



Centennial Coal




CENTENNIAL COAL
WESTERN COAL SERVICES
ANNUAL REVIEW

January 2017 to December 2017

March 2018



WESTERN COAL SERVICES ANNUAL REVIEW FOR 2017

Name of Operation	Western Coal Services (WCS)
Name of Operator	<p>Springvale Coal Pty Ltd</p> <p><i>For the purposes of this review the acronym WCS is used to represent to Operations at Western Coal Services as operated by Springvale Coal Services Operations on behalf of Springvale Coal Pty Ltd under relevant approvals.</i></p> <p><i>WCS where referenced in regulatory commentary and review information represents Springvale Coal Services Operations on behalf of Joint Venture Partners Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd.</i></p>
Development Consent/ Project Approval #	SSD_5579
Name of holder of development consent / project approval	Springvale Coal Pty Ltd
Mining Lease #	CCL 733, ML 204, ML 1319, ML 564, CL 394, CL 361, ML 1352, ML 1448, PLL 133
Name of Holder of Mining Lease	Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd
Water License #	N/A
Name of Holder of Water License	N/A
MOP/RMP Start Date	1 November 2015
MOP/RMP End Date	31 July 2022
Annual Review Start Date	1 January 2017
Annual Review End Date	31 December 2017
<p>I, [<u>M. Cairney</u> ¹], certify that this audit report is a true and accurate record of the compliance status of Western Coal Services for the period 2017 and that I am authorised to make this statement on behalf of Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd Pty Ltd.</p> <p>Note:</p> <p>a) The Annual Review is an 'environmental audit' for the purposes of s122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion) in an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000.</p> <p>b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (intention to defraud by false or misleading statement – maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents – maximum penalty 2 years imprisonment or \$22,000, or both).</p>	
Name of Authorised Reporting Officer	<u>M. Cairney</u>
Title of Authorised Reporting Officer	<u>MD & CEO</u>
Signature of Authorised Reporting Officer	
Date	<u>27.3.18</u>

¹ An Authorised Reporting Officer for the purposes of this Annual Review is a director of the subsidiary with the management responsibility of the operation for which this review has been generated.

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1. STATEMENT OF COMPLIANCE

Table 1-1 provides a statement of compliance with the relevant approval during the reporting period.

Table 1-1 – Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	
Development Consent SSD_5579	No
Environmental Protection Licence 3607 (LDP006 and LDP007)	No
Environmental Protection Licence 467 (LDP003 only)	Yes
Mining Lease number	CCL 733
	ML 204
	ML 1319
	ML 564
	CL 394
	CL 361
	ML 1352
	ML 1448
	MPL 314
	MLA 497
	MLA 498
	PLL 133
Radiation Licence	Yes
Statement of Commitments	Yes

Table 1-2 provides a list of conditions that were not complied with during the reporting period.

Table 1-2 – Non-Compliances

Relevant Approval	Condition #	Condition summary	Compliance Status	Comment	Section addressed in report
SSD_5579	Schedule 3, Condition 7	Noise Criteria	Non-compliant	Exceedance of noise limits	Section 6.2 and Appendix D, Appendix Q
SSD_5579	Schedule 3, Condition 24	Water Management Plan	Non-compliant	Coal fines observed escaping sump and transfer tower	Appendix Q
SSD_5579	Schedule 3, Condition 13	Air Quality Criteria	Non-compliant	Exceedance of air quality limits	Appendix E
SSD_5579	Schedule 3, Condition 25	Biodiversity	Non-compliant	Failure to secure biodiversity offset arrangements	Section 6.8, and Appendix H
ML 1352	5(b) of ML 1352 renewal dated 02/03/2015	Must submit Environmental Incident Report to the Department within seven (7) days of breach	Non-compliant	Coal fines observed escaping sump and transfer tower Incident not notified	Appendix Q
EPL_3607	L4.1	Noise Criteria	Non-compliant	Exceedance of noise limits	Section 6.2 and Appendix D, Appendix Q

Table 1-3 – Compliance Status Key for Table 2

Risk Level	Colour Code	Description
High		Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium		Non-compliance with: <ul style="list-style-type: none"> Potential for serious environmental consequences, but is unlikely to occur; or Potential for moderate environmental consequences, but is likely to occur
Low		Non-compliance with: <ul style="list-style-type: none"> Potential for moderate environmental consequences, but is unlikely to occur; or Potential for low environmental consequences, but is likely to occur
Administrative		Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions)

2. INTRODUCTION

Western Coal Services (WCS) is located to the west of the Blue Mountains in the Lithgow Local Government Area in New South Wales approximately 125 kilometres (km) from Sydney, 15 km north of city of Lithgow, 5 km north-northwest from the township of Wallerawang, and 4 km northwest of the village of Lidsdale.

The operations include;

- The Springvale Coal Services Site (SCSS):
- Angus Place Colliery to Wallerawang Haul Road:
- Angus Place Colliery to Mount Piper Power Station Haul Road:
- Kerosene Vale Stockpile;
- An Overland Conveyor System from the Springvale Colliery Coal Handling Plant - to the SCSS; and
- A coal washery and processing plant.

These areas and facilities when combined form an operational footprint known as the WCS Project Approval Area (PAA).

WCS is approved to receive coal from both the Springvale and Angus Place Collieries, and sends washed and run of mine coal via overland conveyor for domestic use to Mount Piper Power Station, and for railing to customers for export markets from Lidsdale Siding.

WCS has existing development approvals in place enabling up to 9.5 million tonnes of coal to be received per annum and up to seven million tonnes for ROM coal to be processed per annum.

The Western Coal Services Environmental Monitoring Sites (Water & Air Quality) map and Project Locality map provided in (Appendix A) below illustrate the following:

- The regional context of the project
- The project boundary (superimposed on aerial photography of the site)
- Water and air quality monitoring locations (dust, noise and regional aquatic monitoring locations are also provided in Appendix A)

This Annual Review relates solely to the reporting period 1 January 2017 to 31 December 2017.

Table 2.1 below provides the names and contact details of the key personnel who are responsible for the environmental management of the WCS operation.

Table 2-1 – Environmental Management Contact Details

Name	Position	Email	Contact Details
Anthony Brown	Manager Springvale Coal Services	anthony.brown@centennialcoal.com.au	02 6355 9508
Neil Thompson	Environment and Community Coordinator	neil.thompson@centennialcoal.com.au	02 6355 9509
Community Contact Number	-	-	02 6355 9500

3. APPROVALS

A summary of the environmental approvals held by WCS is provided in Table 3-1 below.

Table 3-1 – Western Coal Services Approvals

Approval/ Title/ Licence/ Permit	Description	Issued By	Expiry Date	Any changes during reporting period
Development Consent SSD_5579	Coal transportation and processing	DPE	30/06/2039	Yes
Environment Protection Licence 3607	The licence authorises the operation of coal works and mining for coal	EPA	N/A	No
Environment Protection Licence 467	The licence authorises the operation of coal works and mining for coal	EPA	N/A	No
Radiation Management Licence 5061304	Radiation apparatus	EPA	15/06/2018	Yes
CCL 733	Consolidated Coal Lease	DPI	09/03/2027	No
ML 204	Mining Licence	DPI	27/05/2033	No
ML 1319	Mining Licence	DPI	05/07/2035	No
ML 564	Mining Licence	DPI	02/05/2023	No
CL 394	Consolidated Coal Lease	DPI	27/05/2034	No
CL 361	Consolidated Coal Lease	DPI	16/07/2032	No
ML 1352	Mining Licence	DPI	23/06/2036	No
ML 1448	Mining Licence	DPI	31/05/2020	No
PLL 133	Private Lands Lease	DPI	10/08/2024	No

3.1 Changes Made To Approvals during the Reporting Period

During the reporting period changes were made to approvals as detailed below.

3.1.1 Development Consent/Project Approval

Development Consent SSD-5579 was modified twice in the reporting period.

Administrative changes to the consent were completed by DPE and other activities as detailed below.

MOD 1 Development Consent - SSD – 5579

A Statement of Environmental Effects was prepared for WCS, dated 19 November 2016.

The following was approved as part of Modification 1 (MOD 1) on 19 June 2017:

- The receipt of residuals stream from the water treatment plant proposed in the Springvale Water Treatment Plant (WTP) and emplacement within the existing Reject Emplacement Area (REA) at WCS; and
- Changes to the decommissioning and rehabilitation strategy approved in SSD 5579.

MOD 2 Development Consent - SSD – 5579

A Statement of Environmental Effects was prepared for WCS, dated August 2017.

The following was approved as part of MOD 2 on 15 December 2017:

- Changes to the applicability of noise criteria from noise generated by the operation of the overland coal conveyor, Wallerawang haul road or Mount Piper haul road; and
- Requirements to prepare and implement a Noise Reduction Study for the overland coal conveyor and SCSS.

3.1.2 Mining Authorisations

Nil Changes undertaken during the period.

An Endorsement Schedule was applied effective 15 Jun 2017 was issued (for a revised security amount).

3.1.3 Environment Protection Licence

Nil Changes were undertaken during the period to both EPL 3607 and EPL 467 during the period related to WCS activities.

3.1.4 Other Approvals

Radiation Management Licence 5061304 was renewed during the reporting period.

Renewal included changes that added apparatus that was transferred from Angus Place colliery to Springvale Coal (Springvale Coal Services Site) and a change from the old licence number (RML29346) to the new number (5061304).

3.2 Annual Review Requirements

The Annual Review has been developed to satisfy the reporting requirements of the approvals listed in

Table 3-2 below.

Table 3-2 – Annual Review Requirements

Approval	Condition No	Requirement	Where addressed in Annual Review
Development Consent SSD_5579	Schedule 5 Condition 4	By the end of March each year, or other timing as may be agreed by the Secretary, the Applicant shall review the environmental performance of the development to	

Approval	Condition No	Requirement	Where addressed in Annual Review
		the satisfaction of the Secretary. This review must:	
		(a) describe the development that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;	Section 7 and Section 8
		(b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the: <ul style="list-style-type: none"> i. relevant statutory requirements, limits or performance measures/criteria; ii. the monitoring results of previous years; iii. the relevant predictions in the EIS; 	Section 6.2, Section 6.4, Section 6.7, Appendix D, Appendix E, Appendix G and Appendix O
		(c) identify any non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance;	Appendix Q
		(d) identify any trends in the monitoring data over the life of the development;	Appendix D, Appendix E, Appendix G and Appendix O
		(e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and	Section 6.2 and Section 6.4
		(f) describe what measures will be implemented over the next year to improve the environmental performance of the development.	Section 8
Environmental Impact Statement – Statement of Commitments	SOC No. 5.10 Surface water, groundwater, geomorphology and aquatic	To better understand the groundwater linkages, within 12 months of Project Approval, a baseline groundwater monitoring program will be established for the Springvale Coal Services Site. The baseline groundwater monitoring program will include: <ul style="list-style-type: none"> i. Quarterly monitoring of water levels from a network of monitoring bores following the completion of construction; ii. Six monthly sampling of monitoring bores for field analysis of pH, EC and temperature and laboratory analysis on major ions, pH, EC, TDS, dissolved arsenic, cadmium, chromium, copper, iron, lead, manganese, nickel and zinc; and iii. An annual review so that its capacity as an accurate predictive tool can be assessed and maintained. 	Section 6.7 and Appendix G
	SOC No. 10.1 Rehabilitation	Within six months of Project Approval a single Rehabilitation Plan will be prepared for the entire PAA in consultation with DRE and DPI and will include the timeframes provided within this EIS, details of the rehabilitation methods, monitoring and reporting framework. Results arising from the implementation of the program will be reported each year in the Annual Review (currently referred to as the AEMR).	Section 6.14 and Appendix N

Approval	Condition No	Requirement	Where addressed in Annual Review
ML 1352 ML 204 ML 1319 CL 394	Condition 3 Mining Operations Plan and Annual Rehabilitation Report	(a) The lease holder must comply with an approved Mining Operations Plan (MOP) in carrying out any significant surface disturbing activities, including mining operations, mining purposes and prospecting. The lease holder must apply to the Minister for approval of a MOP. An approved MOP must be in place prior to commencing any significant surface disturbing activities, including mining operations, mining purposes and prospecting.	Section 6.14, Appendix N and Appendix R
		(b) The MOP must identify the post mining land use and set out a detailed rehabilitation strategy which: <ul style="list-style-type: none"> i. identifies areas that will be disturbed; ii. details the staging of specific mining operations, mining purposes and prospecting; iii. identifies how the mine will be managed and rehabilitated to achieve the post mining land use; iv. identifies how mining operations, mining purposes and prospecting will be carried out in order to prevent and or minimise harm to the environment; and v. reflects the conditions of approval under: <ul style="list-style-type: none"> - the <i>Environmental Planning and Assessment Act 1979</i>; - the <i>Protection of the Environment Operations Act 1997</i>; and - any other approvals relevant to the development including the conditions of this mining lease. 	Section 6.14, Section 7 and Appendix N
		(c) The MOP must be prepared in accordance with the <i>ESG3: Mining Operations Plan (MOP) Guidelines September 2013</i> published on the Department's website at www.resources.nsw.gov.au/environment	Not applicable
		(d) The lease holder may apply to the Minister to amend an approved MOP at any time.	Not applicable
		(e) It is not a breach of this condition if: <ul style="list-style-type: none"> i. the operations which, but for this condition 3(e) would be a breach of condition 3(a), were necessary to comply with a lawful order or direction given under the <i>Environmental Planning and Assessment Act 1979</i>, the <i>Protection of the Environment Operations Act 1997</i>, the <i>Mine Health and Safety Act 2004/Coal Mine Health and Safety Act 2002</i> and <i>Mine Health and Safety Regulation 2007/Coal Mine Health and Safety Regulation 2006</i> or the <i>Work Health and Safety Act 2011</i>; and ii. the Minister had been notified in writing of the terms of the order or direction prior to the operations constituting the breach being carried out. 	Not applicable
		(f) The lease holder must prepare a Rehabilitation Report to the satisfaction of the Minister. The report must: <ul style="list-style-type: none"> i. provide a detailed review of the progress of rehabilitation against the performance measures and criteria established in the approved MOP; 	Section 6.14, Section 7 and Appendix N

Approval	Condition No	Requirement	Where addressed in Annual Review
		<p>ii. be submitted annually on the grant anniversary date (or at such other times as agreed by the Minister); and</p> <p>be prepared in accordance with any relevant annual reporting guidelines published on the Department's website at www.resources.nsw.gov.au/environment</p>	
ML 1448 ML 564	Condition 3 Annual Environmental Management Report	<p>(1) Within 12 months of the commencement of mining operations and thereafter annually or, at such other times as may be allowed by the Director-General, the lease holder must lodge an Annual Environmental Management Report (AEMR) with the Director-General.</p> <p>(2) The AEMR must be prepared in accordance with the Director-General's guidelines current at the time of reporting and contain a review and forecast of performance for the preceding and ensuing twelve months in terms of:</p> <ul style="list-style-type: none"> (a) the accepted Mining Operations Plan; (b) development consent requirements and conditions; (c) Environment Protection Authority and Department of Land and Water Conservation licences and approvals; (d) any other statutory environmental requirements; (e) details of any variations to environmental approvals applicable to the lease area; and (f) where relevant, progress towards final rehabilitation objectives. <p>(3) After considering an AEMR the Director-General may, by notice in writing, direct the lease holder to undertake operations, remedial actions or supplementary studies in the manner and within the period specified in the notice to ensure the operations on the lease area are conducted in accordance with sound mining and environmental practice.</p> <p>(4) The lease holder shall, as and when directed by the Minister, cooperate with the Director-General to conduct and facilitate review of the AEMR involving other government agencies.</p>	Appendix R
CCL 733 CL 361	Condition 4 Environment Management Reporting	The lease holder must lodge Environmental Management Reports (EMR) with the Director-General annually or at dates otherwise directed by the Director-General.	Entire Annual Review
	Condition 5	The EMR must:	Entire Annual Review
		(a) report against compliance with the MOP;	Entire Annual Review
		(b) report on progress in respect of rehabilitation completion criteria;	Entire Annual Review
		(c) report on the extent of compliance with regulatory requirements; and	Entire Annual Review

Approval	Condition No	Requirement	Where addressed in Annual Review
		(d) have regard to any relevant guidelines adopted by the Director General;	Entire Annual Review
	Condition 6	Additional environmental reports may be required on specific surface disturbing operations or environmental incidents from time to time as directed in writing by the Director-General and must be lodged as instructed.	Not applicable

4. OPERATIONS SUMMARY

Table 4-1 – Production Summary

Material	Approved Limit (SSD_5579) (tonnes)	Previous Reporting Period (2016) (Actual tonnes)	This Reporting Period (2017) (Actual tonnes)	Next Reporting Period (2018) (Forecast)
Waste Rock/ Overburden	N/A	N/A	N/A	N/A
Receipt of ROM coal	9,500,000	4,288,601	4,036,490	4,449,516
Processing of ROM coal	7,000,000	1,360,266	1,119,009	1,359,482
Coarse reject*	N/A	162,141	82,629	106,654
Fine reject (Tailings)*	N/A	162,141	82,629	106,654
Transport Lidsdale Siding	6,300,000	1,035,981	573,603	472,000
Transport other parties (Mt Piper)	N/A	2,944,847	3,071,515	3,746,218

* Coarse and fine reject are both disposed into the site REA.

Volumes are calculated as per below:

A.Total feed into Coal Preparation Plant CY

B.Average production yield for CY

C.Total washed coal produced (A @ B)

D.Total coarse and fine rejects produced (A – C)

E.Coarse and fine rejects split assumed at 50:50 ratio

Table 4-2 – Operations Summary

Limits	Approved Limit (SSD_5579)	Previous Reporting Period (2016) (Actual)	This Reporting Period (2017) (Actual)	Comment (if applicable)
Hours of operation	24 hours per day, 7 days per week until 30/06/2039	24 hours per day, 7 days per week	24 hours per day, 7 days per week	Compliant
Transport (Wallerawang Haul Road) (SSD_5579 MOD 2 effective 15 Dec 2017)	Truck movements restricted to the day period only prior to longwall extraction at the Angus Place Colliery. Max. 3 truck operating during the evening period following commencement of longwall extraction at Angus Place Colliery. No truck movements to occur during the night period.	Deliveries to Kerosene Vale commenced December 2016. Day haulage only.	Day haulage only and ceased January 2017 with no further truck movements during the reporting period	Compliant
Transport (Mt Piper Haul Road) (SSD_5579 MOD 2 effective 15 Dec 2017)	Truck movements restricted to the day period only prior to longwall extraction at the Angus Place colliery. Max. 8 trucks operating during the evening period following the commencement of longwall extraction at Angus Place Colliery. Max. 2 trucks operating during the night period. No truck movements to occur in the night period during adverse meteorological conditions.	No haulage undertaken	No haulage undertaken	Compliant
Kerosene Vale Coal Stockpile Operations (SSD_5579 MOD 2 effective 15 Dec 2017)	During the day period only.	Stockpile management activities limited to haulage only all undertaken in day period	Stockpile management activities limited to haulage only all undertaken in day period	Compliant
Residual waste (SSD_5579 Mod 1 effective 19 Jun 2017)	Not receive or emplace more than 0.35 ML/day (annual average) or 0.43 ML/day (daily max.) of residual waste from the Springvale Water Treatment Plant	Nil activity	Nil activity	Compliant

4.1 Exploration

Nil exploration activities undertaken in the reporting period.

5. CHANGE MANAGEMENT

Table 5-1 – Change Management

Activity with potential to impact the environment	Change Management Processes	Action Undertaken
Exploration	Nil	Nil
Expansion/modification intensification	SSD_5579 MODS 1 & 2	Submission of MODS to DPE Mod 1 – Receipt of residuals from WTP Mod 2 – Noise criteria modification
Mine design method	Nil	Nil
Introduction of new equipment	Nil	Nil
Construction	Clean/dirty water diversion	Stage A (Lamberts Gully) Completed
Any other activity with potential to impact the environment	Nil	Nil

There is no material change planned for the WCS operation for the next reporting period.

6. PROJECT PERFORMANCE

Table 6-1 – Summary of Monitoring Requirements

Monitoring Type	Overview of Monitoring Requirements	Requirement of Approval/Management Plan	Annual Review Section
Air Quality and Greenhouse Gas	3 x depositional dust gauges (DDG) – Monthly 1 x Real Time (TEOM) – Continuous	Western Region Air Quality and Greenhouse Gas Management Plan Development Consent SSD_5579 EPL 3607	Section 6.4 and Appendix E
Biodiversity	Pending approval of Centennial Western Operations Regional Biodiversity Management Plan	Pending approval of Centennial Western Operations Regional Biodiversity Management Plan	Section 6.8
Heritage	As required	Western Region Historic Heritage Management Plan Western Region Aboriginal Cultural Heritage Management Plan	Section 6.9 and Appendix I
Meteorological Monitoring	1 x weather station - Continuous	Development Consent SSD_5579 EPL 3607	Section 6.6 and Appendix F
Noise	Monthly – Attended 1 x noise compass - Continuous	Western Region Noise Management Plan Development Consent SSD_5579 EPL 3607	Section 6.2 and Appendix D
Rehabilitation	Annual	Western Region Biodiversity Management Plan	Section 6.14 and Appendix N
Water	Surface Water Volume and Quality – Monthly during discharge Groundwater monitoring –monthly	Western Coal Services Water Management Plan Development Consent SSD_5579 EPL 3607	Section 6.7 and Appendix G

6.1 Acquisition on Request

During the reporting period, Acquisition Upon Request at WCS complied with Development Consent SSD_5579, Schedule 3, Condition 1.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant information is presented in Appendix B.

6.2 Additional Mitigation Upon Request

During the reporting period, Additional Mitigation Upon Request at WCS complied with Development Consent SSD_5579, Schedule 3, Condition 2.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant information is presented in Appendix B.

6.3 Noise

During the reporting period, noise at WCS was:

- Managed in accordance with the Western Region Noise Management Plan (WRNMP).
- Monitored in compliance with the WRNMP.
- Non-compliant with Development Consent SSD_5579, Schedule 3, Condition 3-9 as detailed in Appendix D and Appendix Q below.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant noise information is presented in Appendix D.

Performance against Environmental Assessment

The WCS Project Environmental Impact Statement stated the Project would meet the noise criteria of other Centennial Coal project approvals at the following locations:

- Wallerawang (Lidsdale Siding Upgrade Project PA 08_0223).
- Lidsdale and Wolgan Road (Angus Place PA06_0021).
- Springvale (Industrial Noise Policy).

Noise predictions showed that residual noise impacts above the INP project specific noise criteria would be likely at some Blackmans Flat receptors surrounding the Project site.

Trends for noise monitoring data over the life of the project continue to show exceedances above the noise criteria within the approval and the Western Coal Services Project Environmental Impact Study (EIS) assessment.

Table 6-2 below provides the existing noise limits and exceedances against Predicted Operational Noise Levels within the EIS Assessment.

Table 6-2 – Comparison of existing noise limits against modelled pre-project approval levels and 2017 exceedances

Location	Monitoring Site	Existing Day, Evening and Night LAeq (15min)	Existing Night LA1 (1min)	Predicted Operational Noise Levels	Exceedance range 2017 LAeq (15min)
B12	NM1	35-40	47	32-40	37-42
B13	NM1	36-41	50	34-42	37-42
B14	NM2	35-41	55	35-41	37-41
B15	NM3	35-36	45	<30-37	39-41
B16	NM4	35-36	45	<30-36	38-43
B17	-	42-44	45	42-44	-
W1	NM7	37-41	45	37	41-47
W2	-	35-36	45	31-32	-
L1	NM11	35-42	45	<30-36	-
L2	-	35-40	45	<30-40	-
WR1	NM5	36-41	57	-	-
WR2	-	35-38	48	-	-
S3	NM6	36-39	45	-	40-46
All other privately- owned residences	-	35	45	-	-

The following has been identified as the key potential items contributing to differences between operational noise generated and monitored, assessment criteria, and differences between the noise sources included in the noise model and their associated sound power levels.

- The overland conveyor sound power used in the EIS assessment report is up to 6 dB(A) lower than the post approval monitored sound power values recorded.
- A single sound power value for the overland conveyors was applied to project assessment modelling being used over the entire length of overland conveyor 1 and 2.
- Overland conveyor drive units (1 and 2), and the Wallerawang Power Station conveyor section and drive unit were not included in the assessment model. They are not listed in the equipment sound power table, nor appear present in the noise contour images with negligible deviation in contours.
- Revised Noise Impact assessment uses seven sound power values to represent the overland conveyors.

6.4 Blasting

No blasting was undertaken during the reporting period.

During the reporting period, blasting at WCS complied with Development Consent SSD_5579, Schedule 3, Condition 10 and 11.

6.5 Air Quality

During the reporting period, air quality at WCS was:

- Managed in accordance with the Western Region Air Quality and Greenhouse Gas Management Plan (WRAQGGMP).
- Monitored in compliance with the WRAQGGMP.
- Complied with Development Consent SSD_5579, Schedule 3, Condition 12-17 except for an exceedance of PM10 on 24 September 2017.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant air quality information is presented in Appendix E.

Performance against Environmental Assessment

The results of the Environmental Impact Statement showed that the proposed activities for the Project at Blackmans Flat and Lidsdale would not result in an exceedance of the air pollutant goals.

Table 6-3 below shows a comparison of 2017 dust data against the Environmental Impact Statement air pollutant goals. Data recorded for the reporting period demonstrates the goals have been met at all monitoring locations except for TEOM as discussed in Appendix E.

