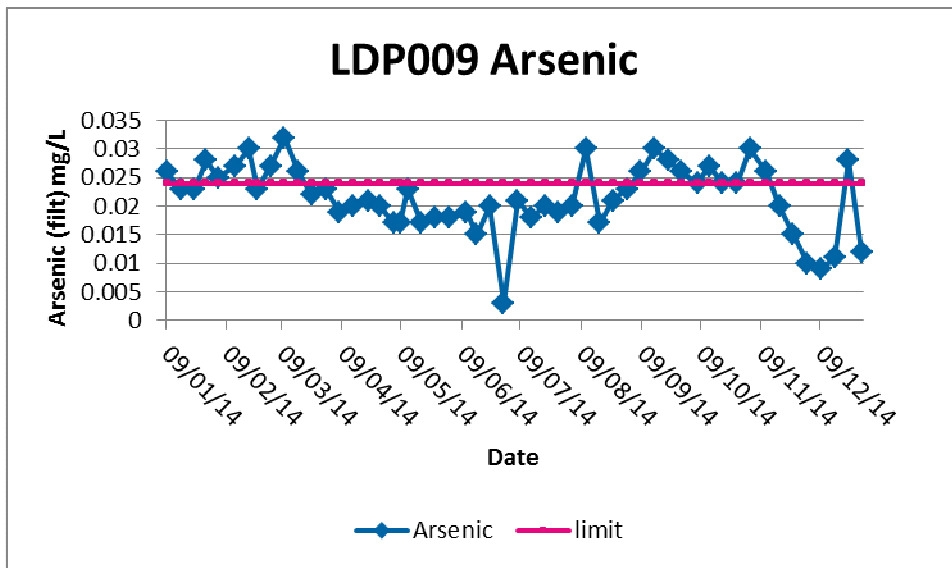
Graph 13 LDP009 Manganese 2014



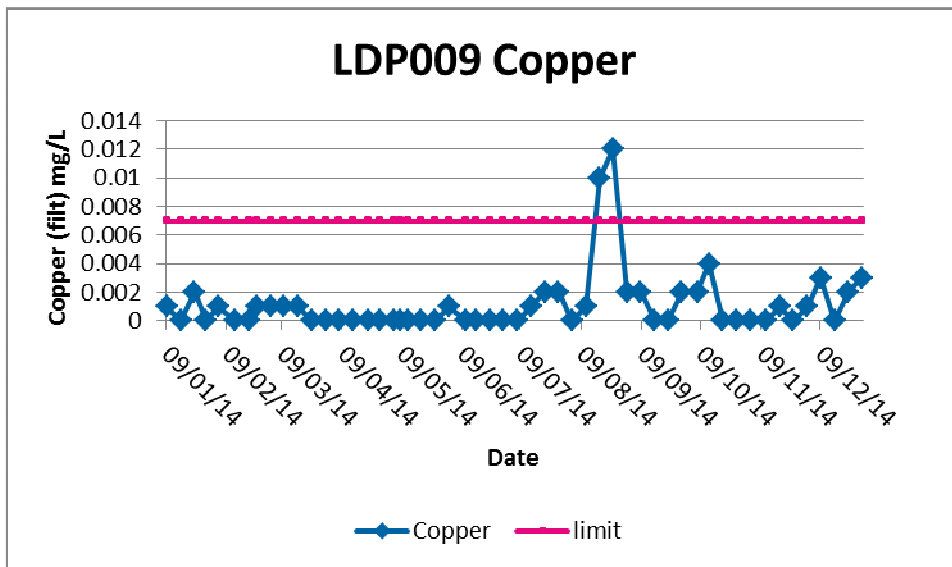
Graph 14 LDP009 Iron 2014



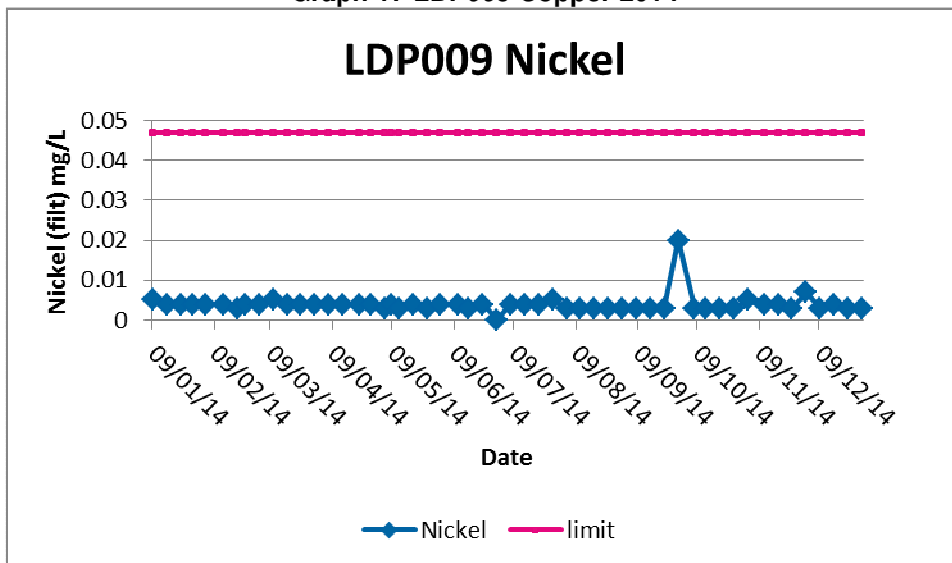
Graph 15 LDP009 Aluminium 2014



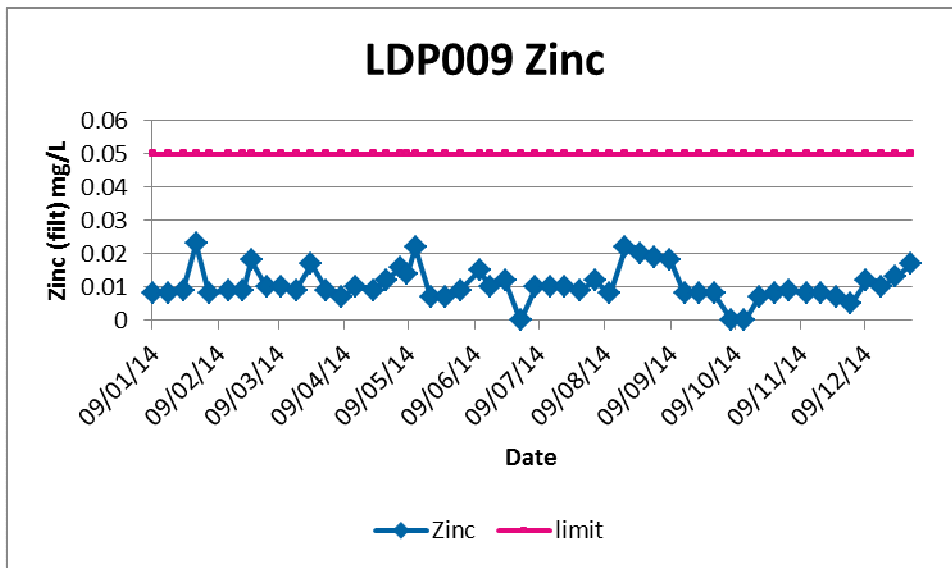
Graph 16 LDP009 Arsenic 2014



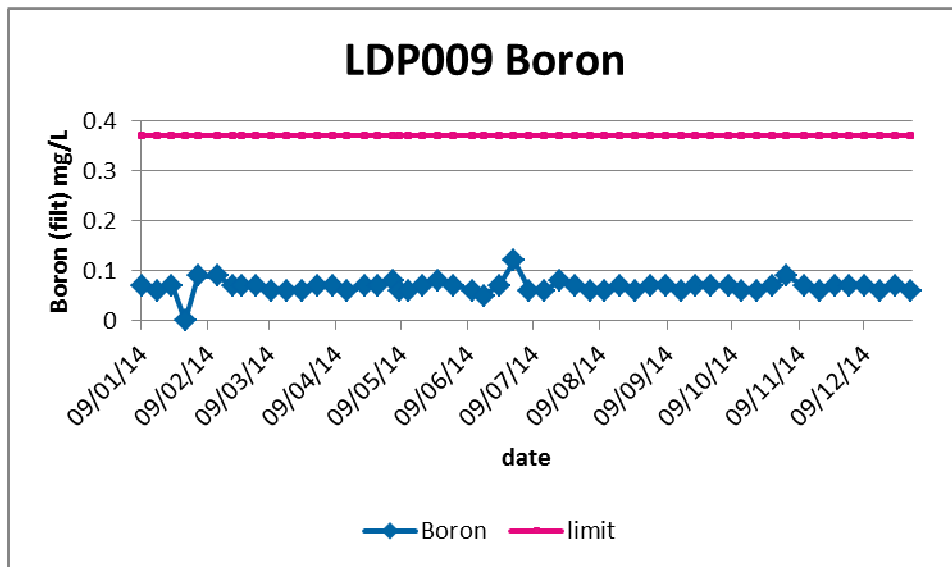
Graph 17 LDP009 Copper 2014



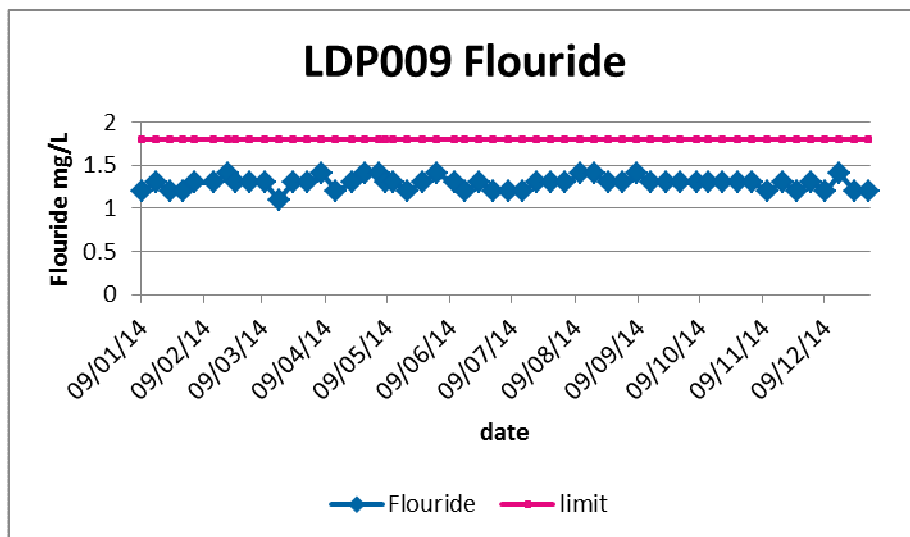
Graph 18 LDP009 Nickel 2014



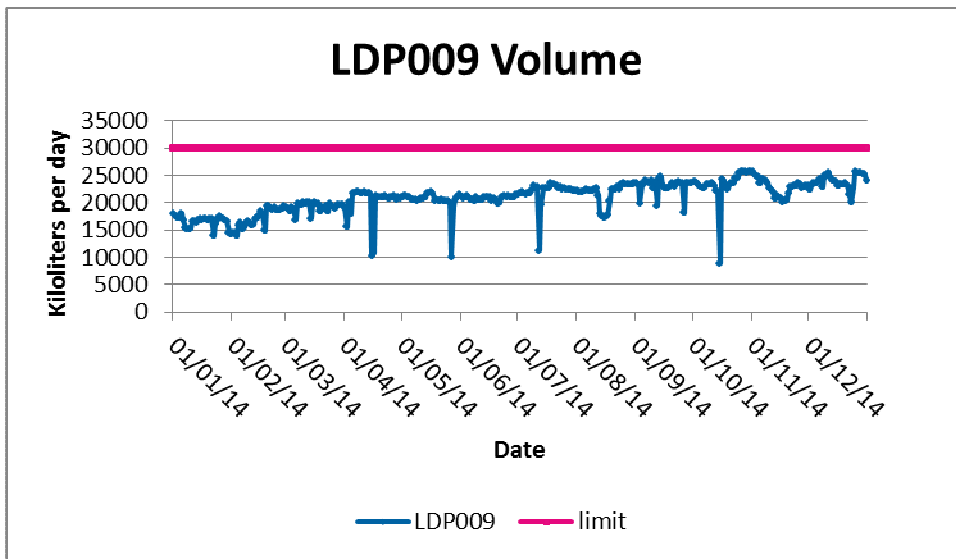
Graph 19 LDP009 Zinc 2014



Graph 20 LDP009 Boron 2014

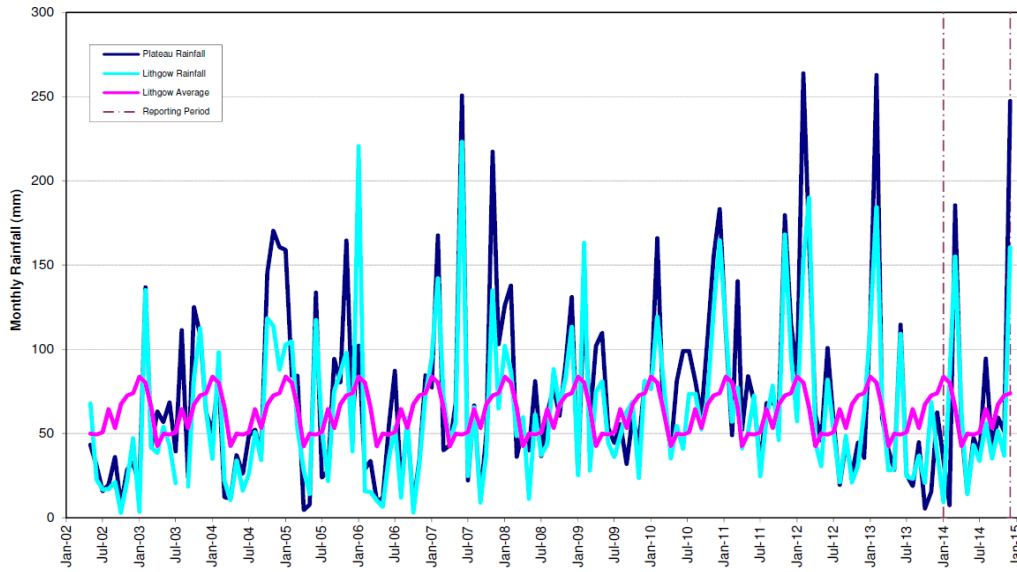


Graph 21 LDP009 Fluoride 2014

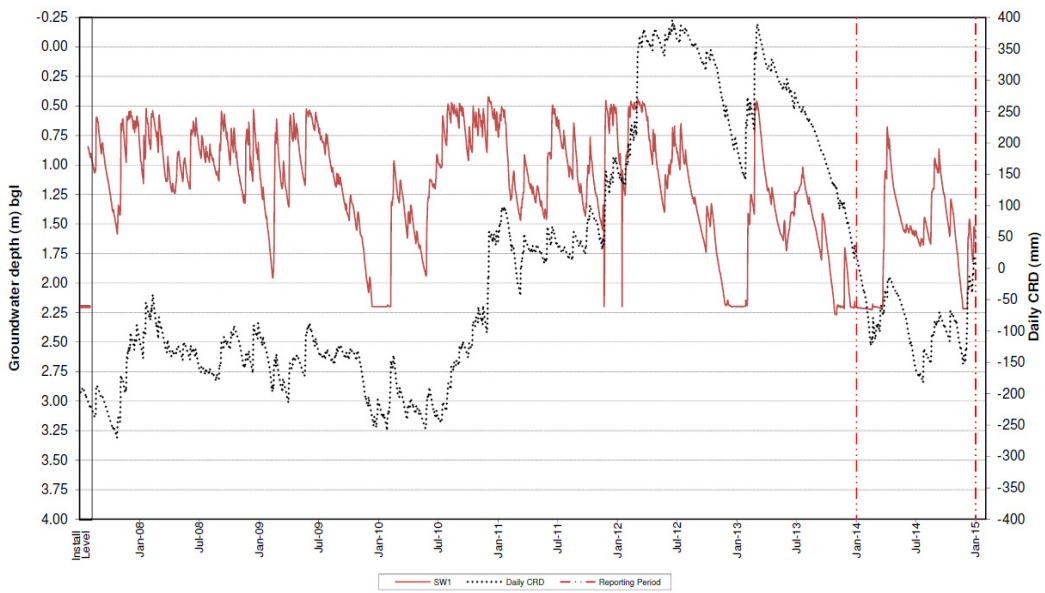


Graph 22 LDP2009 Volume 2014

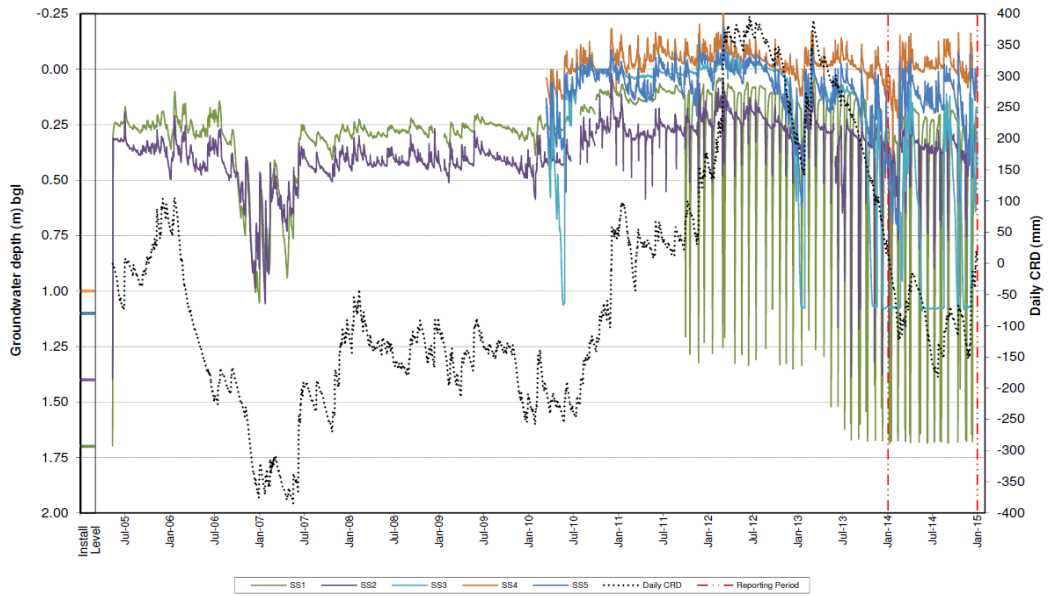
Appendix 3 – Newnes Plateau Results



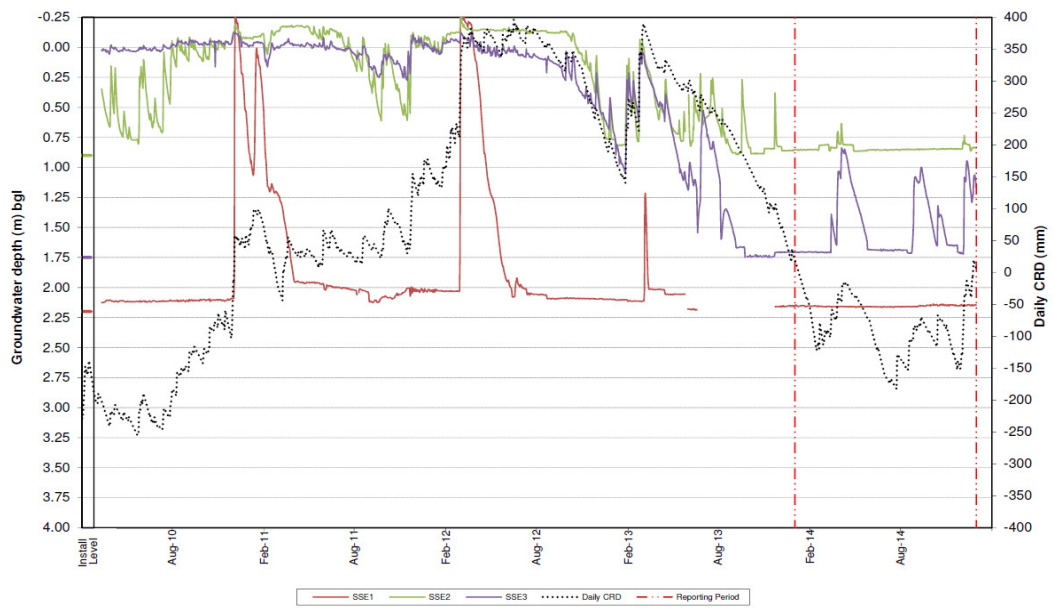
Graph 1: Rainfall on the Newnes Plateau since 2002