Table 6-3 – Comparison of 2017 dust data against modelled pre-project approval levels

Dust Monitor	Approval Criteria	Predicted cumulative range ²	Performance During Reporting Period
DG3	2 g/m ² /month Max Annual Average Increase	Not modelled	0.13 g/m ² /month
	4 g/m ² /month Total Annual Average	0.2 – 0.3	1.4 g/m ² /month
DG4	2 g/m ² /month Max Annual Average Increase	Not modelled	0.12 g/m ² /month
	4 g/m ² /month Total Annual Average	Not modelled	0.6 g/m ² /month
DG5	2 g/m ² /month Max Annual Average Increase	Not modelled	0.05 g/m ² /month
	4 g/m ² /month Total Annual Average	0.5 – 1.0	0.5 g/m ² /month
TEOM (PM10)	30 µg/m ³ Annual Average (Long Term PM10)	6.0 – 11.4 µg/m ³	11.4 µg/m ³
	50 µg/m ³ 24Hr Average (Short Term PM10)	25.9 – 92.6	62.8 µg/m ³ max result
TSP	90 µg/m ³ Annual Average	6.8 – 18.6	Calculated at 26.5 µg/m ³³
PM2.5	µg/m ³	0.9 – 1.5	Not measured

² Predicted annual average for Scenario 2a (EIS) – Cumulative assessment including operations at the Springvale Coal Services site, Angus Place Colliery, Springvale Coal Mine, operations, haulage at Neubecks, haulage of 4 Mtpa of coal from Angus Place Colliery to Mt Piper Power Station and use of the preferred Link Haul Road ()

³ At all surrounding sites a consistent TSP to PM10 ratio has been established using HVAS data over several annual cycles. This ratio is used to estimate the TSP concentration, based on measured PM10 concentrations. The ratio between TSP and PM10 concentrations has been calculated from long term monitoring data: Western Coal Services ratio = 0.43; Springvale ratio = 0.45; Angus Place ratio = 0.44; Clarence Colliery ratio = 0.40. For Lidsdale Siding, the most conservative ratio of 0.40 is used to calculate compliance with the TSP criteria from the PM10 data. The measured PM10 annual average would therefore be divided by 0.40 to estimate the annual average TSP concentration.

Note that the predicted cumulative range for deposited dust and PM10 relate to an annual average.

The observed range for this reporting period relates to monthly measurements for deposited dust and daily measurements for PM10 so the values are not directly comparable.

Current annual averages for PM10 and deposited dust are within or below the predicted ranges and remain compliant with limits in the project approval and EPL.

The worst case scenarios for two Wolgan Road residences showed that the 50 µg/m³ criterion for 24 hour average PM10 concentrations would be exceeded on two occasions each year due to haul road activity.

PM10 concentrations related to the haul road are not measured as the haul road has not been operational since approval of the project.

Table 6-4 compares 2017 performance against management and mitigation measures specified in the Environmental Impact Statement.

Table 6-4 – Performance against Environment Impact Statement Mitigation and Management Measures

Environmental Impact Statement Mitigation and Management Measures	Performance during Reporting Period
Enclosure of the existing and proposed Washery.	The existing Washery is enclosed. The proposed new Washery has not been constructed.
Enclosure of conveyor transfer points.	The conveyor transfer points are enclosed.
Loading of coal rejects from an enclosed bin.	Dust from coarse coal reject is managed through wetting of the material prior to transport to the REA. Fine coal reject is pumped as a slurry to the REA.
Majority of coal reclaimed from stockpiles via underground reclaim tunnel.	All coal reclaimed from stockpiles is via underground reclaim tunnels.
Three quarter enclosed conveyors.	Conveyors are three quarter enclosed.
Stockpile water sprays which are wind activated.	Water sprays have been installed at the transfer points.
New Link Haul Road to be fully sealed.	This item relates to the Link Haul Road which is not currently scheduled for construction.
Regular use of water carts on unsealed roads trafficked by heavy vehicles. This will include the surface of the proposed REA.	Water carts are utilised on unsealed roads onsite.
Installation of a tapered element oscillating microbalance (TEOM) continuous atmospheric dust monitoring unit within the Blackmans Flat residential area.	The TEOM was installed within the Blackmans Flat residential area in December 2015.

6.6 Meteorological Monitoring

During the reporting period, meteorological monitoring at WCS was:

- Monitored in compliance with the Approved Methods for Sampling of Air Pollutants in New South Wales guideline.
- Complied with Development Consent SSD_5579, Schedule 3, Condition 18.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant meteorological measurements are presented in Appendix F.

6.7 Soil and Water

During the reporting period, water quality at Western Coal Services was:

- Managed in accordance with the Western Coal Services Water Management Plan (WCSWMP).
- Monitored in compliance with the WCSWMP.
- Complied with Development Consent SSD_5579, Schedule 3, Condition 19-24.
- Complied with EPL 3607, Condition L2.4.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant surface water quality information is presented in Appendix G, relevant ground water information is presented in Appendix S.

Performance against Environmental Assessment

The Environmental Impact Statement identified that after mitigation measures had been implemented, the Project's impact on water quality would be further improved.

The improvements would be progressively implemented and monitored to verify that the anticipated improvements were realised.

Table 6-5 compares performance against management and mitigation measures specified in the Environmental Impact Statement.

Table 6-5 – Performance against Environmental Impact Statement Mitigation and Management Measures

Environmental Impact Statement Mitigation and Management Measures	Performance for Reporting Period
A single Water Management Plan will be prepared for the entire PAA and will include operation of the new infrastructure, water recycling system, surface and groundwater monitoring including Wangcol Creek mixing zone and a staged implementation of the separation of the Lamberts Gully drainage line as it passes through the Springvale Coal Services Site, as well as the localised changes associated with the recently approved Mt Piper Power Station Ash Placement Project.	The WCS Water Management Plan (WCSWMP) was updated to incorporate changes to site operations and the outcomes of the Project Approval Modification and was submitted to the DPE for review in the reporting period. The WCSWMP was developed in August 2014 and is compliant with all applicable development consent conditions, EIS commitments, Water Licensing and EPL requirements.
Separation of clean and dirty water at the Springvale Coal Services Site. The design will include the diversion of upstream catchments of Huon Gully around the new REA. The sub-catchment containing the existing A Pit REA (previously the Lambert Gully Open Cut) as well as the new REA will be diverted into the New Sediment Dam. This sub-catchment currently discharges to Huon Gully without treatment and therefore the proposed change will lead to improved water quality in Huon Gully. Following remediation of the new REA, this sub-catchment of Huon Gully will be restored. It is noted that Huon Gully does not currently discharge to Wangcol Creek, instead it is captured by Huon Dam which resides on Mt Piper Power Station land at the confluence of Huon Gully and Wangcol Creek. The recently approved Mt Piper Power Station Ash Placement Project also consists of surface water management works in the Huon Gully.	Stage A of Lamberts Gully Clean and dirty water design was completed in the period with Stage B design and construction commenced during the reporting period.
Construct a pollution control pond control runoff from the new REA. This structure will have a capacity of approximately 15 ML and will be located on the north-eastern corner of the REA. The dam will have a pipe connection to the existing Washery Dam, which is connected to Cooks Dam via a pipeline. This will enable treated stormwater from the new REA to be recycled back to the Washery via Cooks Dam. This dam is to be constructed once the current A Pit REA is completed but prior to the base of the new REA being completed.	This mitigation measure is no longer relevant as it has been superseded by the more recently approved REA design.

Environmental Impact Statement Mitigation and Management Measures	Performance for Reporting Period
Provision of a belt press filter system (or equivalent) to recover water from the tailings produced from the new Washery. This water recovery system will cover tailings produced from the existing Washery but will be installed as part of the construction of the new Washery.	The new Washery has not been constructed. This mitigation measure does not apply.
Apply for a separate EPL covering the entire PAA that includes LDP003 (Kerosene Vale Stockpile Area) and LDP006 and LDP007 (conveyor at Duncan Street, Lidsdale).	Discussions with regulatory groups were undertaken in the reporting period regarding EPL application for the WCS PAA.
Relocate the current LDP006 to the spillway of Cooks Dam and replace the existing LDP006 with a license monitoring point.	LDP006 as a licenced discharge point remains at the existing LDP006 location. Clean and dirty diversion works in Lamberts Gully (and the subsequent removal of clean water from discharge through LDP006) has superseded the requirement to relocate the discharge point to Cooks Dam spillway
Following completion of the Link Haul Road, complete the additional riparian planting for a 100 m section of Wangcol Creek downstream of the Link Haul Road crossing. The species selection and density is to be determined in consultation with the SCA and NOW.	This item is now covered under the Riparian Habitat and Catchment Improvement Plan (SSD_5579, Schedule 3, and Condition 27). This plan was submitted to the DPE in the reporting period.
Site specific trigger values based on ANZECC 2000 Guidelines will be developed for Wangcol Creek.	The site specific trigger values are included in the WCSWMP.
An erosion and sediment control strategy will be implemented as part of a CEMP. This strategy will incorporate specific conditions of the Project Approval, EIS commitments and requirements of the EPL.	The CEMP was developed in August 2015 and includes an erosion and sediment control strategy and now forms part of the WCSWMP.
Structures will be designed to minimise erosion and disruption to current flow regime. Regular inspection of erosion and sediment control measures and inflow/outflow points will be undertaken, particularly following storm events.	As per the CEMP and the WCSWMP, all structures have been designed to minimise erosion and disruption to current flow regime. Regular inspections are undertaken across the site.
Erosion and sediment controls will be implemented as per Managing Urban Stormwater: soils and construction (Landcom, 2004) during construction.	Erosion and sediment controls have been implemented as per Managing Urban Stormwater soils and construction.
Contaminated water will be contained on site and channelled towards the containment ponds.	An incident occurred during the reporting period. Coal fines were observed escaping the sump and transfer tower. See Appendix Q.
Surface water sampling and analysis will be undertaken prior to discharge in accordance with the EPL.	Monthly monitoring is undertaken in accordance with EPL 3607 and the WCSWMP.
A detailed site water management plan will be prepared prior to commissioning new infrastructure. This plan will be compliant with all applicable development consent conditions, EIS commitments, Water Licensing and EPL requirements.	The WCSWMP was developed in August 2014 and is compliant with all applicable development consent conditions, EIS commitments, Water Licensing and EPL requirements. The WCSWMP was updated to incorporate changes to site operations and the outcomes of the Project Approval Modification and was submitted to the DPE for review in the reporting period.
Provision of bank stability works at the crossing of Wangcol Creek.	This item is now covered under the Riparian Habitat and Catchment Improvement Plan (SSD_5579, Schedule 3, Condition 27).
Impediment of flows will be avoided through selection of an appropriate crossing type.	This item relates to the Link Haul Road which is not currently scheduled for construction.
Concentration or redirection of flow will be avoided on the outlet of crossing. Where this is not possible, appropriate scour protection measures will be provided.	This item relates to the Link Haul Road which is not currently scheduled for construction.
The need for access of heavy machinery to the bed of the waterways will be avoided with works being undertaken from the top of the banks where possible.	This item relates to the Link Haul Road which is not currently scheduled for construction.
The disturbance of surrounding banks by machinery or other construction works will be avoided.	This item relates to the Link Haul Road which is not currently scheduled for construction.
Vegetation clearance will be avoided where possible to protect soils from erosion. If clearance cannot be avoided, the area of	Minimal vegetation clearance was undertaken during the reporting period and completed in accordance with Centennial Ground

Environmental Impact Statement Mitigation and Management Measures	Performance for Reporting Period
vegetation cleared at any one time should be minimised.	Disturbance Permit Management System.
Disturbed areas will be stabilised and vegetation reinstated.	Disturbed areas are stabilised and vegetation reinstated in accordance with WCS Mining operations Plan (MOP).
Quarterly monitoring of water levels from the network of monitoring bores following the completion of construction.	Monthly monitoring of water levels from the network of groundwater monitoring bores was undertaken during the reporting period. Automation of groundwater bores to across the SCSS to provide an understanding of surface water and groundwater interactions was completed in the reporting period.
Six monthly sampling of monitoring bores for field analysis of pH, EC and temperature and laboratory analysis on major ions, pH, EC, TDS, dissolved arsenic, cadmium, chromium, copper, iron, lead, manganese, nickel and zinc.	Monthly sampling of monitoring bores for field analysis of pH, EC and temperature and laboratory analysis on major ions, pH, EC, TDS, dissolved arsenic, cadmium, chromium, copper, iron, lead, manganese, nickel and zinc was undertaken during the reporting period.

6.8 Biodiversity

During the reporting period, biodiversity at WCS:

- Undertaken in accordance with Development Consent SSD_5579, Schedule 3, Condition 25-30.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant biodiversity information is presented in Appendix H.

Performance against Environmental Assessment

During the reporting period, the following recommendations discussed in the Environmental Impact Statement were complied with:

- Minimal clearing was undertaken.
- Appropriate measures were implemented to minimise erosion and sedimentation impacts upon waterways and associated vegetation. Regular monitoring was undertaken to ensure their functionality and condition.
- Weed monitoring was undertaken and potential weed infestations were appropriately managed to ensure surrounding communities were protected from invasive species.
- Aquatic ecology monitoring was undertaken.

6.9 Heritage

During the reporting period, heritage at WCS was:

- Managed in accordance with the Western Region Aboriginal Cultural Heritage Management Plan (WRACHMP).
- Monitored in compliance with the WRACHMP.
- Complied with Development Consent SSD_5579, Schedule 3, Condition 31 and 32.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant heritage information is presented in Appendix I.

Performance against Environmental Assessment

During the reporting period, the following recommendations discussed in the Environmental Impact Statement were complied with:

- Managed under a Cultural Heritage Management Plan.
- Protective buffer boundaries established for AHIMS sites.
- Personnel made aware of their statutory obligations for heritage under the NSW NPW Act (1974) and the NSW Heritage Act (1977).
- Works to cease if further Aboriginal sites are identified and assessment undertaken.
- Works to cease and NSW Police contacted immediately in the event that skeletal remains are identified.

6.10 Transport

During the reporting period, transport at WCS complied with Development Consent SSD_5579, Schedule 3, Condition 33-39.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant transport information is presented in Section 4 and Appendix G.

Performance against Environmental Assessment

The recommendations in the Environmental Impact Statement refer to the construction of the Link Haul Road and the upgrade of the Springvale Coal Services intersection line marking.

- The line marking has been completed.
- The Link Haul Road is not currently scheduled for construction.
- No coal was transported on the public road network during the reporting period.

6.11 Visual

During the reporting period, visual impacts at WCS complied with Development Consent SSD_5579, Schedule 3, Condition 40.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant visual information is presented in Appendix J.

Performance against Environmental Assessment

The following visual impact management and mitigation measures outlined in the Environmental Impact Statement were complied with during the reporting period:

- Non reflective and neutral toned materials will be utilised wherever possible to reduce visual impacts where views to the site and infrastructure are available.
- Existing best practice will ensure lighting is managed to prevent light spill and intrusion into the receiving environment.
- Neutral tones will be used for the bridge and ramping component of the Link Haul Road.
- Battered slopes to the Link Haul Road bridge will be planted with a low-maintenance hardy ground cover flowering species that may provide some visual interest.

- Minimise removal of existing vegetation surrounding the Washery wherever possible.
- Vegetation, trees and any natural topography that exists adjacent to the Link Haul Road bridge crossing should be maintained to assist with obstructing views to the haul route and bridge approaches.

6.12 Bushfire Management

During the reporting period, bushfire management at WCS complied with Development Consent SSD_5579, Schedule 3, Condition 41.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant bushfire management information is presented in Appendix L.

Performance against Environmental Assessment

During the reporting period, mitigation measures outlined in the Environmental Impact Statement were complied with. These include:

- Adherence to the existing Bushfire Management Plan.
- Preparation of emergency protocols.
- Ensuring a water source is available for firefighting.

6.13 Waste

During the reporting period, waste at WCS complied with Development Consent SSD_5579, Schedule 3, Condition 42.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant waste information is presented in Appendix M.

Performance against Environmental Assessment

The waste management strategies for WCS include the principles of avoidance, reduction, reuse, recycle and disposal.

The following long term waste management initiatives outlined in the Environmental Impact Statement were complied with during the reporting period:

- Monitoring performance and reporting.
- Setting annual targets for waste reduction initiatives.
- Ongoing review waste generating processes.
- Ongoing review waste management processes.
- Assignment of responsibilities.
- Provision of effective and appropriately located waste and recycling facilities.

6.14 Rehabilitation

During the reporting period, rehabilitation at WCS was:

- Managed in accordance with the WCS MOP.
- Monitored in compliance with the WCS MOP
- Complied with Development Consent SSD_5579, Schedule 3, Condition 43-46.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant rehabilitation information is presented in Appendix N.

Performance against Environmental Assessment

The Environmental Impact Statement identified that rehabilitation is to be undertaken following the decommissioning of the Reject Emplacement Area (REA).

The REA is currently in operation.

Rehabilitation requirements are addressed in the WCS MOP.

6.15 Community

During the reporting period, community and social impacts at WCS were:

- Managed in accordance with the Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects.
- Monitored in compliance with the Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects.
- Complied with Development Consent SSD_5579, Schedule 5, Condition 6.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant community information is presented in Appendix O.

Performance against Environmental Assessment

The social impacts discussed in the Environmental Impact Statement include noise, dust and visual impacts.

These are addressed in their respective sections in this report.

6.16 Independent Audit

No audits were undertaken during the reporting period.

Refer to Appendix P for the updates of actions from the 2015 IEA.

6.17 Incidents and Non-Compliances

Refer to Appendix Q for a summary of incidents and non-compliances during the reporting period.

6.18 AEMR Reporting

The 2017 AEMR report for WCS Mining Titles is provided in Appendix R below.

7. ACTIONS UNDERTAKEN DURING REPORTING PERIOD

Table 7-1 below provides a summary of actions from the 2016 Annual Review, the action taken and where it is addressed in this Annual Review.

Table 7-1 – Actions Undertaken During Reporting Period

Condition	Requested By	Action Required from 2016 Annual Review	Action Undertaken During Reporting Period
Noise	DPE	<p>DPE Review of the 2016 WCS Annual Review 1st submission identified the following items to be addressed.</p> <ul style="list-style-type: none"> Include noise monitoring data trends for the period over which monitoring has been conducted. <p>This item was addressed in the 2nd submission that was approved by DPE and has been completed as part of the 2017 Annual Review where applicable.</p>	<ul style="list-style-type: none"> Managed in accordance with the Western Region Noise Management Plan WRNMP (2016). A Penalty Notice was issued by DPE to WCS for noise exceedances and failure to comply with SSD_5570 Schedule 3 Condition 7 on 31/01/2017 from July 2014 to December 2016 on 30/01/2017. A Draft Order was issued by DPE to WCS for noise exceedances and failure to comply with SSD_5570 Schedule 3 Condition 7 on 31/01/2017. WCS provided the DPE a response to the Draft Orders and Penalty Notice on 17/02/2017. This response included ; <ol style="list-style-type: none"> A request that the Draft Order was not issued. Outline of noise mitigation work carried out to date. A Work Plan setting out proposed activities for ensuring that its operations WCS reduce their noise and achieve compliance with consented noise limits. A communications strategy. A commitment to provide regular updates of progress on noise mitigation works. Responses, actions, and reporting in accordance with the WCS works plan were conducted throughout 2017. Numerous consultations, meetings, and discussions were facilitated between WCS representatives the DPE and other stakeholders in 2017 around noise management, MOD 2, and revised noise impact assessment works. Specific items that were completed were reported in Works Plan quarterly updates provided to the DPE including the following items completed specific to WCS: <ol style="list-style-type: none"> MOD 2 of SSD_5579 was submitted and approved to for changes to the applicability of noise criteria from noise generated by the operation of the overland coal conveyor, Wallerawang haul road or Mount Piper haul road, and for requirements to prepare and implement a Noise Reduction Study for the overland coal conveyor and SCSS. Additional installation of low noise idlers across sections of the Overland Conveyor system in the Lidsdale area. Noise monitoring was undertaken in accordance with the WRNMP (2016) and

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Condition	Requested By	Action Required from 2016 Annual Review	Action Undertaken During Reporting Period
			<p>stated commitments from the Works Plan in 2017.</p> <ul style="list-style-type: none"> The WRNMP (2017) submission was not approved by the DPE in the period for the WCS appendix (F).
Blasting		Nil	<ul style="list-style-type: none"> Operations managed in accordance with Development Consent SSD_5579, Schedule 3, Condition 10 and 11.
Air Quality		<p>DPE Review of the 2016 WCS Annual Review 1st submission identified the following items to be addressed.</p> <ul style="list-style-type: none"> Include PM10 data trends since data has been recorded. Provide information from the fine particle analysis of dust deposition gauge samples to better explain high levels. <p>Both items were addressed in the 2nd submission that was approved by DPE and have been completed as part of the 2017 Annual Review where applicable.</p>	<ul style="list-style-type: none"> Managed in accordance with the Western Region Air Quality and Greenhouse Gas Management Plan (WRAQGGM). Monitored in compliance with the WRAQGGM. Operations undertaken in accordance with Development Consent SSD_5579, Schedule 3, Condition 12-17. WCS received a Show Cause Notice from DPE on 16/06/2017 where DPE had formed the view that there are reasonable grounds to believe that WCS had failed to comply with Conditions 16 and 17 of Schedule 3 of the SSD_5579 made from observations where: <ol style="list-style-type: none"> Plumes of dust were being generated by an activity on site for at least 20 minutes. Dust observed being generated on the site access road when entering the site. WCS provided a response to DPE on 07/07/2017 detailing why the Department should not take formal action in relation to the above alleged non-compliance. No further action was taken by DPE in 2017.
Meteorological Monitoring		Nil	<ul style="list-style-type: none"> Meteorological monitoring in compliance with Development Consent SSD_5579, Schedule 3, Condition 18.
Soil and Water	DPE	<p>DPE Review of the 2016 WCS Annual Review 1st submission identified the following items to be addressed.</p> <ul style="list-style-type: none"> Confirm that there are no water licences for Western Coal Services. If there are, include Table 7 in accordance with the Post-approval requirements for State significant mining developments - Annual Review Guideline dated October 2015. Verify whether one or two pH non-compliances were recorded during the reporting period. Figure 17 and associated text show that there was one exceedance, however the text in Section 11 states that there were exceedances on both 11/02/2016 and 02/03/2016. <p>Both items were addressed in the 2nd submission that was approved by DPE and have been completed as part of the 2017 Annual Review where applicable.</p> <p>DPE Review of the 2016 WCS Annual Review 1st submission identified the following item to be addressed additionally to revision of the review:</p> <ul style="list-style-type: none"> Information is provided on the implementation of the improvement of the riparian habitat of Wangcol Creek in accordance with Condition 27 of Schedule 	<ul style="list-style-type: none"> Managed in accordance with the Centennial Western Coal Services Water Management Plan (WCSWMP). Monitored in compliance with the WCSWMP. Operations undertaken in accordance with Development Consent SSD_5579, Schedule 3, Condition 19-24. WCS received a Show Cause Notice from DPE on 16/06/2017 where DPE had formed the view that there are reasonable grounds to believe that WCS had failed to comply with Schedule 3, Condition 23 of the SSD_5579 made from observations at Transfer Tower 03 (TT03) where: <ol style="list-style-type: none"> Coal fines had been transported by water flow and had deposited in areas off site. Coir logs and sediment fencing had been installed along the fence line, however erosion channels had formed through/under the erosion controls allowing the transport of coal fines off site. A rock dam had been constructed outside of the boundary of the site to capture coal fines, however this was full and had overflowed, and

Condition	Requested By	Action Required from 2016 Annual Review	Action Undertaken During Reporting Period
		<p>3.</p> <p>Information in relation to this items was addressed in the 2nd submission that was approved by DPE, and in correspondence sent on 30/06/2017, and have been completed as part of the 2017 Annual Review and via submission of the WCS Riparian Habitat and Catchment Improvement Plan as applicable.</p>	<p>allowing overflow of coal fines.</p> <p>4. A gully had formed along overland conveyor 3 that was directed towards the open gate, allowing coal fines to be transported off site with no controls.</p> <p>5. A bund had been installed under overland conveyor 3 that diverted water flows under the conveyor away from the sediment trap near the transfer tower allowing coal fines to be transported offsite.</p> <p>6. There were no erosion and sediment controls along overland conveyor 4 preventing off site movement of coal fines.</p> <ul style="list-style-type: none"> WCS provided a response to DPE on 07/07/2017 in relation to the above non-compliance. WCS received 3 x Penalty Notices in relation to this Non Compliance: <ol style="list-style-type: none"> Issued on the 18/08/2017 by the NSW Department of Planning and Environment (DPE) for Failure to comply with Schedule 3 Condition 23 of SSD-5579. Issued on the 13/10/2017 by the NSW Department of Planning and Environment (DPE) for Breaching Condition Authorisation of ML1352. Issued on the 13/10/2017 by the NSW Department of Planning and Environment (DPE) for Breaching Condition Authorisation of ML1352. WCS entered into a voluntary undertaking with the DPE on the 31/10/2017 to implement actions and options to prevent future transport of coal fines off site in the vicinity of TT03. WCS provided various correspondence and works plan updates as part of the requirements of this Voluntary Undertaking in 2017, and progressed and completed numerous items in relation to identified actions. Stage A of Lamberts Gully Clean and dirty water design was completed in the period with Stage B design and construction commenced during the reporting period. The WCSWMP was updated to incorporate changes to site operations and the outcomes of the Project Approval Modification (MOD 1) and was submitted to the DPE for review in the reporting period. The WCSWMP is compliant with all applicable development consent conditions, EIS commitments, Water Licensing and EPL requirements. Following approval of the WCSMOD 1, WCS developed a Riparian Habitat and Catchment Improvement Plan in accordance with the requirements of Condition 27 Schedule 3 of the SSD 5579 conditions of consent. In accordance with

Condition	Requested By	Action Required from 2016 Annual Review	Action Undertaken During Reporting Period
			<p>the requirements of this condition of consent, a copy of the management plan was provide to DPE on the 31/10/2017.</p> <ul style="list-style-type: none"> DPE approval for the Riparian Habitat and Catchment Improvement Plan was not received in 2017.
Biodiversity	<ul style="list-style-type: none"> DPE EPA 		<ul style="list-style-type: none"> Operations undertaken in accordance with Development Consent SSD_5579, Schedule 3, Condition 25-30. The Western Biodiversity Management Plan was submitted to DPE in 2016 with approval (and subsequent implementation) pending. Vegetation at WCS was cleared in accordance with the SCSS Land Disturbance Permit Management System. WCS (and other listed Centennial Sites) received a Warning Letter from DPE on 27/06/2017 for failing to secure arrangements for biodiversity offsets by 31/12/2016, or gaining an extension to do so in accordance with Schedule 3, Condition 25 of SSD-5579. WCS (and other listed Centennial sites) entered into a Voluntary Undertaking with DPE on 14/07/2017 to implement a schedule of works to secure Biodiversity Offset Areas in accordance with Schedule 3, Condition 25 of SSD-5579. Centennial progressed the Western Region Biodiversity Offset Strategy during 2017, with OEH and DPE in accordance with this Voluntary Undertaking. A revised Western Region Biodiversity Offset Strategy was submitted to OEH in December 2017 for their endorsement. Land management actions are proposed to commence on land within the Biodiversity Offset Strategy on approval. The Centennial Western Operations Regional Biodiversity Management Plan submitted to DPE in 2016 was not approved in 2017.
Heritage	N/A	Nil	<ul style="list-style-type: none"> Managed in accordance with the Western Region Aboriginal Cultural Heritage Management Plan (WRACHMP). Monitored in compliance with the WRACHMP. Operations undertaken in compliance with Development Consent SSD_5579, Schedule 3, Condition 31-32.
Transport	N/A	Nil	<ul style="list-style-type: none"> Operations undertaken in compliance with Development Consent SSD_5579, Schedule 3, Condition 33-39.
Visual	N/A	Nil	<ul style="list-style-type: none"> Operations undertaken in compliance with Development Consent SSD_5579, Schedule 3, Condition 40.
Bushfire Management	N/A	Nil	<ul style="list-style-type: none"> Operations undertaken in compliance with Development Consent SSD_5579, Schedule 3, Condition 41.
Waste	Nil	Nil	<ul style="list-style-type: none"> Operations undertaken in compliance with Development Consent SSD_5579, Schedule 3, Condition 42.

Condition	Requested By	Action Required from 2016 Annual Review	Action Undertaken During Reporting Period
Rehabilitation	DPE	<p>DPE Review of the 2016 WCS Annual Review 1st submission identified the following items to be addressed.</p> <ul style="list-style-type: none"> • Include a specific plan for the rehabilitation monitoring recommendations on page 22, including timeframes for implementation. • Include a plan that shows the status of rehabilitation areas. <p>Both items were addressed in the 2nd submission that was approved by DPE and have been completed as part of the 2017 Annual Review where applicable.</p> <p>DPE Review of the 2016 WCS Annual Review 1st submission identified the following item to be addressed additionally to revision of the review:</p> <ul style="list-style-type: none"> • Information is provided on the implementation of the additional rehabilitation initiatives for Lamberts Gully Creek catchment in accordance with Condition 26 of Schedule 3 <p>Information in relation to this item was addressed in the 2nd submission that was approved by DPE, and in correspondence sent on 30/06/2017, and have been completed as part of the 2017 Annual Review and WCS MOP revision where applicable.</p>	<ul style="list-style-type: none"> • Managed in accordance with the WCSMOP • Operations undertaken in compliance with Development Consent SSD_5579, Schedule 3, Condition 43-46. • A WCS REA Capping Strategy was submitted to DRG on 28/07/2017 in accordance with a requirement of the WCS MOP 2015 approval. • Feedback from the DRG was received on WCS REA Capping Strategy 06/09/2017 that identified additional information to be included in a further review of the strategy. Changes and additional information requested were addressed in a revised strategy submitted as part of the WCS MOP 2017 submission (refer below). • WCS submitted a revised MOP on 29/11/2017 to DRG that included; <ol style="list-style-type: none"> 1. All activities undertaken within the WCS SSD-5579 PAA. 2. A revised Rehabilitation Cost Estimate (RCE) for activities undertaken and proposed for WCS that amalgamated and replaced the previous RCE's for Lambert's Gully and Western Main sites. 3. Information related to the Reject Emplacement Area Capping Strategy to be determined via the implementation of capping and rehabilitation trials. <p>A range of activities were completed in the WCS MOP revision process including;</p> <ol style="list-style-type: none"> 1. Reconciliation of all domain disturbance footprints. 2. Reconciliation of closure requirements for all domains. 3. Review and reassessment of all rehabilitation areas and their current status. 4. Revision of the Reject Emplacement Area Capping Strategy. 5. Revision of proposed future activities within the proposed MOP period. 6. Review and formation of a rehabilitation capping trial to validate and inform future Reject Emplacement Area Capping requirements. 7. Revision of proposed rehabilitation monitoring processes. 8. Geotechnical studies of the strategy and sealing options for the proposed Lithgow City Council landfill. 9. Revision and consolidation of the RCE as detailed above. <p><i>*Approval for the WCS MOP was received in 2018.</i></p>
Community	DPE	<p>DPE Review of the 2016 WCS Annual Review 1st submission identified the following items to be addressed.</p> <ul style="list-style-type: none"> • Include a graph and table showing 	<ul style="list-style-type: none"> • Managed in accordance with the <i>Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects.</i>

WESTERN COAL SERVICES ANNUAL REVIEW FOR 2017

Condition	Requested By	Action Required from 2016 Annual Review	Action Undertaken During Reporting Period
		<p>historical complaints trends.</p> <ul style="list-style-type: none"> Correct the reference to three Community Consultative Committee meetings in Section 9 (it is understood that meetings were held in April and October 2016 only). <p>Both items were addressed in the 2nd submission that was approved by DPE and have been completed as part of the 2017 Annual Review where applicable.</p>	<ul style="list-style-type: none"> Monitored in compliance with the <i>Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects</i>. Operations undertaken in compliance with Development Consent SSD_5579, Schedule 5, Condition 6. No complaints were received relating to operations at Western Coal Services during the reporting period. A community information line is available for Western Coal Services to receive calls from the local community. Western Coal Service's community information line (6355 9500) operates 24 hours a day, 7 days a week. Community Consultative Committee meeting held in April and October and an Extraordinary Meeting held in August 2017. Various meetings and site inspections with regulatory groups and stakeholders were undertaken during the period across a wide range of interface issues.
Independent Audit	DPE	<p>DPE Review of the 2016 WCS Annual Review 1st submission identified the following items to be addressed additionally to revision of the review.</p> <p><i>In accordance with Condition 11 of Schedule 5, the following documents are to be uploaded to the website before 30/06/2017:</i></p> <ul style="list-style-type: none"> Response to recommendations from Independent Environmental Audit. <p>Uploading of the document was completed before 30/06/2017.</p>	<ul style="list-style-type: none"> No IEA was undertaken during the reporting period. Progression of actions identified for completion from previous audit.
Miscellaneous	DPE	<p>DPE Review of the 2016 WCS Annual Review 1st submission identified the following items to be addressed.</p> <ul style="list-style-type: none"> Update Table 3 to remove references to non-compliances from the 2015 reporting period. Include Plan A1.1 that has been reference in Plan 1A. Increase the size of the font on the labels in the Environmental Monitoring Plan as they are not readable. Include a plan of Kerosene Vale, including applicable environmental monitoring locations, rehabilitation status and mining lease boundaries Breakdown the data and limits reported in Table 8 to the following categories: <ol style="list-style-type: none"> Receipt of ROM Coal (9.5 MT) Processing of ROM Coal (7 MT) Transport of product coal to Lidsdale Siding (6.3 MT) Transport of product coal to other parties. Clarify that the coarse reject and fine reject are co-disposed and if so, why the same figures are reported for both categories. This is potentially double 	N/A

Condition	Requested By	Action Required from 2016 Annual Review	Action Undertaken During Reporting Period
		<p>accounting.</p> <ul style="list-style-type: none"> Revise references throughout the document to an Official Caution being issued to WCS for noise exceedances. A Penalty Notice was issued. <p>All items were addressed in the 2nd submission that was approved by DPE and have been completed as part of the 2017 Annual Review where applicable.</p> <p>DPE Review of the 2016 WCS Annual Review 1st submission identified the following items to be addressed additionally to revision of the review.</p> <p><i>In accordance with Condition 11 of Schedule 5, the following documents are to be uploaded to the website before 30/06/2017:</i></p> <ul style="list-style-type: none"> Monitoring report for February 2017 <p>Uploading of the document was completed before 30/06/2017.</p>	

8. PROPOSED ACTIONS FOR NEXT REPORTING PERIOD

Table 8-1 – Proposed Actions for Next Reporting Period

Condition	Proposed Action
Noise	<ul style="list-style-type: none"> Conduct operations in accordance with the Western Region Noise Management Plan (WRNMP). Conduct operations and activities in compliance with Development Consent SSD_5579, Schedule 3, Condition 3-9.
Blasting	<ul style="list-style-type: none"> Conduct operations in accordance with Development Consent SSD_5579, Schedule 3, Condition 10 and 11.
Air Quality	<ul style="list-style-type: none"> Conduct operations and activities in accordance with the Western Region Air Quality and Greenhouse Gas Management Plan (WRAQGGMP). Conduct operations in compliance with Development Consent SSD_5579, Schedule 3, Condition 12-17.
Meteorological Monitoring	<ul style="list-style-type: none"> Conduct meteorological monitoring in compliance with Development Consent SSD_5579, Schedule 3, Condition 18..
Soil and Water	<ul style="list-style-type: none"> Conduct operations and activities in accordance with the WWCS WMP Undertake operations in compliance with Development Consent SSD_5579, Schedule 3, Condition 19-24.
Biodiversity	<ul style="list-style-type: none"> Conduct operational activities in accordance with the WCS MOP Conduct operational activities in compliance with Development Consent SSD_5579, Schedule 3, Condition 25-30.
Heritage	<ul style="list-style-type: none"> Conduct operations in accordance with the Western Region Aboriginal Cultural Heritage Management Plan (WRACHMP). Conduct operational activities in compliance with Development Consent SSD_5579, Schedule 3, Condition 31-32.
Transport	<ul style="list-style-type: none"> Conduct operations in compliance with Development Consent SSD_5579, Schedule 3, Condition 33-39.
Visual	<ul style="list-style-type: none"> Conduct operational activities in compliance with Development Consent SSD_5579, Schedule 3, Condition 40.
Bushfire Management	<ul style="list-style-type: none"> Conduct operational activities in compliance with Development Consent SSD_5579, Schedule 3, Condition 41.

Condition	Proposed Action
Waste	<ul style="list-style-type: none"> • Conduct operational activities in compliance with Development Consent SSD_5579, Schedule 3, Condition 42.
Rehabilitation	<ul style="list-style-type: none"> • Conduct operational activities in accordance with the WCS MOP • Conduct operational activities in compliance with Development Consent SSD_5579, Schedule 3, Condition 43-46.
Community	<ul style="list-style-type: none"> • Conduct activities in accordance with the <i>Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects</i>. • Conduct operational activities in compliance with Development Consent SSD_5579, Schedule 5, Condition 6. • Maintain the community information line for WCS to receive calls from the local community..
Independent Audit	<ul style="list-style-type: none"> • Progression of actions identified for completion from previous audit.

Activities proposed for 2018 are also proposed to include all management and monitoring works as identified in existing:

- Voluntary undertakings;
- Management Plans submitted that are yet to be approved (on approval);
- Management plans that are amended in the period (on approval);
- Yet to be identified and documented actions and initiatives (where approval is in place), and;
- EIS commitments identified for completion within the period.

Appendices

Appendix A – Western Coal Services Environmental Monitoring Sites



Lithgow Locality

LEGEND:

- Surface Water Monitoring
- Ground Water Monitoring
- Dust Monitoring Stations
- Regional Aquatic Monitoring

- SCSS Project Development Area
- Development Consent OL Conveyor
- AWS, Noise Compass, TEOM

NOTES:

DRAWN:	Brett Haddon	DATE:	18 May 2017
PLAN No:	SVY04386	INFORMATION SUPPLIED BY:	
COMPUTER PATH:	N:\Z_Western Coal Services\Plans\SCSS Monitoring Locations.dwg		
SCALE:	AS SHOWN		
		A3H Sheet 1 of 1	

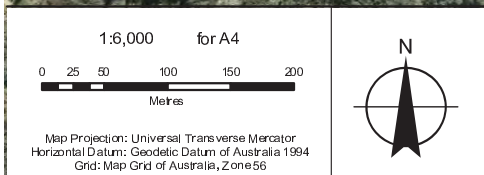
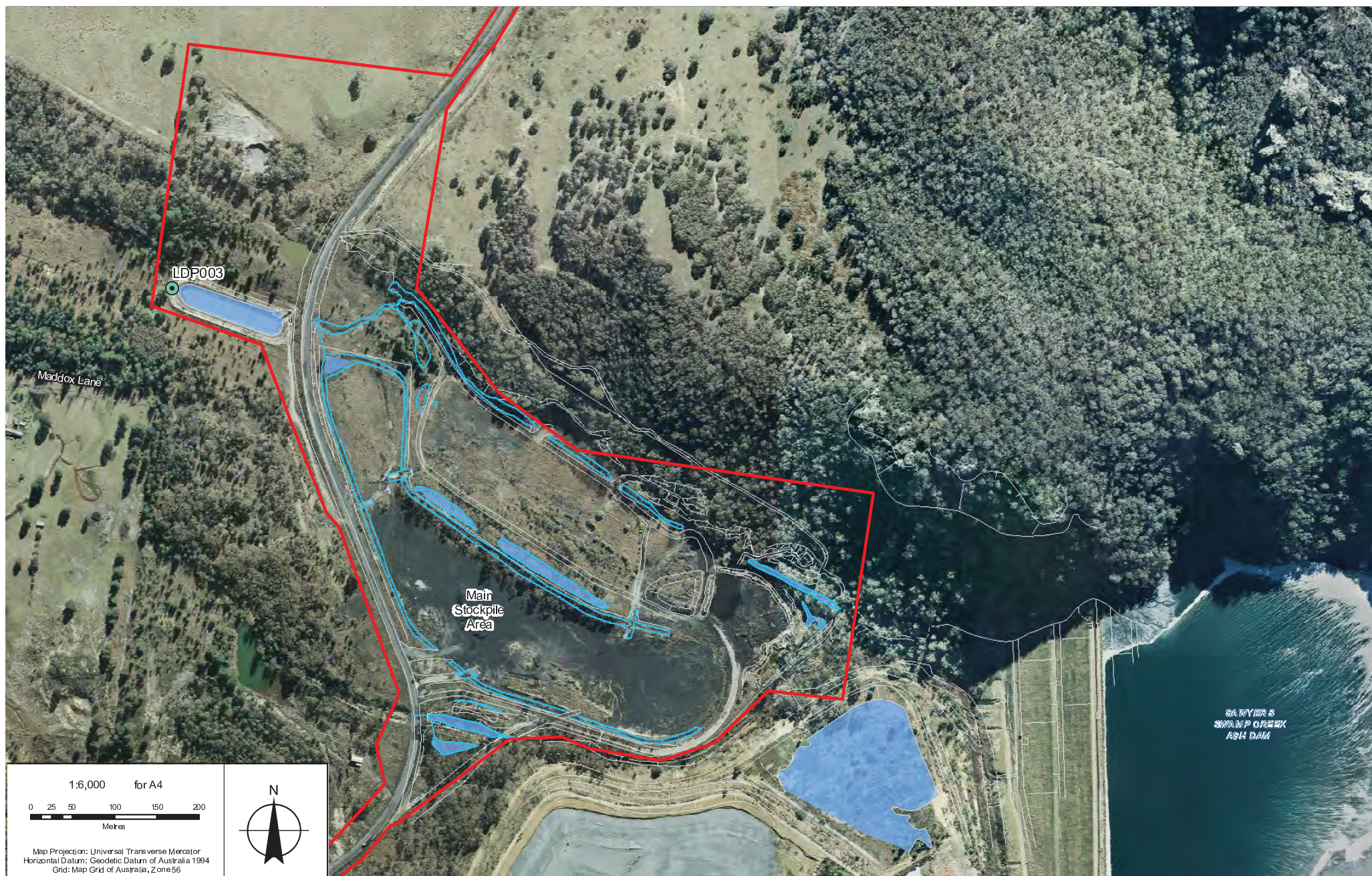
SPRINGVALE MINE

SCSS
Environmental Monitoring
Water and Air Quality



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

N:\Z_Western Coal Services\Plans\SCSS Monitoring Locations.dwg



LEGEND Site boundary Surface water monitoring location Survey (Infrastructure) Drain Settling Ponds	<small>© 2017. Whilst every care has been taken to prepare this map, GHD and Geoscience Australia make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.</small>		LOCATION WCS	<div>Western Coal Services</div> <div>Kerosene Vale Stockpile Area</div>		<div>DATE 23/09/2017</div> <div>Figure 5-2</div>
	SEAM Lithgow					
	DRAWN GHD					
	CHECKED LH					
	APPROVED TD					
SCALE Refer to scalebar	WCS Lithgow GHD LH TD Refer to scalebar					

Appendix B – Acquisition on Request Information

In Q4 2017 Acquisition request for B4 was received.

Acquisition process commenced in the period.

In lisated in SSD-5579 Schedule 3. Condition 1, B4 is located in Blackmans Flat.

The property address is 8-10 Castelreagh Highway Blackmans Flat NSW 2790 and proximity to the SCSS entry is illustrated below.



Appendix C – Additional Mitigation Upon Request

No activity undertaken in period.

Appendix D – Noise Information

Noise criteria were recorded as exceeding noise receiver locations as detailed in Table 8-2 and Table 8-3 below from attended noise monitoring results undertaken during 2017.

Attended noise monitoring measure compliance against $L_{Aeq,15min}$ dB, $L_{A1,1min}$ dB and Low frequency noise criteria (L_{Aeq}).

Table 8-2 – Noise Exceedances – $L_{Aeq,15min}$ dB

Location	Start Date and Time	Period	Criterion dB	$L_{Aeq,15min}$ dB	Exceedance dB	Cause	DPE Notification
NM7	16/01/2017 23:57	Night	41	47	6	Overland conveyor	31/01/2017
NM6	17/01/2017 0:17	Night	39	40	1	Overland conveyor	31/01/2017
NM7	15/02/2017 21:25	Evening	37	46	9	Overland conveyor	03/03/2017
NM7	15/02/2017 23:55	Night	41	44	3	Overland conveyor	03/03/2017
NM6	16/02/2017 0:15	Night	39	40	1	Overland conveyor	03/03/2017
NM7	04/05/2017 12:24	Day	37	41	4	Overland conveyor	16/05/2017
NM7	04/05/2017 21:07	Evening	37	42	5	Overland conveyor	16/05/2017
NM4	13/06/2017 23:00	Night	36	38	2	Overland conveyor	26/06/2017
NM6	13/06/2017 16:50	Day	36	40	4	Overland conveyor	26/06/2017
NM6	13/06/2017 20:14	Evening	36	42	6	Overland conveyor	26/06/2017
NM6	14/06/2017 00:17	Night	39	44	5	Overland conveyor	26/06/2017
NM7	13/06/2017 17:33	Day	37	41	4	Overland conveyor	26/06/2017
NM7	13/06/2017 18:01	Evening	37	41	4	Overland conveyor	26/06/2017
NM6	26/07/2017 21:07	Evening	36	41	5	Overland conveyor belts	10/08/2017
NM7	26/07/2017 21:27	Evening	37	42	5	Overland conveyor belts	10/08/2017
NM7	27/07/2017 17:05	Day	37	41	4	Overland conveyor belts	10/08/2017
NM1	09/08/2017 19:28	Evening	35	41	6	CHPP continuum	22/08/2017
NM1	09/08/2017 22:42	Night	35	42	7	CHPP continuum	22/08/2017
NM2	09/08/2017 19:46	Evening	35	39	4	CHPP continuum and overland conveyor belts	22/08/2017
NM2	09/08/2017 23:00	Night	35	41	6	CHPP continuum	22/08/2017
NM3	09/08/2017 20:05	Evening	35	41	6	CHPP continuum and overland conveyor belts	22/08/2017
NM3	09/08/2017 23:18	Night	35	41	6	CHPP continuum and overland conveyor belts	22/08/2017
NM4	09/08/2017 19:08	Evening	35	39	4	CHPP continuum and overland conveyor belts	22/08/2017
NM4	09/08/2017 22:22	Night	36	43	7	CHPP continuum and overland conveyor belts	22/08/2017
NM6	09/08/2017 16:47	Day	36	44	8	Overland conveyor belts	22/08/2017
NM6	09/08/2017 21:06	Evening	36	45	9	Overland conveyor belts	22/08/2017
NM6	10/08/2017 00:19	Night	39	43	4	Overland conveyor belts	22/08/2017
NM7	09/08/2017 18:47	Evening	37	44	7	Overland conveyor belts	22/08/2017
NM7	09/08/2017 22:01	Night	41	43	2	Overland conveyor belts	22/08/2017
NM1	11/09/2017 22:00	Night	35	40	5	Overland conveyor belts	26/09/2017
NM2	11/09/2017 22:20	Night	35	37	2	Overland conveyor belts	26/09/2017

Location	Start Date and Time	Period	Criterion dB	L _{Aeq,15min} dB	Exceedance dB	Cause	DPE Notification
NM6	11/09/2017 20:40	Evening	36	46	10	Overland conveyor belts	26/09/2017
NM7	11/09/2017 21:03	Evening	37	42	5	Overland conveyor belts	26/09/2017
NM7	11/09/2017 22:00	Night	41	43	2	Overland conveyor belts	26/09/2017
NM6	12/09/2017 00:49	Night	39	45	6	Overland conveyor belts	26/09/2017
NM3	12/09/2017 08:17	Day	36	39	3	Overland conveyor belts	26/09/2017
NM6	17/10/2017 15:54	Day	36	42	6	Overland conveyor belts	03/11/17
NM7	17/10/2017 17:15	Day	37	41	4	Overland conveyor belts	03/11/17
NM1	12/12/2017 19:56	Evening	35	37	2	CHPP continuum	04/01/18
NM6	12/12/2017 22:04	Night	39	43	4	Overland conveyor belts	04/01/18
NM6	13/12/2017 20:50	Evening	36	42	6	Overland conveyor belts	04/01/18

Table 8-3 – Noise Exceedances – L_{A1,1min} dB

Location	Start Date and Time	Period	Criterion dB	L _{A1,1min} dB	Exceedance dB	Cause	DPE Notification
NM7	16/01/2017 23:57	Night	45	48	3	Overland conveyor	31/01/2017
NM6	14/06/2017 00:17	Night	45	46	1	Overland conveyor	26/06/2017
NM6	12/09/2017 00:49	Night	45	47	2	Overland conveyor belts	26/09/2017

All noise exceedances recorded in 2017 were reported to the DPE in accordance with project approval conditions. All noise exceedances recorded in 2017 were notified to affected landholders in accordance with project approval conditions.

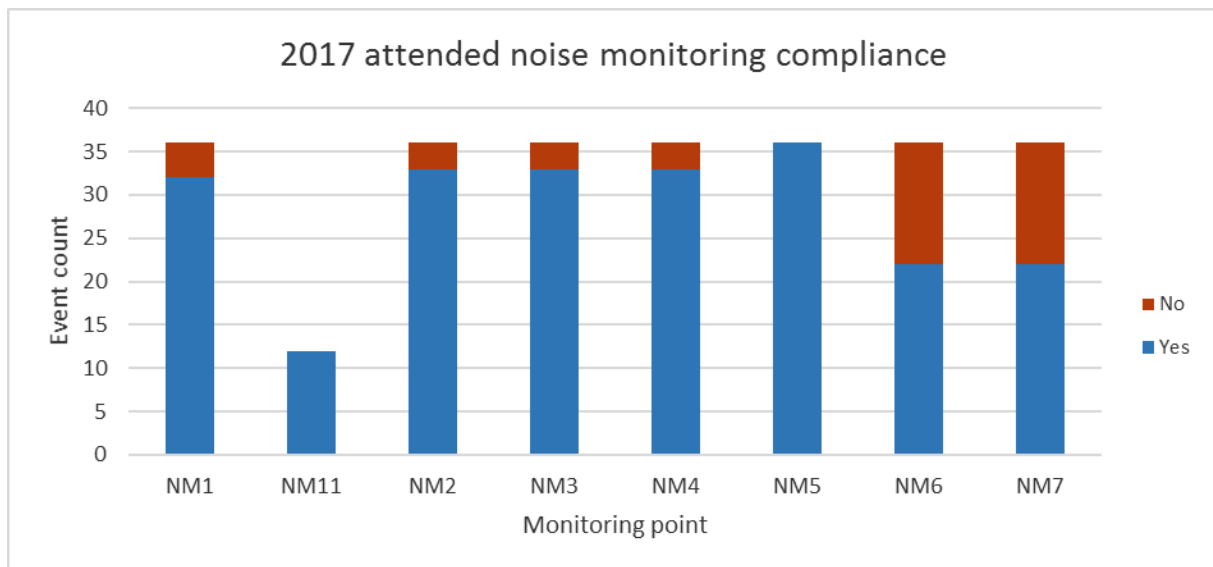


Figure 8-1 – 2017 Western Coal Services attended noise monitoring compliance

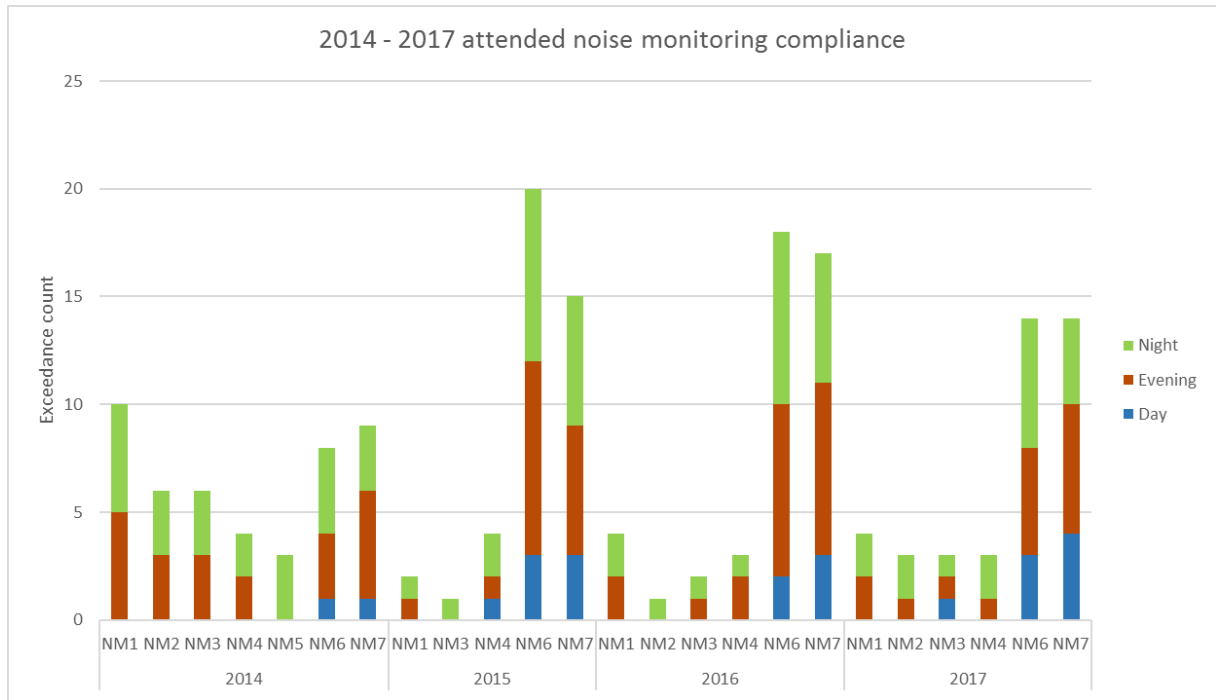


Figure 8-2 – 2014-2017 Western Coal Services exceedances – attended noise monitoring compliance summary

Appendix E – Air Quality

The 2017 air quality results are summarised in Table 8-4 below.