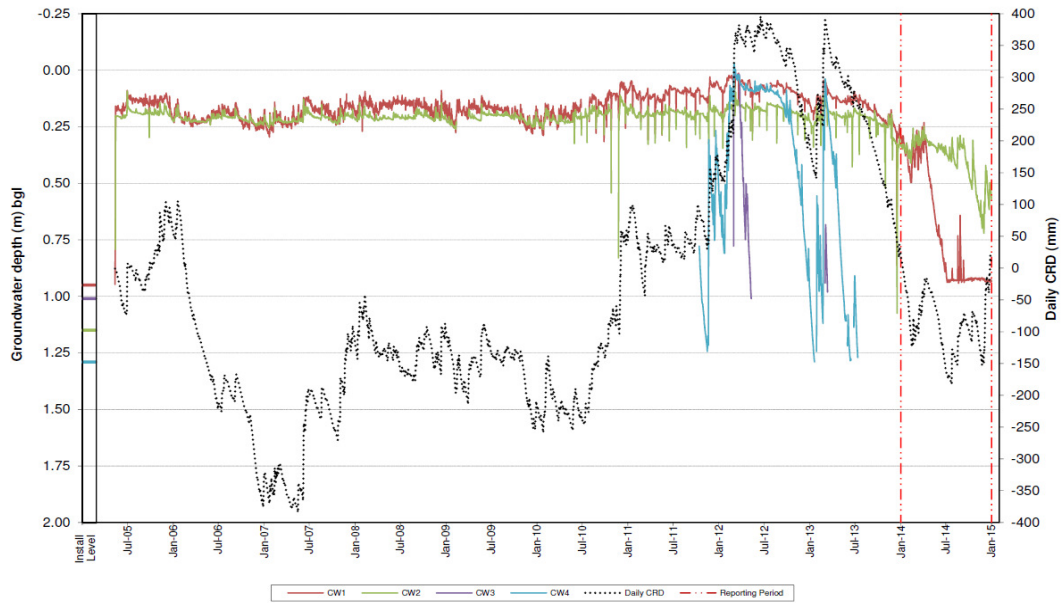
Graph 2 Sunnyside West Hydrograph



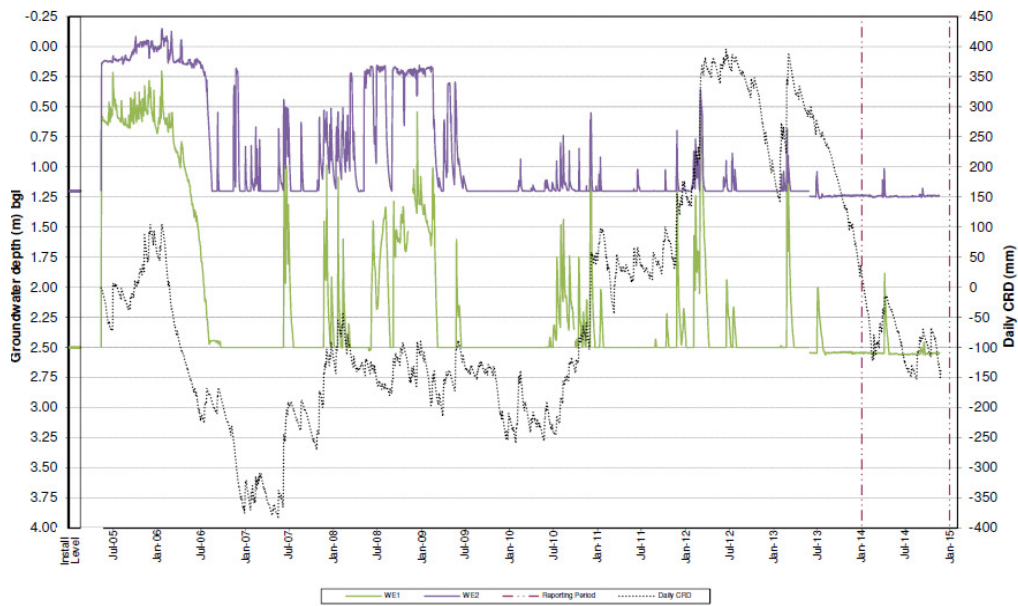
Graph 3 Sunnyside Swamp Hydrograph



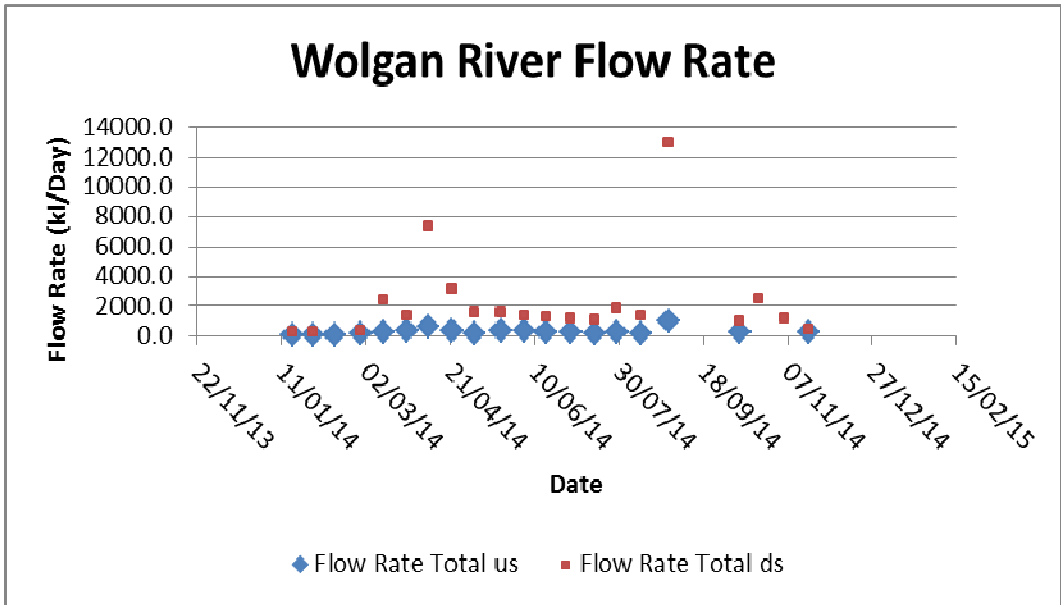
Graph 4 Sunnyside East Swamp Hydrograph



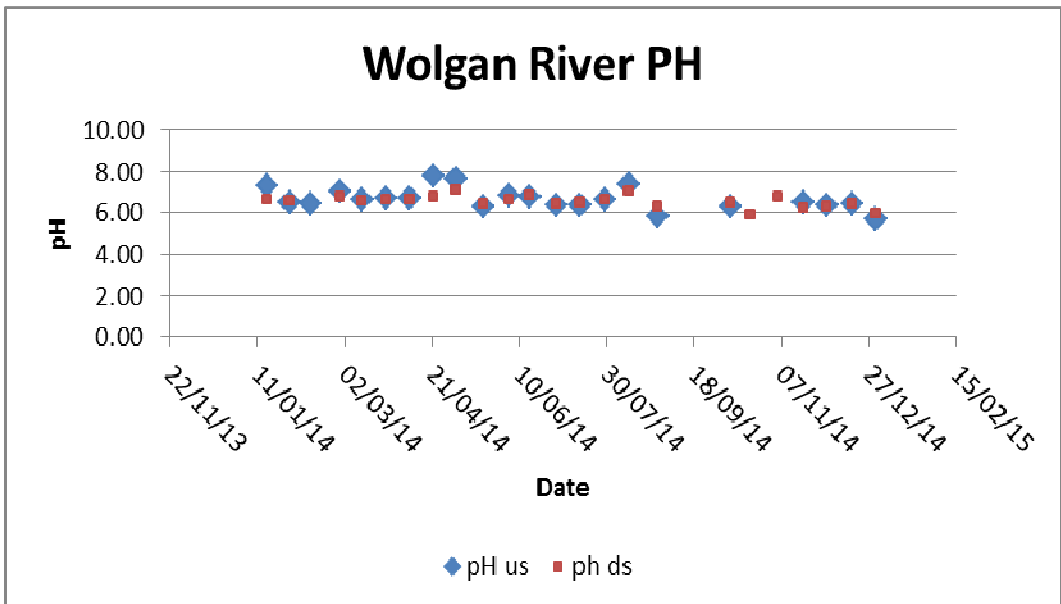
Graph 5 Carne West Swamp Hydrograph



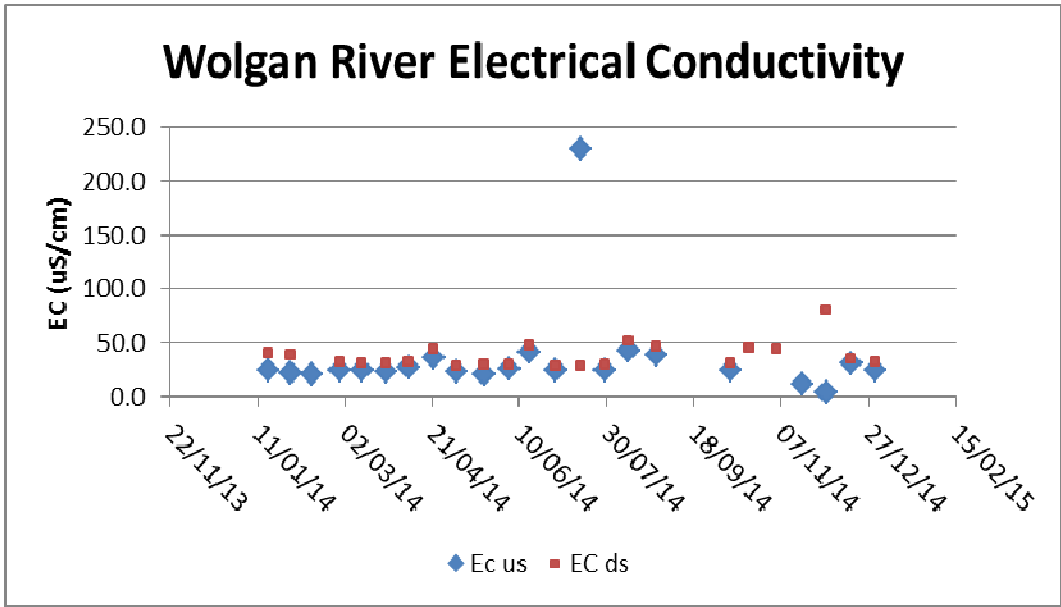
Graph 6 East Wolgan Hydrograph



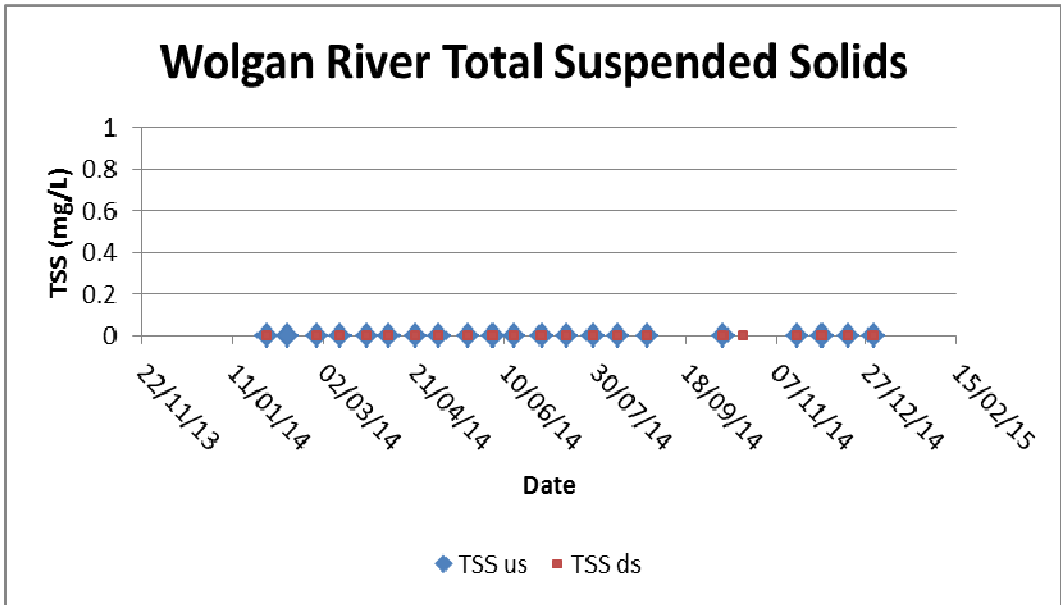
Graph 7 Wolgan River Flow Monitoring



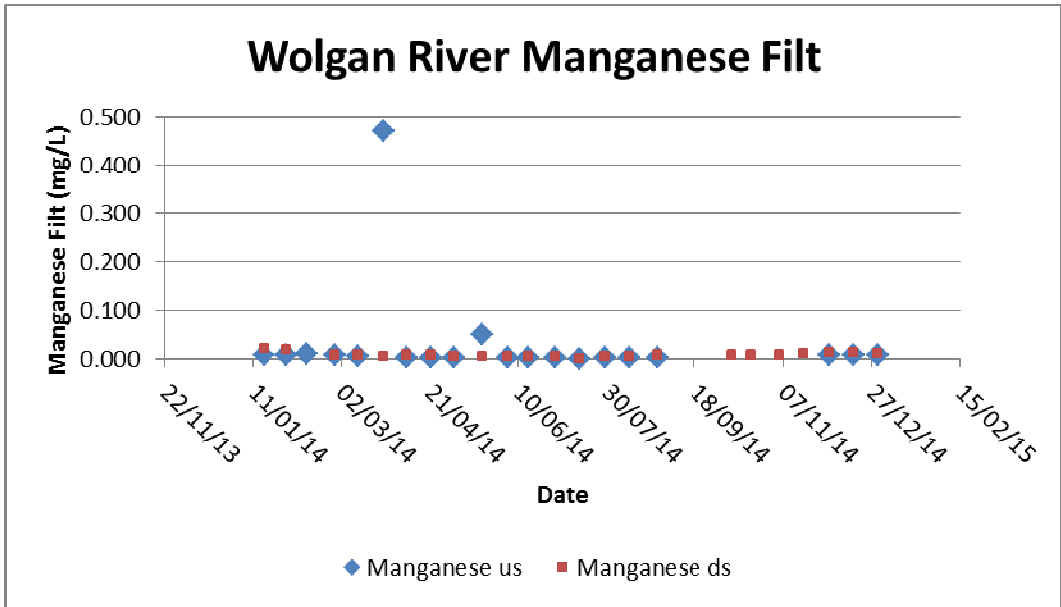
Graph 8 Wolgan River pH



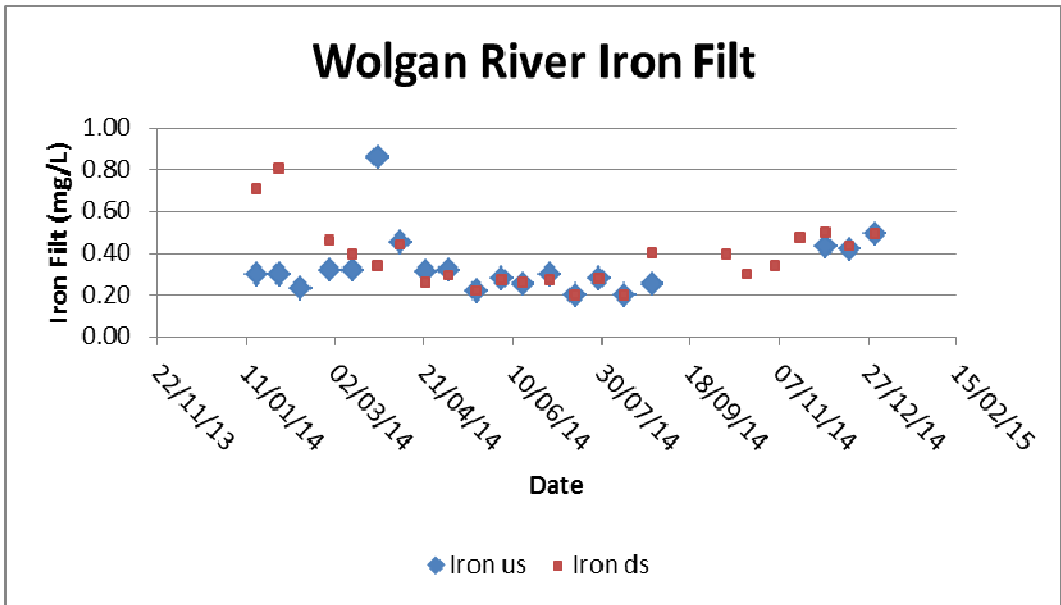
Graph 9 Wolgan River EC



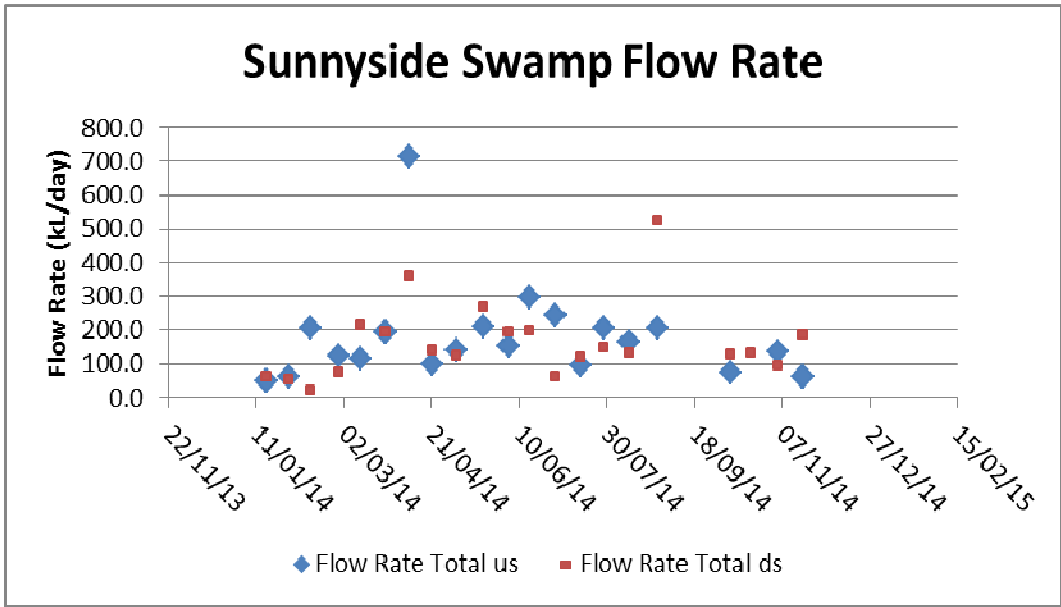
Graph 10 Wolgan River TSS



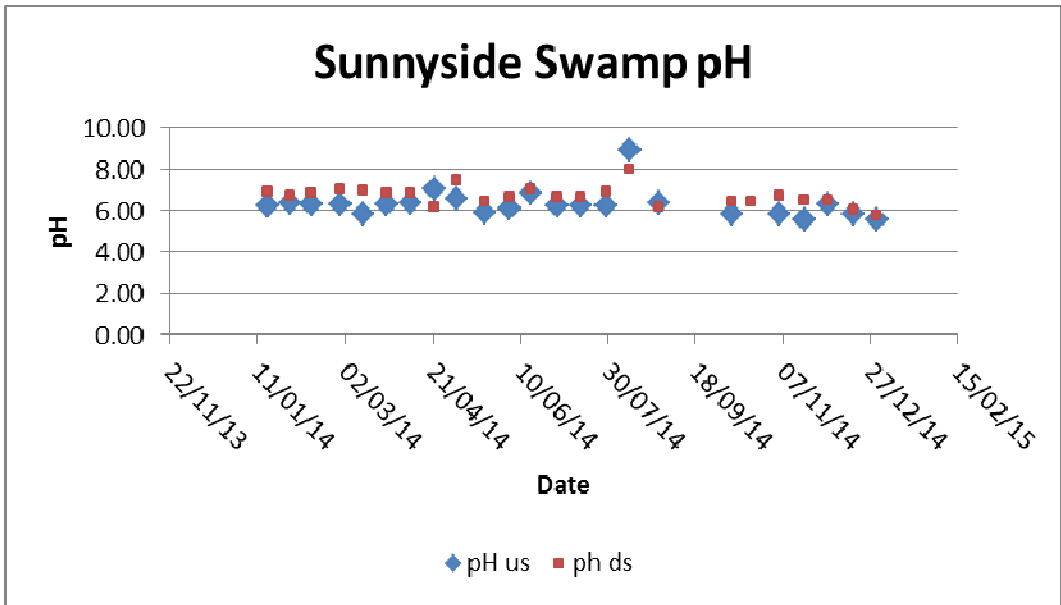
Graph 11 Wolgan River Manganese Filterable



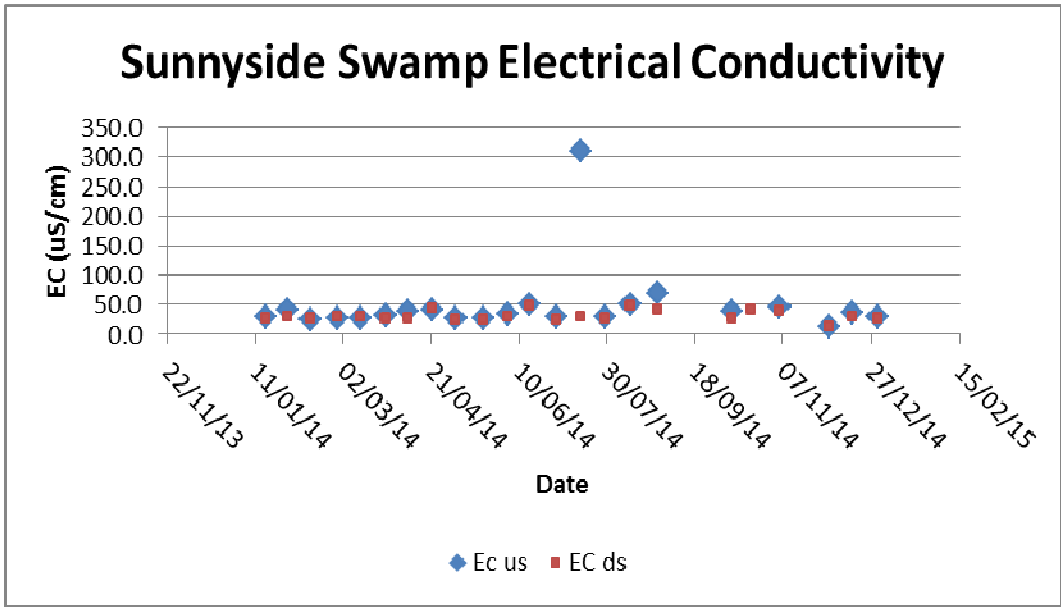
Graph 12 Wolgan River Iron Filterable



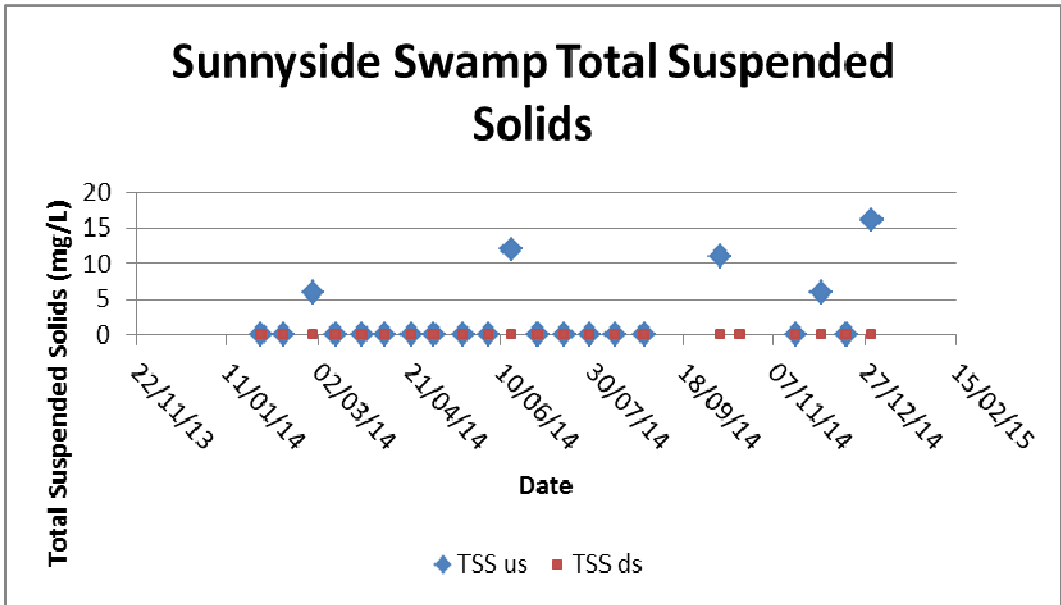
Graph 13 Sunnyside Swamp Flow Monitoring



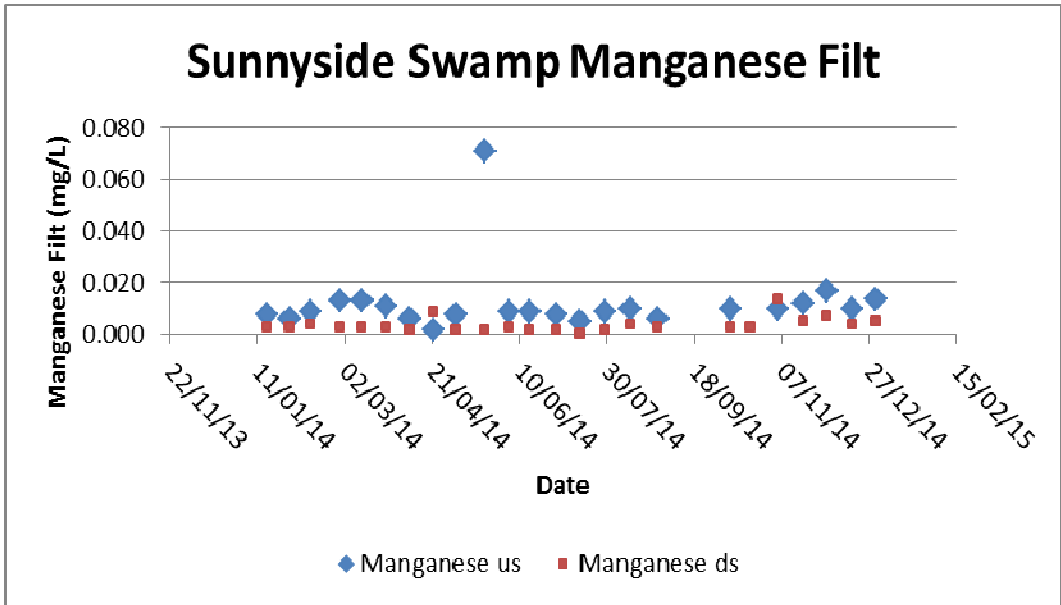
Graph 14 Sunnyside Swamp pH



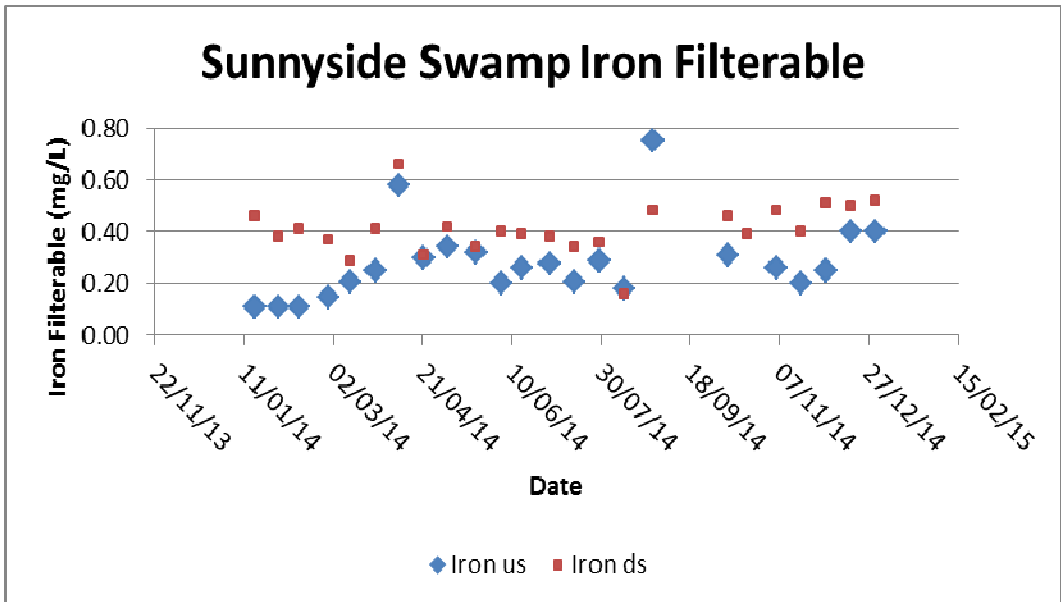
Graph 15 Sunnyside Swamp EC



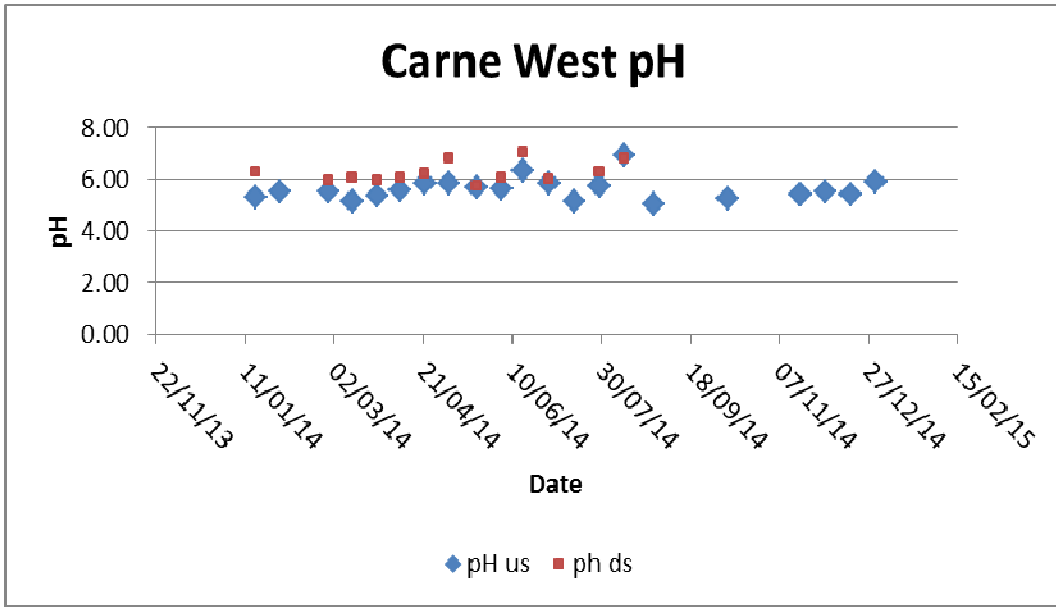
Graph 16 Sunnyside Swamp TSS



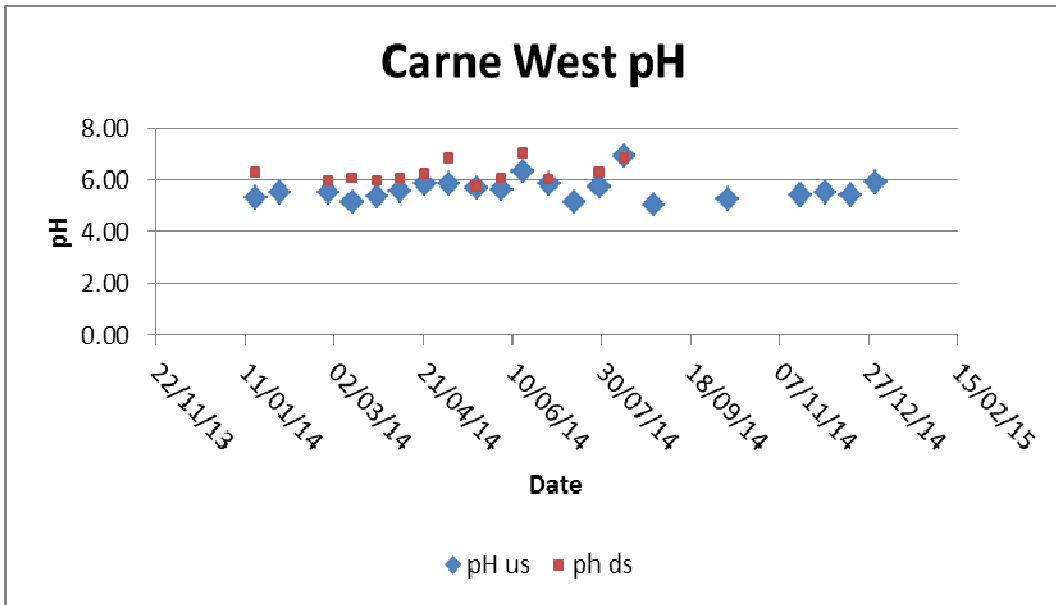
Graph 17 Sunnyside Swamp Manganese Filterable



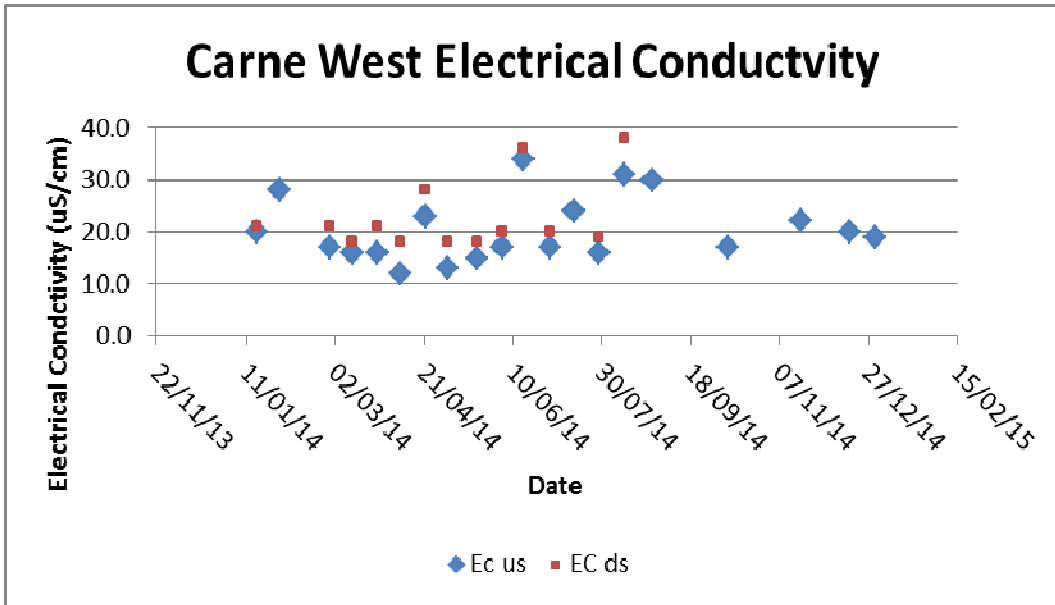
Graph 18 Sunnyside Swamp Iron Filterable