Table 8-4 – 2017 Western Coal Services Air Quality Summary

	Criteria	Maximum	Mean
Annual average deposited dust	g/m ² /month	1.4	-
Annual average predicted cumulative deposition	g/m ² /month	1.6	-
Short term 24 hour PM10	50 µg/m ³	69.6	11.4
Annual average PM10	30 µg/m ³	-	11.4
Annual average TSP ⁴	90 µg/m ³	-	26.5

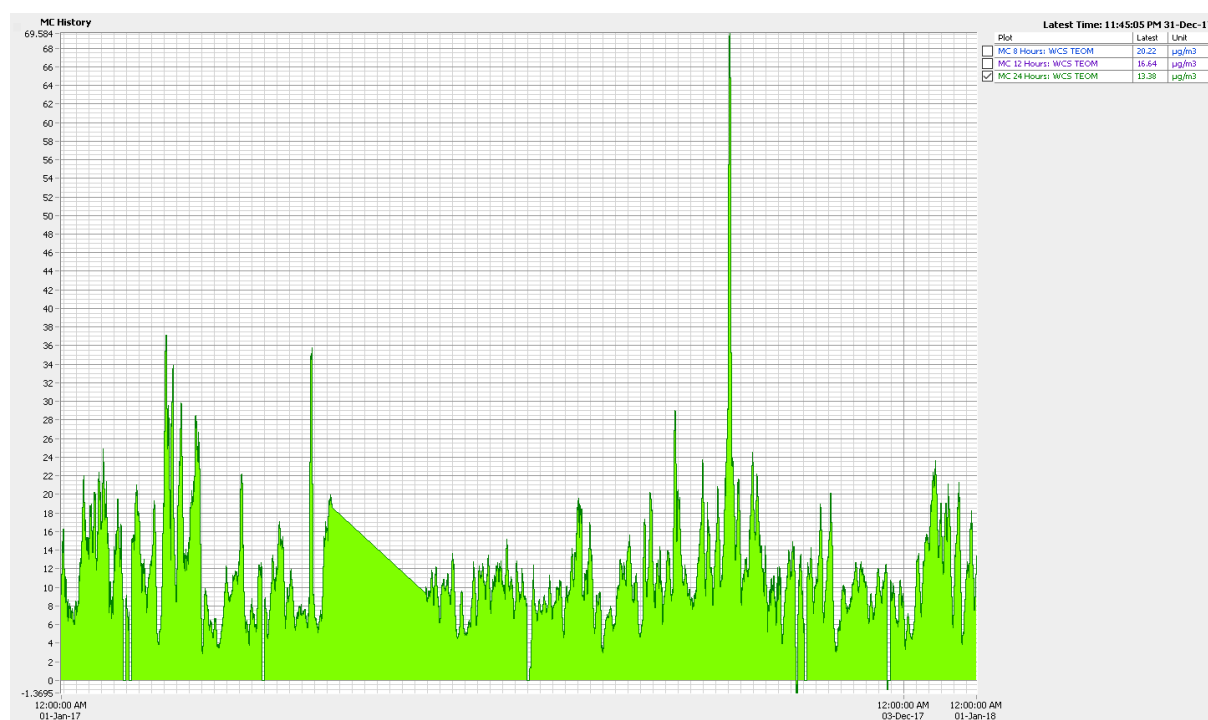
PM10 24 hour average

Instantaneous PM10 concentrations were compliant until 9:00 pm on 23 September 2017 when a significant increase in wind speed caused the PM10 to spike to 517 µg/m³ at 22:15 pm.

PM10 mass concentration remained above 50 µg/m³ until 8:00 am on 24 September 2017.

This resulted in the short term criteria for particulate matter <10 µm (PM10) 24 hour mass concentration limit (50 µg/m³) being exceeded for a period of 22 hours from 1:00 am to 11:00 pm on 24 September 2017.

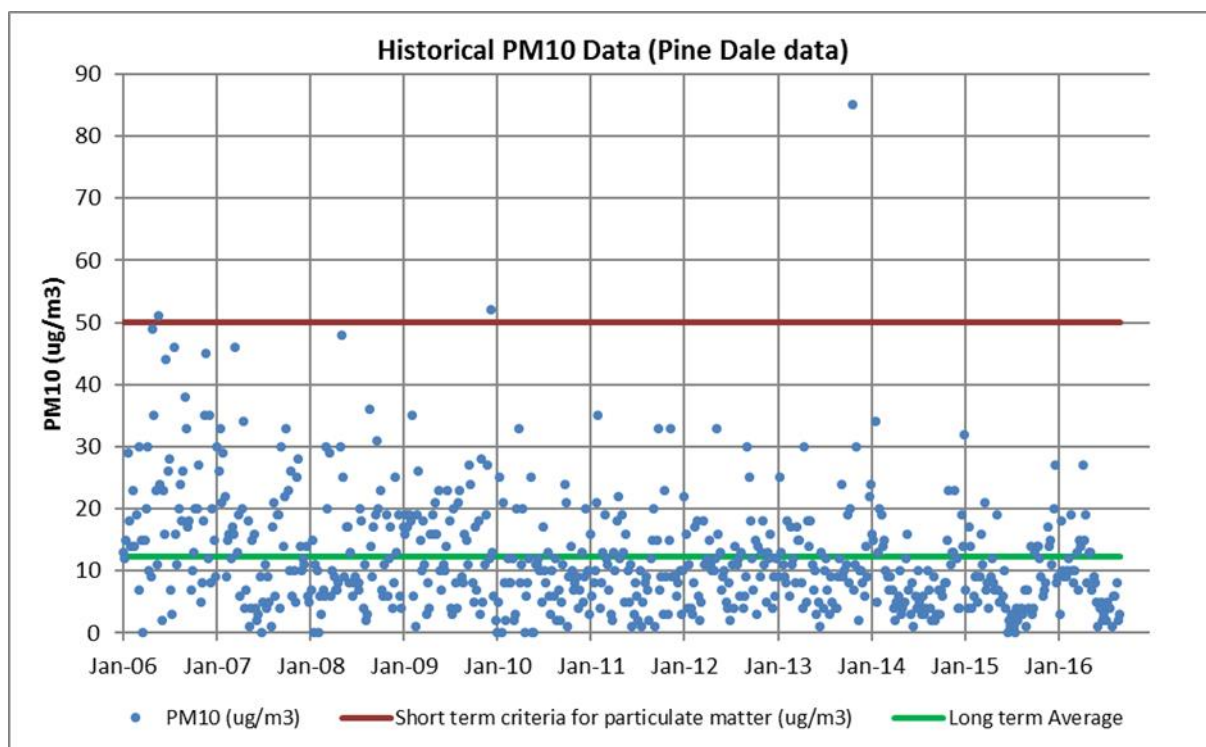
PM10 remained compliant from 11:00 pm on 24 September to the end of the reporting period.



⁴ At all surrounding sites a consistent TSP to PM10 ratio has been established using HVAS data over several annual cycles. This ratio is used to estimate the TSP concentration, based on measured PM10 concentrations. The ratio between TSP and PM10 concentrations has been calculated from long term monitoring data: Western Coal Services ratio = 0.43; Springvale ratio = 0.45; Angus Place ratio = 0.44; Clarence Colliery ratio = 0.40. The measured PM10 annual average would therefore be divided by 0.43 to estimate the annual average TSP concentration.

Figure 8-3 –2017 TEOM 24 hour average

Prior to commissioning of the TEOM in December 2015, dust was measured at Pine Dale Coal Mine using a high volume air sampler. While the results are not immediately comparable to the TEOM data, the historical PM10 data is presented in Figure 8-4.

**Figure 8-4 – Historical PM10 24 hour average⁵**

Depositional Dust

Depositional dust is monitored at three locations (WCSDG3, WCSDG4 and WCSDG5). These are shown in Appendix A. The deposited dust limit is $4 \text{ g/m}^2/\text{month}$ at any residence on private land averaged annually. Centennial use daily dust forecast reports to determine the frequency of watering unsealed area and to schedule dust suppression activities and operational mitigation.

Depositional dust emissions were below the annual average trigger ($4 \text{ g/m}^2/\text{month}$) at all dust gauges (Table 8-5 and Figure 8-5).

Table 8-5 –2017 depositional dust summary

	WCSDG3	WCSDG4	WCSDG5
Min	0.3	0.1	0.3
Max	3.5	2.2	0.8
Average	1.4	0.6	0.5

⁵ The long term average is calculated using the full dataset from Pine Dale Mine (2006 to 2016).

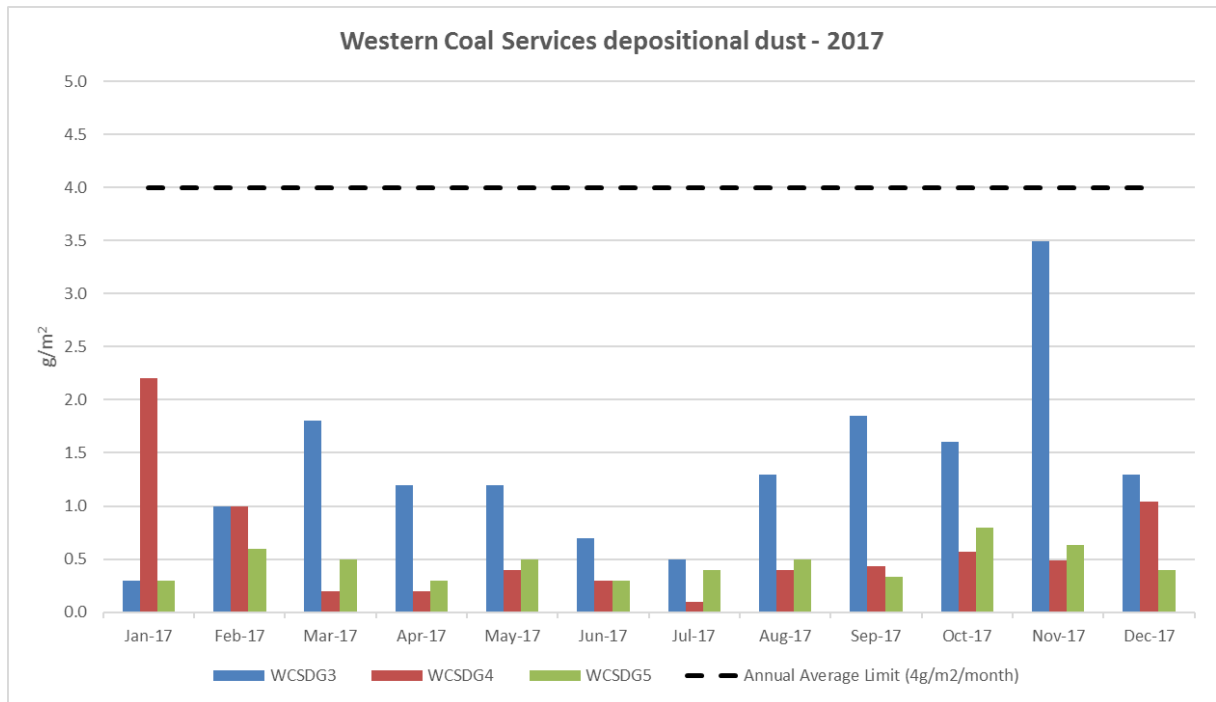


Figure 8-5 – 2017 depositional dust summary

A comparison of the annual average of depositional dust for Western Coal Services from 2011 to 2017 is shown in Figure 8-6.

WCS DG3 has remained under the annual average since 2015 and WCS DG4 and WCS DG5 have remained under the annual average limit since 2011.

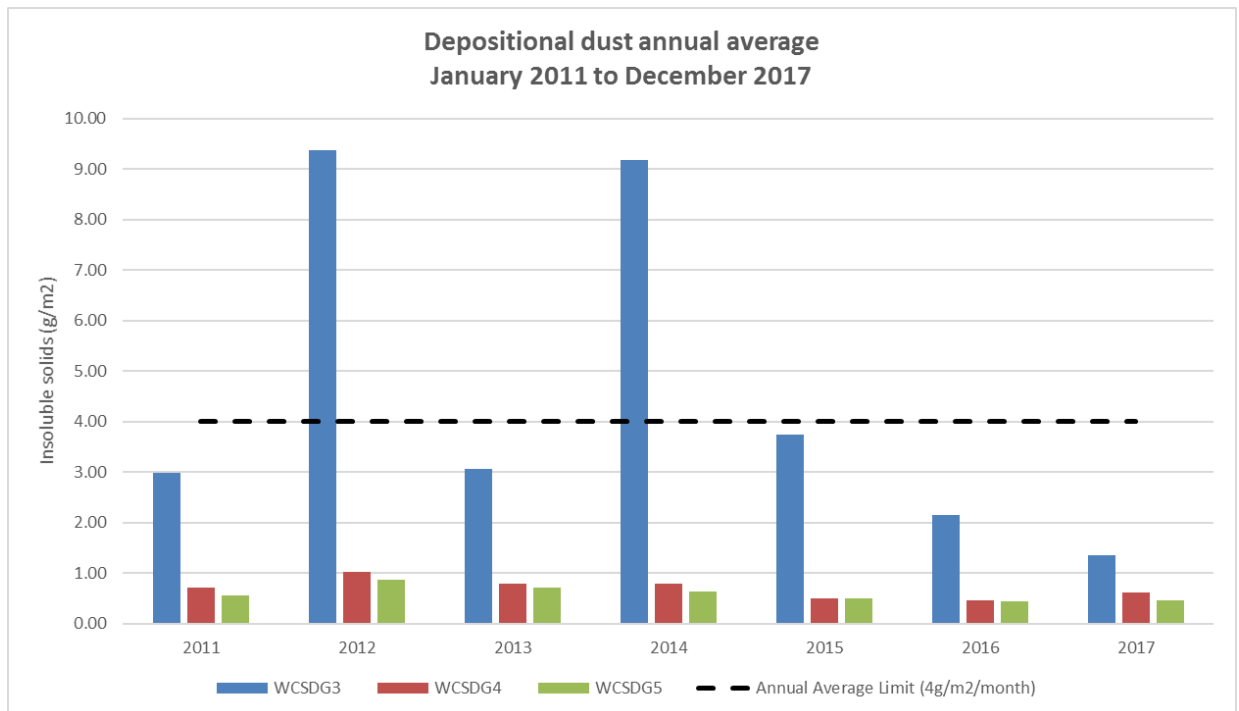


Figure 8-6 – Historical depositional dust summary – January 2011 to December 2017

The rolling average for depositional dust uses 12 months of data from February 2016 to January 2017 to generate the graph commencing January 2017 as shown in Figure 8-7.

There were no exceedances of the 12-month rolling average during the reporting period.

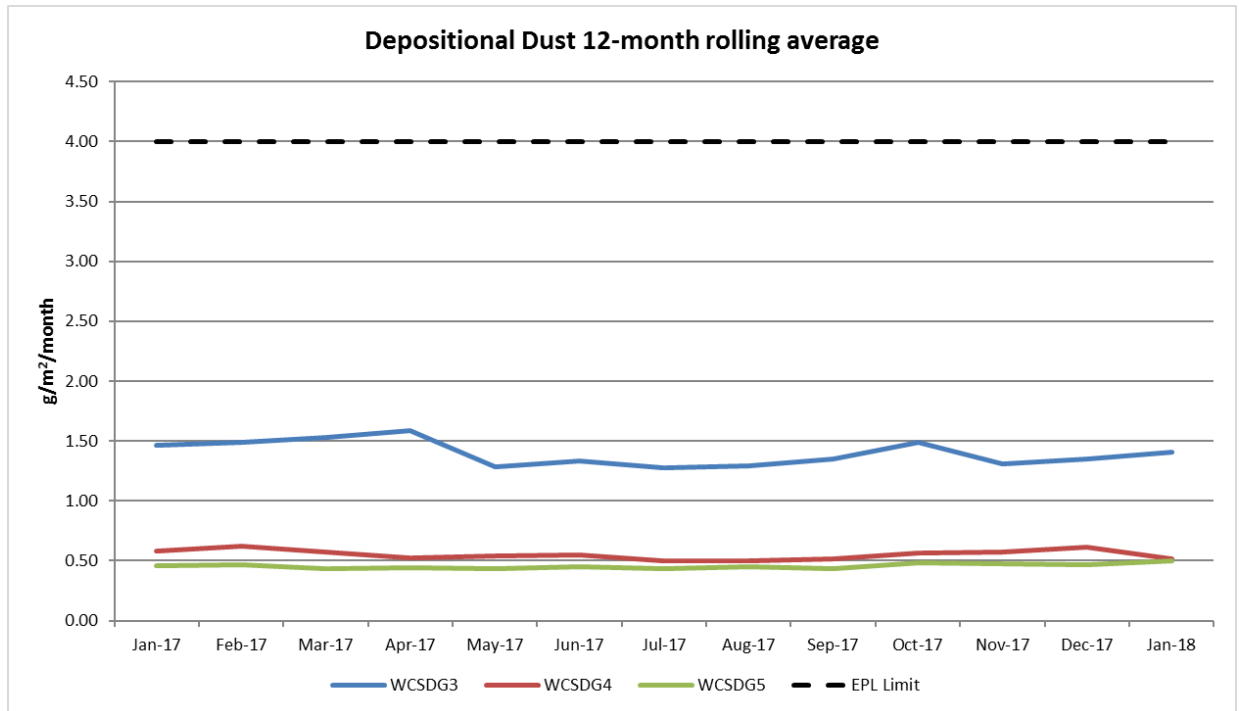


Figure 8-7 – Depositional dust 12-month rolling average

The historical rolling average for depositional dust uses 12 months of data from January 2013 to generate the graph commencing January 2014 as shown in Figure 8-8. Historically, WCsDG3 has exceeded the 12-month rolling average limit of 4 g/m²/month but has remained under the limit since June 2016. WCsDG4 and WCsDG5 have remained under the 4 g/m²/month limit.

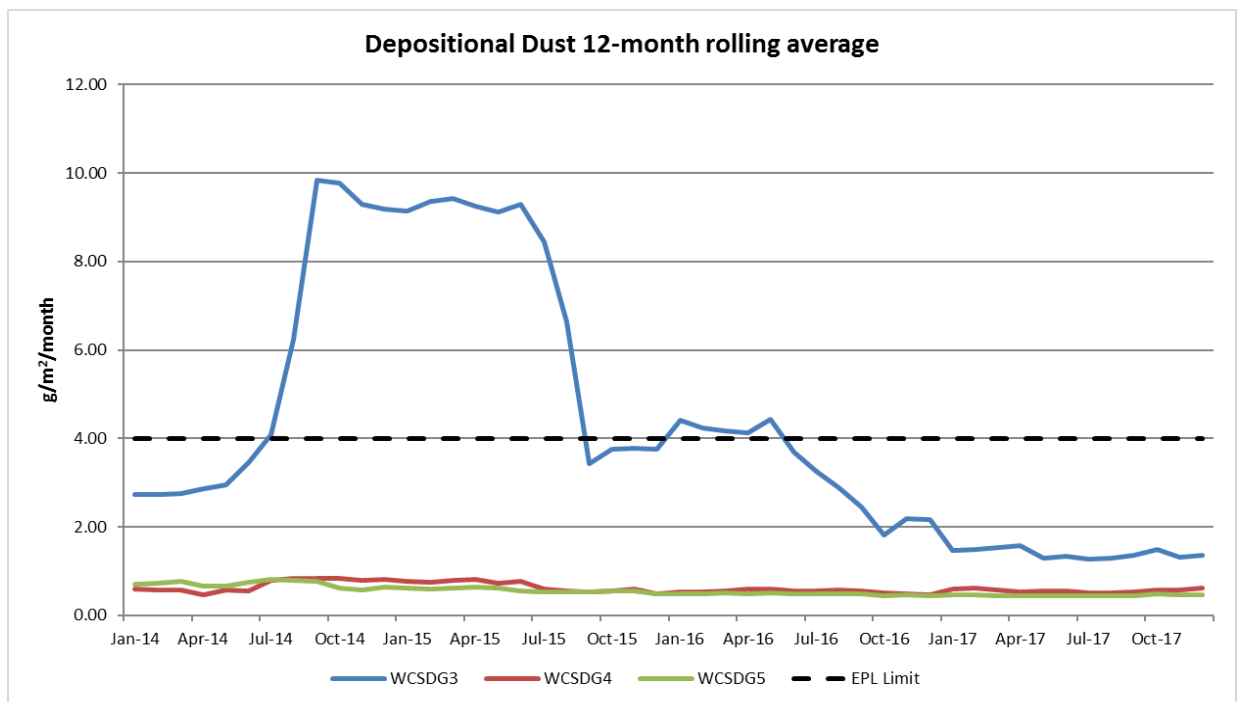


Figure 8-8 – January 2013 to December 2017 depositional dust 12-month rolling average

Appendix F – Meteorological Information

Meteorological monitoring for WCS was undertaken for rainfall, temperature and wind during the 2017 reporting period.

Rainfall

The total monthly rainfall at Western Coal Services for the 2017 reporting period is summarised in Table 8-6 and Figure 8-9.

Table 8-6 – Monthly Rainfall Summary

Month	Total Rainfall (mm) ⁶	Average (mm) ⁷
January 2017	32.4	85.2
February 2017	12.0	77.0
March 2017	121.6	66.5
April 2017	19.8	43.5
May 2017	35.4	48.7
June 2017	17.0	50.6
July 2017	16.4	50.8
August 2017	27.6	63.6
September 2017	3.4	52.7
October 2017	88.8	67.8
November 2017	27.6	71.5
December 2017	63.2	73.8
Total	465.2	

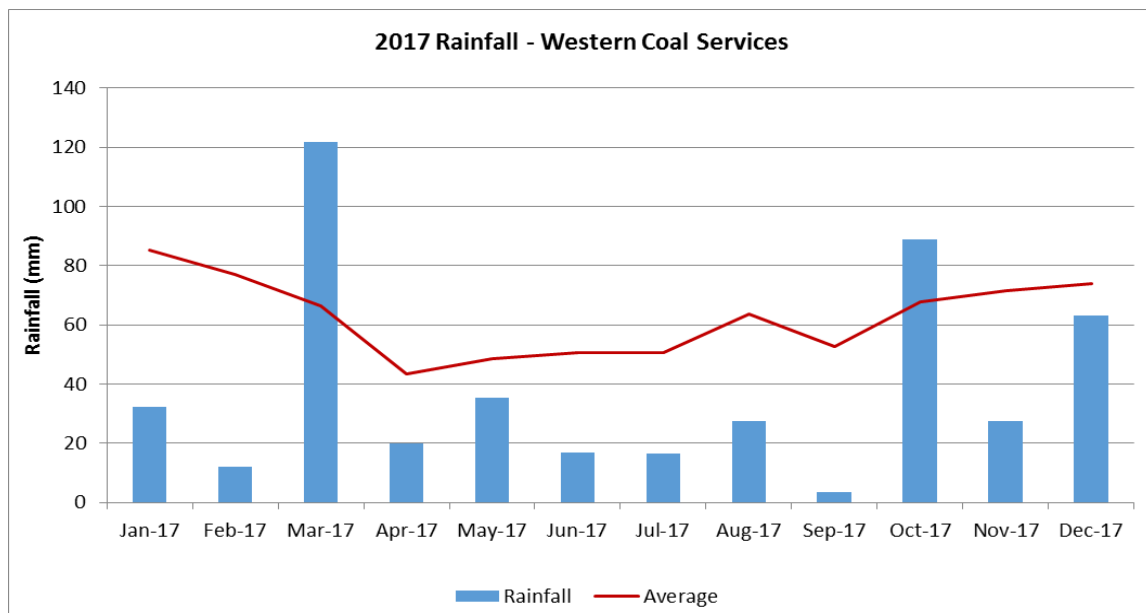


Figure 8-9 – Monthly Rainfall Summary

⁶ Monthly rainfall taken from WCS AWS

⁷ BOM station 063132 Lidsdale (Maddox Lane) 1959-2017

Temperature

The minimum and maximum monthly temperature for WCS for the 2017 reporting period is summarised in Table 8-7 and Figure 8-10.