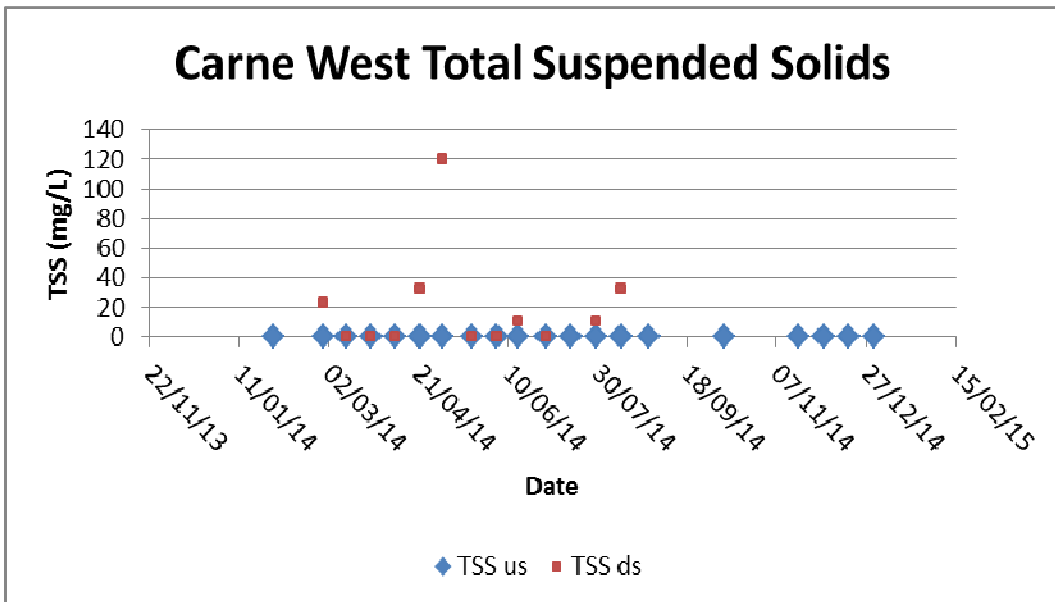
Graph 19 Carne West Flow Monitoring



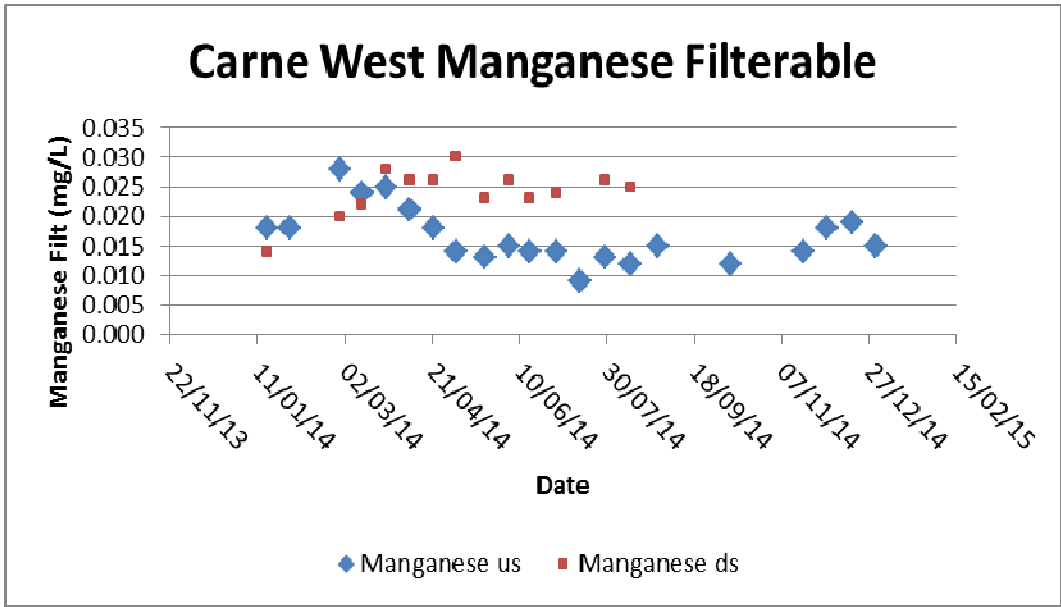
Graph 20 Carne West pH



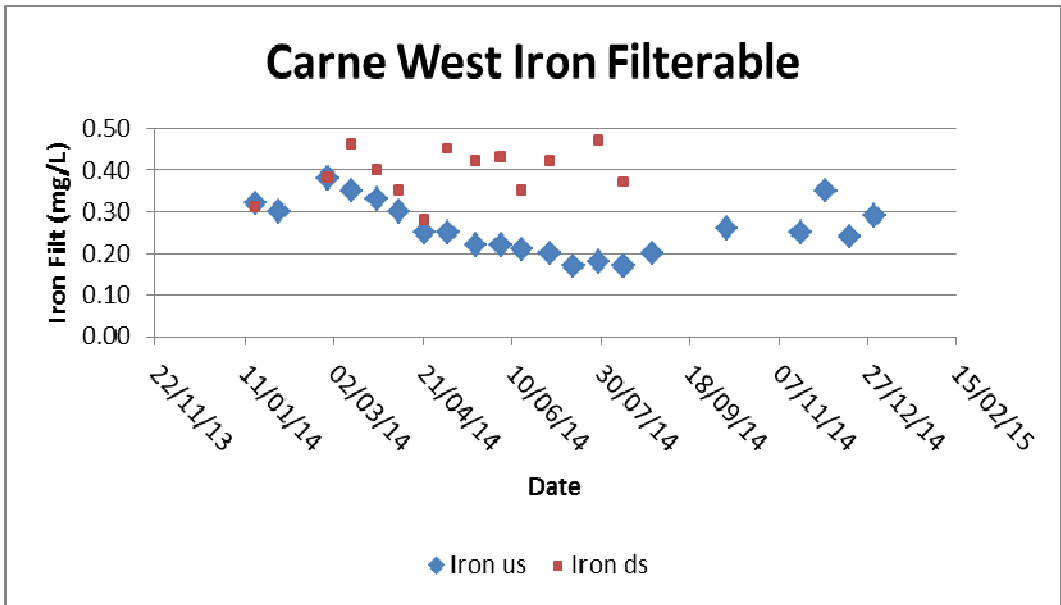
Graph 21 Carne West EC



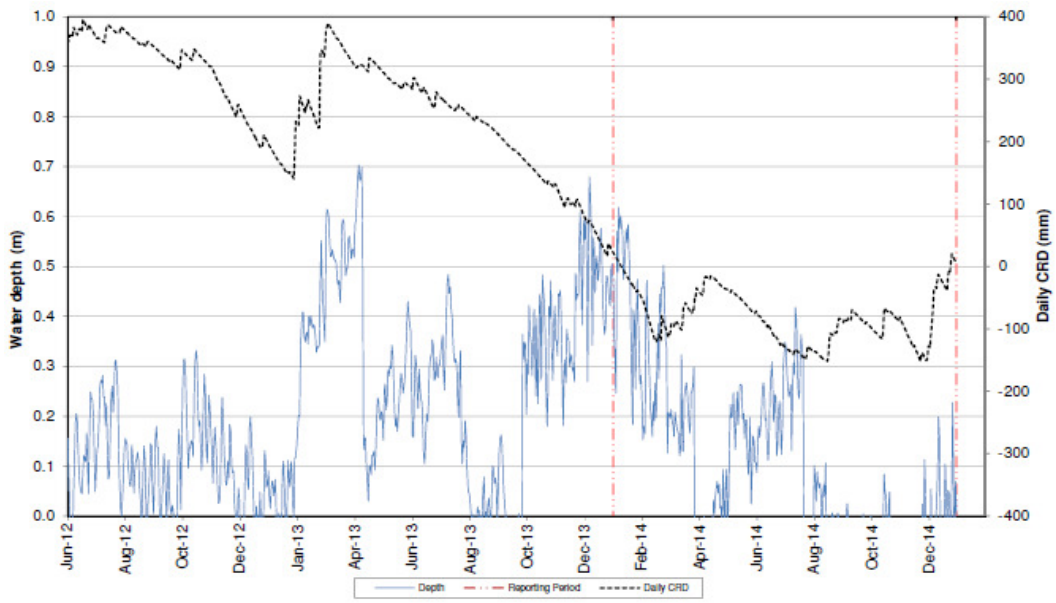
Graph 22 Carne West TSS



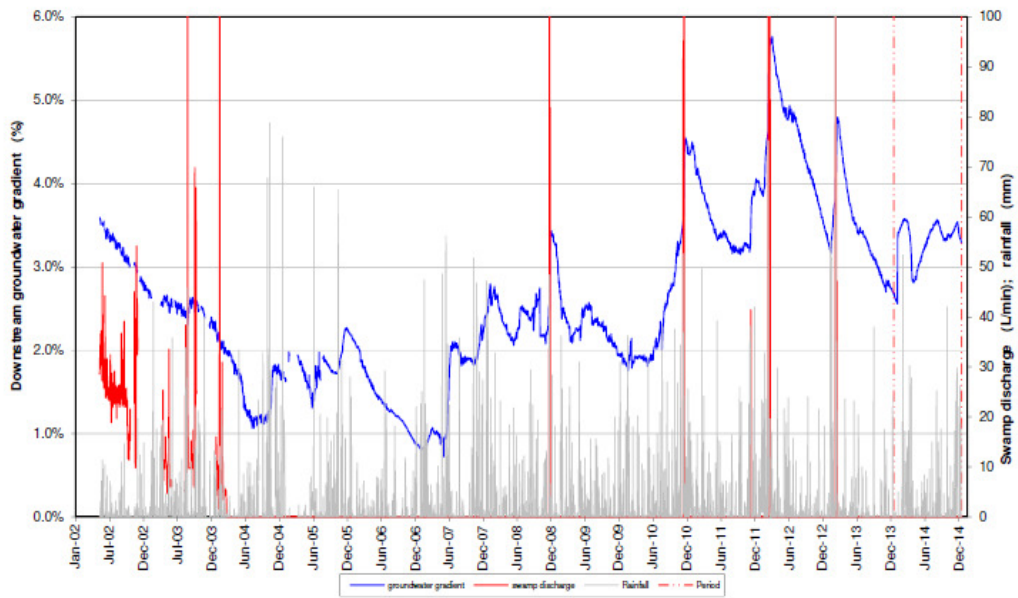
Graph 23 Carne West Manganese Filterable



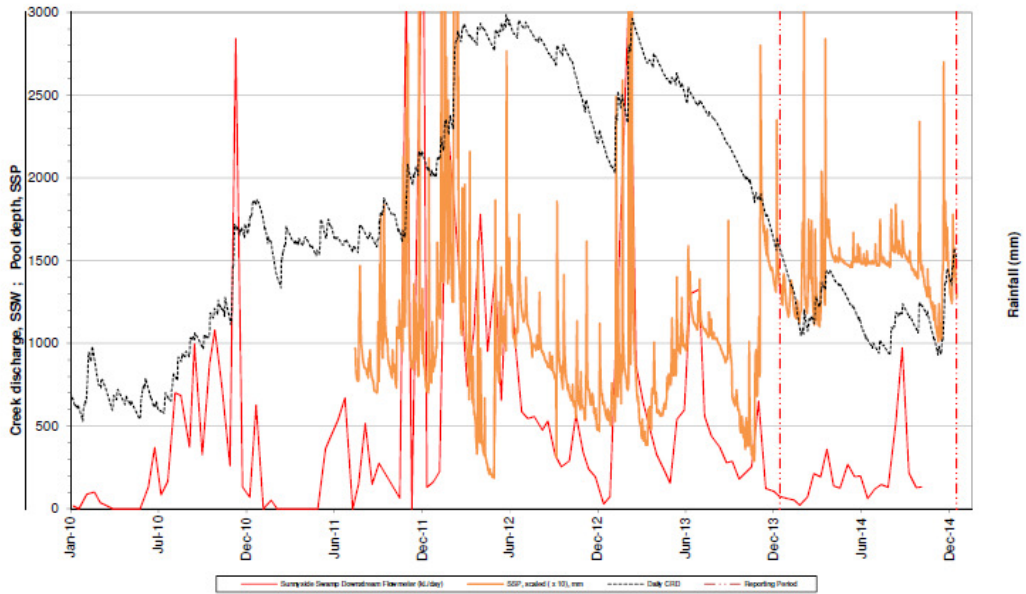
Graph 24 Carne West Iron Filterable



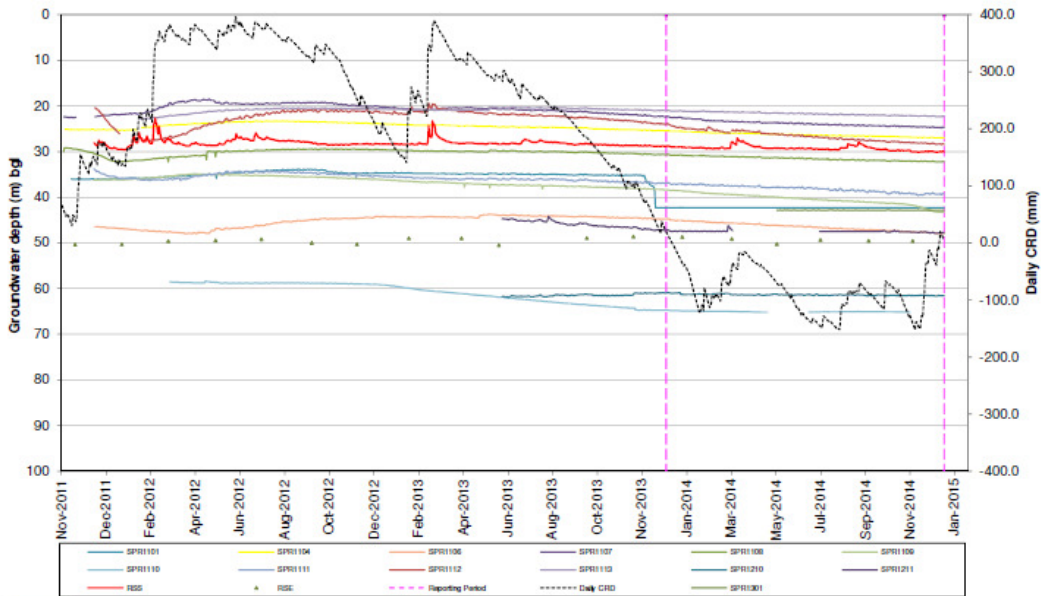
Graph 25 Carne West Pool Hydrograph



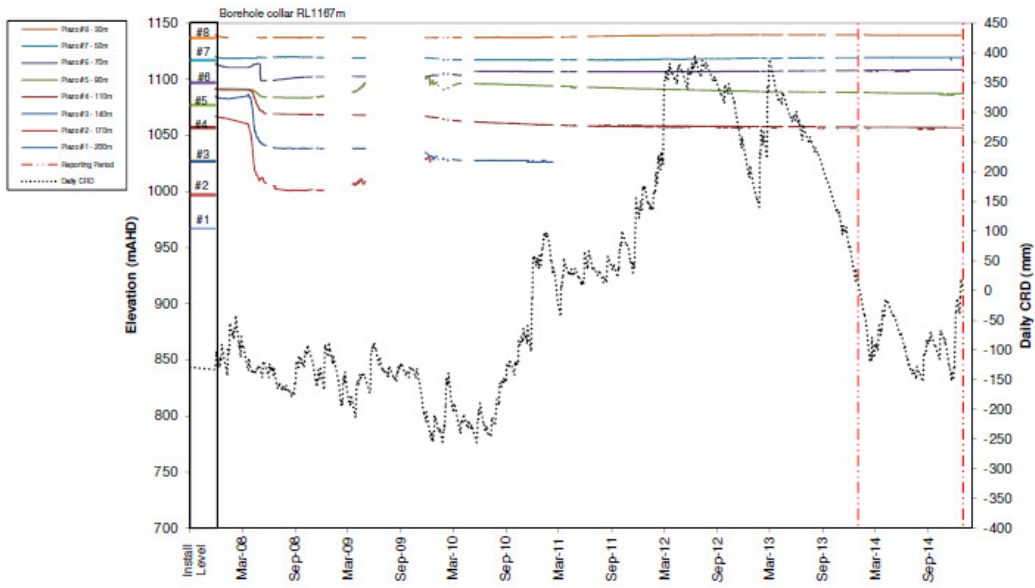
Graph 26 Junction Swamp Flow Hydrograph



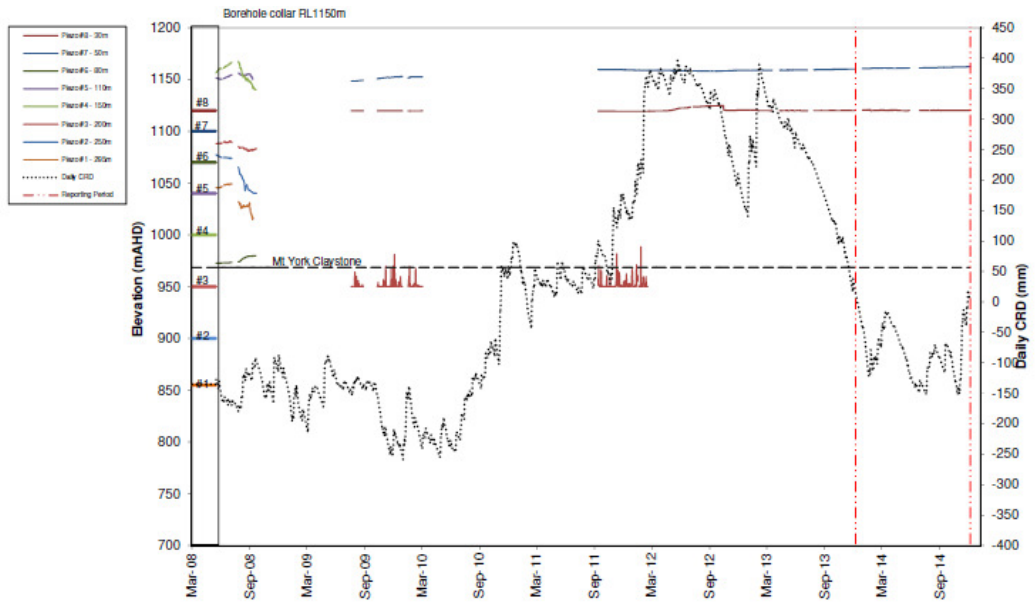
Graph 27 Sunnyside Swamp Hydrograph



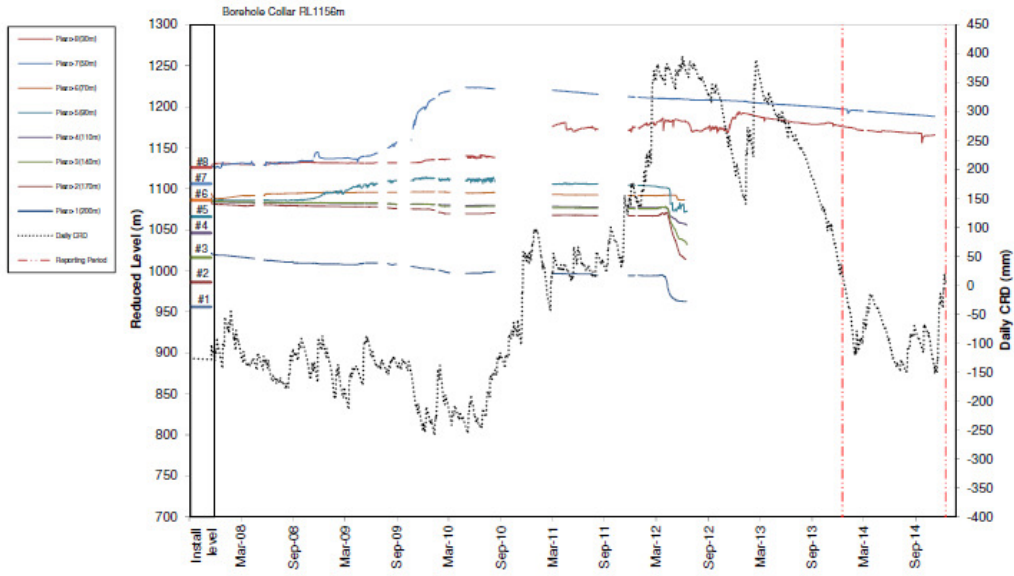
Graph 28 Ridge Piezometer Hydrograph



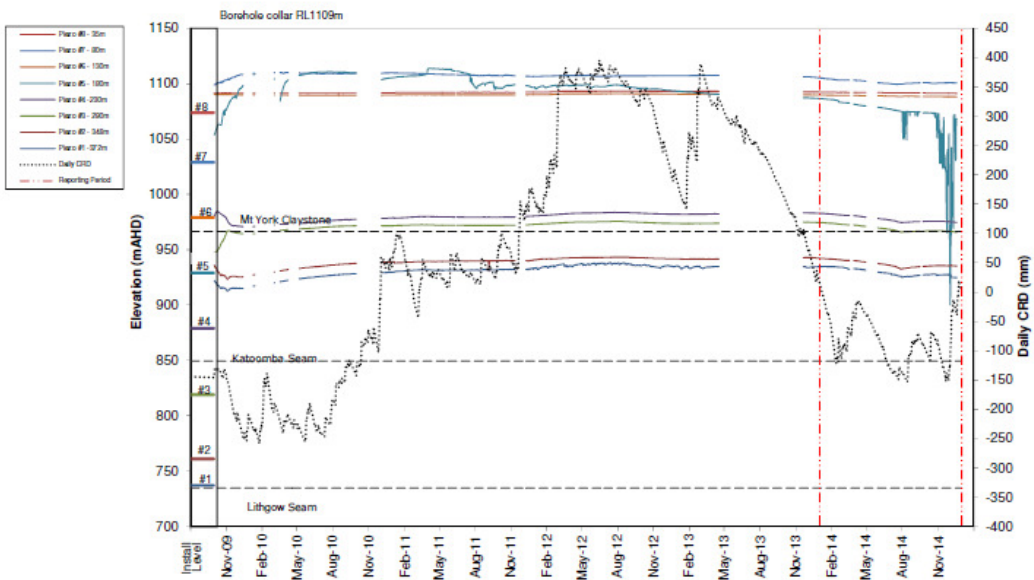
Graph 29 SPR 48 Vibrating Wire Hydrograph



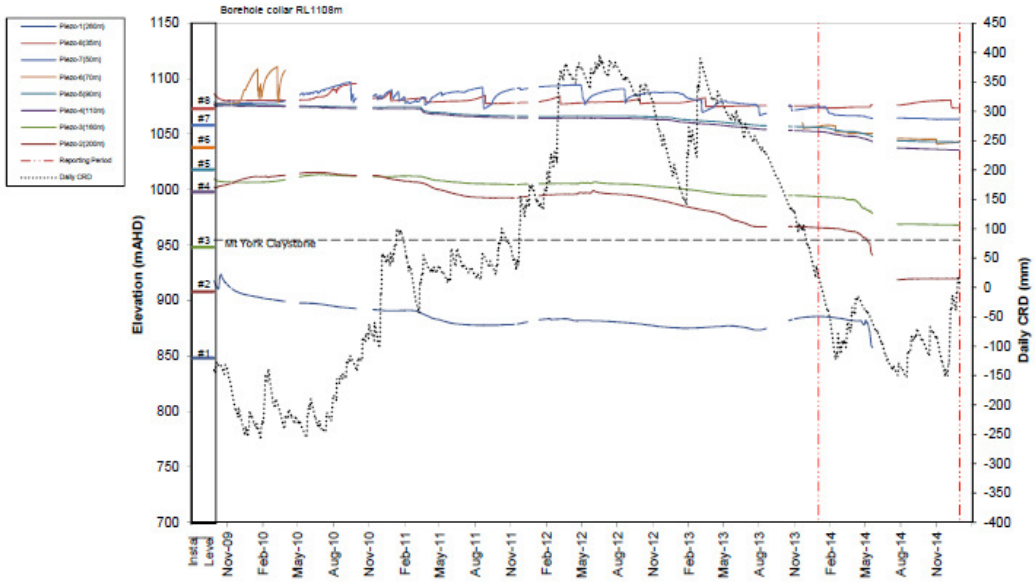
Graph 30 SPR49 Vibrating Wire Hydrograph



Graph 31 SPR50 Vibrating wire hydrograph

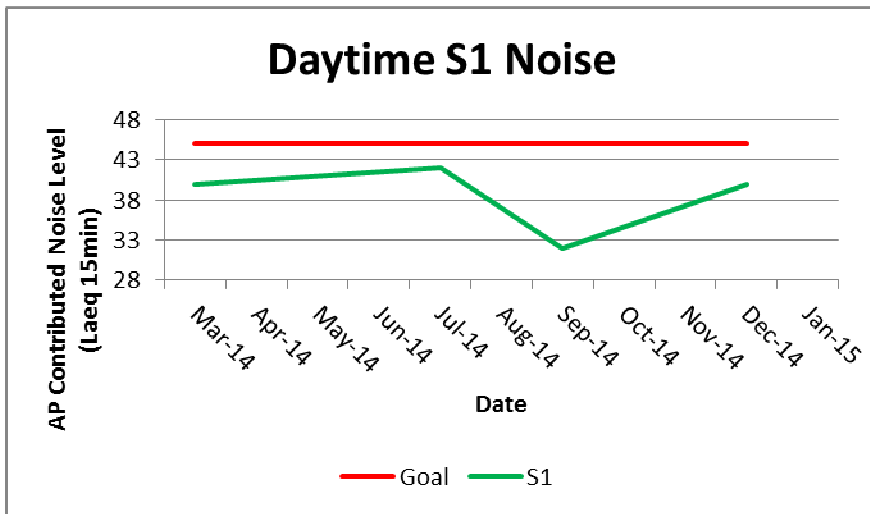


Graph 32 SPR 66 Vibrating Wire Hydrograph

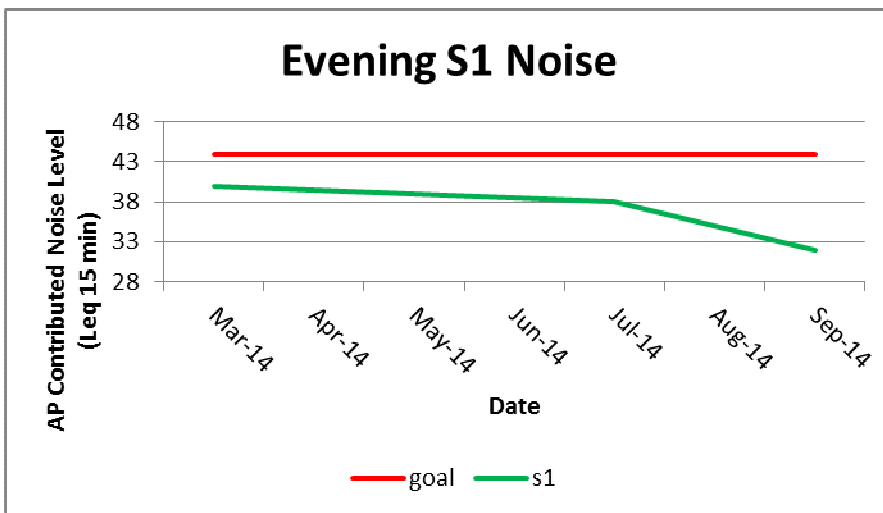


Graph 33 SPR 67 Vibrating Wire Hydrograph

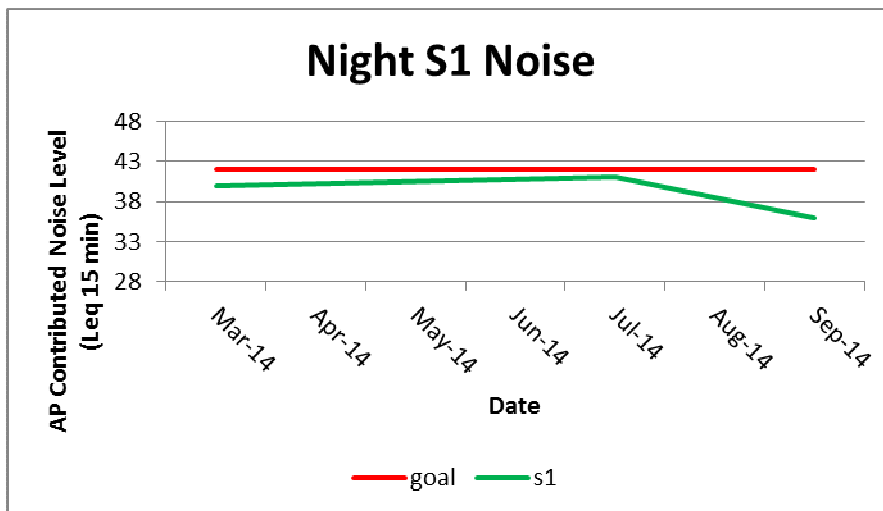
Appendix 4 – Noise Monitoring



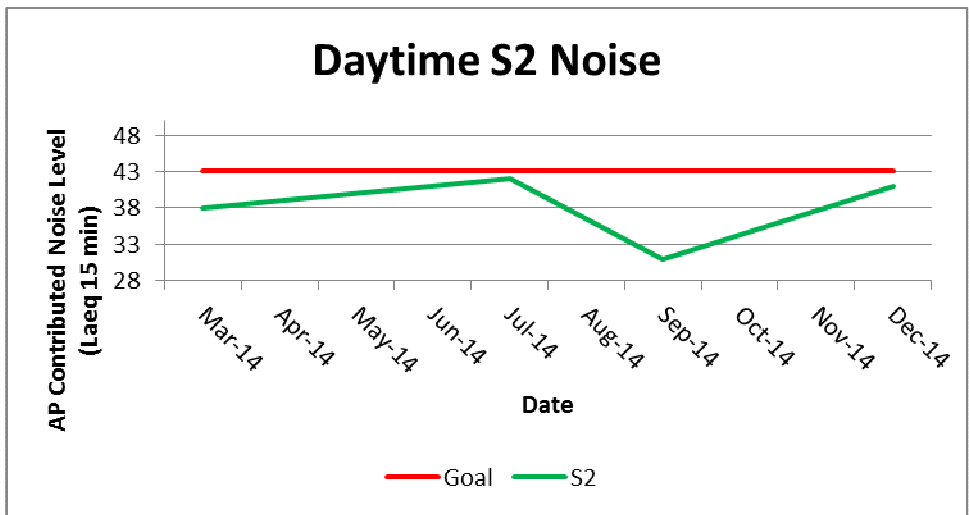
Graph 1 S1 Daytime



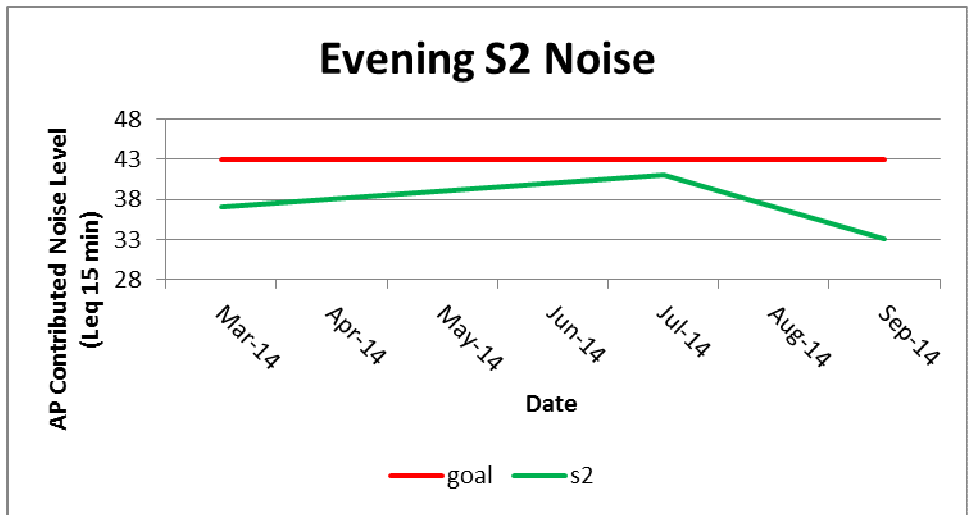
Graph 2 S1 Evening



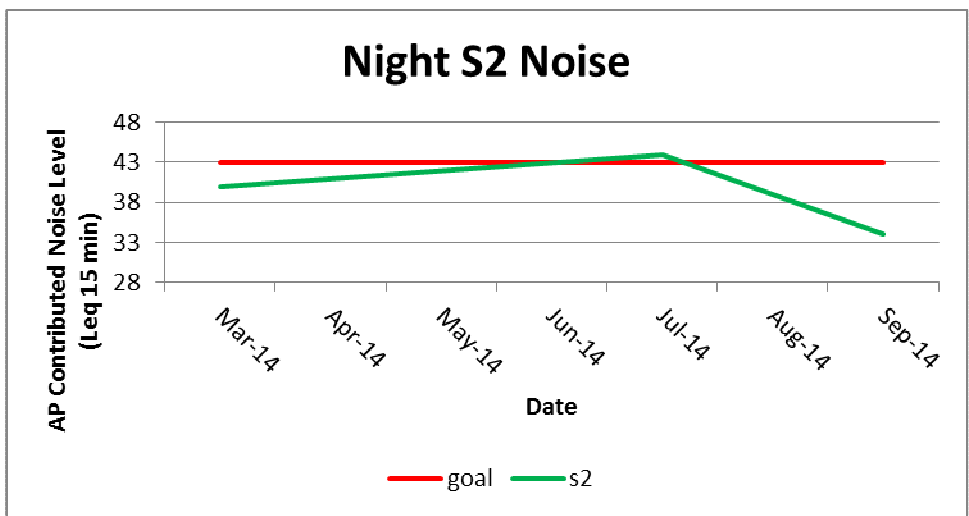
Graph 3 S1 Night



Graph 4 S2 Daytime

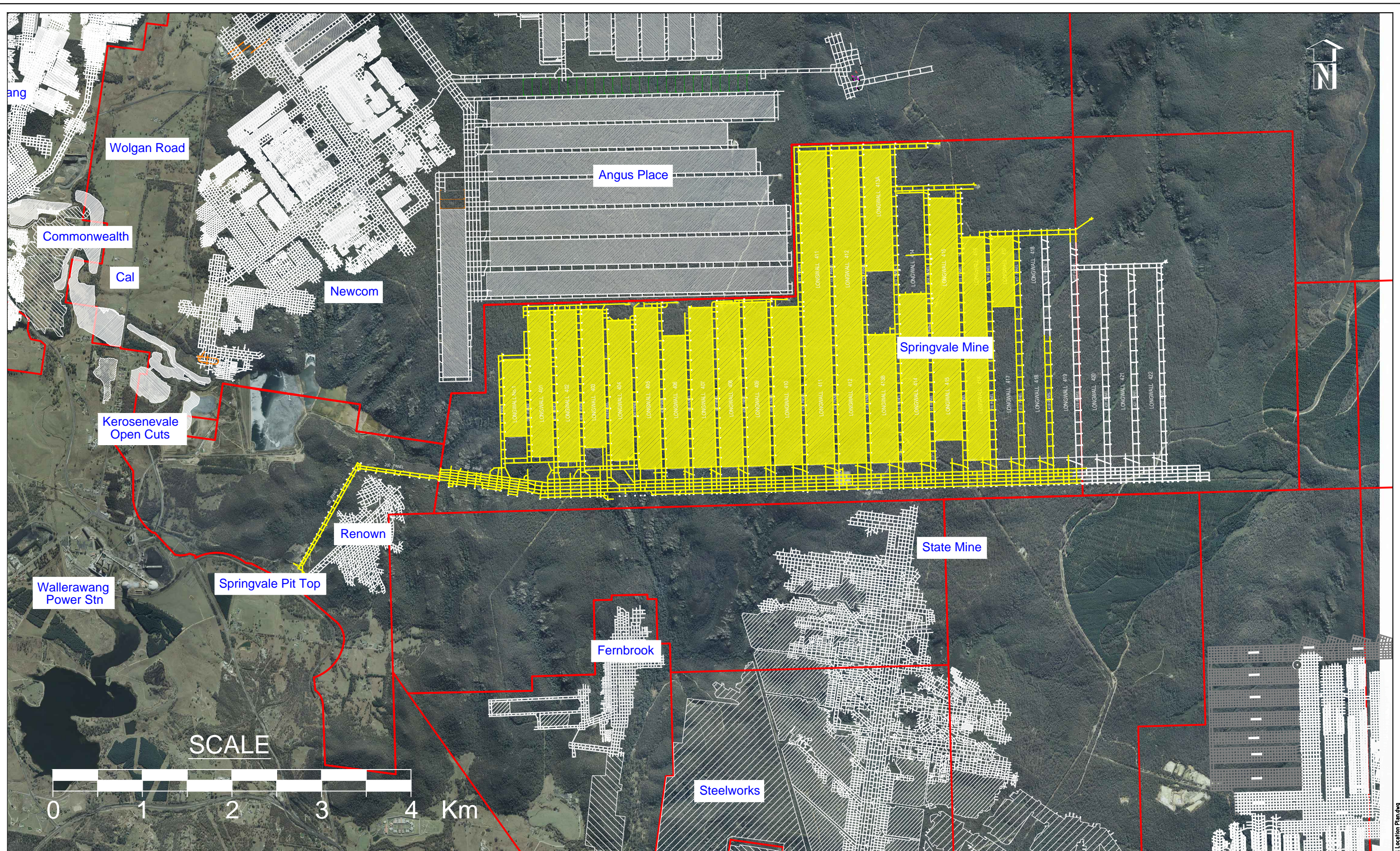


Graph 5 S2 Evening



Graph 6 S2 Night

Appendix 5 Mine Plans



LEGEND:


NOTES:

DRAWN:	Sarah Kimm	DATE:	27-01-2015
PLAN No.:	SVY02713/1	COMPUTER PATH:	S:\Survey\Z_Plans
INFORMATION SUPPLIED BY:	N/A		
SCALE:	SCALE 1:40000		A3H Sheet 1 of 1

SPRINGVALE MINE

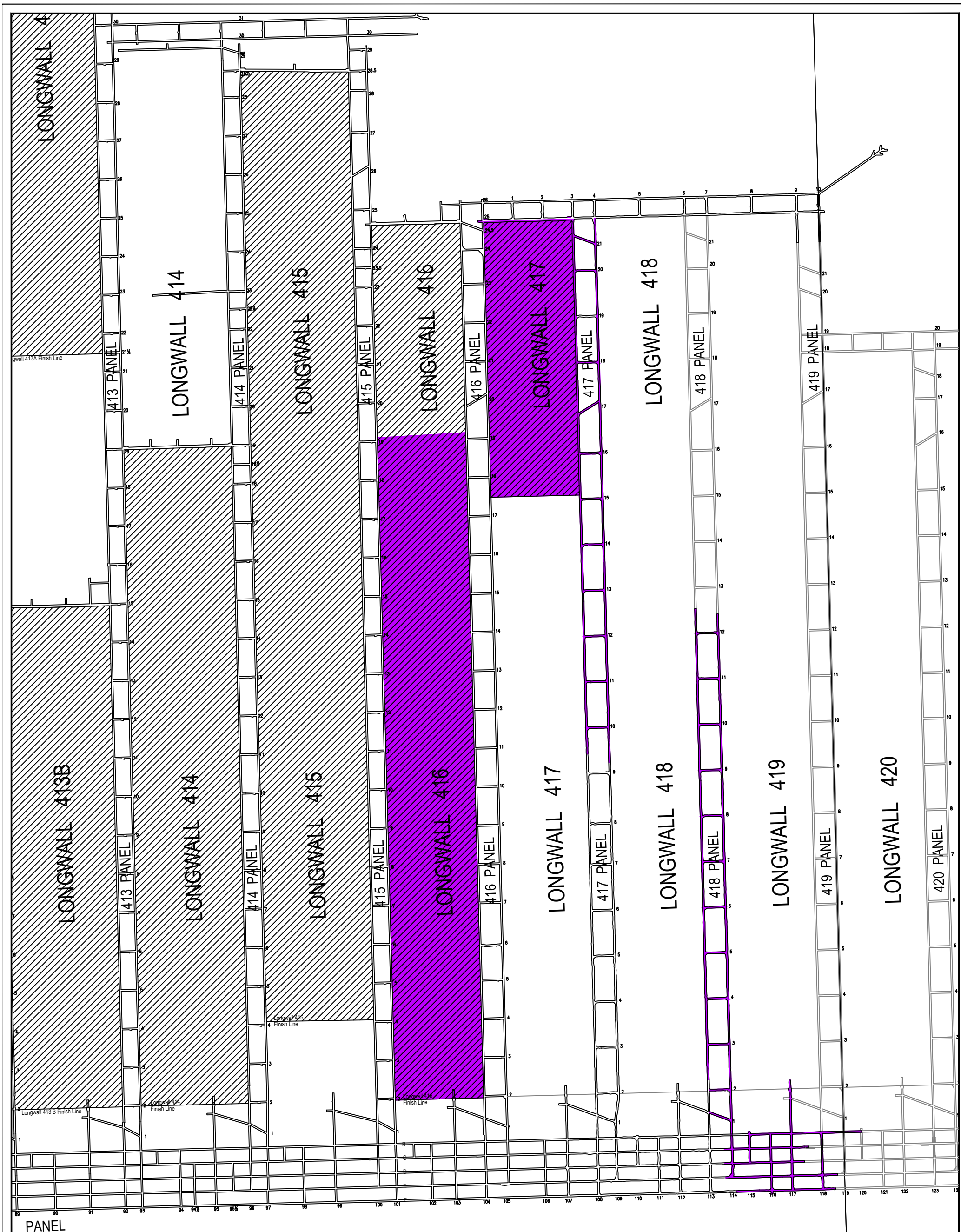
TITLE:

AEMR 2014
Figure No.1
 Regional Location Plan




Springvale Coal

SPRINGVALE MINE
 Castlereagh HWY
 Lidsdale NSW 2790
 PO Box 198
 Wallerawang NSW 2845
 Phone: 02-63501600
 Fax: 02-63551052



LEGEND:

 Mine Production 2014

NOTES:


DRAWN: Sarah Kimm	DATE: 27-01-2015
PLAN No: SVY02713/2	COMPUTER PATH: S:\Survey\Z_Plans
INFORMATION SUPPLIED BY:	
SCALE: NOT TO SCALE	A3V Sheet 1 of 1

SPRINGVALE MINE

AEMR 2014

Figure No.2

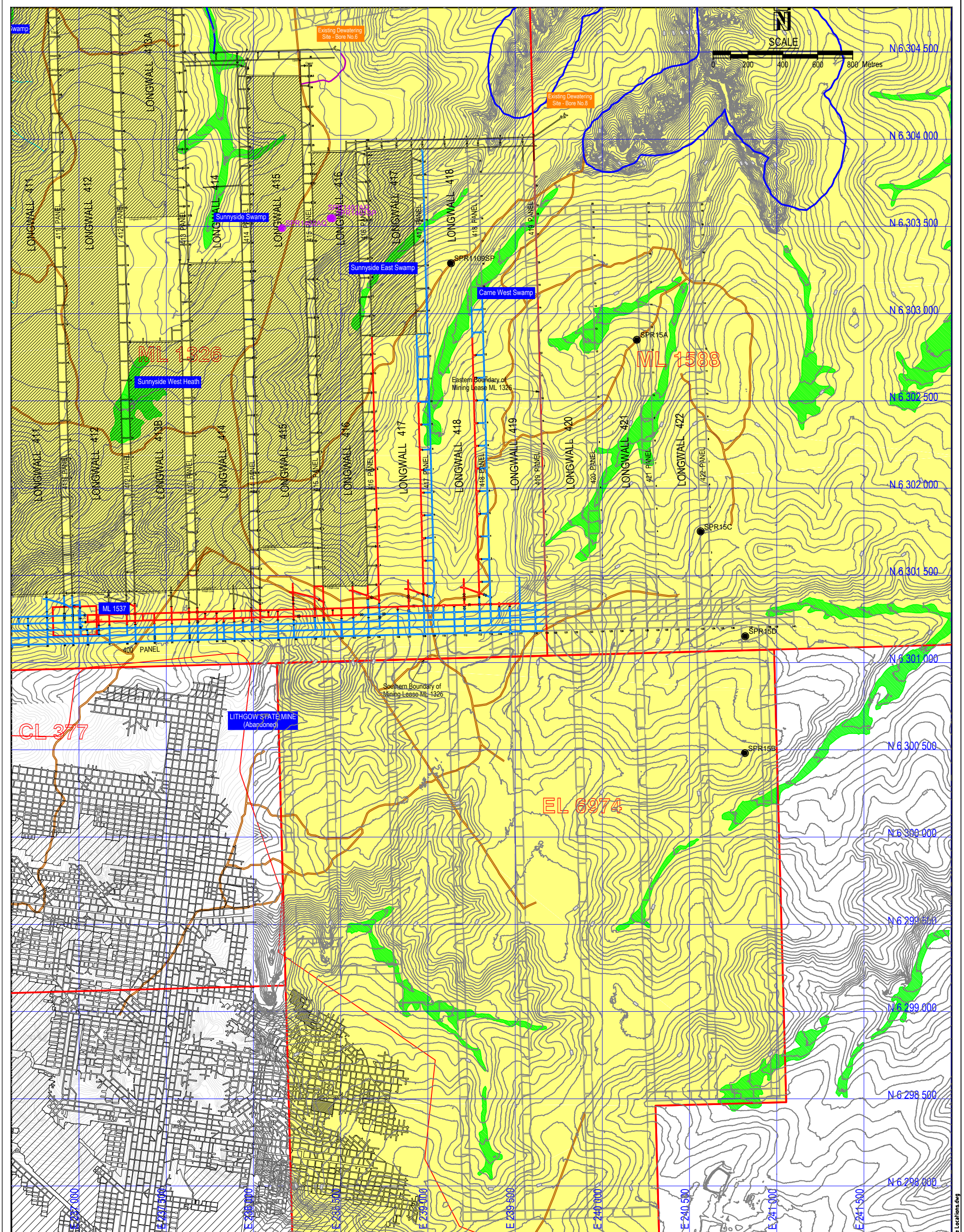
Mine Production 2014



Springvale Coal

SPRINGVALE MINE
Castlereagh HWY
Lidsdale NSW 2790
PO Box 198
Wallerawang NSW 2845
Phone: 02-63501600
Fax: 02-63551052

N.Z. Environmental AEMR 2014 Fig. No.2 Mine Production.dwg



LEGEND:

- Swamp Area
- Lease Boundary
- Access track
- Cliffline Protection Barrier
- Boreholes Completed 2014
- Boreholes Proposed 2015
- Exploration License EL6974

NOTES:

1. Boreholes are proposed for 2014 however their locations are undetermined at this stage

DRAWN: Sarah Kimm	DATE: 27-01-2015
PLAN No: SVY02713/3A	COMPUTER PATH: S:\Survey\Z_Plans
INFORMATION SUPPLIED BY: Borehole Locations - Mine Geologist	
SCALE: SCALE 1:20000	A3V Sheet 1 of 1

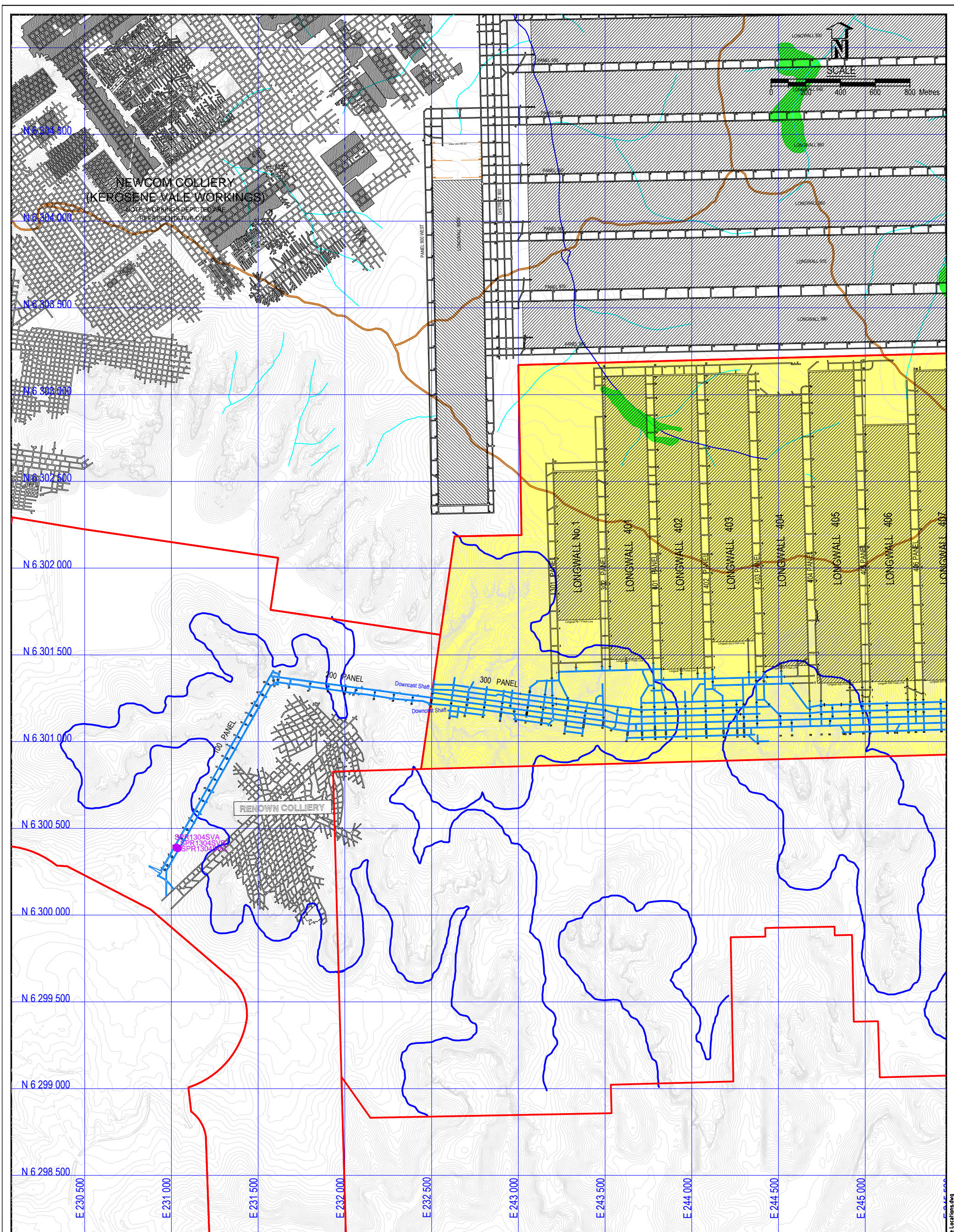
SPRINGVALE MINE

AEMR 2014
Figure No.3
Borehole Locations

Springvale Coal

SPRINGVALE MINE
Castlereagh HWY
Lidsdale NSW 2790
PO Box 198
Wallerawang NSW 2845
Phone: 02-63501600
Fax: 02-63551052

N.Z. Environmental AEMR 2014 (Fig. No. 3 Borehole Locations.dwg)



LEGEND:

- Swamp Area
- Lease Boundary
- Access track
- Cliffline Protection Barrier
- Boreholes Completed 2014
- Boreholes Proposed 2015
- Exploration License EL6974

NOTES:

1. Boreholes are proposed for 2014 however their locations are undetermined at this stage

DRAWN: Sarah Kimm	DATE: 27-01-2015
PLAN No: SVY02713/3B	COMPUTER PATH: S:\Survey\Z_Plans
INFORMATION SUPPLIED BY: Borehole Locations - Mine Geologist	
SCALE: SCALE 1:20000	A3V Sheet 1 of 1

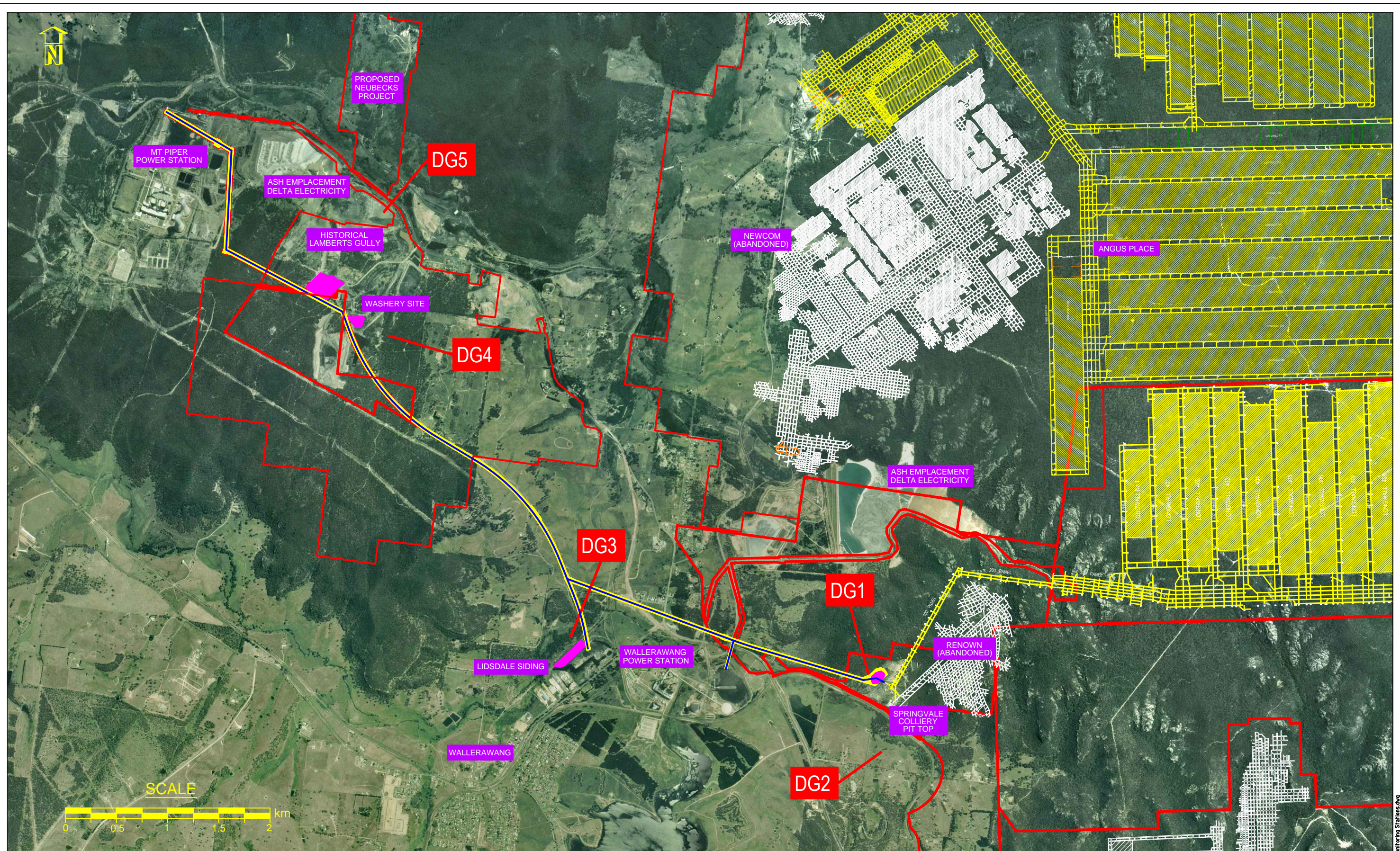
SPRINGVALE MINE

AEMR 2014
Figure No.3
Borehole Locations

Springvale Coal

SPRINGVALE MINE
 Castlereagh HWY
 Liddale NSW 2790
 PO Box 198
 Wallerawang NSW 2845
 Phone: 02-63501600
 Fax: 02-63551052