Table 8-7 – Monthly Temperature Summary⁸

Month	Min	Max
January 2017	11.2	35.8
February 2017	2.1	39.2
March 2017	5.5	29.3
April 2017	0.1	20.7
May 2017	-3.8	17.9
June 2017	-6.2	16.2
July 2017	-8.7	19.5
August 2017	-5.4	18.5
September 2017	-6.0	28.6
October 2017	-1.1	26.8
November 2017	1.1	27.2
December 2017	7.6	32.1

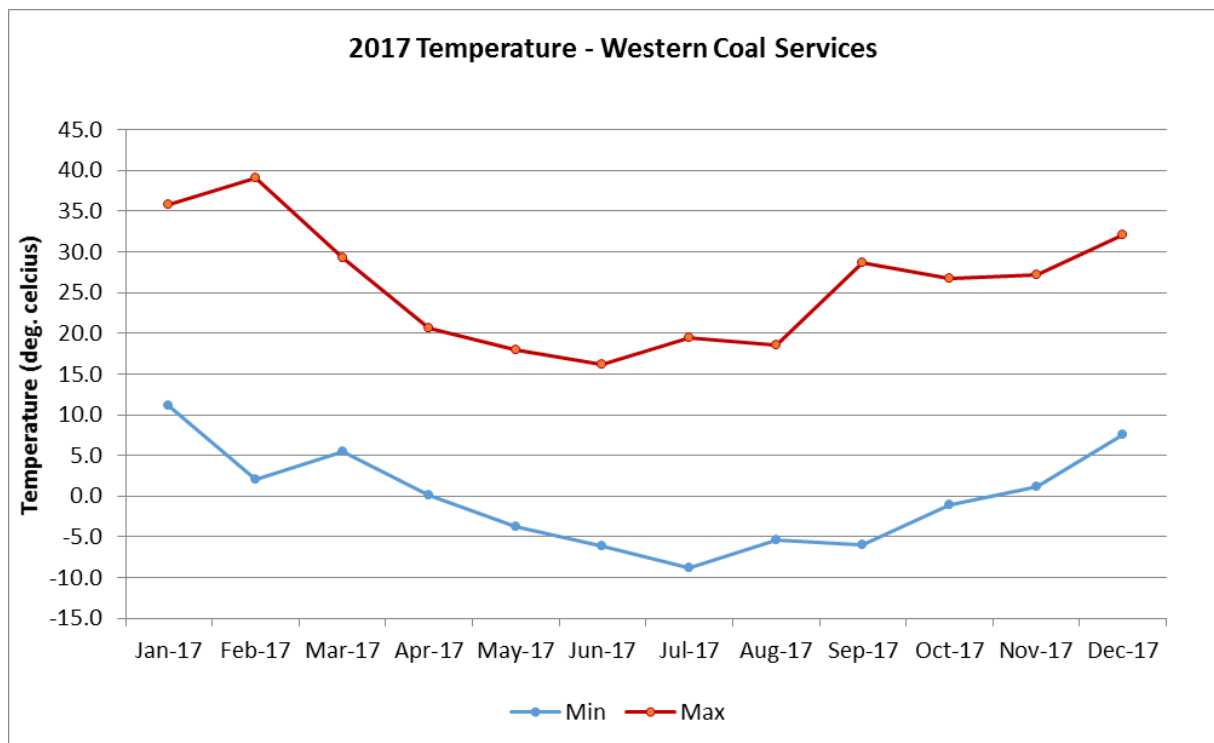


Figure 8-10 – Monthly Temperature Summary

⁸ Monthly temperature taken from WCS AWS

Appendix G – Surface Water Quality Information

Water quality is monitored monthly during discharge as per the requirements of EPL 3607 at Licenced Discharge Point (LDP) LDP006 (see Appendix A for the location of LDP006).

The water is tested for pH, Total Suspended Solids (TSS), Electrical Conductivity (EC), Oil and Grease, Turbidity, Filterable Iron and Filterable Manganese during discharges.

LDP007 requires monthly monitoring of pH, EC and TSS when discharging. There were no discharges recorded for LDP007 during the reporting period.

There is no 2017 LDP007 data presented, reviewed or summarised as a result of zero discharges occurring during the reporting period. This monitoring location generally has no discharge and historic data trends are not available to present graphically.

LDP006 discharged during the reporting period as summarised in Table 8-8 below..

Table 8-8 – LDP006 Water Quality Summary

Parameter	Unit of Measure	No. of samples required by the licence	No. of samples collected	Lowest sample value	Mean of sample	Highest sample value	EPL limit
pH	pH units	12	12	6.8	7.0	7.3	6.5-8.5
TSS	mg/L	12	12	9	17	27	30
EC	µS/cm	12	12	1,530	5,041	6,680	-
Oil & Grease	mg/L	12	12	<5	<5	<5	10
Turbidity	NTU	12	12	2	11	50	50
Filterable Iron	mg/L	12	12	0.1	1.4	5.5	-
Filterable Manganese	mg/L	12	12	4.0	5.9	8.9	-

The flow summary for the 2017 reporting period for LDP006 is presented in Table 8-9 and Figure 8-11.

Table 8-9 – LDP006 2017 Flows

Unit of Measure	Frequency	No. of measurements made	Lowest result	Mean result	High result	Total discharge (per annum)
Megalitres per day	Daily	365	0.000	0.94	14.47	453

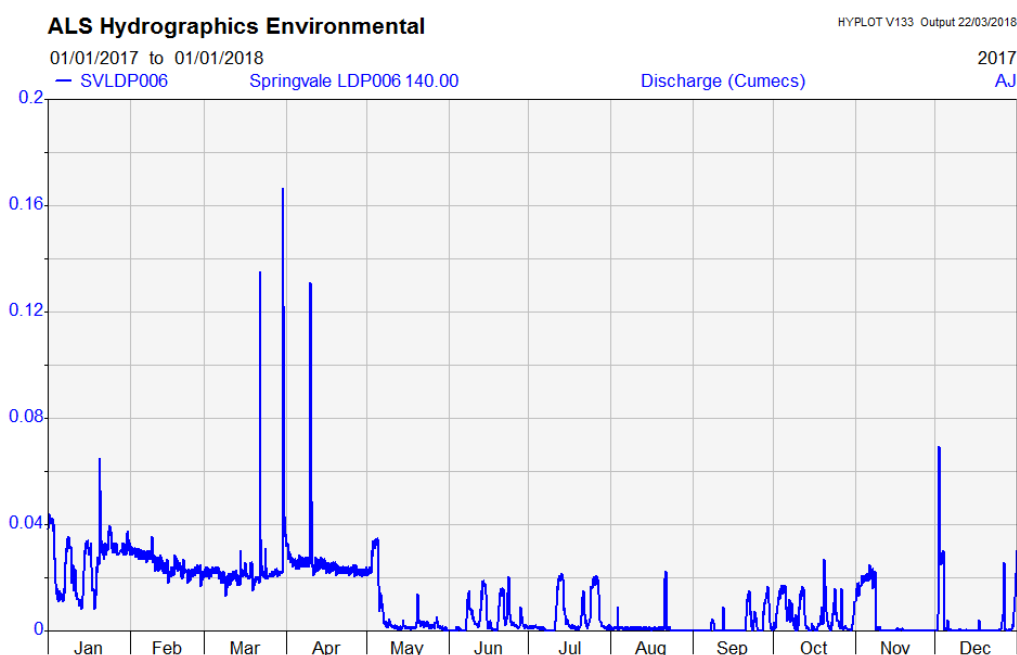


Figure 8-11 – 2017 flow summary for LDP006

Water quality is monitored monthly during discharge as per the requirements of EPL 467 at LDP003.

The water is tested for pH, TSS, Oil and Grease, Turbidity and Electrical Conductivity during discharges. LDP003 is reported in the Angus Place Colliery Annual Review with summary information provided in the WCS Annual Review only.

LDP003 discharged once during the reporting period during a large intense rain event (46.5 mm rainfall on 22 March 2017). As this monitoring location generally has no discharge, historic data trends are not available to present graphically.

The results for LDP003 are summarised in Table 8-10.

Table 8-10 – LDP003 Water Quality Summary

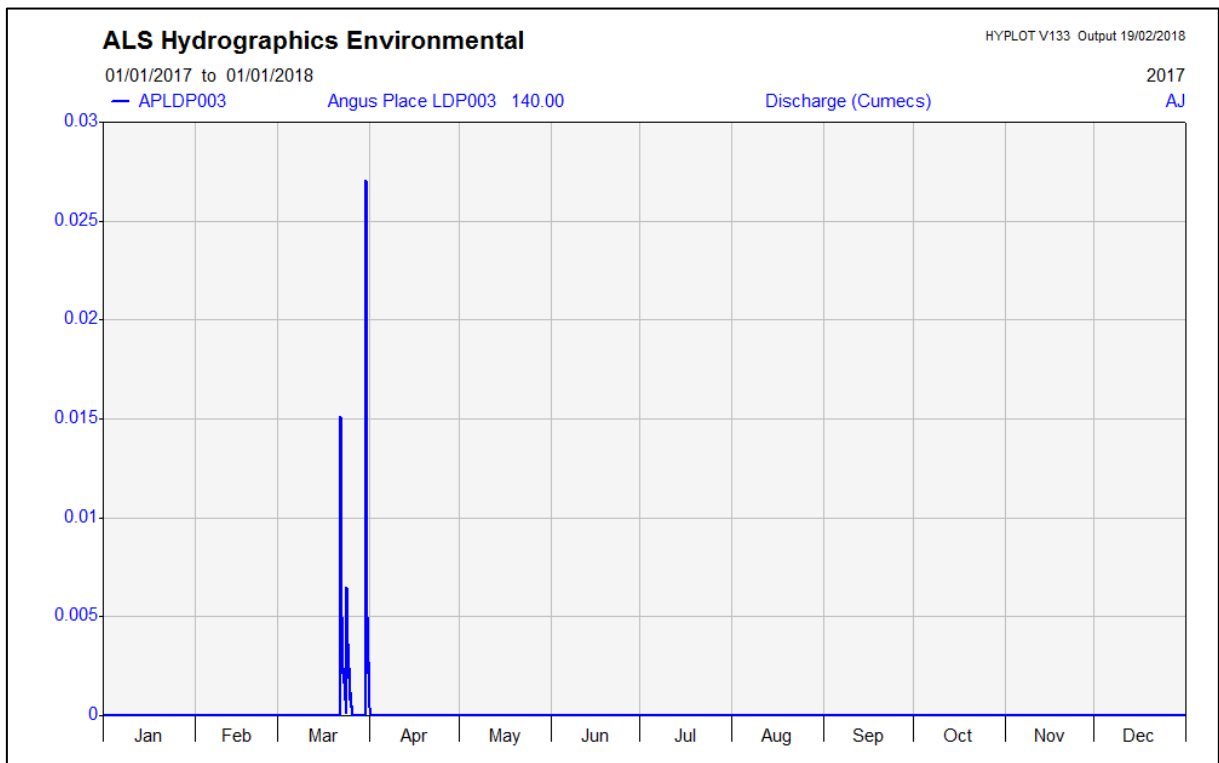
Parameter	Unit of Measure	No. of samples required by the licence	No. of samples collected	Lowest sample value	Mean of sample	Highest sample value	EPL limit
pH	pH units	1	1	7.61	7.61	7.61	6.5-8.5
TSS	mg/L	1	1	50	50	50	50
Oil & Grease	mg/L	1	1	<5	<5	<5	10
Turbidity	NTU	1	1	223	223	223 ⁹	50
Electrical Conductivity	µS/cm	1	1	85	85	85	-

The flow summary for the 2017 reporting period for LDP003 is presented in Table 8-11 and Figure 8-12.

⁹ A high turbidity result of 223 was recorded during a rainfall event on 22 March 2017. Rainfall clause L2.5 in EPL 467 applies. Pollution limits do not apply when discharge occurs within five days after a rainfall event exceeding 44 mm of rainfall over any consecutive 5 day period.

Table 8-11 – LDP003 2017 Flows

Unit of Measure	Frequency	No. of measurements made	Lowest result	Mean result	High result	Total discharge
Megalitres per day	Daily	365	0	0.004	2.34	5.78

**Figure 8-12 – 2017 flow summary for LDP003**

Water Quality Data Representation and Analysis

Water quality data for LDP006 is presented graphically to show a comparison with historic data trends.

The results for pH (Figure 8-13), total suspended solids (Figure 8-14), electrical conductivity (Figure 8-15), oil and grease (Figure 8-16), turbidity (Figure 8-17), filterable iron (Figure 8-18) and filterable manganese (Figure 8-19) were compliant with EPL limits during the 2017 reporting period.