N.Z. Environmental AEMR 2014 Fig. No.3 Borehole Locations.dwg



LEGEND:

- Dust Monitoring Station
- Overland Conveyor System
- Stockpile Areas
- Overland Conveyor Route
- Mine Lease Boundary

NOTES:

DRAWN: Sarah Kimm	DATE: 27-01-2015
PLAN No: SVY02713/4	COMPUTER PATH: S:\Survey\Z_Plans
INFORMATION SUPPLIED BY:	
SCALE: NOT TO SCALE	A3H Sheet 1 of 1

SPRINGVALE MINE

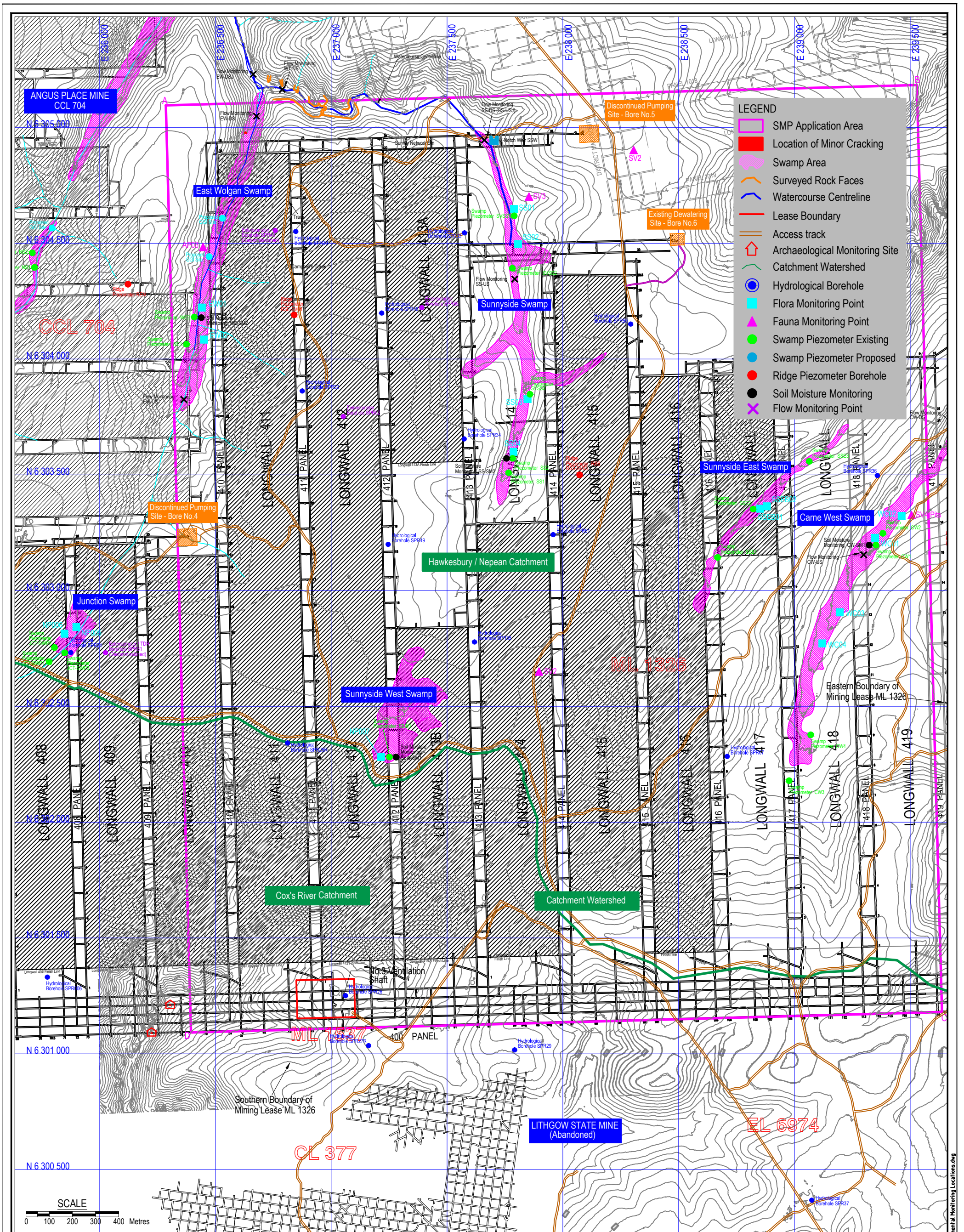
AEMR 2014

Figure No.4

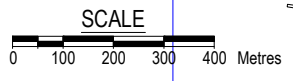
Dust Monitoring Stations
LDP008 - Dust Monitoring Network

SPRINGVALE MINE
 Castlereagh HWY
 Lidsdale NSW 2790
 PO Box 198
 Wallerawang NSW 2845
 Phone: 02-63501600
 Fax: 02-63551052

N:\Z_Environment\AEMR 2014\Fig. No.4_Dust Monitoring Stations.dwg



- LEGEND**
- SMP Application Area
 - Location of Minor Cracking
 - Swamp Area
 - Surveyed Rock Faces
 - Watercourse Centreline
 - Lease Boundary
 - Access track
 - Archaeological Monitoring Site
 - Catchment Watershed
 - Hydrological Borehole
 - Flora Monitoring Point
 - Fauna Monitoring Point
 - Swamp Piezometer Existing
 - Swamp Piezometer Proposed
 - Ridge Piezometer Borehole
 - Soil Moisture Monitoring
 - Flow Monitoring Point



LEGEND:

NOTES:

DRAWN:	Sarah Kimm	DATE:	27-01-2015
PLAN No:	SVY02713/5	COMPUTER PATH:	S:\Survey\Z_Plans
INFORMATION SUPPLIED BY:			
SCALE:	SCALE 1:15000		
	A3V Sheet 1 of 1		

SPRINGVALE MINE

AEMR 2014

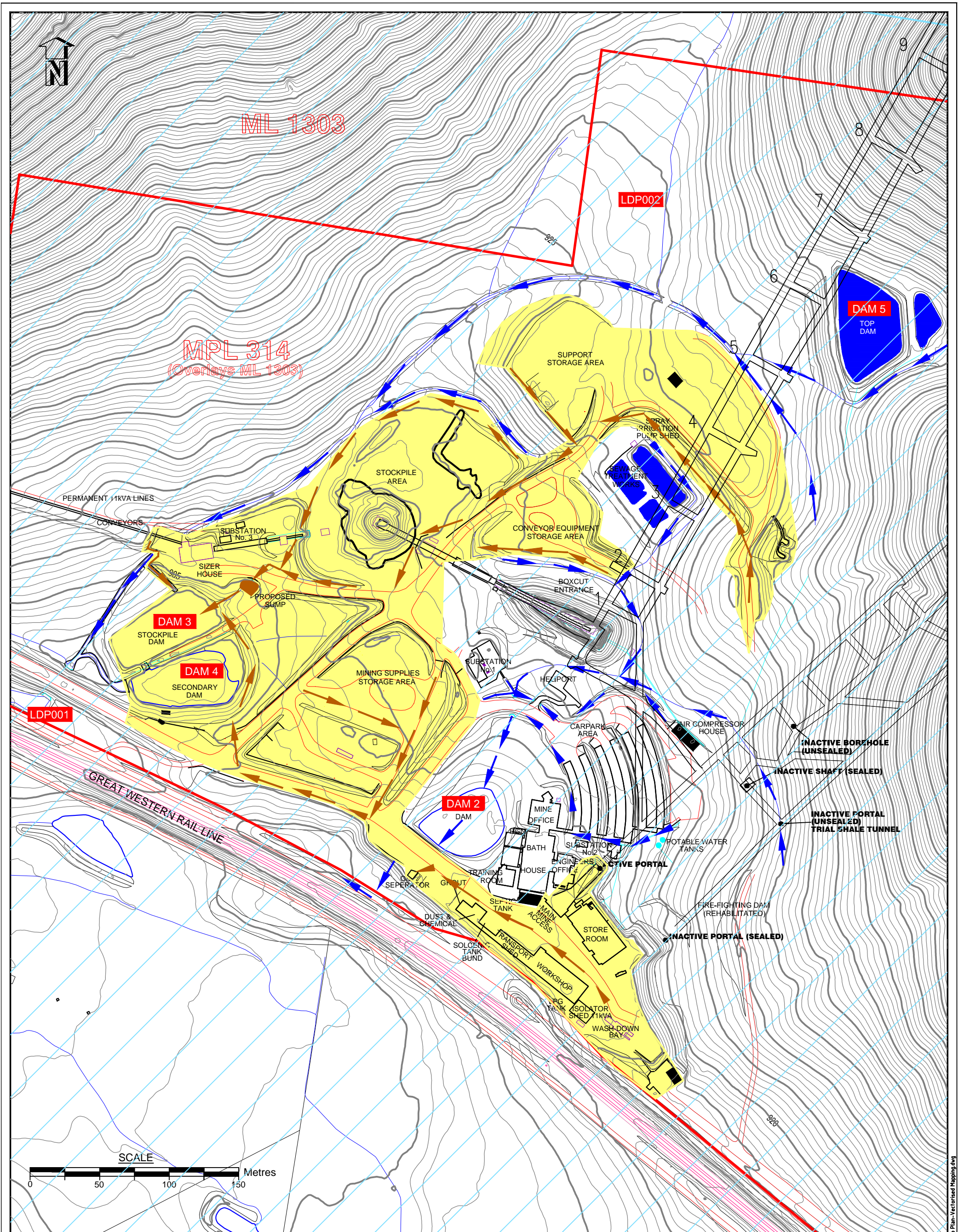
Figure No.5

Environmental Monitoring Locations



Springvale Coal

SPRINGVALE MINE
Castlereagh HWY
Lidsdale NSW 2790
PO Box 198
Wallerawang NSW 2845
Phone: 02-63501600
Fax: 02-63551052



LEGEND:	
	Clean Water
	Dirty Water
	Dirty Water Catchment
	Clean Water Catchment

DRAWN:	Sarah Kimm	DATE:	27-01-2015
PLAN No:	SVY02713/6A	COMPUTER PATH:	S:\Survey\Z_Plans
INFORMATION SUPPLIED BY:			
SCALE:	SCALE 1:2500		
	A3V Sheet 1 of 1		

SPRINGVALE MINE

AEMR 2014

Figure No.6A

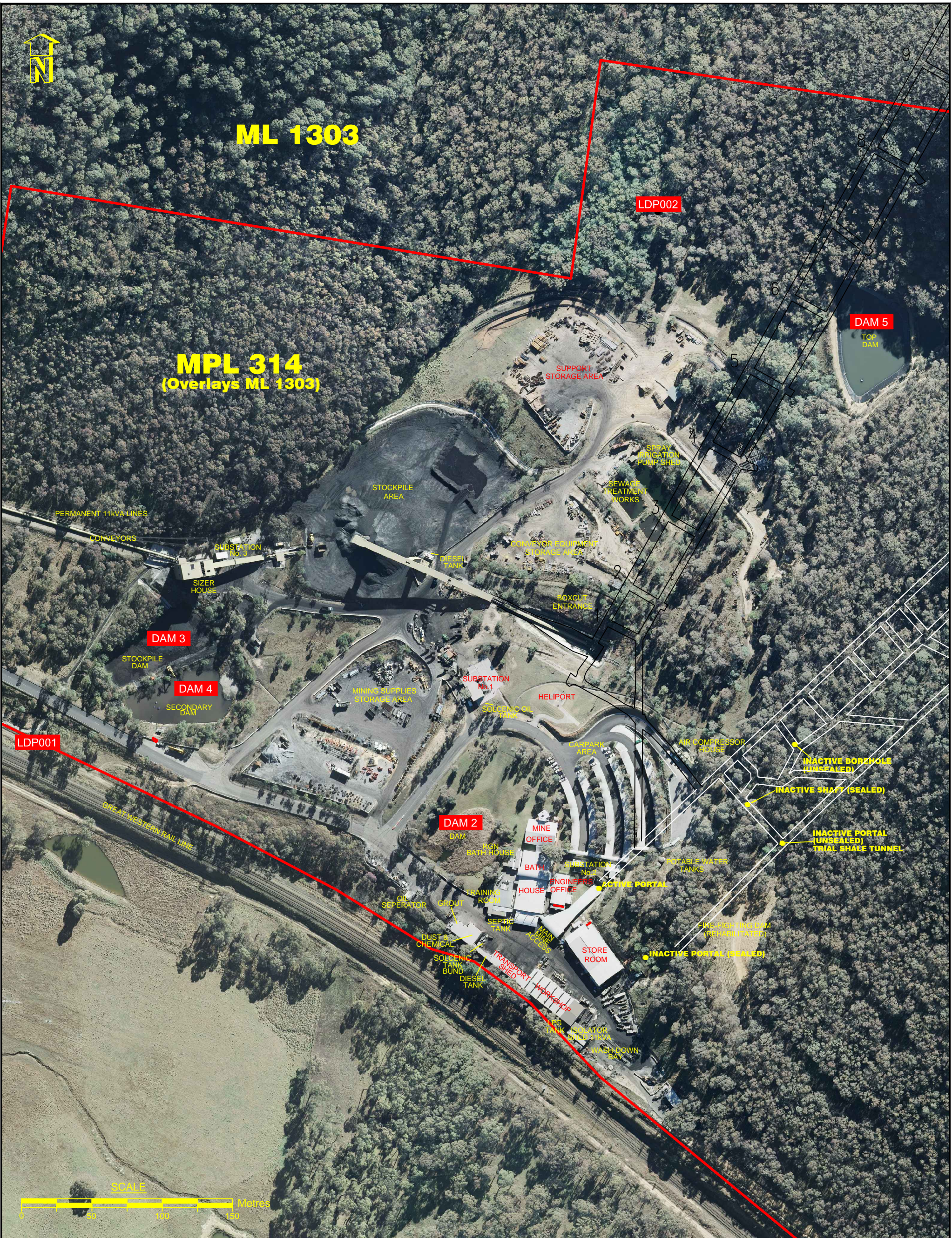
Pit Top Plan - Surface Water Management



Springvale Coal

SPRINGVALE MINE
Castlereagh HWY
Lidsdale NSW 2790
PO Box 198
Wallerawang NSW 2845
Phone: 02-63501600
Fax: 02-63551052

N.Z. Environmental AEMR 2014 Fig. No.6A Pit Top Plan-Vectorised Mapping.dwg



LEGEND:

NOTES:


DRAWN: Sarah Kimm	DATE: 27-01-2015
PLAN No: SVY02713/6B	COMPUTER PATH: S:\Survey\Z_Plans
INFORMATION SUPPLIED BY:	
SCALE: SCALE 1:2500	A3V Sheet 1 of 1

SPRINGVALE MINE

AEMR 2014

Figure No.6B

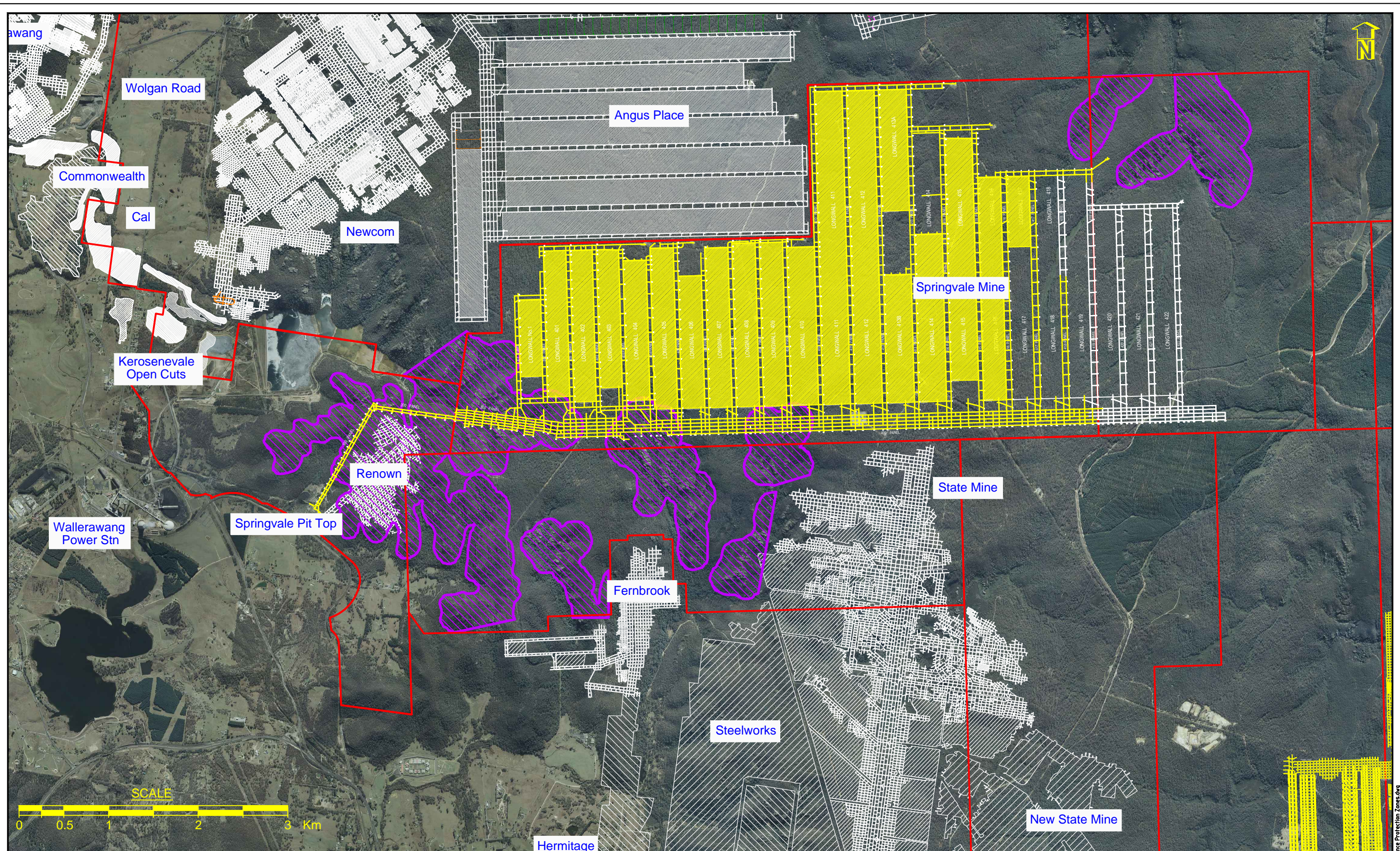
Pit Top Plan - Aerial Photograph




Springvale Coal

SPRINGVALE MINE
Castlereagh HWY
Lidsdale NSW 2790
PO Box 198
Wallerawang NSW 2845
Phone: 02-63501600
Fax: 02-63551052

N:\Z_Environmental\AEMR 2014\Fig. No.6B Pit Top Plan-Aerial Photo.dwg



LEGEND:

 Subsidence Protection Zone

NOTES:

DRAWN:	Sarah Kimm	DATE:	27-01-2015
PLAN No:	SVY02713/7	COMPUTER PATH:	S:\Survey\Z_Plans
INFORMATION SUPPLIED BY:			
SCALE:	SCALE 1:40000		A3H Sheet 1 of 1

SPRINGVALE MINE

TITLE:

AEMR 2014

Figure No.7

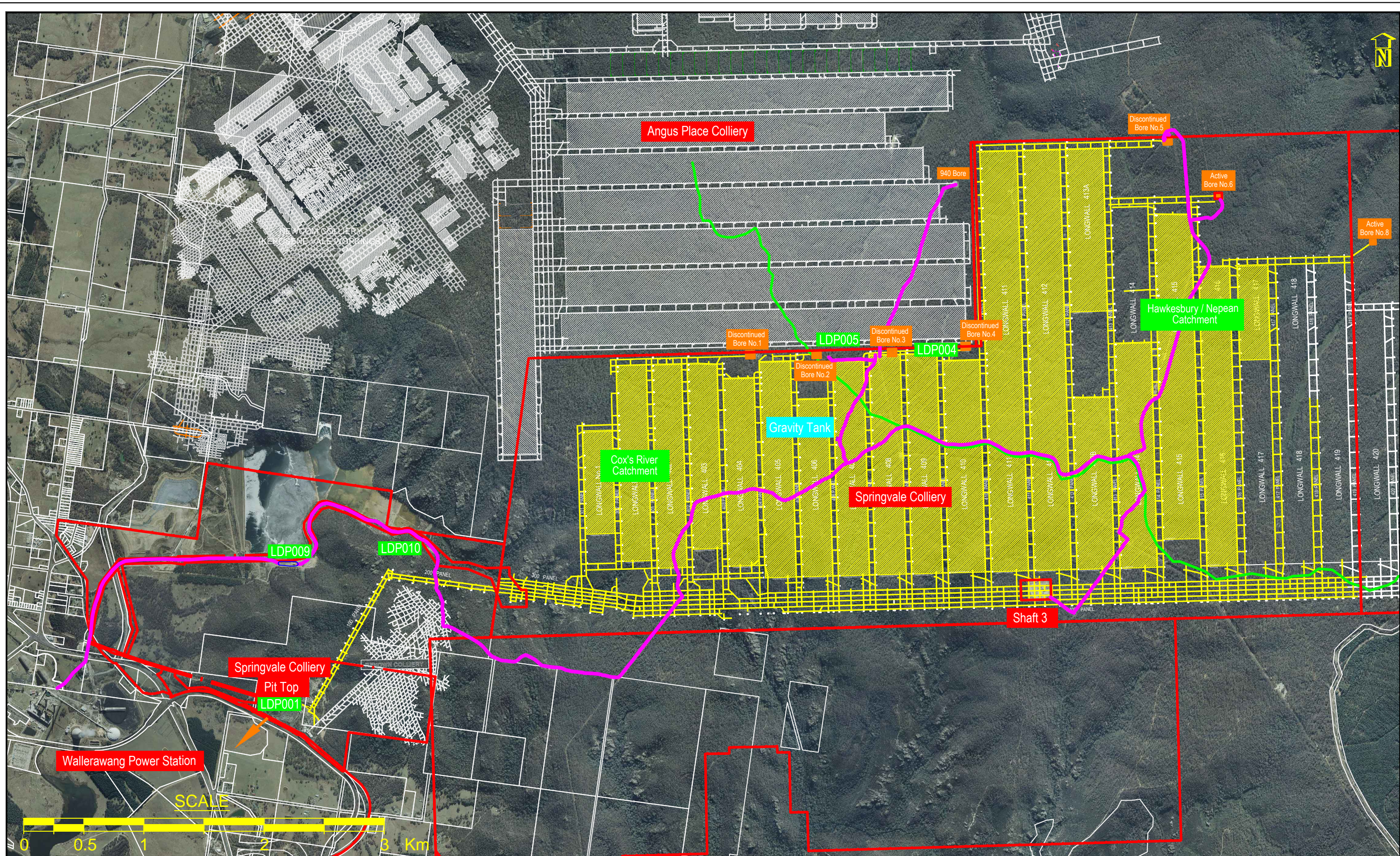
Subsidence Protection Zones



Springvale Coal

SPRINGVALE MINE
Castlereagh HWY
Lidsdale NSW 2790
PO Box 198
Wallerawang NSW 2845
Phone: 02-63501600
Fax: 02-63551052

N:\Z_Environment\AEMR 2014\Fig. No.7 Subsidence Protection Zones.dwg



- LEGEND:**
- Water Transfer Scheme
 - Mining Lease Boundary
 - Catchment Watershed
 - Pumping Compound

NOTES:

DRAWN: Sarah Kimm	DATE: 27-01-2015
PLAN No: SVY02713/8	COMPUTER PATH: N:\Z_Environmental
INFORMATION SUPPLIED BY:	
SCALE: SCALE 1:30000	A3H Sheet 1 of 1

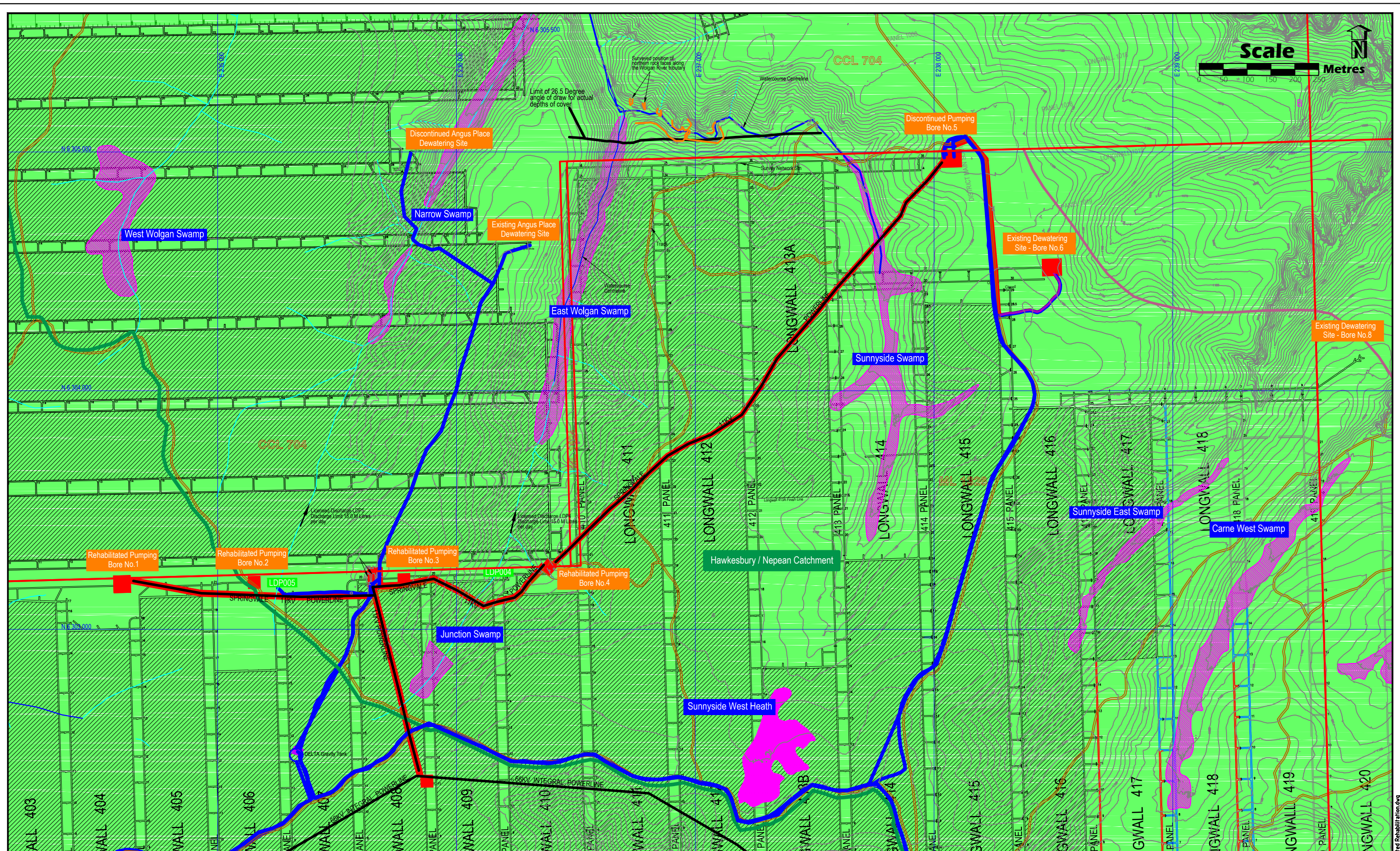
SPRINGVALE MINE

AEMR 2014
Figure No.8
 Water Transfer Scheme
 And Licensed Discharge Points



Springvale Coal

SPRINGVALE MINE
 Castlereagh HWY
 Lidsdale NSW 2790
 PO Box 198
 Wallerawang NSW 2845
 Phone: 02-63501600
 Fax: 02-63551052



LEGEND:

Newnes State Forest	Formed Track
Occupation Permit	Surface Contour
Longwall Extraction	Water Transfer Pipeline
11KV Powerline Path	Completed Rehabilitation
Mine Lease Boundary	

NOTES:
 The completed rehabilitation for Newnes Plateau 2014
 1. All Boreholes drilled in 2014 (Plan SVY02713/3)

DRAWN:	Sarah Kimm	DATE:	27-01-2015
PLAN No:	SVY02713/9	COMPUTER PATH:	S:\Survey\Z_Plans
INFORMATION SUPPLIED BY:			
SCALE:	SCALE 1:15000		A3H Sheet 1 of 1

SPRINGVALE MINE

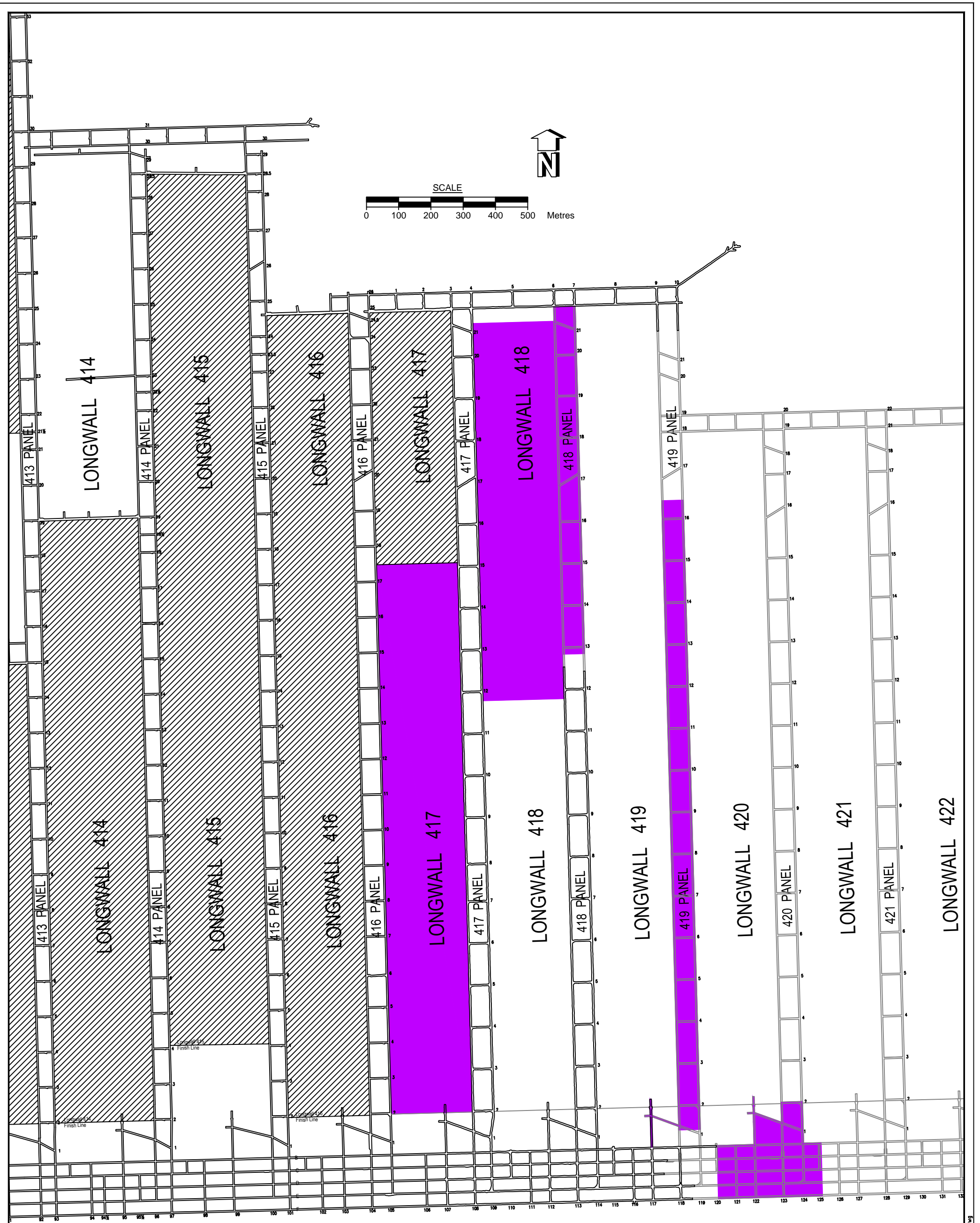
AEMR 2014

Figure No.9



Completed Rehabilitation 2014
 Newnes Plateau

SPRINGVALE MINE
 Castlereagh HWY
 Lidsdale NSW 2790
 PO Box 198
 Wallerawang NSW 2845
 Phone: 02-63501600
 Fax: 02-63551052

N:\Z_Environment\AEMR 2014\Fig. No. 9-Completed Rehabilitation.dwg



LEGEND:

-  Extraction to Date
-  2015 Budget

NOTES:

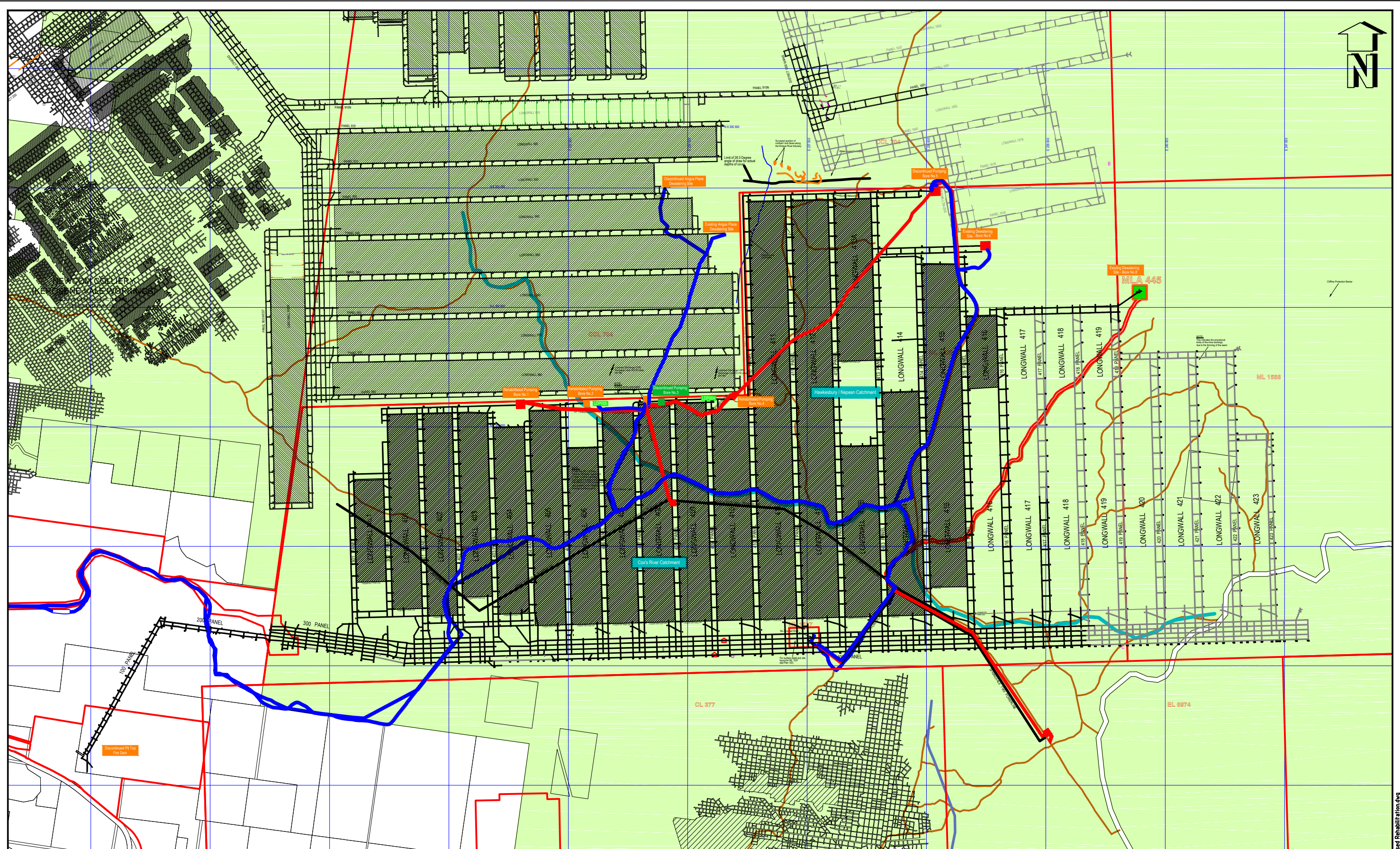
DRAWN: Sarah Kimm	DATE: 28-01-2015
PLAN No: SVY02720	COMPUTER PATH: S:\Survey\Z_Plans
INFORMATION SUPPLIED BY:	
SCALE: NOT TO SCALE	A3V Sheet 1 of 1

SPRINGVALE MINE

TITLE:
AEMR 2014
Plan No.4
Budget Production 2015



SPRINGVALE MINE
Castlereagh HWY
Lidsdale NSW 2790
PO Box 198
Wallerawang NSW 2845
Phone: 02-63501600
Fax: 02-63551052




LEGEND:

Newnes State Forest	Formed Track
Occupation Permit	Water Transfer Pipeline
Longwall Extraction	Proposed Rehabilitation
11KV Powerline Path	Rehabilitated Area
Mine Lease Boundary	

NOTES:
Proposed Rehabilitation 2015
 1. Boreholes after completion of drilling

DRAWN: Sarah Kimm	DATE: 27-01-2015
PLAN No: SVY02713	COMPUTER PATH: S:\Survey\Z_Plans
INFORMATION SUPPLIED BY:	
SCALE: SCALE 1:30000	A3H Sheet 1 of 1

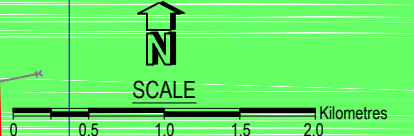
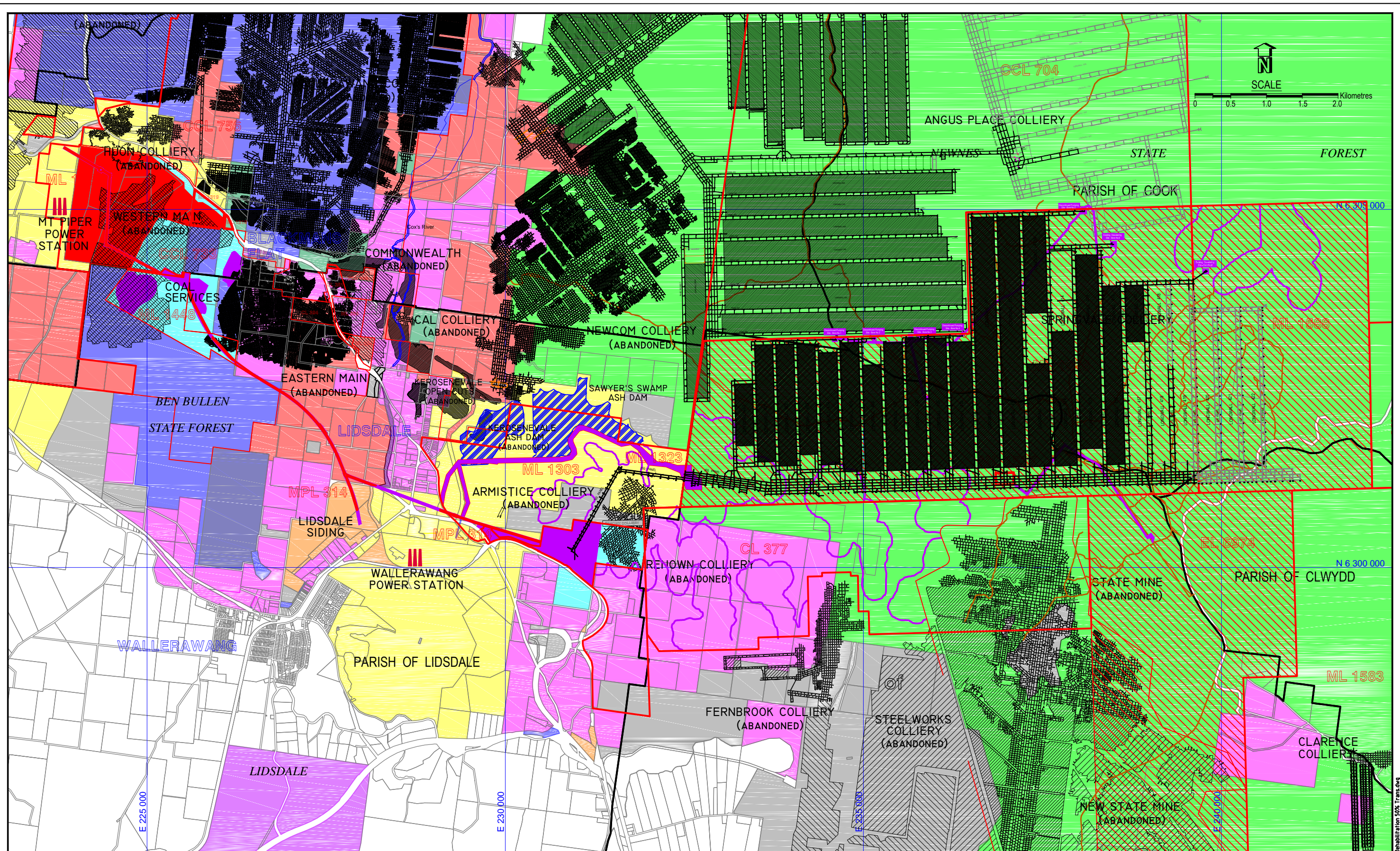
SPRINGVALE MINE
AEMR 2014
Plan No.5
 Proposed Rehabilitation 2015
 Newnes Plateau



Springvale Coal

SPRINGVALE MINE
 Castlereagh HWY
 Lidsdale NSW 2790
 PO Box 198
 Wallerawang NSW 2845
 Phone: 02-63501600
 Fax: 02-63551052

N:\Z_Environment\AEMR 2014\Plan No.5-Proposed Rehabilitation.dwg



LEGEND:			
	Newnes State Forest		Lease Boundary
	Ben Bullen State Forest		Parish Boundary
	Final Rehabilitation Areas		OL Conveyor Centreline
	Falnash State Forest		Crown Land
	Liddale State Forest		Cadastral Boundary
	Extraction to Date		Cliffline Protection Barrier
	Centennial Freehold		Delta Freehold
	EL 6974		Springvale Freehold
	CCL 733 Relinquishment		Prescribed Dams
			Private Freehold
			SRA Land

NOTES:

DRAWN:	Sarah Kimm	DATE:	28-01-2015
PLAN No.:	SVY02718	COMPUTER PATH:	S:\Survey\Z_Plans
INFORMATION SUPPLIED BY:			
SCALE:	SCALE 1:50000		
	A3H Sheet 1 of 1		

SPRINGVALE MINE

AEMR 2014

Plan No.6

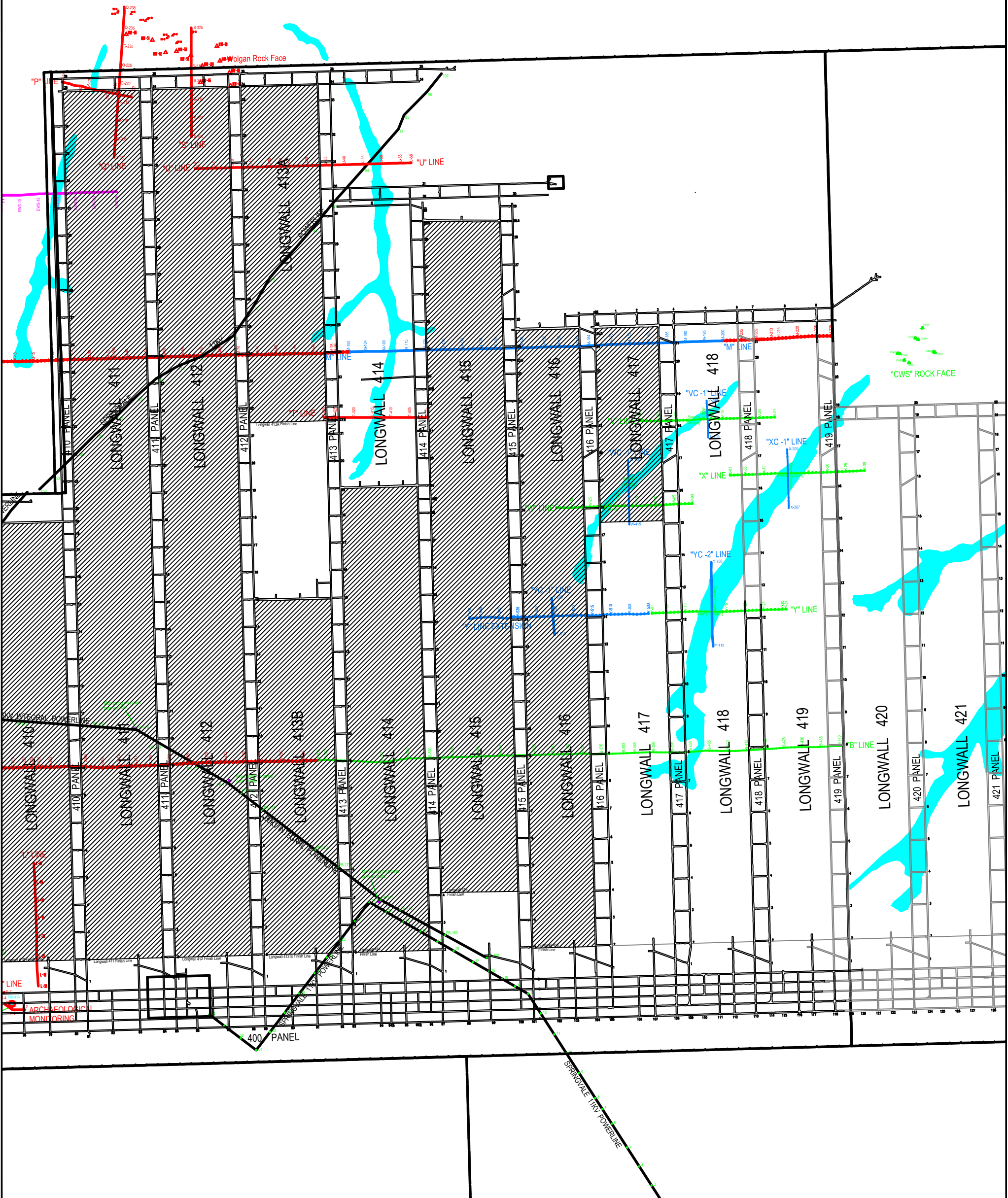
Final Rehabilitation



Springvale Coal

SPRINGVALE MINE
Castlereagh HWY
Liddale NSW 2790
PO Box 198
Wallerawang NSW 2845
Phone: 02-63501600
Fax: 02-63551052

N:\Z_Environment\AEMR 2014\Plan No.6-Final Rehabilitation 50% Trans.dwg



LEGEND:

- SMP Subsidence Line
- SEWPAC Subsidence Line
- Newnes Plateau Shrub Swamp

DRAWN: Sarah Kimm	DATE: 28-01-2015
PLAN No: SVY02719	COMPUTER PATH: S:\Survey\Z_Plans
INFORMATION SUPPLIED BY: Survey Department	
SCALE: SCALE 1:15000	A3V Sheet 1 of 1

SPRINGVALE MINE

AEMR 2014

Subsidence Monitoring Locations

Plan No. 7

Springvale Coal
 SPRINGVALE MINE
 Castlereagh HWY
 Lidsdale NSW 2790
 PO Box 198
 Wallerawang NSW 2845
 Phone: 02-63501600
 Fax: 02-63551052

M:\Z_Environment\AEMR 2014\Plan No.7 Subs Locations.dwg

Appendix 6 Environmental Protection Licence

Environment Protection Licence



Licence - 3607

Licence Details

Number:	3607
Anniversary Date:	01-January

Licensee

SPRINGVALE COAL PTY LIMITED
 LEVEL 18, BT TOWER, 1 MARKET STREET
 SYDNEY NSW 2000

Premises

SPRINGVALE COLLIERY
 CASTLEREAGH HIGHWAY
 LIDSDALE NSW 2790

Scheduled Activity

Coal Works
 Mining for Coal

Fee Based Activity

Scale

Coal works	> 2000000-5000000 T handled
Mining for coal	> 3500000-5000000 T produced

Region

South - Bathurst
 Lvl 2, 203-209 Russell Street
 BATHURST NSW 2795
 Phone: (02) 6332 7600
 Fax: (02) 6332 7630
 PO Box 1388 BATHURST
 NSW 2795

Environment Protection Licence

Licence - 3607



INFORMATION ABOUT THIS LICENCE	4
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Duration of licence	4
Licence review	4
Fees and annual return to be sent to the EPA	4
Transfer of licence	5
Public register and access to monitoring data	5
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Environment Protection Licence



Licence - 3607

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Environment Protection Licence

Licence - 3607



Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

Environment Protection Licence

Licence - 3607



The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

SPRINGVALE COAL PTY LIMITED
LEVEL 18, BT TOWER, 1 MARKET STREET
SYDNEY NSW 2000

subject to the conditions which follow.

Environment Protection Licence

Licence - 3607



1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Coal Works	Coal works	> 2000000 - 5000000 T handled
Mining for Coal	Mining for coal	> 3500000 - 5000000 T produced

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
SPRINGVALE COLLIERY
CASTLEREAGH HIGHWAY
LIDSDALE
NSW 2790
ML 1303, ML 1323, ML 1326, ML1352, ML1537, ML1588, MPL314, EL6974, MLA326, A460, CCL 733, ML204, ML1319, ML564, CL394 AND CL361 AS SHOWN ON MAP TITLED 'FIGURE NO. 1 - PLAN OF OPERATIONS' PROVIDED TO THE EPA ON 4 SEPTEMBER 2009

A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

- the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
- the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

Environment Protection Licence

Licence - 3607



2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

Air

EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
8	Dust monitoring network		Dust deposition gauge monitoring network as shown on Springvale Coal's Figure 3.3.1 titled Dust Monitoring Locations, forwarded to the EPA on 20/6/01

P1.2 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

P1.3 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Discharge to waters Discharge quality monitoring Volume monitoring	Discharge to waters Discharge quality monitoring Volume monitoring	Overflow from Dam 3 at Springvale pit top labelled as LD001 on Springvale Coal's Diagram titled "Discharge Points LD001, LD002 & LD003", dated 18-November-99.
2	Discharge to utilisation area		Area labelled as LD002 on Springvale Coal's Diagram titled "Discharge Points LD001, LD002 & LD003", dated 18-November-99.
4	Discharge to waters Discharge quality monitoring Volume monitoring	Discharge to waters Discharge quality monitoring Volume monitoring	Emergency discharge point on unnamed creek leading to Wolgan River, labelled as LDP 004 on State Forest's Figure 3.2.4 titled 'Softwoods Region Occupation Permit No. 02349.
5	Discharge to waters Discharge quality monitoring Volume monitoring	Discharge to waters Discharge quality monitoring Volume monitoring	Emergency discharge point on unnamed creek leading to Wolgan River, labelled as LDP 005 on State Forest's Figure 3.2.4 titled 'Softwoods Region Occupation Permit No. 02349.
6	Discharge to waters Discharge quality monitoring Volume monitoring	Discharge to waters Discharge quality monitoring Volume monitoring	Drain from final filter lagoon at Western Main labelled as LD006 in Springvale Coal's Diagram titled Discharge Point LD006, dated 18-November-99.

Environment Protection Licence

Licence - 3607



7	Discharge to waters Discharge quality monitoring	Discharge to waters Discharge quality monitoring	Duncan Street coal conveyor transfer drain from final filter lagoon at Western Main labelled as LD007 in Springvale Coal's Diagram titled as LD007, dated 18-November-99
9	Discharges to waters Discharge quality monitoring Volume monitoring	Discharges to waters Discharge quality monitoring Volume monitoring	Centennial's Springvale Water Transfer System bypass point east of Kerosene Vale Ash Dam.
10	Discharge to waters Discharge quality monitoring Volume monitoring	Discharge to waters Discharge quality monitoring Volume monitoring	Emergency/maintenance discharge from Centennial's Springvale Water Transfer Scheme upstream of the settling ponds.

Note: Licensed discharge points 4 (LD4) and 5 (LD5) are only to be used for emergency discharges as defined in condition E1.1.

3 Limit Conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Concentration limits

L2.1 For each monitoring/discharge point or utilisation area specified in the table\ below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

L2.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.

L2.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\.

L2.4 Water and/or Land Concentration Limits

POINT 1

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Oil and Grease	milligrams per litre				10

Environment Protection Licence



Licence - 3607

pH	pH	6.5-9.0
Total suspended solids	milligrams per litre	30

POINT 6

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Oil and Grease	milligrams per litre				10
pH	pH				6.5-8.5
Total suspended solids	milligrams per litre				30
Turbidity	nephelometric turbidity units				50

POINT 7

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Oil and Grease	milligrams per litre				10
pH	pH				6.5-8.5
Total suspended solids	milligrams per litre				30

POINT 9

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Aluminium (dissolved)	milligrams per litre				0.45
Arsenic	milligrams per litre				0.024
Boron (dissolved)	milligrams per litre				0.37
Conductivity	microsiemens per centimetre				1200

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Copper (dissolved)	milligrams per litre	0.007
Fluoride	milligrams per litre	1.8
Iron (dissolved)	milligrams per litre	0.4
Manganese (dissolved)	milligrams per litre	1.7
Nickel (dissolved)	milligrams per litre	0.047
Oil and Grease	milligrams per litre	10
pH	pH	6.5-9.0
Total suspended solids	milligrams per litre	50
Turbidity	nephelometric turbidity units	50
Zinc (dissolved)	milligrams per litre	0.05

POINT 10

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Aluminium (dissolved)	milligrams per litre				0.45
Arsenic (dissolved)	milligrams per litre				0.024
Boron (dissolved)	milligrams per litre				0.37
Conductivity	microsiemens per centimetre				1200
Copper (dissolved)	milligrams per litre				0.007
Fluoride	milligrams per litre				1.8
Iron (dissolved)	milligrams per litre				0.4
Manganese (dissolved)	milligrams per litre				1.7

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Nickel (dissolved)	milligrams per litre	0.047
Oil and Grease	milligrams per litre	10
pH	pH	6.5-9.0
Zinc (dissolved)	milligrams per litre	0.05

L2.5 The concentration limits stipulated by condition L2.1/L2.4 for EPA identification point 6 is deemed not to apply when the discharge from the stormwater control structures (sediment dams) occurs solely as a result of rainfall measured at the premises which exceeds:

a) for the Washery and Stockpile Sediment dams, a total of 56 millimetres of rainfall over any consecutive 5 day period.

b) for the Main Sediment dam, a total of 29mm of rainfall over any consecutive 5 day period.