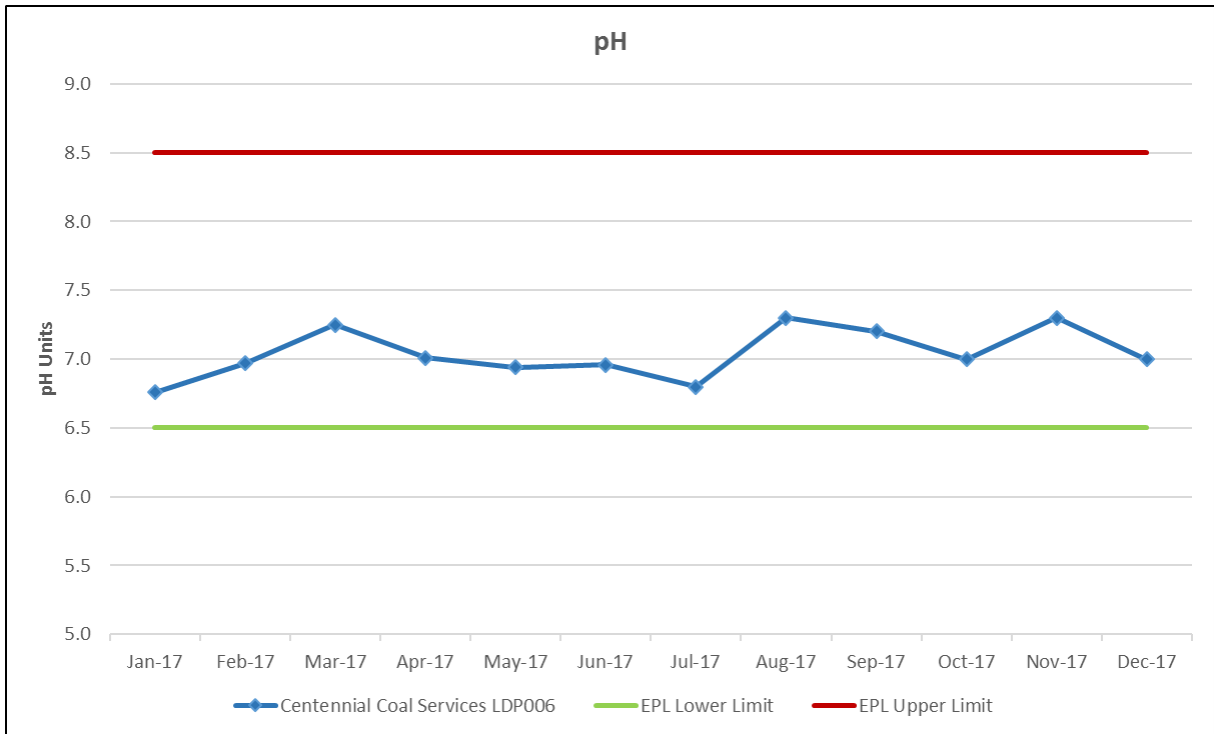


Figure 8-13 – Western Coal Services 2017 LDP006 pH

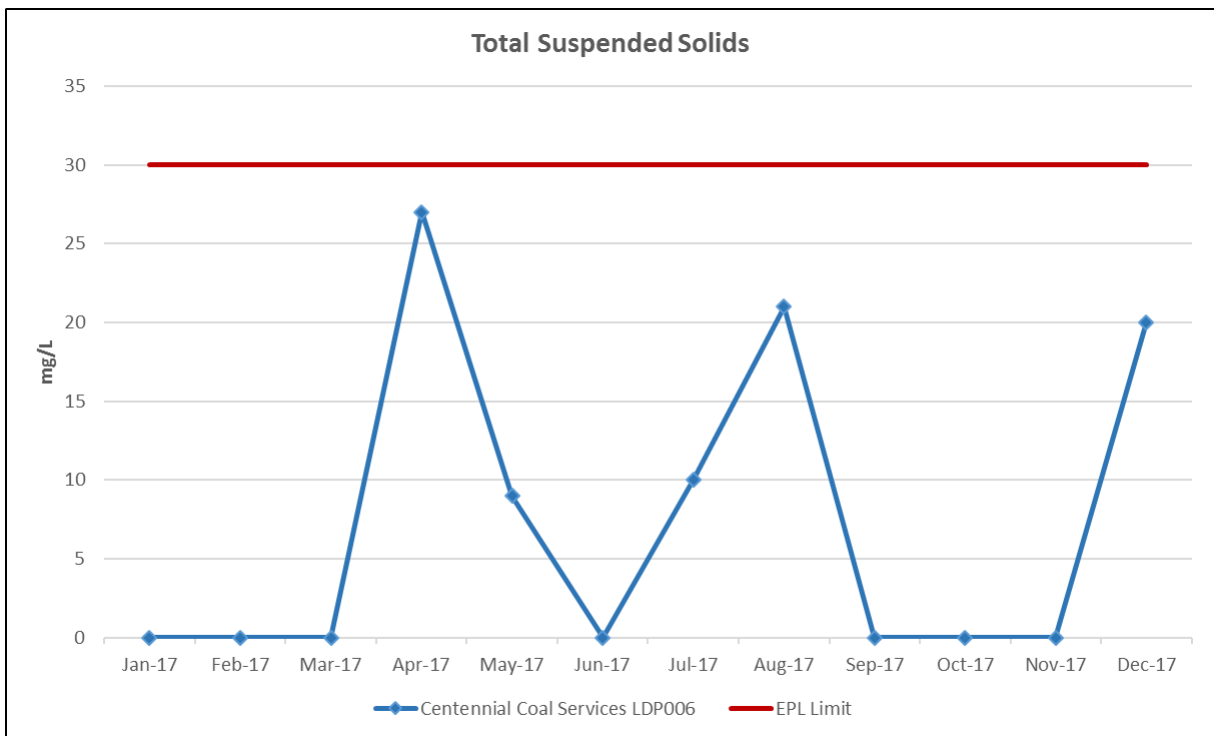


Figure 8-14 – Western Coal Services 2017 LDP006 Total Suspended Solids

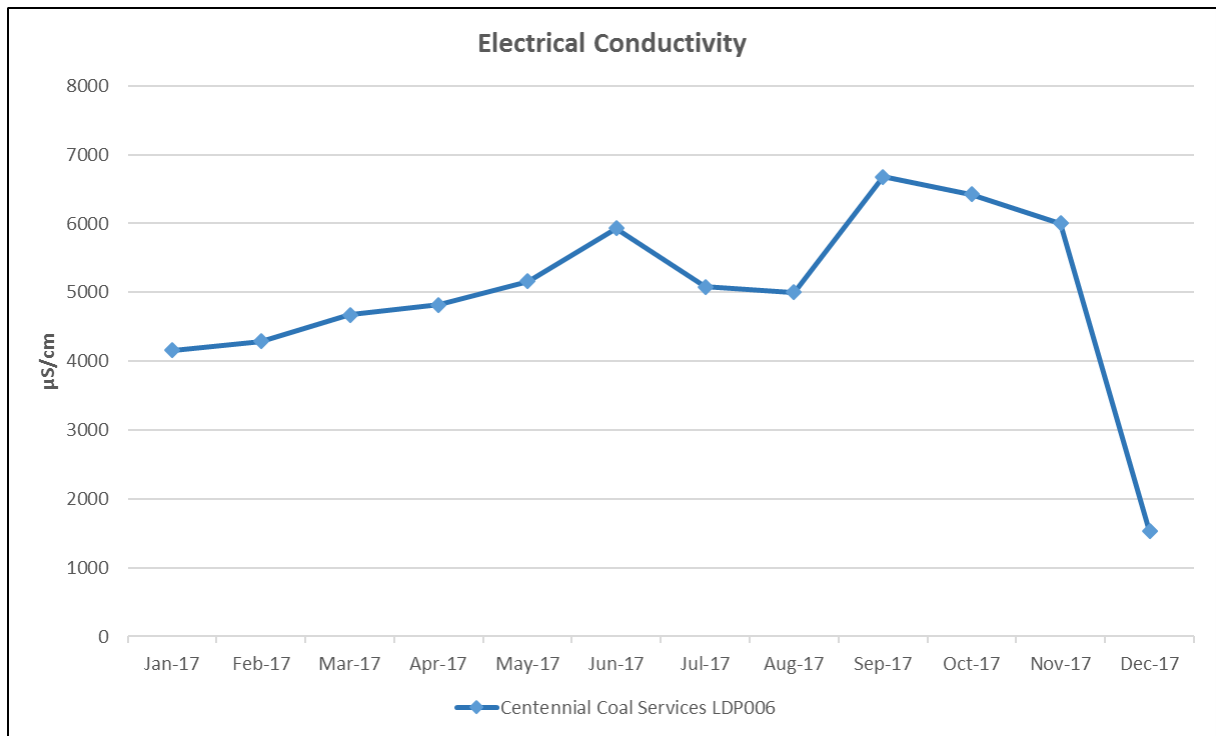


Figure 8-15 – Western Coal Services 2017 LDP006 Electrical Conductivity

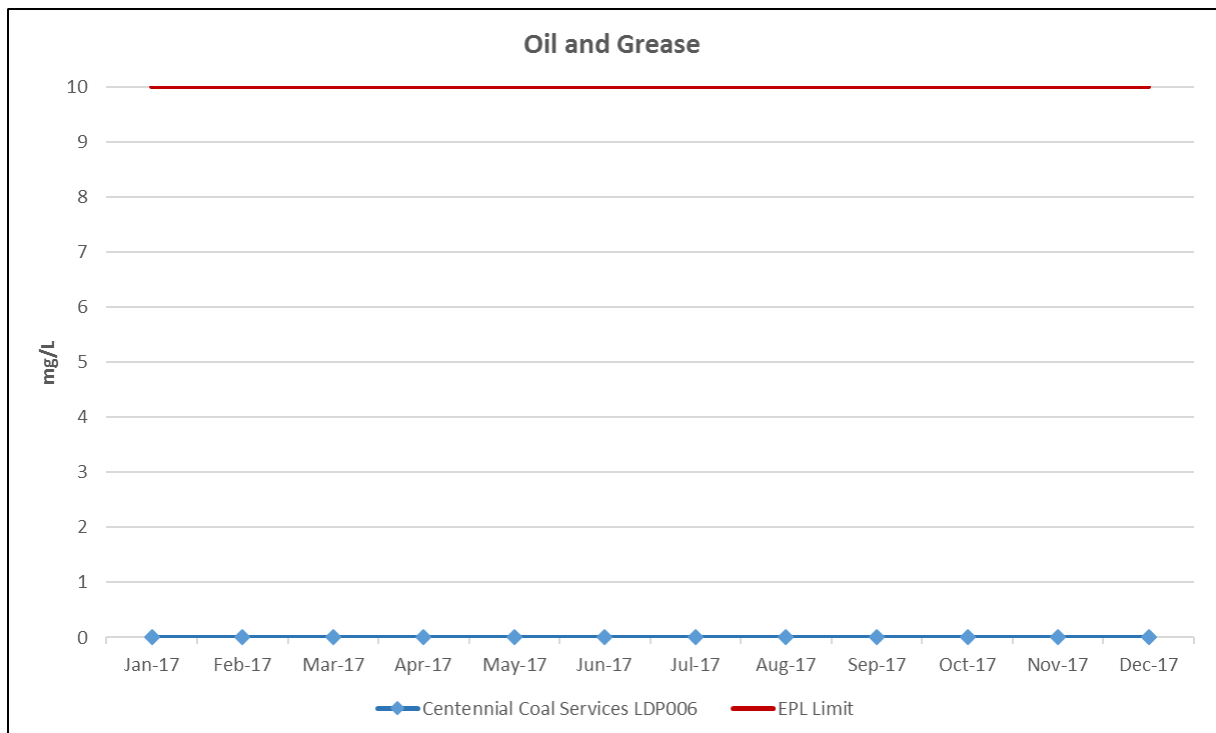


Figure 8-16 – Western Coal Services 2017 LDP006 Oil and Grease

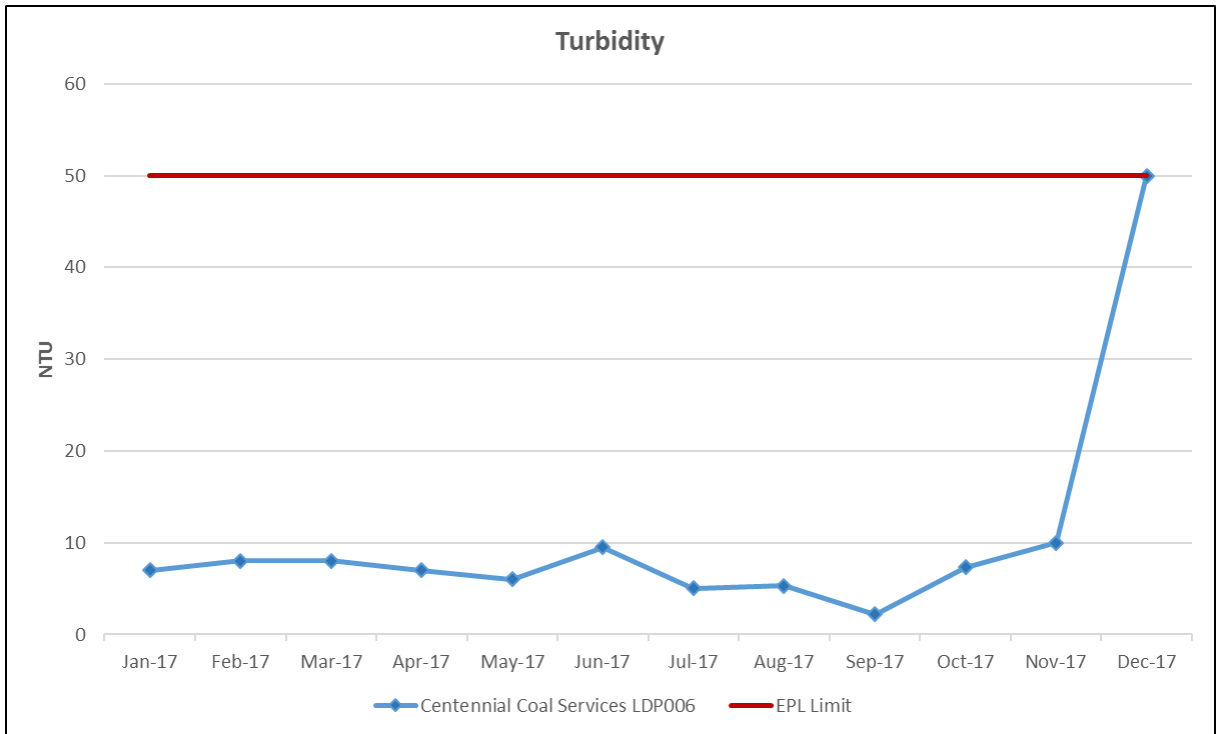


Figure 8-17 – Western Coal Services 2017 LDP006 Turbidity

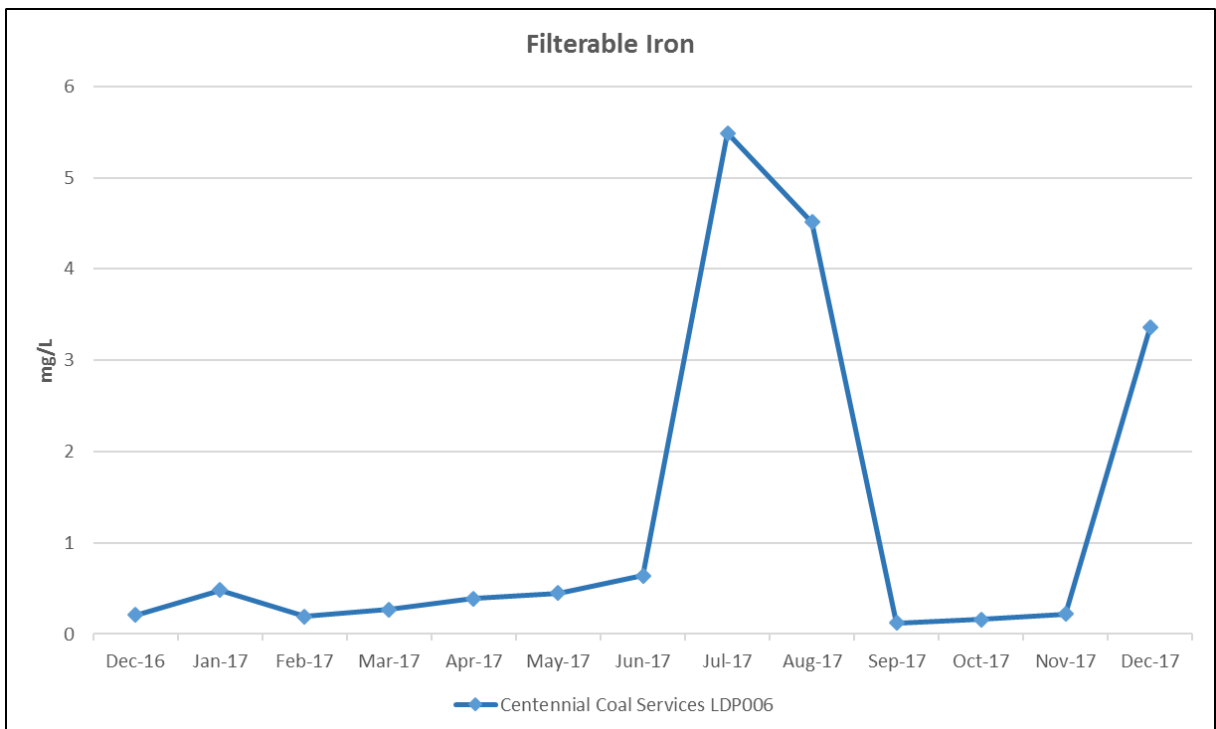


Figure 8-18 – Western Coal Services 2017 LDP006 Filterable Iron

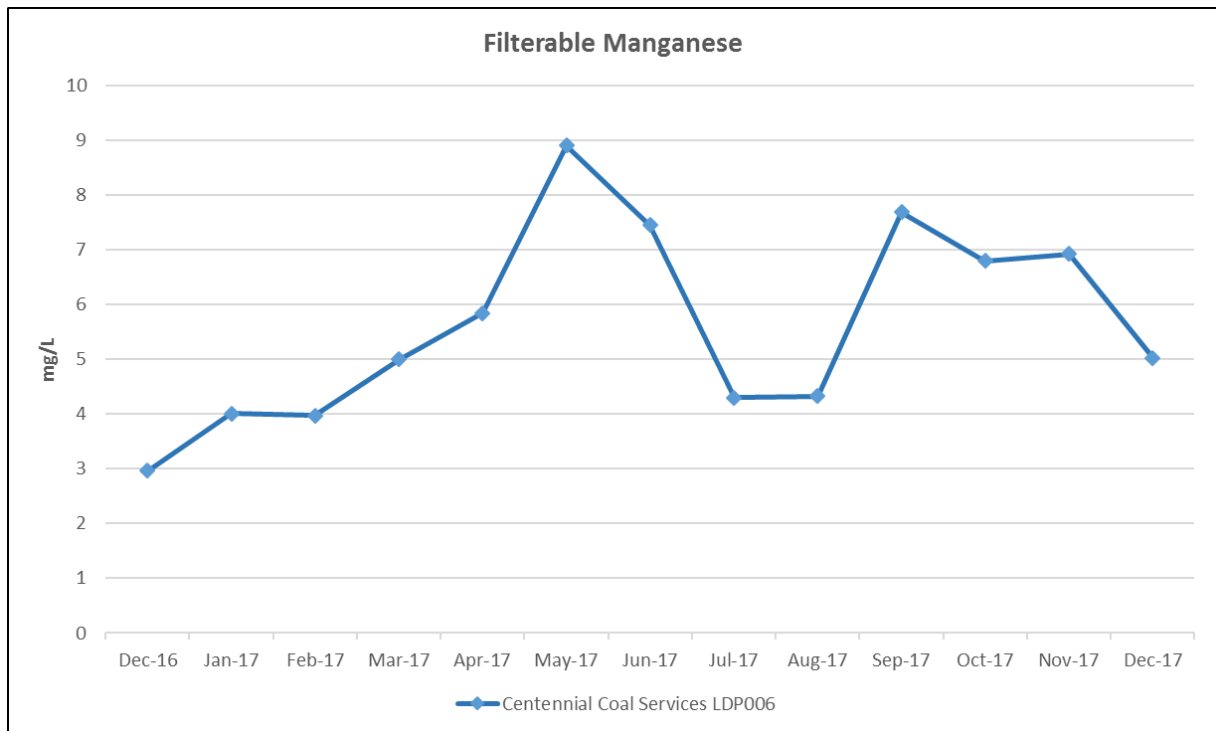


Figure 8-19 – Western Coal Services 2017 LDP006 Filterable Manganese

Figure 8-20 to Figure 8-23 show the results for pH, total suspended solids, electrical conductivity, oil and grease, turbidity, filterable iron and filterable manganese from 2014 to 2017. Trends remain static across the period. Data graphed is reflective of a site discharge event.

During the reporting period, pH was compliant with EPL limits (Figure 8-20) with results between 6.8 and 7.6.

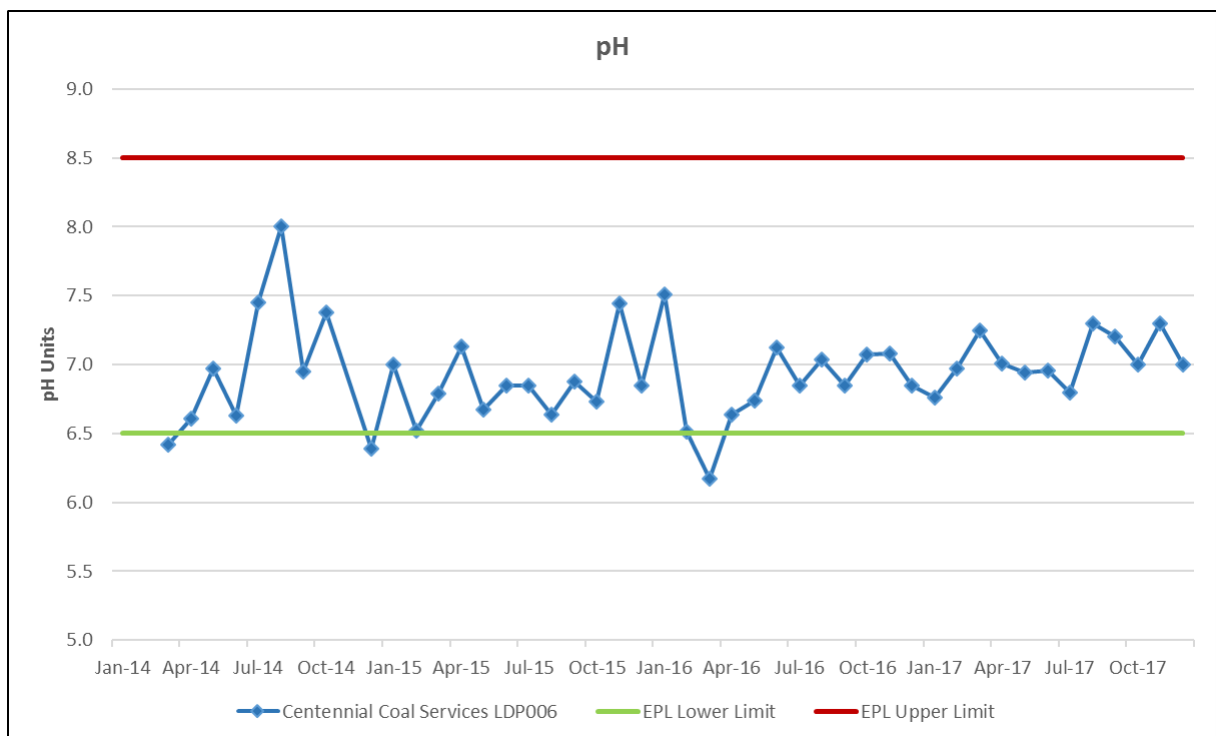


Figure 8-20 – Western Coal Services 2017 LDP006 pH 2014-2017

Total suspended solids remained compliant with the EPL limit of 30 mg/L during the reporting period, with a maximum of 27 mg/L. Spikes are associated with rainfall events which increase surface water flows in the Lamberts Gully catchment.

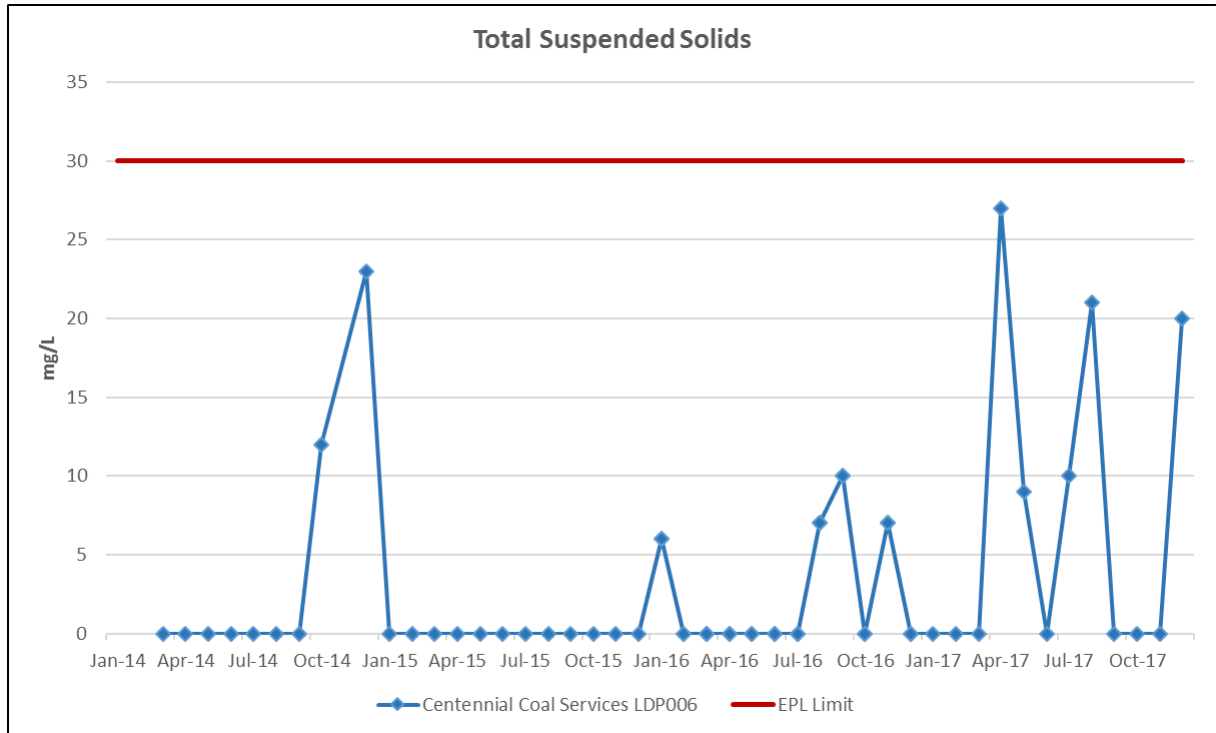


Figure 8-21 – Western Coal Services 2017 LDP006 Total Suspended Solids 2014-2017

Analysis of the 2017 data showed an increasing trend with a minimum of 1,530 $\mu\text{S}/\text{cm}$ and a maximum of 6,680 $\mu\text{S}/\text{cm}$.

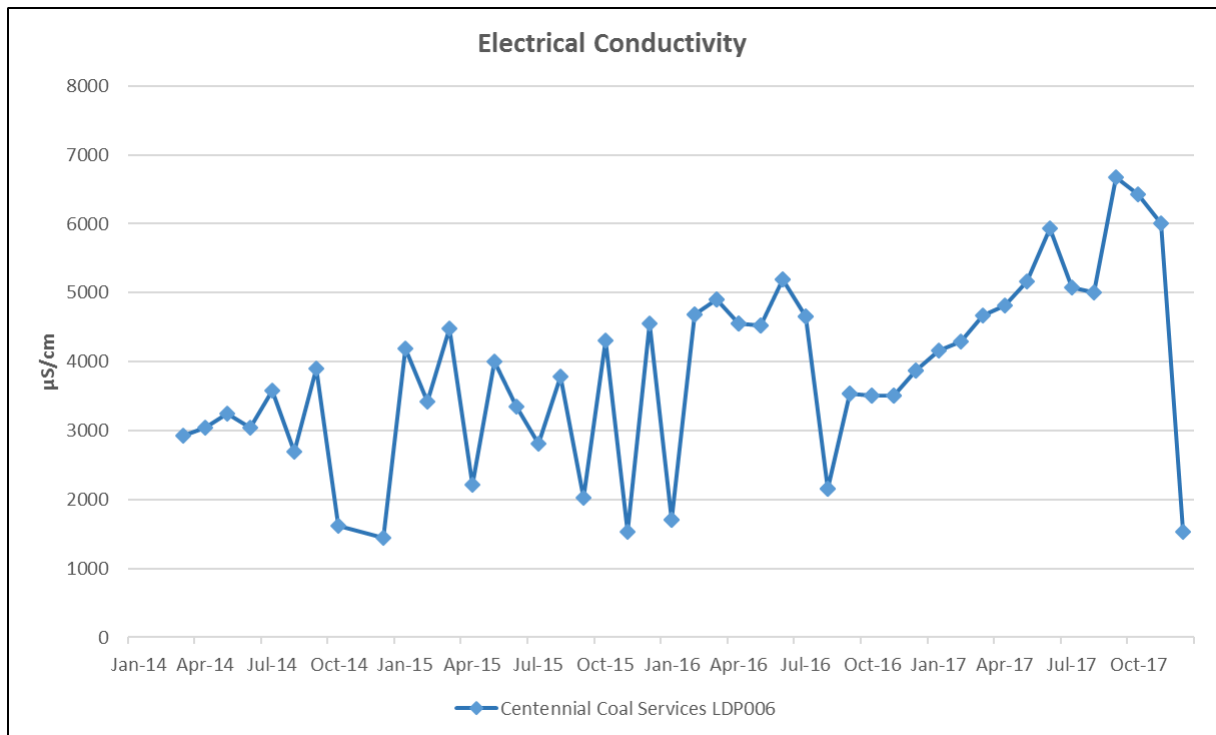


Figure 8-22 – Western Coal Services 2017 LDP006 Electrical Conductivity 2014-2017

Oil and grease results are consistently below the laboratory limit of reporting of 5 mg/L as illustrated in Figure 8-23.

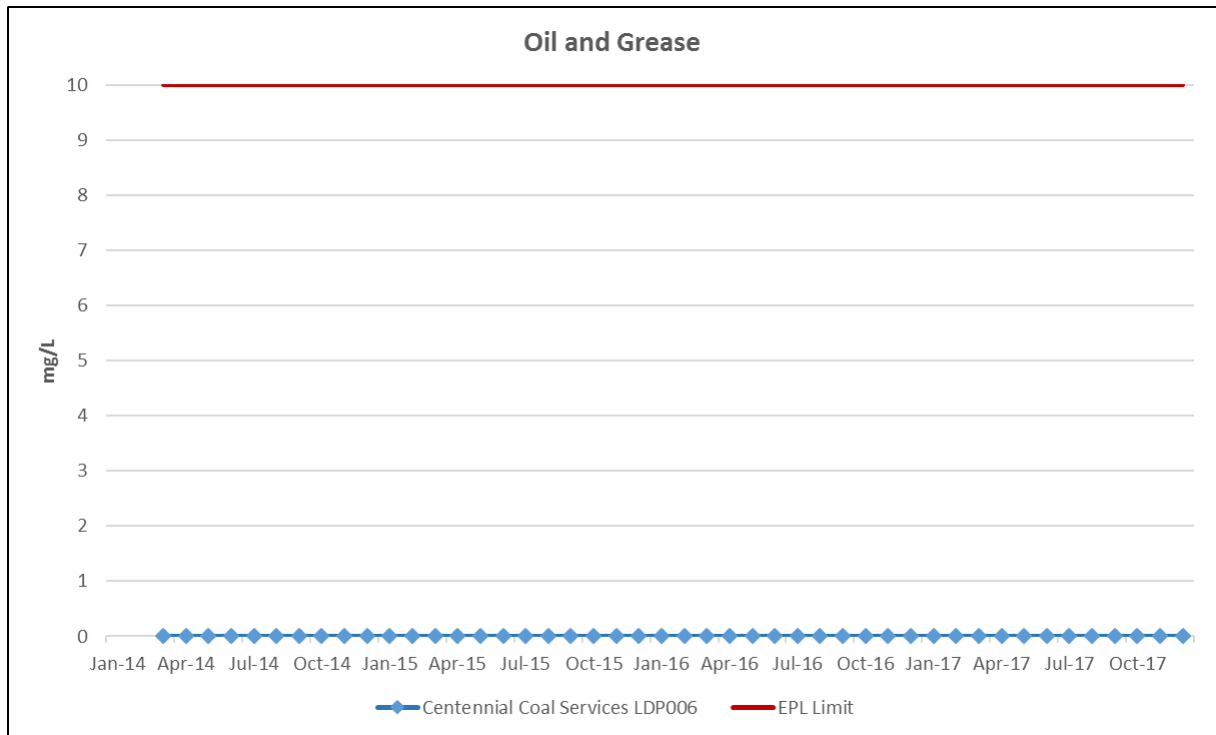


Figure 8-23 – Western Coal Services 2017 LDP006 Oil and Grease 2014-2017

Turbidity remained compliant with the EPL limit of 50 NTU during the reporting period. The highest result during the reporting period was 50 NTU recorded during December 2017.

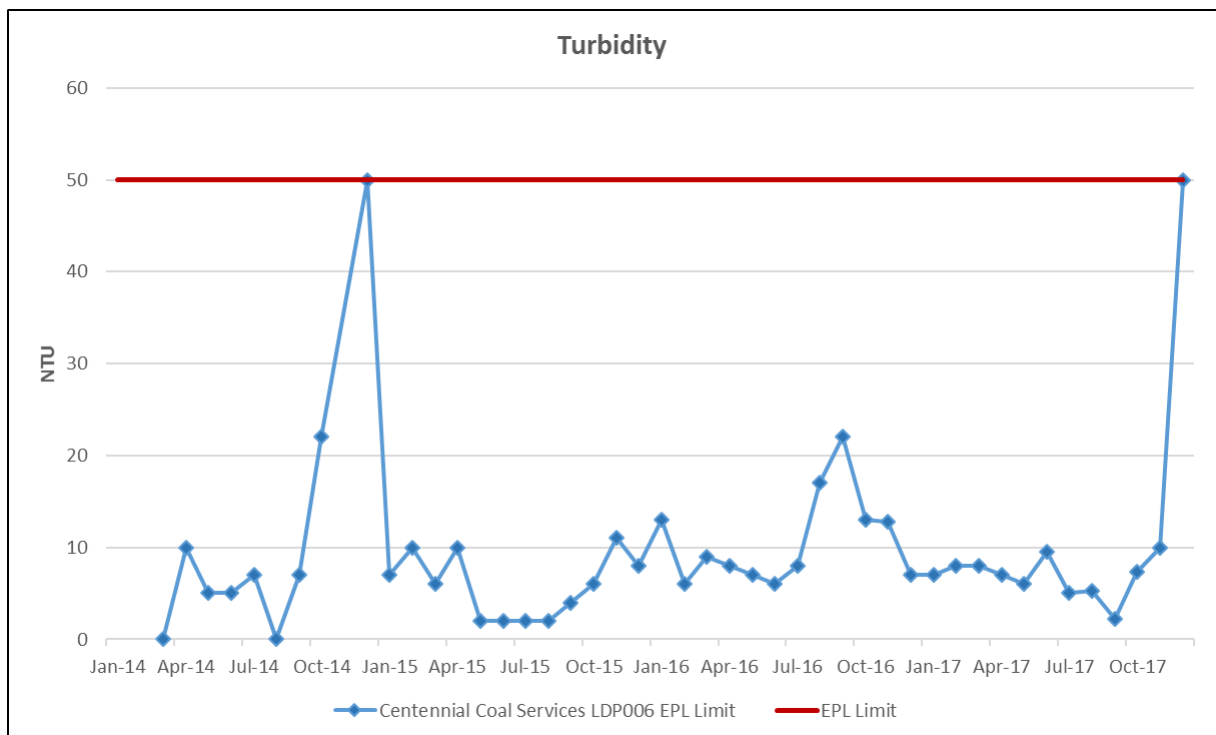


Figure 8-24 – Western Coal Services 2017 LDP006 Turbidity 2014-2017

Filterable iron results are historically variable with spikes recorded during the last half of the reporting period with a maximum of 5.49 mg/L and a minimum of 0.07 mg/L.

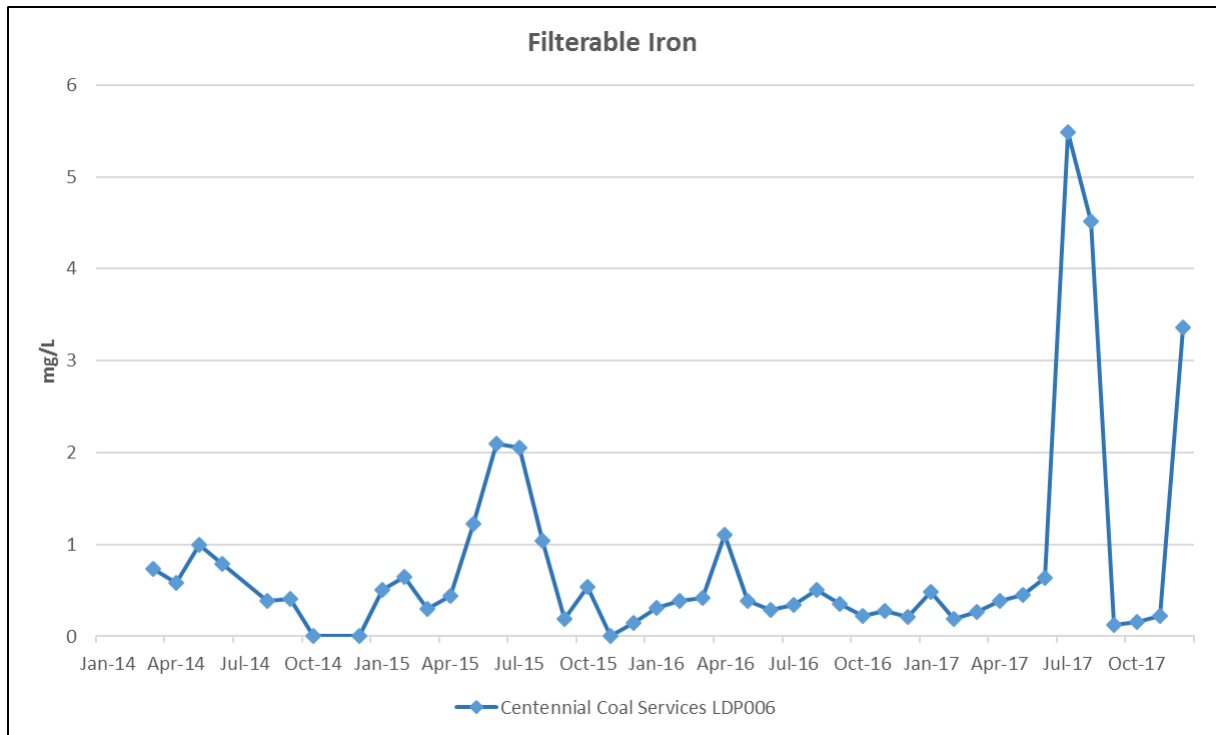


Figure 8-25 – Western Coal Services 2017 LDP006 Filterable Iron 2014-2017

Filterable manganese results are historically variable with a maximum of 8.9 mg/L and a minimum of 0.08 mg/L during the reporting period.

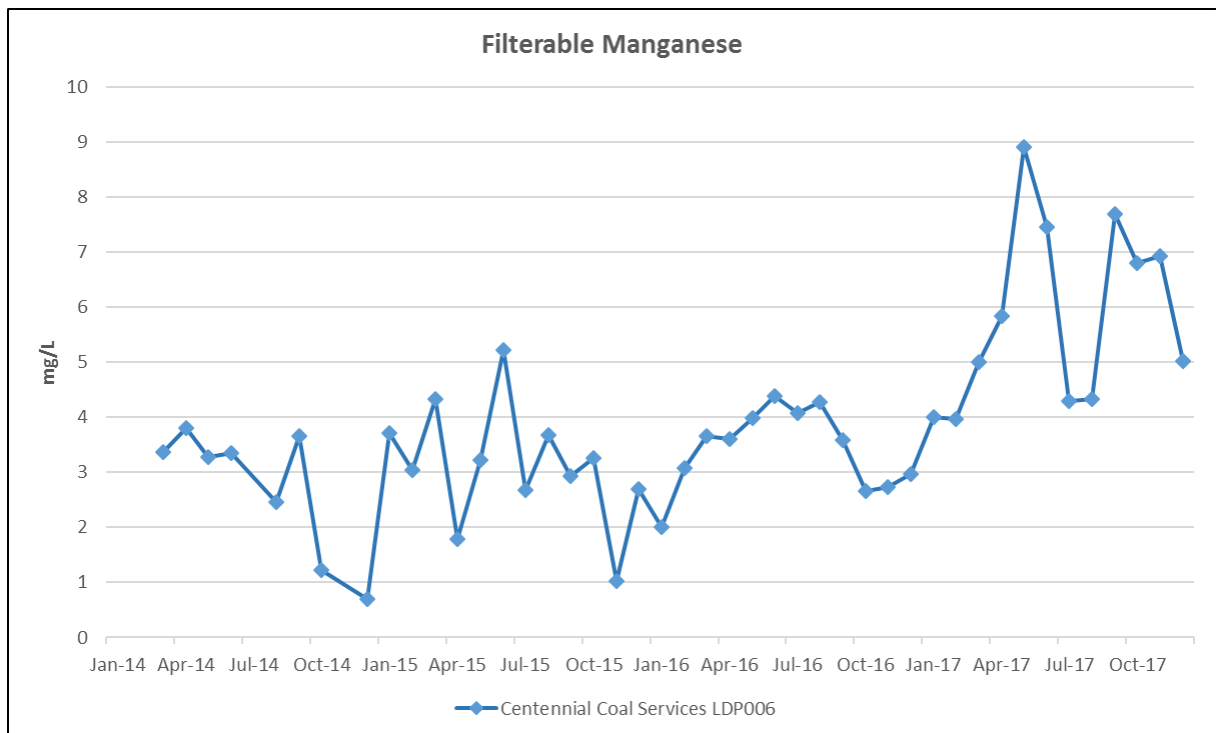


Figure 8-26 – Western Coal Services 2017 LDP006 Filterable Manganese 2014-2017

Appendix H – Biodiversity Information

Summary

The Western Biodiversity Management Plan was submitted to DPE in 2016 with approval (and subsequent implementation) pending.

Vegetation at WCS was cleared in accordance with the SCSS Land Disturbance Permit Management System.

WCS (and other listed Centennial Sites) received a Warning Letter from DPE on 27/06/2017 for failing to secure arrangements for biodiversity offsets by 31/12/2016, or gaining an extension to do so in accordance with Schedule 3, Condition 25 of SSD-5579.

WCS (and other listed Centennial sites) entered into a Voluntary Undertaking with DPE on 14/07/2017 to implement a schedule of works to secure Biodiversity Offset Areas in accordance with Schedule 3, Condition 25 of SSD-5579.

Centennial progressed the Western Region Biodiversity Offset Strategy during 2017, with OEH and DPE in accordance with this Voluntary Undertaking.

A revised Western Region Biodiversity Offset Strategy was submitted to OEH in December 2017 for their endorsement.

Land management actions are proposed to commence on land within the Biodiversity Offset Strategy on approval.

The Centennial Western Operations Regional Biodiversity Management Plan submitted to DPE in 2016 was not approved in 2017.

Upper Cocks River Catchment Aquatic Ecology 2017

The Cocks River catchment is a highly modified environment following historical and current primary production and industrial activities.

In 2017, a coordinated, catchment-wide approach was implemented to understand the overall health of the Upper Cocks River Catchment. The monitoring program suffices the monitoring requirements of Centennial operations and the Springvale Upper Cocks River Action and Monitoring Program.

The monitoring program allows for impacts (positive and negative) within the catchment to be identified.

Future monitoring reports will include outcomes of ecological restoration activities undertaken by Centennial in the Cocks River catchment.

The results of macroinvertebrate sampling conducted in 2017 are preliminary and will be interpreted along with water quality results and a historical review of results from the Cocks River in the Annual Report to be available in March 2018.

Macroinvertebrate samples were collected by GHD during autumn 2017 (09/06/17-14/06/17) and spring 2017 (16/11/17-20/11/17) at the sites indicated in Table 8-12, as part of an integrated Upper Cocks River monitoring program.

Table 8-12 – Macroinvertebrate monitoring locations

Site	Easting MGA 56H	Northing MGA 56H	Description	Site Type	Dates Sampled
Coxs River					
CR0	229753	6309404	Upstream of all Centennial LDPs.	Background	09/06/17 18/11/17
CR1	229828	6307311	Upstream of all Centennial LDPs.	Background	13/06/17 20/11/17
CR2	228767	6305326	Located at the Mount Piper Haul Road crossing, approximately 1 km downstream of Angus Place LDP001. Downstream of Kangaroo Creek.	Background	09/06/17 20/11/17
CR3	228471	6303525	Located downstream of Wangcol Creek and upstream of Sawyers Swamp Creek confluence.	Impact	13/06/17 20/11/17
CR6	228512	6297751	Coxs River downstream monitoring site located below Lake Wallace, on the downstream side of Rocky Waterhole Drive.	Recovery	09/06/17 19/11/17
CR7	228926	6292637	Located in the Lidsdale State Forest approximately 5 km downstream of the Lake Wallace dam wall.	Recovery	12/06/17 19/11/17
Wangcol Creek					
WC1	226147	6305131	Located approximately 700 m upstream of SCSS LDP6.	Background	11/06/17 18/11/17
WC2	226586	6304550	Located approximately 350 m downstream of SCSS LDP6.	Impact	14/06/17 16/11/17
WC3	228325	6304303	Lower Wangcol Creek downstream of SCSS LDP6. 250 m upstream of confluence with the Coxs River.	Impact	14/06/17 16/11/17
WC4	227548	6304294	Lower Wangcol Creek site located between historical sites WC2 and WC3.	Impact	14/06/17 16/11/17

The following macroinvertebrate metrics were calculated:

- Taxa richness – the number of different families/groups collected in a sample
- EPT richness – the number of families belonging to the *Ephemeroptera*, *Plecoptera* and *Trichoptera* groups
- SIGNAL-2 Biotic Index – pollution sensitivity of the macroinvertebrates collected in a sample, expressed as an average. 1 = greatest pollution tolerance, 10 = greatest pollution sensitivity.

A graphical presentation of results is provided in Figure 8-27 to Figure 8-32.

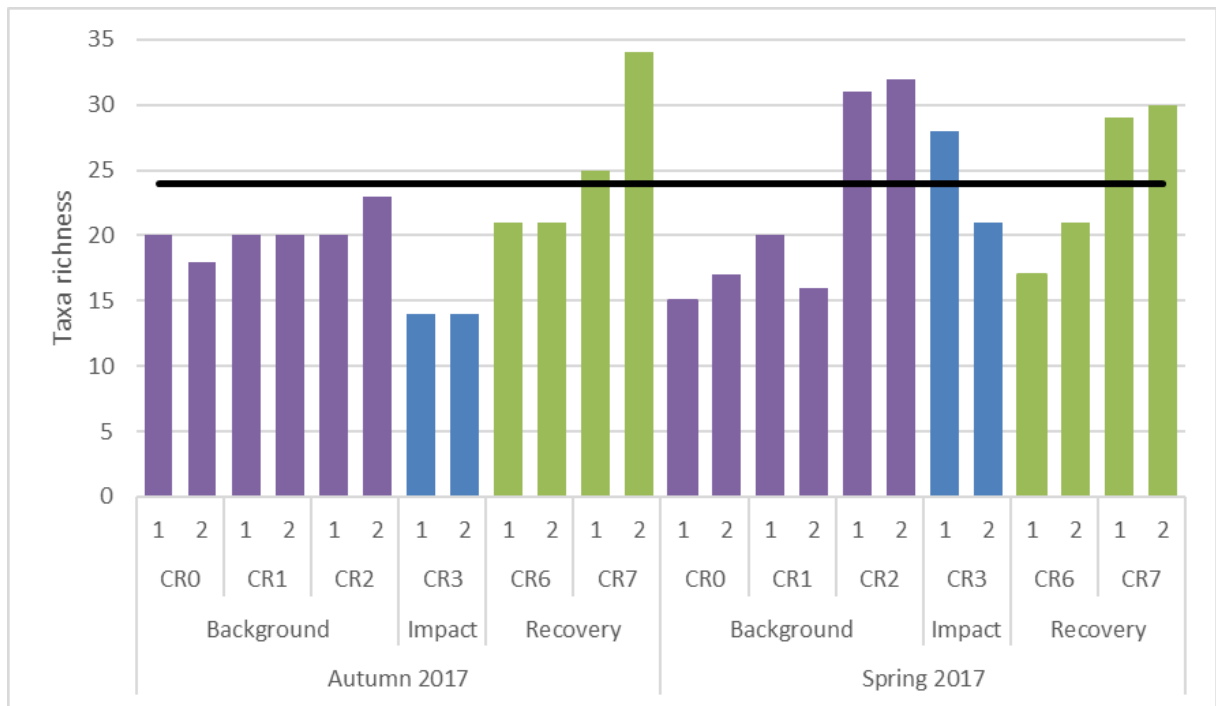


Figure 8-27 – Taxa richness in Coxs River samples associated with Western Coal Services in 2017

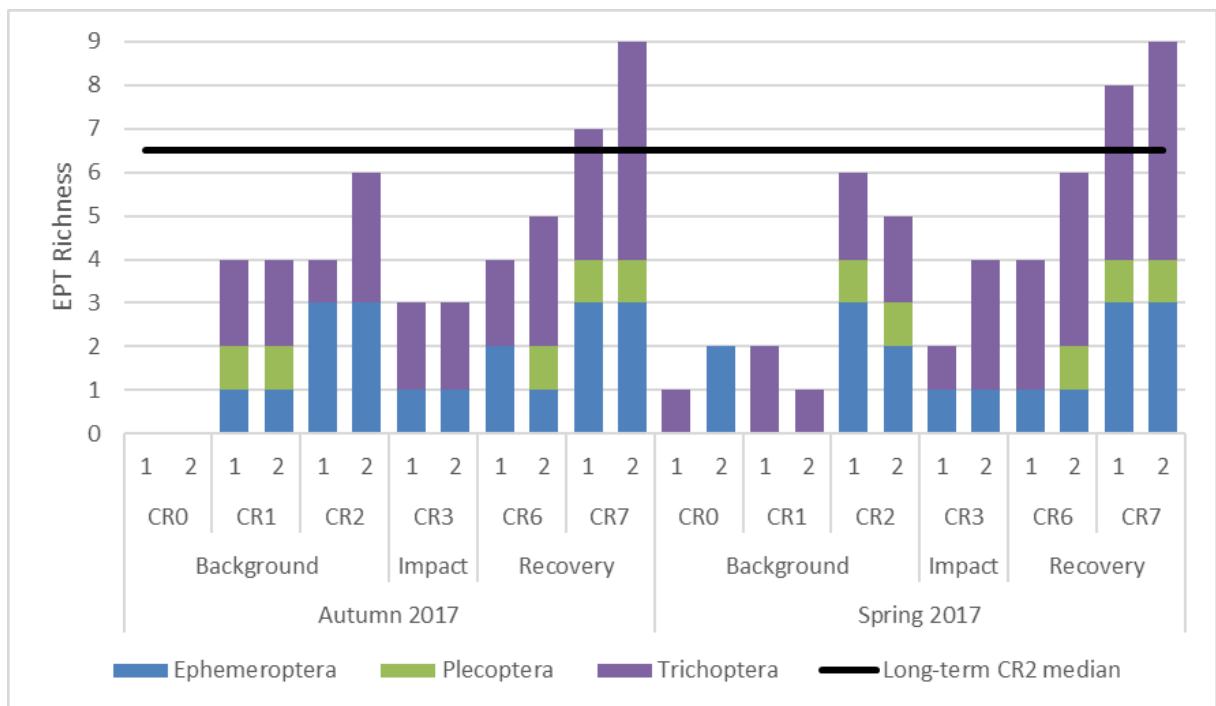


Figure 8-28 – EPT richness in Coxs River samples associated with Western Coal Services in 2017

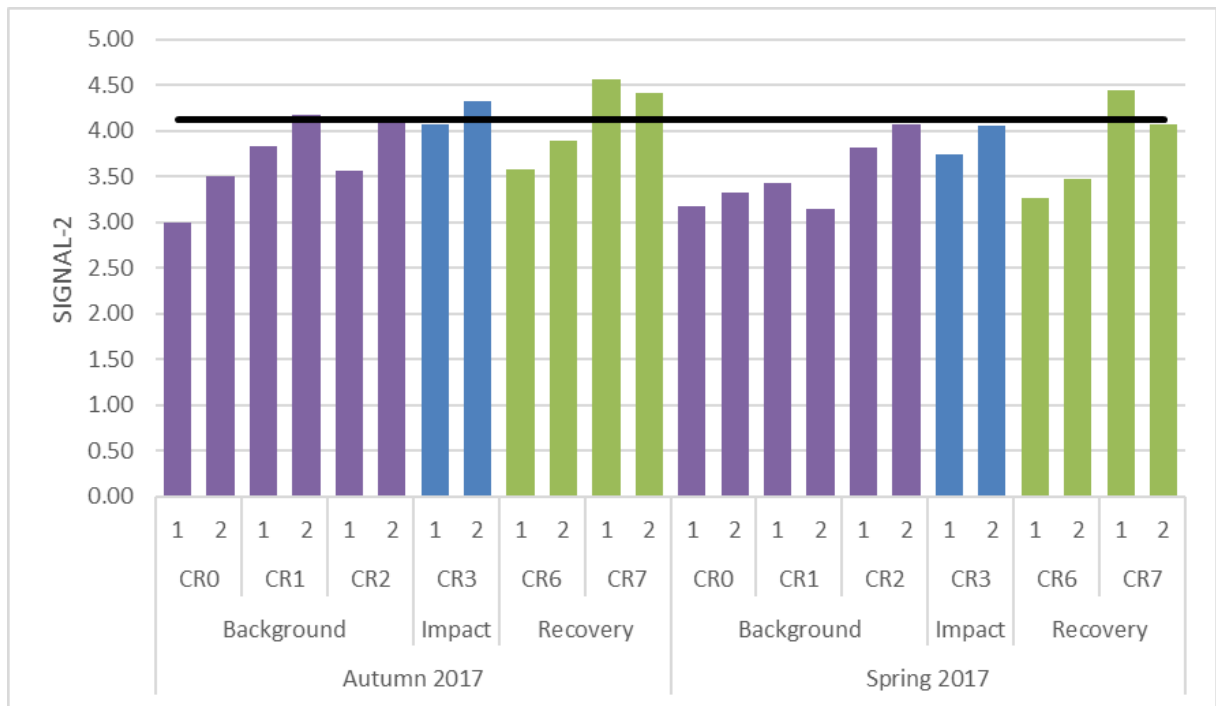


Figure 8-29 – SIGNAL-2 in Cocks River samples associated with Western Coal Services in 2017

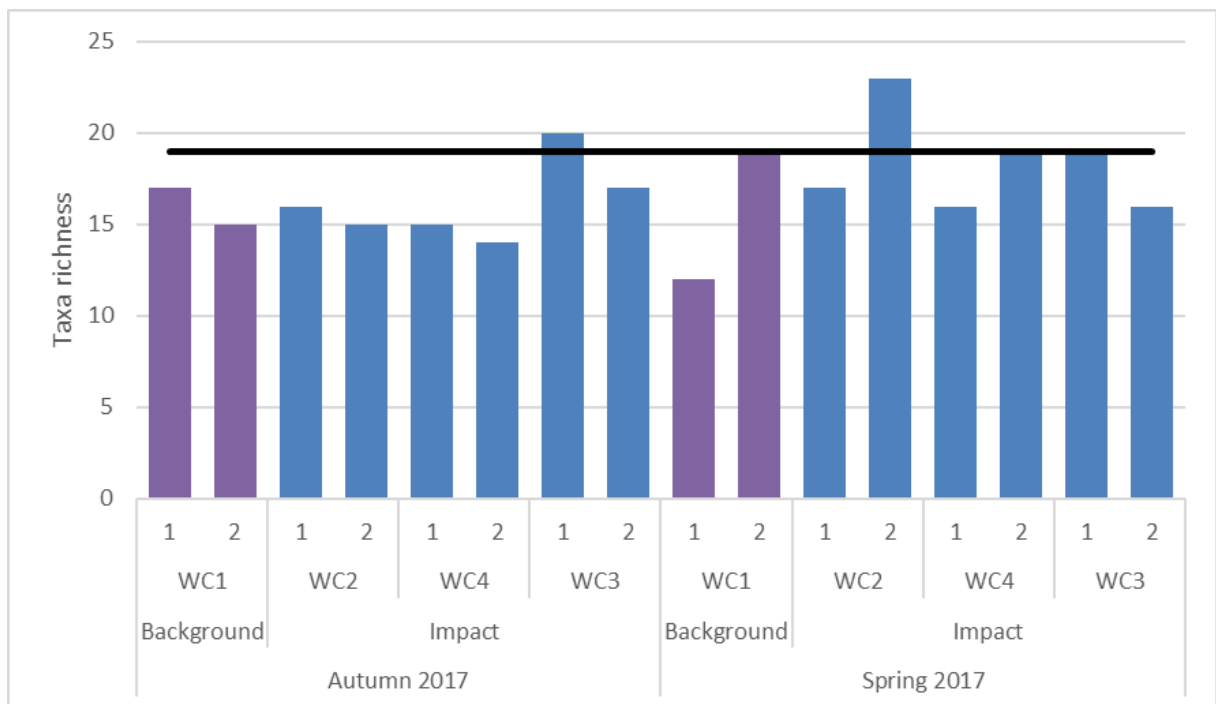


Figure 8-30 – Taxa richness in Wangcol Creek in 2017

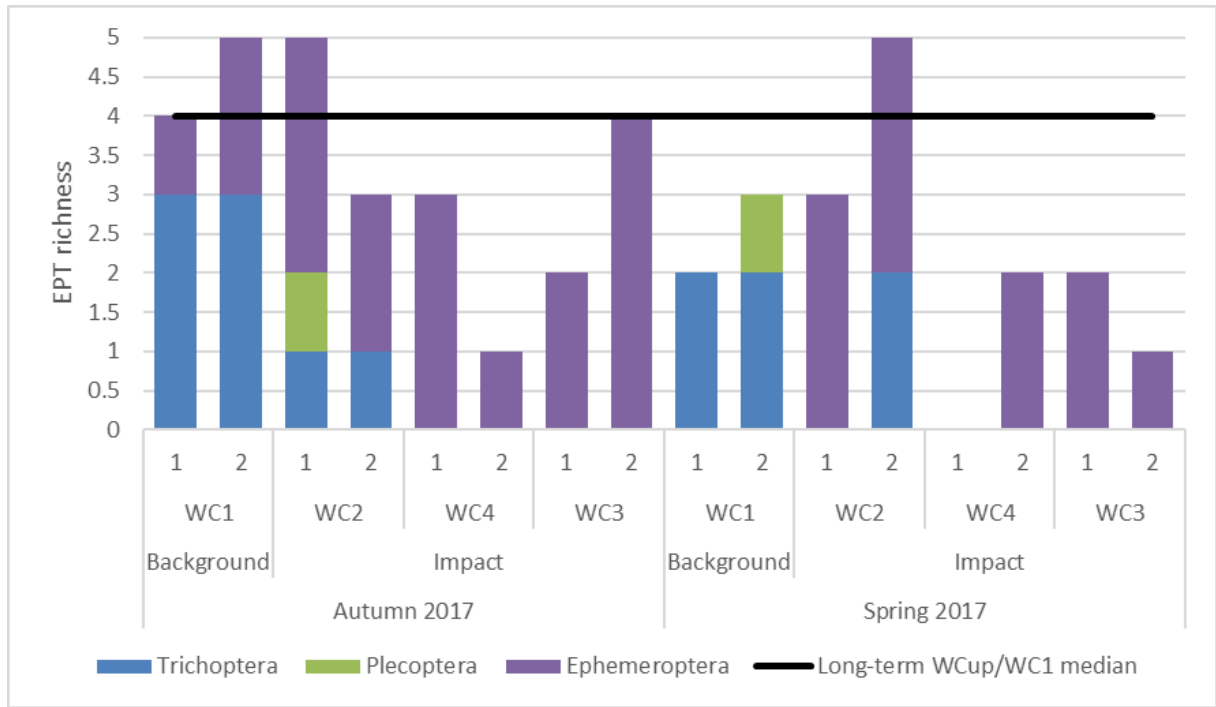


Figure 8-31 – EPT richness in Wangcol Creek in 2017

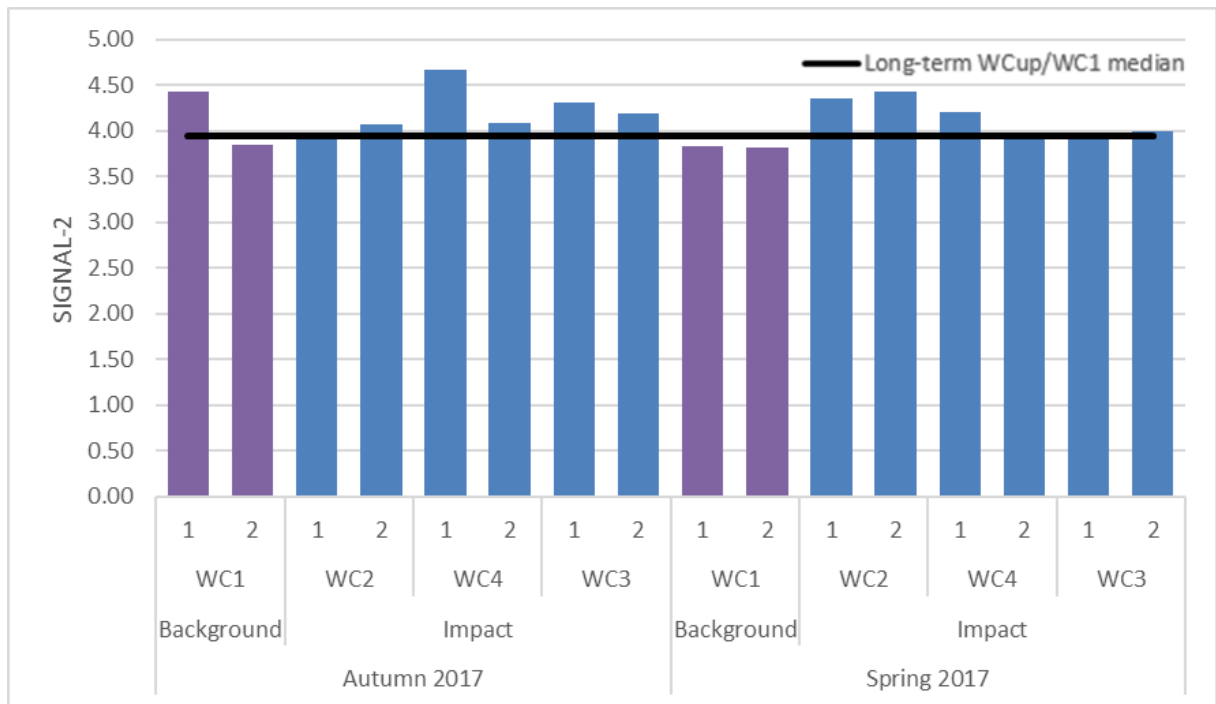


Figure 8-32 – SIGNAL-2 in Wangcol Creek in 2017

Excepting CR7, all sites on the Coks River recorded taxa richness values below the median in winter, whereas values were higher in Spring. Sensitivity metrics showed little difference between sites on the Coks River upstream and downstream of the confluence with Wangcol Creek (CR2 and CR3), and these metrics were actually improved from those at background sites.

Recovery sites showed similar or improved macroinvertebrate metrics compared with the median value, indicating that there was no impact on the aquatic ecology of the Coks River.

Wangcol Creek sites showed similar taxa richness values across all sites, with the majority of samples from both sampling events being below the long-term median. Variable results were observed in EPT richness, with no pattern observable between sites. There were less EPT taxa observed in spring, which may have been a result of lower flows in the creek at that time and subsequent changes in habitat availability.

SIGNAL-2 scores were similar across all sites during both sampling events. This suggests that although less taxa were collected overall, there is little difference in the pollution tolerance of the macroinvertebrate community upstream and downstream of LDP006.

There were no apparent changes in riparian or instream vegetation in Wangcol Creek in 2017 based on comparison to observations by MPR in autumn and spring 2016.

Appendix I – Heritage Information

Western Region Aboriginal Cultural Heritage Committee

Centennial hosted two Western Regional Aboriginal Cultural Heritage Committee meetings on 29 April and 27 September 2017.

These meetings provide a forum for discussion on Indigenous heritage management that relate to the Lidsdale and Wallerawang area from Centennial operations including Western Coal Services, Lidsdale Siding, Springvale Mine and Angus Place Mine.

No specific issues or management actions were identified for Western Coal Services by the committee.

Cultural Heritage Inspections

Cultural Heritage Due Diligence Inspections were completed in 2017 at WCS as summarised below.

Inspection 1 - 03/05/2017

As a condition of Western Coal Services Development Consent (SSD 5579) and Centennial's Western Holdings ACHMP, Western Coal Services is required to undertake a site inspection of 4 x heritage sites outside the disturbance footprint. The site inspections are to be undertaken with representatives from the Registered Aboriginal Parties (RAPs).