Note: A 56mm rainfall event is defined by the EPA endorsed publication "Managing urban stormwater: soils and construction" (Landcom 2004; 6-24) as the rainfall depth in millimetres for a 95th percentile 5 day rainfall event for "Lithgow" which is also consistent with the storage capacity (recommended minimum design criteria) for Type D sediment basins for mines and quarries (see "Managing urban stormwater: soils and construction, Volume 2E, mines and quarries" (DECC, 2008).

L2.6 The concentration limit for total suspended solids stipulated by condition L2.1/L2.4 for EPA identification point 6 is deemed not to have been breached where:

a) the water discharged is covered by condition L2.5; and

b) the water discharged complies with the turbidity limit at the time of the discharge; and

c) the EPA is advised within 3 working days of the completion of the sample testing and analysis as required by condition M2.3 of any results above the licence limit.

Note: The purpose of condition L2.6 is to expediate the assessment and subsequent discharge of the clarified water from the stormwater control structures (sediment basins).

L3 Volume and mass limits

L3.1 For each discharge point or utilisation area specified below (by a point number), the volume/mass of:

a) liquids discharged to water; or;

b) solids or liquids applied to the area;

must not exceed the volume/mass limit specified for that discharge point or area.

Point	Unit of Measure	Volume/Mass Limit
1	kilolitres per day	10000
4	kilolitres per day	15000
5	kilolitres per day	15000

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9	kilolitres per day	30000
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- L3.2 During emergency discharges (as defined in condition E1.1) the licensee may exceed the 15000kL/day limit for points 4 or 5, however the combined total daily limit for these two points must not exceed 30000kL/day. All practical steps must be taken to ensure that there is equilibrium of flow between these two discharge points.

L4 Noise limits

- L4.1 Noise from the upcast ventilation shaft must not exceed an LAeq (15 minute) noise emission criterion of 35 dB(A), except as expressly provided by this licence.
- L4.2 Noise from the premises is to be measured or computed at the nearest or most affected residence to determine compliance with condition L4.1.
- L4.3 The noise emission limits identified in this licence apply under all meteorological conditions except:
- during rain and wind speeds (at 10m height) greater than 3m/s; and
 - under "non-significant weather conditions".

Note: Field meteorological indicators for non-significant weather conditions are described in the NSW Industrial Noise Policy, Chapter 5 and Appendix E in relation to wind and temperature inversions.

4 Operating Conditions

O1 Activities must be carried out in a competent manner

- O1.1 Licensed activities must be carried out in a competent manner.
This includes:
- the processing, handling, movement and storage of materials and substances used to carry out the activity; and
 - the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

- O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
- must be maintained in a proper and efficient condition; and
 - must be operated in a proper and efficient manner.

O3 Dust

- O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

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- O3.2 Trucks entering and leaving the premises that are carrying loads must be covered at all times, except during loading and unloading.

O4 Effluent application to land

- O4.1 Effluent application must not occur in a manner that causes surface runoff.
- O4.2 Spray from effluent application must not drift beyond the boundary of the premises.
- O4.3 Livestock access to any effluent application area must be denied during irrigation and until the applied effluent has dried.
- O4.4 The quantity of effluent/solids applied to the utilisation area must not exceed the capacity of the area to effectively utilise the effluent/solids.

For the purpose of this condition, 'effectively utilise' include the use of the effluent/solids for pasture or crop production, as well as the ability of the soil to absorb the nutrient, salt, hydraulic load and organic material.

O5 Waste management

- O5.1 There must be no incineration or burning of any waste at the premises.
- O5.2 The sediments from the settling ponds of the Springvale Delta Water Transfer Scheme must be disposed of lawfully.

O6 Other operating conditions

- O6.1 The stormwater control structures (sediment dams) identified at condition L2.5 EPA identification point 6 must be drained or pumped out as necessary to maintain each basins design storage capacity within 5 days following rainfall.
- O6.2 Water discharged to comply with condition O6.1 may only be discharged to waters from those stormwater control structures (sediment dams) identified at EPA identification point 6 where the discharged water complies with the discharge limits stipulated at condition L2.1/L2.4 (and taking into consideration condition L2.5).

5 Monitoring and Recording Conditions

M1 Monitoring records

- M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

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M1.2 All records required to be kept by this licence must be:

- a) in a legible form, or in a form that can readily be reduced to a legible form;
- b) kept for at least 4 years after the monitoring or event to which they relate took place; and
- c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:

- a) the date(s) on which the sample was taken;
- b) the time(s) at which the sample was collected;
- c) the point at which the sample was taken; and
- d) the name of the person who collected the sample.

M2 Requirement to monitor concentration of pollutants discharged

M2.1 Special Frequency 1 means every five days.

M2.2 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.3 Air Monitoring Requirements

POINT 8

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Monthly	AM-19

M2.4 Water and/ or Land Monitoring Requirements

POINT 1

Pollutant	Units of measure	Frequency	Sampling Method
Conductivity	microsiemens per centimetre	Weekly during any discharge	Grab sample
Filterable iron	milligrams per litre	Monthly during discharge	Grab sample
Filterable manganese	milligrams per litre	Monthly during discharge	Grab sample
Oil and Grease	milligrams per litre	Monthly during discharge	Grab sample
pH	pH	Weekly during any discharge	Grab sample

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Total suspended solids	milligrams per litre	Monthly during discharge	Grab sample
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POINT 4,5

Pollutant	Units of measure	Frequency	Sampling Method
Conductivity	microsiemens per centimetre	Daily during any discharge	Probe
Filterable iron	milligrams per litre	Weekly during any discharge	Grab sample
Filterable manganese	milligrams per litre	Weekly during any discharge	Grab sample
Oil and Grease	milligrams per litre	Weekly during any discharge	Grab sample
pH	pH	Daily during any discharge	Probe
Temperature	degrees Celsius	Daily during any discharge	Probe
Total suspended solids	milligrams per litre	Weekly during any discharge	Grab sample
Turbidity	nephelometric turbidity units	Daily during any discharge	Grab sample

POINT 6

Pollutant	Units of measure	Frequency	Sampling Method
Conductivity	microsiemens per centimetre	Monthly during discharge	Grab sample
Filterable iron	milligrams per litre	Monthly during discharge	Grab sample
Filterable manganese	milligrams per litre	Monthly during discharge	Grab sample
Oil and Grease	milligrams per litre	Monthly during discharge	Grab sample
pH	pH	Monthly during discharge	Grab sample
Total suspended solids	milligrams per litre	Monthly during discharge	Grab sample

POINT 7

Pollutant	Units of measure	Frequency	Sampling Method
Conductivity	milligrams per litre	Daily during any discharge	Grab sample
pH	pH	Daily during any discharge	Grab sample
Total suspended solids	milligrams per litre	Daily during any discharge	Grab sample

POINT 9

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Pollutant	Units of measure	Frequency	Sampling Method
Aluminium (dissolved)	milligrams per litre	Weekly during any discharge	Representative sample
Arsenic (dissolved)	milligrams per litre	Weekly during any discharge	Representative sample
Boron (dissolved)	milligrams per litre	Weekly during any discharge	Representative sample
Conductivity	microsiemens per centimetre	Weekly during any discharge	Representative sample
Copper (dissolved)	milligrams per litre	Weekly during any discharge	Representative sample
Fluoride	milligrams per litre	Weekly during any discharge	Representative sample
Iron (dissolved)	milligrams per litre	Weekly during any discharge	Representative sample
Manganese (dissolved)	milligrams per litre	Weekly during any discharge	Representative sample
Nickel (dissolved)	milligrams per litre	Weekly during any discharge	Representative sample
Oil and Grease	milligrams per litre	Weekly during any discharge	Representative sample
pH	pH	Weekly during any discharge	Representative sample
Total suspended solids	milligrams per litre	Weekly during any discharge	Representative sample
Turbidity	nephelometric turbidity units	Weekly during any discharge	Representative sample
Zinc (dissolved)	milligrams per litre	Weekly during any discharge	Representative sample

POINT 10

Pollutant	Units of measure	Frequency	Sampling Method
Aluminium (dissolved)	milligrams per litre	Daily during any discharge	Representative sample
Arsenic (dissolved)	milligrams per litre	Daily during any discharge	Representative sample
Boron (dissolved)	milligrams per litre	Daily during any discharge	Representative sample
Conductivity	microsiemens per centimetre	Daily during any discharge	Representative sample
Copper (dissolved)	milligrams per litre	Daily during any discharge	Representative sample
Fluoride	milligrams per litre	Daily during any discharge	Representative sample
Iron (dissolved)	milligrams per litre	Daily during any discharge	Representative sample
Manganese (dissolved)	milligrams per litre	Daily during any discharge	Representative sample
Nickel (dissolved)	milligrams per litre	Daily during any discharge	Representative sample

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Oil and Grease	milligrams per litre	Daily during any discharge	Representative sample
pH	pH	Daily	Representative sample
Total suspended solids	milligrams per litre	Daily during any discharge	Representative sample
Turbidity	nephelometric turbidity units	Daily during any discharge	Representative sample
Zinc (dissolved)	milligrams per litre	Daily during any discharge	Representative sample

M3 Testing methods - concentration limits

- M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:
- any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or
 - if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or
 - if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

Note: The *Protection of the Environment Operations (Clean Air) Regulation 2010* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

- M3.2 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

M4 Environmental monitoring

- M4.1 The licensee must ensure that the following meteorological parameters are monitored on site and the results recorded:-
- daily rainfall;
 - daily evaporation;
 - continuous wind speed and direction.

M5 Recording of pollution complaints

- M5.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

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- M5.2 The record must include details of the following:
- the date and time of the complaint;
 - the method by which the complaint was made;
 - any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
 - the nature of the complaint;
 - the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
 - if no action was taken by the licensee, the reasons why no action was taken.

M5.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M5.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M6 Telephone complaints line

M6.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M6.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M6.3 The preceding two conditions do not apply until 3 months after:

- the date of the issue of this licence or
- if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.

M7 Requirement to monitor volume or mass

M7.1 For each discharge point or utilisation area specified below, the licensee must monitor:

- the volume of liquids discharged to water or applied to the area;
 - the mass of solids applied to the area;
 - the mass of pollutants emitted to the air;
- at the frequency and using the method and units of measure, specified below.

POINT 1

Frequency	Unit of Measure	Sampling Method
Daily	kilolitres per day	Flow meter and continuous logger

POINT 2

Frequency	Unit of Measure	Sampling Method
Daily	kilolitres per day	Flow meter and continuous logger

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POINT 4

Frequency	Unit of Measure	Sampling Method
Daily during any discharge	kilolitres per day	By Calculation (volume flow rate or pump capacity multiplied by operating time)

POINT 5

Frequency	Unit of Measure	Sampling Method
Daily during any discharge	kilolitres per day	By Calculation (volume flow rate or pump capacity multiplied by operating time)

POINT 7

Frequency	Unit of Measure	Sampling Method
Daily during any discharge	kilolitres per day	Estimate

POINT 9

Frequency	Unit of Measure	Sampling Method
Daily during any discharge	kilolitres per day	Estimate

POINT 10

Frequency	Unit of Measure	Sampling Method
Daily during any discharge	kilolitres per day	Estimate

6 Reporting Conditions

R1 Annual return documents

- R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
- a Statement of Compliance; and
 - a Monitoring and Complaints Summary.

At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

- R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

- R1.3 Where this licence is transferred from the licensee to a new licensee:
- the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
 - the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

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- R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
- a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
 - b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.
- R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').
- R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.
- R1.7 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
- a) the licence holder; or
 - b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R2 Notification of environmental harm

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

- R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.
- R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

R3 Written report

- R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
- a) where this licence applies to premises, an event has occurred at the premises; or
 - b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
- and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.
- R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.
- R3.3 The request may require a report which includes any or all of the following information:
- a) the cause, time and duration of the event;
 - b) the type, volume and concentration of every pollutant discharged as a result of the event;
 - c) the name, address and business hours telephone number of employees or agents of the licensee, or a

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- specified class of them, who witnessed the event;
- d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
- e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
- f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
- g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

7 General Conditions

G1 Copy of licence kept at the premises or plant

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

G2 Signage

G2.1 The location of EPA point number(s) 4 (LD4) and 5 (LD5) must be clearly marked by signs that indicate the point identification number used in this licence and be located as close as practical to the point.

8 Pollution Studies and Reduction Programs

U1 Direct Toxicity Assessment

U1.1 By 21 August 2014, while fulfilling the requirements of the planning process for the Springvale Mine Extension Project, the licensee must develop and submit to the EPA a comprehensive Direct Toxicity Assessment (DTA) program to assess the acute and chronic toxicity of the mine water being discharged from Licensed Discharge Point 9 (LDP9).

Concurrent with the DTA program a Chemical Analysis Program to assist in the interpretation of the DTA results must also be developed and submitted to the EPA by 21 August 2014. The Chemical Analysis Program must involve comprehensively analysing for a range of pollutants over a period of time in order for variations in both water quality, and potential acute and chronic toxicity. In addition to the pollutants already authorised by EPL 3607, Centennial must test for the following:

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- Major cations: calcium (Ca) magnesium (Mg), potassium (K) and sodium (Na).
- Major anions: chloride (Cl), sulfate (SO₄), total alkalinity (T. Alk.).
- Filtered metals: aluminium (Al), arsenic (As), cadmium (Cd), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), manganese (Mn), nickel (Ni), sulphur (S) and zinc (Zn).
- Filtered ultra-trace nutrients: ammonia (NH₃-N), nitrate and nitrite nitrogen (NO_x-N), total Kjeldahl nitrogen (TKN), total nitrogen (TN), total phosphorous and dissolved organic carbon (DOC).
- Cyanide.

The licensee must provide the DTA and Chemical Analysis programs to the EPA for review before implementation. The EPA will review the DTA and Chemical Analysis programs as part of the Response to Submissions process for the Springvale Mine Extension Project.

9 Special Conditions

E1 Emergency Discharges to Wolgan River

E1.1 For the purposes of this licence, an “emergency discharge” is defined as the release of groundwater, sourced from the licensee’s underground workings, through licensed discharge points 4 (LD4) and 5 (LD5) in the event of a shutdown of the Springvale Colliery to Delta Water Transfer Scheme for circumstances either beyond the licensee’s control or for essential maintenance purposes.

E1.2 Prior to discharge:

The licensee must ensure that appropriate measures are taken prior to any emergency water discharge to minimise erosion and sedimentation at the discharge points (LD4 and LD5) and of the drainage lines downstream of LD4 and LD5.

E1.3 Notifying the EPA of emergency discharge

The licensee shall inform the EPA in writing (fax to 6332 7630):

- a) within 24 hours of a failure in the Springvale to Delta Water Transfer Scheme;
- b) no later than 48 hours prior to a scheduled pipeline shutdown;
- c) no later than 48 hours prior to the requirement to continue the emergency discharge for a period greater than 2 weeks; and
- d) within 24 hours following the reinstatement of the pipeline.

The notification of a failure or planned shutdown of the pipeline must include details of the nature of the failure/shutdown and the expected timeframe to restore the pipeline.

E1.4 Monitoring during emergency discharge

In addition to the monitoring required by condition M2.1, the licensee shall undertake the following monitoring during and following an emergency discharge event:

- a) daily inspections of the discharge points (LD4 and LD5) and the drainage lines downstream of LD4 and LD5;
- b) daily monitoring (visual) of the equilibration of the flow rate between emergency discharge points LD4

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and LD5; and

c) a photographic survey along the length of the flow lines, beneath the discharge points, likely to be affected during periods of emergency discharge. This survey must be conducted either immediately prior to or during the emergency discharge event and no later than 6 months following the cessation of the emergency discharge event.

E1.5 Emergency discharge reporting

A report shall be prepared by the licensee, following the recommissioning of the pipeline, which shall include but not be limited to:

- a) the cause of the pipe failure/shutdown;
- b) the duration of the emergency discharge (in days);
- c) the total volume of water discharged from LD4 and LD5 (in kL/day);
- d) the results of all monitoring undertaken;
- e) any remedial measures required on the drainage line(s) below the emergency discharge points that have been or will require implementation;
- f) any measures to be taken to prevent a recurrence in the case the emergency discharge event was a result of a pipe failure; and
- g) all appropriate photos and figures.

The report must be sent to the EPA's Bathurst office within four (4) weeks of the recommissioning of the Springvale to Delta Water Transfer Scheme.

E2 Option Study to treat Mine Water Discharge

E2.1 The licensee must prepare and submit to the EPA for review, a report outlining options to treat ground water (mine water) generated by the licensed premise as a result of mine dewatering activities, prior to any discharge to the environment.

The objective of the option study is to reduce salt load and salinity levels discharged into the Coxs River Catchment by the licensee. The options or option identified must be capable of treating all mine water generated by the premises (ground and surface water) to achieve an electrical conductivity (EC) of 350 microsiemens per centimetre in the treated water, prior to the treated water being discharged to the Coxs River or any of its tributaries. Where appropriate, the treatment of other pollutants in the discharge must be assessed.

Where the option study proposes a water treatment option that involves Delta Electricity, the option must be developed in consultation and agreement with Delta Electricity.

Completion Date: The option study and report must be submitted to the EPA by 30 September 2013.

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Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

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flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .

Environment Protection Licence



Licence - 3607

TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non - putrescible), special waste or hazardous waste

Ms Debbie Maddison

Environment Protection Authority

(By Delegation)

Date of this edition: 17-May-2000

Environment Protection Licence



Licence - 3607

End Notes

- 1 Licence varied by notice V/M upgrade, issued on 08-Jul-2000, which came into effect on 08-Jul-2000.
- 2 Licence varied by notice 1008839, issued on 24-Sep-2001, which came into effect on 24-Sep-2001.
- 3 Licence varied by notice 1020230, issued on 04-Sep-2002, which came into effect on 29-Sep-2002.
- 4 Licence varied by notice 1025883, issued on 03-Apr-2003, which came into effect on 07-Apr-2003.
- 5 Licence varied by notice 1028983, issued on 19-Dec-2003, which came into effect on 13-Jan-2004.
- 6 Licence varied by notice 1034311, issued on 03-Sep-2004, which came into effect on 28-Sep-2004.
- 7 Licence varied by notice 1041194, issued on 11-Oct-2004, which came into effect on 11-Oct-2004.
- 8 Licence varied by notice 1046241, issued on 08-Aug-2005, which came into effect on 02-Sep-2005.
- 9 Licence varied by notice 1052295, issued on 26-Apr-2006, which came into effect on 26-Apr-2006.
- 10 Licence varied by notice 1063851, issued on 03-Oct-2006, which came into effect on 03-Oct-2006.
- 11 Licence varied by notice 1077081, issued on 21-Aug-2007, which came into effect on 21-Aug-2007.
- 12 Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
- 13 Licence varied by notice 1103012, issued on 09-Sep-2009, which came into effect on 09-Sep-2009.
- 14 Licence varied by notice 1114246, issued on 10-Sep-2010, which came into effect on 10-Sep-2010.
- 15 Licence varied by notice 1126999, issued on 05-Jul-2011, which came into effect on 05-Jul-2011.
- 16 Licence varied by notice 1501785 issued on 19-Dec-2011
- 17 Licence varied by notice 1506033 issued on 02-Aug-2012
- 18 Licence varied by notice 1514038 issued on 21-May-2013
- 19 Licence varied by notice 1523867 issued on 12-Aug-2014

Environment Protection Licence

Licence - 3607



20	Licence varied by notice	1524848 issued on 23-Oct-2014
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21	Licence varied by notice	1526959 issued on 10-Dec-2014
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Appendix 7 Consolidated Consent

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

**DETERMINATION OF DEVELOPMENT APPLICATION PURSUANT TO
SECTION 101**

I, the Minister for Planning, pursuant to Section 101 of the Environmental Planning and Assessment Act 1979 ("the Act"), determine the development application ("the application") referred to in Schedule 1 by granting consent to the application subject to the conditions set out in Schedule 2.

The reasons for the imposition of the conditions are:

- (i) to minimise the adverse impact the development may cause through noise, visual amenity, air and water pollution;**
- (ii) to provide for environmental monitoring and reporting;**
- (iii) to set requirements for infrastructure provision.**

Robert Webster
Minister for Planning

Sydney,

1992

File No. S91/06569/001

MOD 1 (29/06/93) – red

MOD 2 (11/04/94) – blue

MOD 3 (8/03/2013) – green

MOD 4 (05/12/13) - purple

Schedule 1

Application made by:

Clutha Coal Pty Limited on behalf of Springvale Coal Pty Limited ("the Applicant").

To:

Greater Lithgow City Council (DA 11/92) ("the Council").

In respect of:

Authorisation 409, Mining Purposes Lease Application 384;
on land described in Attachment "A"

For the following:

- i) Construction and operation of an underground coal mine.
- ii) Construction and operation of an overland conveyor and coal washery.

NOTE: 1) To ascertain the date upon which the consent becomes effective, refer to Section 101(9) of the Act.

2) To ascertain the date upon which the consent is liable to lapse, refer to Section 99 of the Act.

ATTACHMENT (A)

SCHEDULE OF LAND AND TENEMENTS – SPRINGVALE COAL PROJECT

A. SCHEDULE OF LAND

<u>LAND</u>	<u>TITLE</u>
1. SPRINGVALE PIT TOP AREA	
Lot 125, Deposited Plan 751651 (formerly known as Portion 125, Parish of Lidsdale, County of Cook)	F.I. 125/751651
Portion 54, Parish of Lidsdale	Book 3856. No. 465
Lot 561, Deposited Plan 827969	F.I. 561/827969
2. OVERLAND COAL CONVEYOR	
Lot 561, Deposited Plan 827969	F.I. 561/827969
Reserved Road	
Lot 1, Deposited Plan 717025	F.I. 1/717025
Portion 228, Parish of Lidsdale	Book 3346 No. 80
Lot 183, Deposited Plan 751651 (formerly known as Portion 183, Parish of Lidsdale, County of Cook)	F.I. 183/751651
Lot 15, Deposited Plan 262515	F.I. 15/262515
Skelly Road	
Lot 2, Deposited Plan 2383126	F.I. 2/383126
Lot 2, Deposited Plan, 575140	Book 3256 No. 753
Lot 1, Deposited Plan 834231	F.I. 1/834231
Lot 31, Deposited Plan 827807	F.I. 31/827807
Lot 1, Deposited Plan 834230	F.I. 1/834230
Lot 2, Deposited Plan 834230	F.I. 2/834230

Lot 3, Deposited Plan 834230	F.I. 3/834230
Lot 4, Deposited Plan 834230	F.I. 4/834230
Lot 5, Deposited Plan 834230	F.I. 5/834230
Lot 6, Deposited Plan 834230	F.I. 6/834230
Lot 7, Deposited Plan 834230	F.I. 7/834230
Lot 8, Deposited Plan 834230	F.I. 8/834230
Lot 9, Deposited Plan 834230	F.I. 9/834230
Portion 63, Parish of Lidsdale	Book 3086 No. 675
PML 11 (Railway) (forming part of Consolidated Coal Lease 770)	
Reserved Road	
Lot 16, Deposited Plan 751651 (formerly known as Portion 16, Parish of Lidsdale, County of Cook)	F.I. 16/751651
Duncan Street	No stratum title will be created for the second crossing of Duncan Street
Lot 8, Deposited Plan 252472	Auto Consol 13329-100
Lot 1, Deposited Plan 252472	Auto Consol 13329-100
Reserved Road	
Lot 174, Deposited Plan 751651 (formerly known as Portion 174, Parish of Lidsdale, County of Cook)	F.I. 174/751651
Reserved Road	
Reserved Road	
Lot 385, Deposited Plan 751651 (formerly known as Portion 375, Parish of Lidsdale, County of Cook)	F.I. 385/751651
Lot 375, Deposited Plan 751651 (formerly known as Portion 375, Parish of Lidsdale, County of Cook)	F.I. 375/751651

Reserved Road

Reserved Road

Reserved Road

Lot 502, Deposited Plan 825541 F.I. 502/825541

Lot 371, Deposited Plan 751651 F.I. 371/751651
(formerly known as Portion 371,
Parish of Lidsdale, County of Cook)

Reserved Road

Lot 501, Deposited Plan 825541 F.I. 501/825541

Lot 357, Deposited Plan 751651 F.I. 357/751651
(formerly known as Portion 357,
Parish of Lidsdale, County of Cook)

Lot 13, Deposited Plan 751651 F.I. 13/751651
(formerly known as Portion 13,
Parish of Lidsdale, County of Cook)

Reserved Road

Lot 15, Deposited Plan 804929 Book 3401 No. 315

Lot 9, Deposited Plan 804929 Book 3401 No 315

Lot 2, Deposited Plan 702619 Book 3604 No. 382

Lot 6, Deposited Plan 804929 Book 3840 No. 223

Lot 13, Deposited Plan 804929 Book 3840 No 223

Lot 191, Deposited Plan 629212 Book 3604 No 381

Lot 1, Deposited Plan 803655 F.I. 1/803655

Portion 18, Parish of Cox Book 3432 No. 26

3. ACCESS ROAD AND VENTILATION SHAFT

Lot 15, Deposited Plan 262515 F.I. 15/2625157
Lot 1, deposited Plan 585140 Book 3256 No. 753

Lot 182, Deposited Plan 751651 F.I. 182/751651
(formerly known as Portion 182,
Parish of Lidsdale, County of Cook)

Lot 2, Deposited Plan 551636	F.I. 2/551636
Lot 1, Deposited Plan 814854 Lot 2, Deposited Plan 525472	Resumed Road (no current title) F.I. 2/525472
Lot 352, Deposited Plan 751651 (formerly known as Portion 352, Parish of Lidsdale, County of Cook)	F.I. 352/751651
Lot 178, Deposited Plan 751651 (formerly known as Portion 178, Parish of Lidsdale, County of Cook)	Auto Consol 5552-222
Lot 175, Deposited Plan 751651 (formerly known as Portion 175, Parish of Lidsdale, County of Cook)	Auto Consol 5552-222
Lot 177, Deposited Plan 751651	Vol. 1798 Fol. 147
Portion 425, Parish of Lidsdale	Resumed – see NSW Govt. Gazette 30 January 1976

B. MINING TENEMENTS

(a-c) Clutha Springvale Limited, Samsung Development (Aust) Pty Ltd

(a) SPRINGVALE COAL MINE

1. Exploration Licence No. 4587 (Mining Act 1992)
2. Mining Lease No. 1326 (Mining Act 1992)
3. Coal Lease No. 377 (Coal Mining Act 1973)
4. Mining Lease No. 1303 (Mining Act 1992)

(b) OVERLAND COAL CONVEYOR

5. Mining Purposes Lease No. 314 (Mining Act 1973)
6. Mining Lease Application No. 9 (Orange) (Mining Act 1992)

(c) ACCESS ROAD AND VENTILATION SHAFT

7. Mining Lease No. 1323 (Mining Act 1992)

(d) WESTERN MAIN COLLIERY (Western Main Colliery Pty Limited)

8. Consolidated Coal Lease No. 733 (Coal Mining Act 1973)

SCHEDULE 2

1. General

The Applicant shall carry out the development generally in accordance with:

- a) the Environmental Impact Statement (EIS) prepared by Sinclair Knight & Partners Pty Limited, dated February 1992, and supplementary information submitted by the Applicant, dated April 1992;
- b) pit top modifications shown in drawing SK5300/G/91 dated 29/10/92; shaft site as modified shown in drawing No. CL-S100-G-03 dated 10/11/92 and modified mine layout as shown in drawing SP18, dated 1/12/92;
- c) modification application determined on 11 April 1994;
- d) the Environmental Assessment titled *Bore 8 Dewatering Facility Springvale Colliery Section 75W Modification*, dated September 2012; the associated *Response to Submissions*, dated December 2012 and the incorporated Statement of Commitments;
- e) the Environmental Assessment titled *Section 75W Modification to Development Consent DA 11/92*, dated October 2013; and
- f) conditions of this consent.

1A. If there is any inconsistency between the documents identified in condition 1, the more recent documents shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency.

2. Duration

The Applicant may carry out mining operations until 30 September 2015.

Note: Under this consent, the Applicant is required to rehabilitate the site and perform additional undertakings to the satisfaction of both the Director-General and the Executive Director Mineral Resources. Consequently, this consent will continue to apply in all other respects other than the right to conduct mining operations until the rehabilitation of the site and these additional undertakings have been carried out satisfactorily.

3. Environment Protection Authority

Prior to the commencement of construction of the processed development the Applicant shall obtain from the Environment Protection Authority ("EPA") all statutory approvals and licences as may be required under the Clean Air Act 1961, the Clean Waters Act 1970, and the Noise Control Act 1975, together with such other approvals or licences as may be required under future legislation or regulations for the conduct of the proposed development. The Applicant shall conduct the development in accordance with the terms of such approvals and licences.

4. Department of Water Resources

- a) The Applicant shall contribute data to a regional groundwater resource assessment of the Colliery holding made by the Department of Water Resources. Such assessment shall

include proposals for monitoring the condition of the relevant aquifers by the Applicant.

- b) The Applicant shall consult with the Department of Mineral Resources and monitor the effects of underground mine development, hydrology and hydrogeology of the colliery holding to the satisfaction of the Department of Water Resources.

5. National Parks and Wildlife Services

- a) The Applicant shall undertake an evaluation of the habitat value of the shrub swamps in the colliery holding and the potential effects of subsidence on hydrology and habitat, to the satisfaction of the National Parks and Wildlife Service.
- b) The Applicant shall undertake further flora surveys over the colliery holding as may be required from time to time in conjunction with the monitoring program.
- c) The Applicant shall undertake further archaeological investigation of:
 - i. Carne Creek and its clifflines,
 - ii. Site 2 detailed recording of artefacts,
 - iii. Site 7 excavation, and,

provide a report on consultation with the local Aboriginal Land Council on site management.

- d) The Applicant shall undertake further fauna surveys over the colliery holding prior to longwall mining of areas where sensitive habitats are present, as required by the National Parks and Wildlife Service, in consultation with the Department of Mineral Resources.

6. Construction Stage

- a) The Applicant shall not carry out construction activities on proclaimed public holidays.
- b) The Applicant shall limit construction stage disturbance to the minimum area and install temporary fences, as required by the Council.
- c) The Applicant shall implement dust suppression and erosion control measures to the satisfaction of the Greater Lithgow City Council (“the Council”).

7. Coal Transportation

- a) The Applicant shall transport all coal to Mt Piper Power Station by overland conveyor after 1 January 1994;
- b) The Applicant may transport up to 50,000 tpa of coal to local domestic market customers by road haulage;
- c) Notwithstanding a) and b), the Applicant may haul 300,000 tonnes of pre-contract coal to Mt Piper Power Station via public roads. Such haulage may be made between 7am and 7pm, Monday to Friday, for period ending 31 December, 1993;
- d) The Applicant shall not transport coal by road under emergency conditions without the

prior consent of the Council;

- e) The Applicant shall transport all export coal by rail from Lidsdale Siding.

8. Overland Conveyor

- a) The portion of the conveyor along Duncan Street opposite the existing residences shall be constructed partly below ground level in a fully enclosed steel tube. The remainder of the conveyor shall be constructed at ground level or elevated to suit various crossing requirements for waterways and rail;
- b) The Applicant shall submit designs and specifications for the conveyor crossing of the Mudgee Road to the Roads and Traffic Authority for its approval;
- c) The Applicant shall provide to the Council details of the landscaping treatment of the overland conveyor;
- d) The Applicant shall provide to the Department of Conservation and Land Management in relation to the construction and maintenance of the conveyor details of measures to minimise soil erosion and sedimentation effects, for its advice;
- e) The Applicant shall consult with all affected landowners regarding the location and provision of stock and vehicular crossings over the overland conveyor. The Applicant shall provide such works at his own cost.

9. Roads

- a) The Applicant shall construct the intersection with the Mudgee Road and pit-top access road to the satisfaction of the Roads and Traffic Authority;
- b) The access road shall be sealed to a two lane standard prior to 1 January 1994;
- c) The Applicant shall construct the intersection and access road from the Mudgee Road to the Coal Washery site in accordance with the RTA Interim Design Guide Type 'A';
- d) The Applicant shall seal the coal washery access road for a distance of at least 20m beyond the nearest affected residence;
- e) The remaining section of the coal washery access road shall be constructed to the standard of an all weather gravel road, to the Council's requirements;
- f) The Applicant shall submit detailed plans and specifications for road works to the Council for approval prior to the commencement of works.

10. Coal Washery Reject Disposal

- a) The Applicant shall meet the requirements of the Department of Mineral Resources and provide to the Council the results of a geotechnical investigation and an engineering specification for each emplacement area;

- b) The Applicant shall within six months of this consent investigate the possibility of combining all rejects in one emplacement and report to the Department of Mineral Resources and to advise the Council.

11. Mining Subsidence

The Applicant shall meet the requirements of the Department of Mineral Resources and adopt such reasonable practices and techniques as will minimise disturbance to any surface features within the identified protection zones.

12. Water Management

The Applicant shall submit to the EPA, prior to commencement of construction a water management plan for each site of the development showing all proposed drainage diversion channels, collection pits and sedimentation dams to be constructed. Such plan shall incorporate the principles of Total Catchment Management.

13. Effluent Disposal

- a) The Applicant shall provide to the EPA upon its request details of the design and capacity of the method of effluent treatment and disposal including data on quality of effluent for disposal;
- b) The Applicant shall obtain the approval of the EPA, the Council and the Department of Health for the effluent disposal method selected for both pit top and coal washery.

14. Potable Water

The Applicant shall provide a supply of potable water to the pit top site and washery site, at its own expense, to the satisfaction of Council

16. Flooding

- a) The Applicant shall obtain the consent of the Department of Conservation and Land Management prior to the destruction of any trees (including sapling, shrubs or scrub) along the bank or within 20m of the bank of the Coxs River;
- b) The Applicant shall undertake an appraisal of the impact of the overland conveyor on the incidence and severity of flooding in the vicinity of Duncan Street, Lidsdale. The results of such an assessment are to be submitted to the Council and the Department of Water Resources, prior to the commencement of construction or such other period as the Council may determine.

17. Landscaping

The Applicant shall submit for the Council's approval at least six months prior to commencement of construction or within such further period as the Council may permit:

- a) A detailed landscaping plan illustrating the establishment of trees and shrubs both prior to and during the construction stage, showing existing stands of vegetation and the location

of plantings around the surface facilities and the rejects emplacement area;

This plan shall incorporate appropriate erosion control and sedimentation control practices for any earthworks associated with the development;

- b) Proposals for the visual appearance of the structural components of the development including paint colours and specifications. Buildings and structures shall be designed so as to present a neat and orderly appearance and to blend as far as possible within the surrounding landscape;
- c) A comprehensive plan of landscape management, which shall include detailed plans, programs to be undertaken, maintenance of all landscape works and plantings and maintenance of building materials and cladding.

18. Parking Facilities

The Applicant shall meet the requirements of the Council to ensure the adequate provision of unloading, loading, manoeuvring and parking of vehicles within the development.

19. Site Rehabilitation

- a) The Applicant shall prepare, within six months of this consent, a comprehensive plan for the staged rehabilitation of all lands disturbed by the development within the colliery holding and the coal washery and reject emplacement. The plan shall be submitted to the Council for its information and to the Department of Mineral Resources for its approval. The plan shall specify contour earthworks, tree screen plantings, grassed areas, means to control leachate from reject emplacements, soil erosion controls, final contours and proposals for maintenance of rehabilitation areas and management of waste disposal, including long term drainage both during and after the cessation of disposal operations, until such time as considered necessary by the Department of Mineral Resources.
- b) The Applicant shall consult and comply with the requirements of the Department of Conservation and Land Management in respect of the preparation and implementation of rehabilitation plans, revegetation programs, soil erosion controls and associated works.
- c) The Applicant shall consult with NSW Agriculture and the Department of Conservation and Land Management concerning selection of appropriate vegetation species, seedling establishment techniques, soil testing and fertilizer selection and application.

19A. Bore 8 – Erosion and Sediment Control Plan

The Applicant shall prepare and implement an Erosion and Sediment Control Plan for Bore 8 to the satisfaction of the Director-General. This Plan must:

- a) be prepared by a suitably qualified and experienced person/s;
- b) be approved by the Director-General prior to the commencement of vegetation clearance or ground disturbance activities caused by construction of Bore 8 or the associated widening of access tracks;
- c) identify activities that could cause soil erosion and generate sediment;

- d) describe measures to minimise soil erosion and the potential transport of sediment off-site;
- e) describe the location, function and capacity of erosion and sediment control structures; and
- f) describe what measures would be implemented to maintain these structures over time.

19B. Bore 8 – Rehabilitation

The Applicant shall prepare and implement a Rehabilitation Management Plan to rehabilitate areas of disturbance caused by construction of Bore 8 or the associated widening of access tracks to the satisfaction of Division of Resources and Energy. This Plan must:

- a) be prepared in consultation with the Department, Office of Environment and Heritage (OEH) and Forests NSW;
- b) be submitted to the Director-General Mineral Resources for approval, prior to 1 August 2013;
- c) describe how the performance of the rehabilitation would be monitored and assessed;
- d) describe measures for soil erosion and sediment control;
- e) provide for progressive rehabilitation of temporarily disturbed areas and final rehabilitation following decommissioning of the Bore 8 facilities; and
- f) include a timetable for the implementation of the components of the Plan.

19C. *Persoonia hindii* Management and Research Program

The Applicant shall prepare and implement a *Persoonia hindii* Management and Research Program. This Program must:

- a) be prepared in consultation with OEH and Forests NSW by suitably qualified and experienced persons whose appointment has been approved by the Director-General;
- b) be submitted for approval to the Director-General prior to the commencement of construction activities for Bore 8 or widening of the access tracks to Bore 8 that involve clearing of *Persoonia hindii* stems (ramets);
- c) include a timetable to undertake surveys and mapping of *Persoonia hindii* to establish its distribution and population across the Newnes Plateau;
- d) include measures for the translocation of all stems (ramets) of *Persoonia Hindii* found in the area of disturbance associated with the widening of access tracks for Bore 8, to nearby areas with similar physical and biological habitat features;
- e) include trials to assess whether such translocated *Persoonia hindii* stems can be successfully returned to their original locations as a component of the rehabilitation of these areas;
- f) include a study of the rhizomatous habit of *Persoonia hindii* and how this may affect the success of the species in translocation and/or re-colonising disturbed areas;
- g) include a monitoring program to study the *Persoonia hindii* stems before and after translocation;
- h) include a monitoring program to measure the ability of the residual *Persoonia hindii* population along the disturbed areas of the Bore 8 access track and construction site to regenerate;

- i) include short and long-term goals to measure the effectiveness of the Program; and
- j) provide for the transfer of information obtained as a result of implementing the Program to OEH, Forests NSW and the Department.

19D. Bore 8 Vegetation Offsets

By the end of December 2016, the Applicant shall do the following to the satisfaction of the Director-General:

- (a) provide an area that is suitable in its vegetation types and extent to satisfactorily offset the residual impacts of clearing 4 ha of native vegetation associated with the construction and use of Bore 8, including the residual impacts on *Persoonia hindii*; and
- (b) make suitable arrangements to manage, protect and provide long-term security for this area.

In determining a suitable residual offset, the Director-General will have regard to the outcomes of the *Persoonia hindii* Management and Research Program, particularly the success of translocation and/or regeneration, and the Applicant's success in implementing the Rehabilitation Management Plan.

20. Lidsdale Road Siding

The Applicant shall undertake a noise impact assessment of the Lidsdale rail siding, according to the requirements of the EPA and implement necessary measures for attenuation of noise.

21. Fire Protection

The Applicant shall:

- a) consult and comply with the reasonable requirements of the Council concerning means to prevent and fight bushfires, including the provision of adequate fire tracks within the colliery holding and the provision of appropriate firefighting facilities and staff;
- b) formulate a program of hazard reduction measures and a detailed contingency plan for coping with bushfires each year, in liaison with the Forestry Commission, the Department of Bush Fire Services, the National Parks and Wildlife Service and the Council.

22. Environmental Monitoring

The applicant shall ensure that the following requirements are met to the satisfaction of the EPA, the Department of Water Resources, Department of Mineral Resources, and the Director of Planning ("the Director"):

- a) Monitoring of air quality (particulate dust and dust concentration), water quality (effluent discharged off-site), noise levels (night-time noise emissions at nearest residences), at points to be selected at the mine site and at the coal washery site and agreed upon by the Applicant and the EPA;

- b) Monitoring of water quality and reporting to the reasonable requirements of the EPA, and the Department of Water Resources;
- c) Monitoring of subsidence induced by longwall mining to the requirements of the Department of Mineral Resources and including monitoring of flora of drainage sensitive ecosystems and hydrology.

22A. Noise Management Plan

The Applicant shall prepare and implement a Noise Management Plan for the development to the satisfaction of the Director-General. This plan must:

- (a) be prepared in consultation with the EPA, and submitted to the Director-General for approval by 28 February 2014, unless otherwise agreed by the Director-General;
- (b) describe the proposed noise management system in detail;
- (c) include a monitoring program that uses quarterly attended monitoring to evaluate the acoustic performance of the development; and
- (d) include a program of noise mitigation actions and/or works to reduce noise emissions from the Springvale Pit Top facilities that includes:
 - installation of improved mufflers and reversing alarm on the stockpile dozer;
 - use of flashing reversing warning signals for use during the night for the stockpile dozer;
 - restriction of the stockpile dozer to the use of second gear while reversing;
 - improved inspection conveyor idlers, and consequent prompt replacement of defective idlers identified by these inspections;
 - installation, prior to the end of December 2014, of effective noise attenuation measures for the Run of Mine conveyor drive building,to the satisfaction of the Director-General.

23. The Applicant shall bear the costs associated with the establishment and operation of all monitoring programs referred to in these conditions, the analysis of data, recording results, and providing information required to all relevant agencies.

24. Annual Report

- a) Within six (6) months of the commencement of the construction of the proposed development, the Applicant shall ascertain the requirements of the Director in relation to an annual report to be submitted to the Director, the EPA, the Council and the Department of Mineral Resources in respect of the performance of the development. Each report shall be in respect of the calendar year ending 31st December and each report shall be submitted by 31st March of the following year. The first report is to be submitted in 1995. The Applicant shall agree to the Council making the reports publicly available.
- b) The annual report shall provide the following information:
 - i. the performance of the development in relation to the EIS, the statutory requirements of public authorities, in particular the EPA, and in relation to the conditions of development consent;

- ii. the implementation and effectiveness of the environmental controls and conditions relating to the development;
- iii. results of environmental monitoring in respects of air, water and noise pollution, groundwater variations in the colliery holding, how these results compare with the predictions in the EIS and whether the results indicate compliance with the conditions of consent and information related to discharges of water (other than uncontaminated stormwater) from the mine site;
- iv. mining operations undertaken during the preceding 12 months;
- v. workforce characteristics of the development;
- vi. modifications to mining operations, if any, to mitigate any adverse environmental impacts;
- vii. socio-economic impact of the development other than covered in (v) above;
- viii. results of subsidence monitoring and subsidence impacts upon the natural environment, and measures implemented to rectify any damage caused.

25. Environmental Officer

The Applicant shall employ or contract the services of an Environmental Officer whose qualifications are acceptable to the Department of Mineral Resources for the proposed development to be responsible for ensuring that all environmental safeguards proposed for the development and as required by this consent and other statutory approvals are enforced and monitored from the commencement of construction.

26. Infrastructure Contribution

The Applicant shall negotiate and pay to the Council a contribution, pursuant to Section 94 of the Environmental Planning and Assessment Act, for Community Services/Facilities for Council to utilise in the upgrading of facilities provided and to be provided in the City of Greater Lithgow, as a result of the development.

The first payment is due in 1995 on the anniversary of this consent and the remaining three other payments on the successive anniversaries of the Consent.

The basis of the contribution shall be a contribution per employee based on the number of employees on the Company payroll at the anniversary of this consent in 1995.

The amount of the contribution shall be finalised by 30 September 1992. Condition 29 shall apply for dispute resolution should the parties fail to reach agreement.

27. Rental Housing

The Applicant shall liaise with the Council to monitor local housing demand during the

construction stage of the project and in the event of a shortage of rental accommodation liaise with the Council, with a view to providing additional temporary accommodation facilities for use by its construction workforce.

28. Approvals to Council

The Applicant shall forward to the Council copies of all environmental and planning approvals of authorities related to the development.

29. Dispute Resolution

Any dispute arising between any of the parties in respect of the above conditions shall be referred to the Minister for Planning for resolution.

30. Western Main Colliery

- a) The Applicant shall undertake all necessary water pollution control measures, to the satisfaction of the EPA, to minimise contaminated water discharge from the site in wet weather conditions.
- b) The Applicant shall carry out all practical measures to minimise water pollution and siltation from the Western Main Colliery Site used for the relocated overland conveyor route, according to the requirements of the Department of Conservation and Land Management and the EPA.

31. Shafts Site

The Applicant shall meet the requirements of Pacific Power in respect of the use of its Ash Dam Access Road for the period of construction and for maintenance of the proposed ventilation shafts.

32. Revised Pit Top

The Applicant shall carry out water pollution and siltation control measures according to the revised pit top arrangements, to the satisfaction of the EPA and the Department of Conservation and Land Management.

33. Fish River Water Supply

The Applicant shall forward copies of plans of the overland conveyor for review in respect of the Fish River Pipeline and concurrence if required by the Fish River Water Supply Operations Manager, prior to commencement of construction.

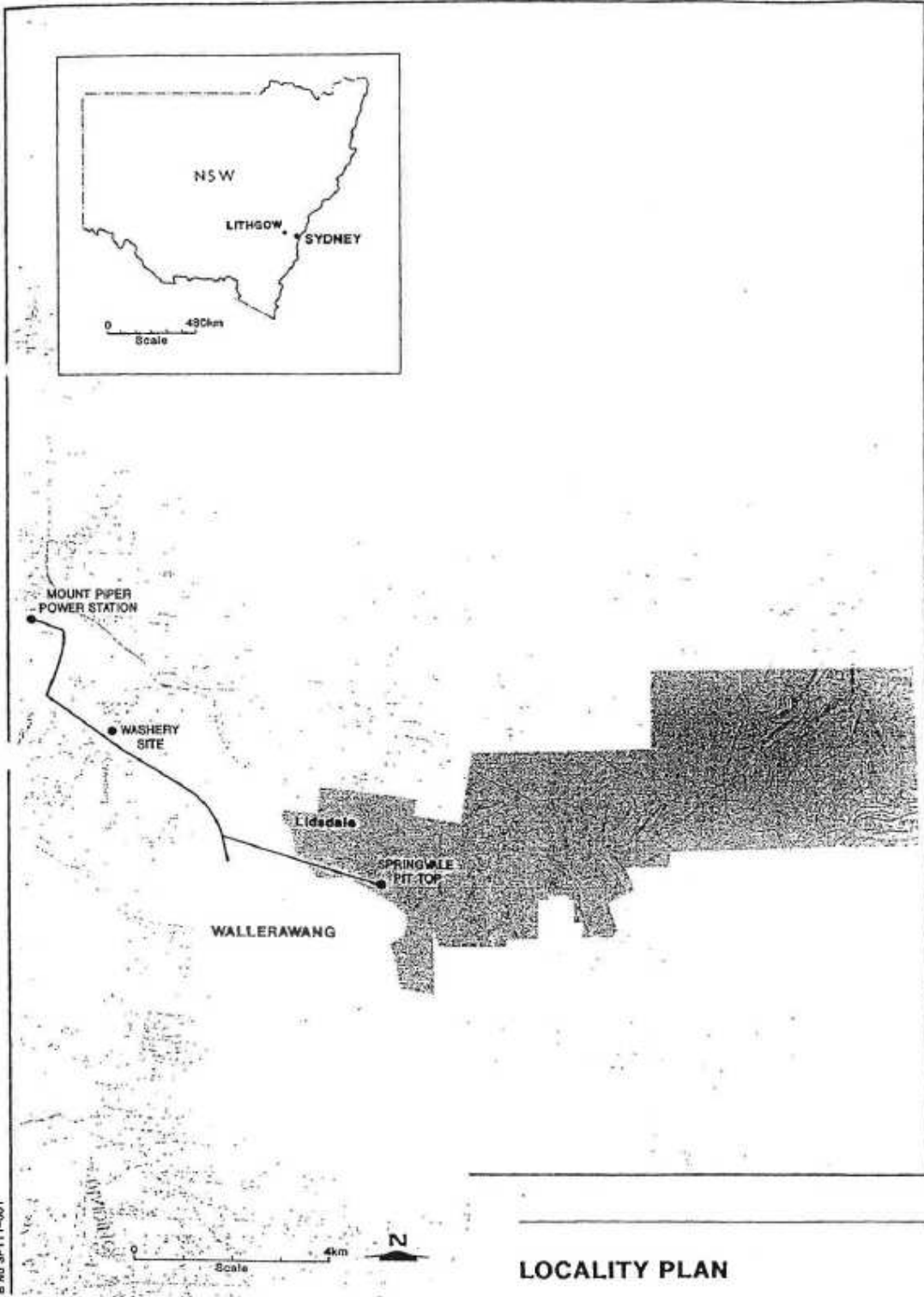
34. Erosion and Sediment Control Plan

The Applicant shall submit an erosion and sediment control plan (using temporary, operational phase and permanent works) for each phase of the operation prior to commencement of any earthworks to the Department of Conservation and Land Management for concurrence.

35. Additional Archaeological Survey

The Applicant shall undertake an archaeological survey of the modified conveyor route and the ventilation shaft site, prior to commencement of construction and report results of surveys to the National Parks and Wildlife Service.

NOTE: This approval does not relieve the Applicant of the obligation to obtain any other approval under the Local Government Act, 1919, as amended, the ordinances made thereunder (including approval of building plans), or any other Act.



LOCALITY PLAN

Appendix 8 Water Licence Data

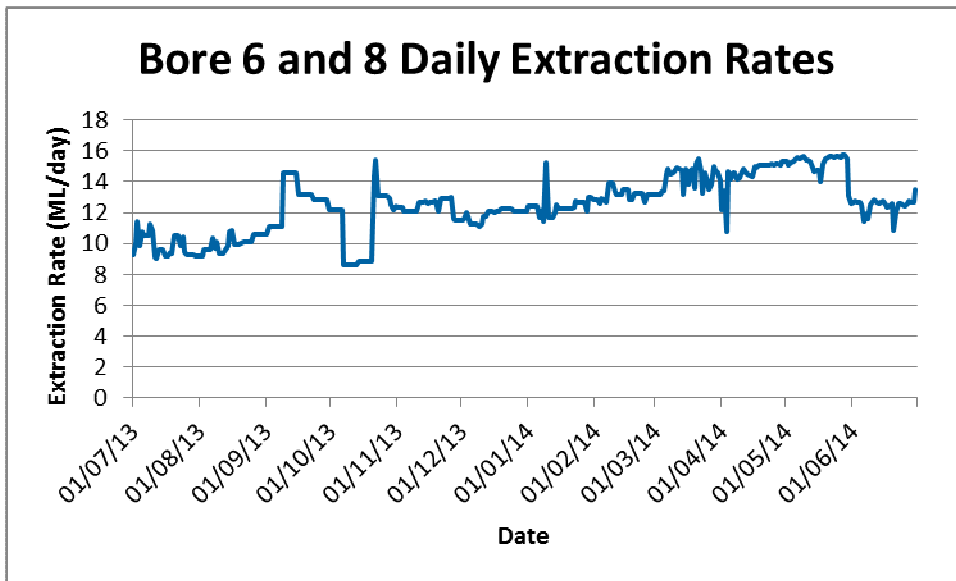


Figure 1: Bore 6 and Bore 8 Daily Extraction rates 2013/2014 FY

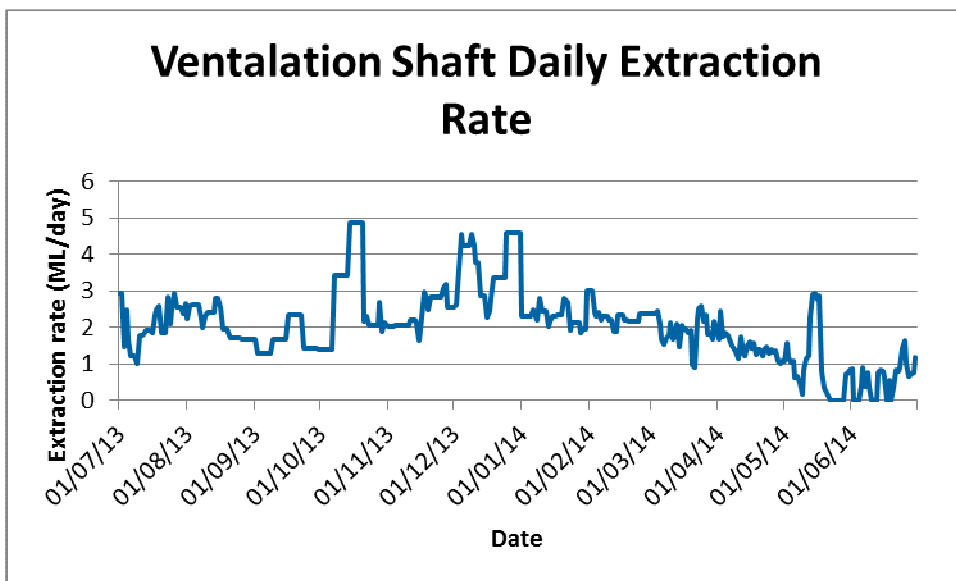


Figure 2: Ventilation Shaft Daily Extraction rates 2013/2014 FY

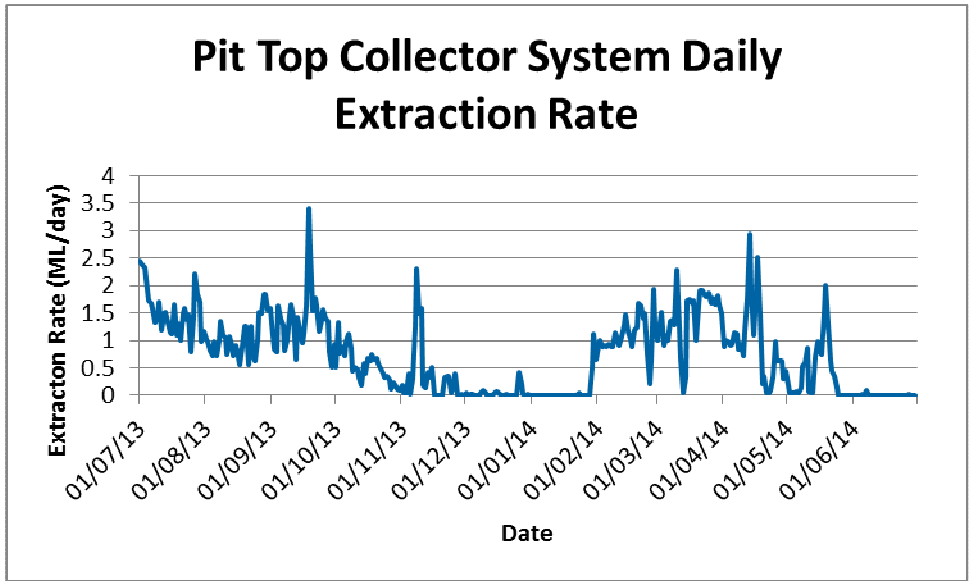


Figure 3: Pit Top Collector System Daily Extraction rates 2013/2014 FY

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Centennial Coal