The purpose of the archaeological inspection is to identify the site condition and agree on any protection and/or management measures to be implemented. Four Aboriginal heritage sites are located outside of the project disturbance footprint (Table below).

Site ID	Site Name	Easting	Northing
45-1-2749	Nuebecks Creek IF 2	225788.98	6305480.03
45-1-0209	S4-Wallerawang	226404.93	6302739.93
45-1-0210	S3 Wallerawang	226704.89	6302539.92
45-1-0218	57 Blackmans Flat	224504.64	6303839.53
BF JN 1	Blackmans Flat JN1	225191.25	6304132.87

Inspection Summary

The archaeological sites inspection was undertaken by Registered Aboriginal Parties representatives, Jack Pennell from Warrabinga Native Title Claimants Aboriginal Corporation and Patsy Wolfenden from Mingaan Wiradjuri Aboriginal Corporation, Centennial Environmental and Community Coordinator, Neil Thompson, and RPS archaeologist, Jo Nelson, on 3 May 2017.

45-1-2749 – Nuebecks Creek IF 2

Site 45-1-2749 is located immediately to the north of a haul road. The AHIMS site card notes that this site consists of one isolated artefact: a medium-sized core of rusty-brown coloured mudstone. No dimensions were recorded. The site inspection participants could not relocate the recorded artefact. No other artefacts were recorded at this location or immediate area. The location of 45-1-2749 slopes down from the raised haul road to relatively flat, pastoral land. The area is covered in grass. Ground surface visibility (GSV) due to grass coverage is at 5% and ground surface exposure (GSE) is 40% (Plate 2). Due to the proximity to the haul road, there is road base and gravels present. Whilst the isolated artefact could not be relocated, the RAPs were satisfied that since there were no proposed works in this area; that there was no risk of harm to the site.

45-1-0209 - S4-Wallerawang Artefact Scatter

Site 45-1-0209 was originally identified in 1992 prior to the development of the conveyor. The AHIMS site card records this site as consisting of two small (1-3cm) quartz artefacts. The location of the site was verified using GPS and the site was pedestrian surveyed. The site was located atop an eroded elevation with soil comprising of silty sand and intermittent areas of gravel. The site is adjacent to a conveyor separated with high metal fencing (Plate 3). No Aboriginal objects were observed. Whilst the isolated artefact could not be relocated, the RAPs were satisfied that since there were no proposed works in this area; that there was no risk of harm to the site. The GSV of the site location was 70% and the GSE is 90% (Plate 4).

45-1-0210 - S3 Wallerawang Artefact Scatter

Site 45-1-0210 was originally identified in 1992 prior to the development of the conveyor. The AHIMS site card records this site as consisting of six (1-4cm) quartz artefacts. This site is located adjacent to a conveyor, atop an elevation which comprised of sheet wash erosion, vegetation, and leaf and branch litter. The soil is a gravelly, silty sand. The GSV is at 40% and the GSE is 10% (Plate 5). Fourteen quartz artefacts were identified. The increase of observed artefacts from those recorded on the site card is due to the erosive properties of the soil, exposing further stone material.

45-1-0218 - S7 Blackmans Flat Artefact Scatter

Site 45-1-0218 is located at the western edge of Western Services operations. The site is protected by previously installed barrier fencing to protect from impact (Plate 7). The AHIMS site card records this site as consisting of ten predominantly quartz artefacts (1-4cm) along a disused and overgrown track beyond which more artefacts are likely to be present. Seven quartz artefacts were identified during the pedestrian survey for this report (Plate 8). GSV is at 60% and GSE is at 20%.

Archaeological inspection adjacent to ROM Stockpile

An area of approximately 30 square metres was also inspected for Aboriginal objects. The proposed disturbance works are for the installation of a Stemlar Fines Feeder system that will allow coal fines to be blended from Western Coal Services SP02 stockpile and washery with Coal from Springvale Mine Long wall and SP01 along Overland Conveyor 3 (OL3) into Energy Australia.

Disturbances observed in the area consisted of previous vegetation clearance, previous importation of soil infill associated with adjacent gully maintenance, intermittent areas of sheet wash erosion and branch and leaf litter.

New site – BFJN 1 Isolated Find

During the inspection of the area one Aboriginal object was identified. The object was a complete quartzite flake, 2 centimetres in length and approximately 1.3 centimetres in width. The artefact was located atop sandy silty soil consisting of gravel and leaf and branch litter.

45-1-2723 – CS SU4-A1 Isolated Find

AHIMS #45-1-2723 was verified by GPS and one artefact was located and recorded, a quartz artefact. To prevent impact a metre high barrier fence was installed surrounding the site immediately following the archaeological inspection 2 May 2017.

Conclusions and Recommendations

There are no proposed works in the vicinity of AHIMS# 45-1-2749, 45-1-0209 and 45-1-0210. The visual inspection with the RAP representatives did not identify additional mitigation measures to be undertaken at this time. AHIMS#45-1-0218 is in proximity to the REA and vehicle tracks; as such, fencing has been installed to protect this Aboriginal site. RAP representatives were satisfied that this was an appropriate mitigation measure for the site. The proposed works of the Project Area were located in a highly modified landscape. Modifications and disturbances comprised of mine haul roads of coarse coal reject material,

coal stockpile infrastructure and vegetation rehabilitation with intermittent areas of sandy, silty subsoils with pebble and shale fragments associated with vegetation rehabilitation. Disturbances included mine works incorporating coal stockpiling, previous construction of mine haul road and associated drainage areas, powerlines and vegetation rehabilitation areas. The archaeological survey identified one new Aboriginal objects.

Recommendation 1

No additional mitigation measures are required for these sites, as there are no works proposed in their vicinity. If additional works are proposed in the areas comprising AHIMS #45-1-2749, AHIMS #45-1-0209, AHIMS #45-1-0210, AHIMS #45-10218 and new site, BF JN 1, an additional archaeological inspection and assessment should be undertaken in accordance with the Centennial Western Coal Services Aboriginal Cultural Heritage Management Plan (2016).

Recommendation 2

AHIMS #45-1-2723 outside the works footprint (located 80 metres to the south). Onsite personnel must be notified of its location and instructed to avoid the area. The site has been fenced off to protect from inadvertent impact. The fence consists of star pickets and one metre high orange barricade plastic mesh.

Recommendation 3

If additional Aboriginal objects or places are identified during works proposed within this report, a due diligence assessment in accordance with the Centennial Western Coal Services Aboriginal Cultural Heritage Management Plan (2016) must be undertaken.

Recommendation 4

This due diligence report must be kept by Western Coal Services (Centennial Coal) so that it can be presented, if needed, as a defence from prosecution.

Recommendation 5

In the unlikely event that skeletal remains are identified, work must cease immediately in the vicinity of the remains and the area must be cordoned off. The ACHMP (2016) procedures must be followed.

Recommendation 6

If, during the course of development works, suspected historic cultural heritage material is uncovered, work should cease in that area immediately. The Heritage Branch, OEH (Enviroline 131 555) should be notified and works only recommence when an approved management strategy has been developed.

Inspection 2 – 12/05/2017

This inspection was of the approved Reject Emplacement Area (REA) expansion at WCS. The purpose was is to demonstrate that reasonable and practicable measures were taken to prevent harm to an Aboriginal object or place for the removal of vegetation in preparation for the expanding REA.

Inspection Results

The visual inspection of the Project Area was conducted on 18 May 2017 and undertaken by RPS Cultural Heritage Consultant Ben Slack together with RPS Ecologist Joe May, and Centennial Environmental and Community Coordinator, Neil Thompson. The visual inspection was conducted on foot (pedestrian).

The Project Area consists of a working REA and therefore had been heavily modified. Due to the substantial disturbances within the Project Area, the visual inspection focused on three areas of vegetation which showed limited disturbances compared to the surrounding area and will be impacted during works. Two small areas of vegetation are located on the northern side of the REA whilst a large area is located on the southern boundary.

The two small areas of vegetation still contained some levels of disturbances and the surroundings had

undergone considerable modifications). Much of the material from the surrounding WCS workings had eroded down into the area and where surfaces appeared natural they had been subject to severe erosion and contained exposed B Horizon. Surface exposure was relatively good throughout due to surface erosion and disturbances. Raw stone material identified was not suitable for stone tool production. Evidence of waste material being dumped within these areas was observed and revealed the extent of disturbances. Considering the proximity of the waste stockpile and the evidence of disturbances in these two areas it is highly unlikely that any Aboriginal sites would be identified.

The larger area to the south of the REA offered slightly less disturbed terrain as it bordered the previous workings. Some larger trees still existed; all were inspected for evidence of cultural scarring yet none was identified. As with the previous areas, no suitable material could be identified although there was adequate surface exposure and a B Horizon surface was exposed throughout. A small heavily forested section to the east had been recently cleared as revealed by the juvenile trees, surface visibility was low throughout yet surface disturbances were evident.

Inspection Results

No Aboriginal objects or sites were identified as a result of the visual inspection of the area. Ground surfaces, where visible, were inspected for stone artefacts with none identified. Surface visibility and exposures were relatively good; as such there was sufficient exposure and visibility for the identification of Aboriginal objects. The area has undergone considerable modifications as revealed by the substantial earthworks; consequently, all areas are considered as having low potential for unidentified Aboriginal objects to be present. The few mature trees present were inspected for evidence of cultural scarring, but, no such evidence was identified. No natural water sources were identified in the area

Regional patterning suggests shelters are common where landscape supports large outcroppings of sandstone. The area is devoid of such landforms. All areas were subject to some degree of ground disturbances such as mining operations, earthworks or stockpiling.

No Aboriginal objects or places were identified in the area during the visual inspection.

Impact Assessment

The purpose of the due diligence assessment was to identify whether Aboriginal objects are present, or likely to be present, in the area; to determine whether proposed activities are likely to harm Aboriginal objects (if present) and to determine whether an Aboriginal Heritage Impact Permit (AHIP) is required.

The results of the AHIMS search and the visual inspection indicate there are no identified Aboriginal objects in the Project Area. As there are no identified Aboriginal objects in the area it is assessed there is no identified risk of harm to Aboriginal objects and an AHIP is not required for the proposed activity to go ahead.

Conclusions and Recommendations

The report considered the available environmental and archaeological information for the area, the land condition, as well as, the nature of the proposed activities. The visual inspection did not identify Aboriginal objects within the area.

A search was undertaken of the Aboriginal Heritage Information Management System (AHIMS) that revealed 75 previously recorded Aboriginal sites within the search coordinates. Sites in the area have previously undergone surface salvage under Consent# 516 and are therefore no longer extent. Much of the area had been subject to coal stockpiling and is therefore heavily disturbed; also, prior to being used as an REA, much of the surrounding region underwent open cut coal mining. Mature trees were inspected for evidence of cultural modification and exposed ground surfaces were inspected for evidence of

Aboriginal objects or PADs.

No Aboriginal objects or places have been identified within the Project Area.

The following recommendations are made in relation to the proposed activity:

Recommendation 1

All relevant Centennial Coal staff and contractors should be made aware of their statutory obligations for heritage under the National Parks and Wildlife Act 1974 and the Heritage Act 1977, which may be implemented as a heritage induction.

Recommendation 2

This due diligence assessment must be kept by Centennial Coal so that it can be presented, if needed, as a defence from prosecution under Section 86(2) of the National Parks and Wildlife Act 1974.

Recommendation 3

In the event that suspected Aboriginal artefacts are uncovered, works must cease immediately in that area and the protocols detailed in the Centennial Coal's Western Region Aboriginal Cultural Heritage Management Plan are to be followed.

Recommendation 4

If, during the course of development works, significant European cultural heritage material is uncovered, works should cease in that area immediately. Protocols under the Historic Heritage Management Plan – Western region are to be followed and works recommence only when an appropriate and approved management strategy is implemented.

Inspection 3 - 18/07/2017

This inspection included additional areas for Lamberts Gully diversion works for the construction of a gravity fed water diversion line to drain into a pre-existing dam and approximately 150m in length.

A visual inspection was conducted on 18 July 2017 and observed significant disturbances throughout the area. No Aboriginal sites were identified during the inspection.

The area was subject to a previous visual inspection in combination with the Registered Aboriginal Party (RAP) Representatives on the 3rd of May 2017 (inspection 1) and focused on a larger area including four previously registered sites (RPS 2017). Four previously recorded sites were ground truthed during the survey, surface artefacts associated with two sites were identified and one new site was recorded; none of these sites are located close to inspection Area

Inspection Results

The inspection was conducted on 18 May 2017 by RPS Cultural Heritage Consultant Ben Slack together with Centennial Environment and Community Coordinator Neil Thompson. The inspection was conducted on foot (pedestrian).

The area subject to the visual inspection was heavily disturbed due to mining rehabilitation, dirt roads and infrastructure. Ground surface visibility was good at approximately 50% throughout, although this was largely due to the construction of the roadway. The exposures outside of the road margin revealed a waste material from mine workings which has been used in the rehabilitation of the surrounding area. Significant disturbances were noted and the area has undergone substantial modifications during the mines operation. Infrastructure within the Project Area comprised a pump station and electrical poles and earthworks such as dam construction and rehabilitation works. Material observed throughout comprised sandstones, conglomerate, shale and waste coal; no naturally deposited soils or materials could be identified during the visual inspection.

The only vegetation present was a product of the rehabilitation programme and comprised shrubs and some grasses, no mature trees were identified in the area. Considering the extensive disturbances and modifications throughout the area it is highly unlikely that unidentified Aboriginal sites are located within the Project Area.

Impact Assessment

The proposed activity will involve the construction and operation of a water diversion line between two previously constructed dams, the line will be gravity fed. The proposed disturbances involve earthworks and vehicle movements.

The results of the AHIMS search and the visual inspection indicate there are no identified Aboriginal objects in the Project Area. As there are no identified Aboriginal objects in the Project Area, it is therefore considered there is no identified risk of harm to Aboriginal objects.

Conclusions and Recommendations

The inspection report considered the available archaeological information for the area, the land condition and the nature of the proposed activity. The purpose of this investigation was to identify if there was risk of impact to Aboriginal objects for the construction of a water diversion line.

The area was inspected on foot on 18 July 2017. Exposed ground surfaces were inspected for evidence of Aboriginal objects or PADs, no mature trees were identified in the area and significant ground disturbances and modifications were observed.

No Aboriginal objects or places were identified in the area during the visual inspection. The following recommendations were made in relation to the proposed activity.

Recommendation 1

All relevant Centennial Coal staff and contractors should be made aware of their statutory obligations for heritage under the National Parks and Wildlife Act 1974 and the Heritage Act 1977, which may be implemented as a heritage induction.

Recommendation 2

This due diligence assessment must be kept by Centennial Coal so that it can be presented, if needed, as a defence from prosecution under Section 86(2) of the National Parks and Wildlife Act 1974.

Recommendation 3

In the event that suspected Aboriginal artefacts are uncovered, works must cease immediately in that area and the protocols detailed in Centennial Coal's Western Region Aboriginal Cultural Heritage Management Plan are to be followed.

Recommendation 4

If, during the course of development works, significant European cultural heritage material is uncovered, works should cease in that area immediately. Protocols under the Historic Heritage Management Plan – Western region are to be followed and works recommence only when an appropriate and approved management strategy is implemented.

The full reports can be provided on request to regulatory groups.

Due to the size of these reports (16MB) they are too large to insert fully in this Annual Review for sending to regulatory parties.

Relevant information is provided in Tables 4-1 and 4-2 above, with truck movements summary to site provided below.

[illegible]

Appendix K – Visual Information

During the reporting period, visual impacts at WCS complied with Development Consent SSD_5579, Schedule 3, Condition 40.

- No fixed outdoor lights or mobile lighting rigs shined above the horizontal.
- All external lighting associated with the development complied with Australian Standard AS4282.
- Ensured that the visual appearance of all buildings, structures, facilities or works (including paint colours and specifications) was aimed at blending as far as possible with the surrounding landscape.

Appendix L – Bushfire Management Information

Firebreaks were maintained at WCS in 2017 as part of normal grounds maintenance activities.

Fire control equipment was inspected monthly as part of normal operational maintenance.

No fires occurred in the surrounding area that the Rural Fire Services and emergency services required assistance for.

No other activities related to bushfire management were undertaken in the period.

Appendix M – Waste Information

In 2017 WCS implemented all reasonable and feasible measures to minimise the waste (including coal reject) generated by the development.

Coal reject was utilised in the construction of the REA, and for landform completion works for Area 4 in accordance with the WCS MOP.

All waste generated by the development was appropriately stored, handled and disposed.

Offsite disposal of wastes were disposed to licenced facilities as provided below.

REFERENCE	WASTE TYPE	TRANSPORT / DISPOSAL/ TREATMENT FACILITY
DL01	20L and 205L Drums/Aerosol Cans	Renewable Oil Services - Transport Licence: 12991 - Facility License: 13092
DL01	Hydraulic Hoses	Renewable Oil Services - Transport Licence: 12991 - Facility License: 13092
DL01	Oil Rags/Absorbents	Renewable Oil Services - Transport Licence: 12991 - Facility License: 13092
DL01	Acids/Solvents/Paints/Degreaser	Renewable Oil Services - Transport Licence: 12991 - Facility License: 13092
DL01	Hydrocarbons (Oil / Grease)	Renewable Oil Services - Transport Licence: 12991 - Facility License: 13092
DL01	Adhesives/Resins	Renewable Oil Services - Transport Licence: 12991 - Facility License: 13092
DL02	Batteries	Renewable Oil Services will transport to SIM's Metal for Recycling - Transport Licence: 12991 - SIMS Metal Recyclers Facility License: 11264
DL03	E-Waste	Matthews Metal Management - 20132
DL03	Cardboard	JR Richards & Sons - Transport Licence: L10415 Ophir Road Resource Recovery Centre - Facility License: 5956
DL03	Co-mingled Recyclables	JR Richards & Sons - Transport Licence: L10415 Ophir Road Resource Recovery Centre - Facility License: 5956
DL03	Paper	JR Richards & Sons - Transport Licence: L10415 Ophir Road Resource Recovery Centre - Facility License: 5956
DL03	Glass	JR Richards & Sons - Transport Licence: L10415 Ophir Road Resource Recovery Centre - Facility License: 5956
DL03	Plastic Packaging	JR Richards & Sons - Transport Licence: L10415 Ophir Road Resource Recovery Centre - Facility License: 5956
DL03	Asbestos	JR Richards & Sons - Transport Licence: L10415 Lithgow City Council Landfill Facility - Facility License: 6004
DL03	Contaminated Soil	Renewable Oil Services - Transport Licence: 12991 - Facility License: 13092
DL04	Chemicals	Renewable Oil Services will transport to a licensed facility for disposal - Transport Licence 12991 - Hazmat Services Facility License: 13255
DL04	Radioactive Material	Antso - Australian Nuclear Science & Technology Organisation
DL05	Effluent	Bettergrow PTY LTD. Licence: 12529
DL05	Drilling Mud	Bettergrow PTY LTD. Licence: 12529
DL05	Oil Water	Bettergrow PTY LTD. Licence: 12529
DL05	Wash Bay Sludge	Bettergrow PTY LTD. Licence: 12529
DL05	Waste Coolant	Renewable Oil Services - Transport Licence: 12991 - Facility License: 13092
DL06	Green Waste	JR Richards & Sons - Transport Licence: L10415 Lithgow City Council Landfill Facility - Facility License: 6004
DL07	Medical/ Sanitary	ISS Washroom Facilities -
DL08	Oil Filters	Renewable Oil Services - Transport Licence: 11399 - Facility License: 11658
DL09	Printer Toner Cartridges	Close the Loop Recycling Services
DL10	Putrescible Waste	JR Richards & Sons - Transport Licence: L10415 Lithgow City Council Landfill Facility - Facility License: 6004
DL10	Wooden Pallets	JR Richards & Sons - Transport Licence: L10415 Lithgow City Council Landfill Facility - Facility License: 6004
DL11	Putrescible Waste	JR Richards & Sons - Transport Licence: L10415 Lithgow City Council Landfill Facility - Facility License: 6004
DL12	Scrap Metal	Sims Metal - Facility License : 11264
DL13	Secure Documents	Iron Mountain Secure Document destruction
DL14	Fluro Tubes	Dolomatrix Australia (Chemical) - Facility License No: 12628
DL15	Tyres	C&R Tyre Recycling - Facility License No: 11686
DL16	Concrete	Dencol Sand & Soil Centre - Licence No: 20298
DL16	Conveyor Belt	Andromeda Industries
DL16	Diesel Particulate Filters - Contaminated	JR Richards & Sons - Transport Licence: L10415 Suez Resource Recovery Centre Kemps Creek - Facility License: 4068

Appendix N – Rehabilitation Information

Rehabilitation at Western Coal Services was managed in accordance with the approved WCS Mining Operations Plan – December 2015 (MOP) with operations undertaken in compliance with Development Consent SSD_5579, Schedule 3, Condition 43-46. A WCS REA Capping Strategy was submitted to DRG on 28/07/2017 in accordance with a requirement of the WCS MOP 2015 approval. Feedback from the DRG was received on WCS REA Capping Strategy 06/09/2017 that identified additional information to be included in a further review of the strategy. Changes and additional information requested were addressed in a revised strategy submitted as part of the WCS MOP 2017 submission (refer below). WCS submitted a revised MOP on 29/11/2017 to DRG that included;

1. All activities undertaken within the WCS SSD-5579 PAA.
2. A revised Rehabilitation Cost Estimate (RCE) for activities undertaken and proposed for WCS that amalgamated and replaced the previous RCE's for Lambert's Gully and Western Main sites.
3. Information related to the Reject Emplacement Area Capping Strategy to be determined via the implementation of capping and rehabilitation trials.

A range of activities were completed in the WCS MOP revision process including;

1. Reconciliation of all domain disturbance footprints.
2. Reconciliation of closure requirements for all domains.
3. Review and reassessment of all rehabilitation areas and their current status.
4. Revision of the Reject Emplacement Area Capping Strategy.
5. Revision of proposed future activities within the proposed MOP period.
6. Review and formation of a rehabilitation capping trial to validate and inform future Reject Emplacement Area Capping requirements.
7. Revision of proposed rehabilitation monitoring processes.
8. Geotechnical studies of the strategy and sealing options for the proposed Lithgow City Council landfill
9. Revision and consolidation of the RCE as detailed above.

**Approval for the WCS MOP was received in 2018.*

No new rehabilitation was undertaken in 2017. Rehabilitation monitoring was undertaken with various seasonal and periodic weed control programs also completed as detailed in the WCS Rehabilitation Status

Table 8-13 below indicates the WCS Rehabilitation Status

Table 8-13 – Western Coal Services Rehabilitation Status

Mine Area Type	Previous Reporting Period (Actual)	This Reporting Period (Actual)	Next Reporting Period (Forecast)
	2016 (ha)	2017 (ha)	2018 (ha)
Total mine footprint ¹⁰	906	906	906
Total active disturbance ¹¹	164.6	164.6	164.6
Land being prepared for rehabilitation ¹²	22.5	22.5	22.5
Land under active rehabilitation ¹³	40	40	33.7
Completed rehabilitation ¹⁴	0	0	4.3

¹⁰ **Total Mine Footprint:** includes all areas within a mining lease that either have at some point in time or continue to pose a rehabilitation liability due to mining and associated activities. As such it is the sum of total active disturbance, decommissioning, landform establishment, growth medium development, ecosystem establishment, ecosystem development and relinquished lands (as defined in the DRG MOP/RMP Guidelines). Please note that subsidence remediation areas are excluded.

¹¹ **Total Active Disturbance:** includes all areas requiring rehabilitation

¹² **Land being prepared for rehabilitation:** includes the sum of mine disturbed land that is under the following rehabilitation phases – decommissioning, landform establishment and growth medium development (as defined in DRG MOP/RMP Guidelines)

¹³ **Land under active rehabilitation:** includes areas under rehabilitation and being managed to achieve relinquishment – includes 'ecosystem and land use establishment' and 'ecosystem and land use sustainability' (as defined under the DRG MOP/RMP Guidelines)

¹⁴ **Completed rehabilitation:** requires formal sign off from DRG that the area has successfully met the rehabilitation land use objectives or completion criteria

Western Coal Services Rehabilitation Monitoring Program

Annual rehabilitation monitoring at SCSO commenced in 2010, and the 2017 year constitutes the eighth year of data acquisition for some of the monitoring sites.

Monitoring is undertaken across monitoring sites located within rehabilitated areas across the site, within which data are collected using a combination of methodologies and tools developed to assess the performance of the establishing ecosystems.

The monitoring includes the following components: Landscape Function Analysis (LFA), vegetation dynamics, habitat complexity, disturbance assessment and photographic monitoring.

Overall, the applied methodology provides scientifically robust data on the rehabilitated sites, which when compared to the data collected from analogue sites, reflect if the rehabilitation areas are on a trajectory towards a sustainable ecosystem.

In turn, the interpretation of this data enables an assessment of the effectiveness of rehabilitation techniques as well as the development of land management recommendations to address those sites having lower performance rankings.

This is done with the aim of achieving safe, stable, non-polluting and sustainable post-mining vegetation communities which are aligned to the site consent approvals and proposed post-mining land use for the project area, and ultimately achieve the successful relinquishment of mining leases. Rehabilitation objectives are provided in Table 8-14 below.

Table 8-14 – Western Coal Services Rehabilitation Objectives

Feature	Objective
Mine site (as a whole)	Safe, stable, non-polluting.
Revegetated final landforms	<p>Stable and sustain the intended land use.</p> <p>Consistent with surrounding topography to minimise visual impacts.</p> <p>Incorporate relief patterns and designs principles consistent with natural drainage.</p>
Native flora and fauna	<p>Flora species used in rehabilitation selected to re-establish and complement local and regional biodiversity.</p> <p>Rehabilitated areas contribute to achieving self-sustaining biodiversity habitats.</p>

2017 Rehabilitation Monitoring Activities

The suite of monitoring sites forming the SCSO monitoring program is presented in

Table 8-15 and Figure 4 below.

Each monitoring site consists of a 50 metre linear transect delineated by permanently established metal star picket, as well as nested plots (5m x 5m) and quadrats (1m x 1m). Refer descriptive Image below.

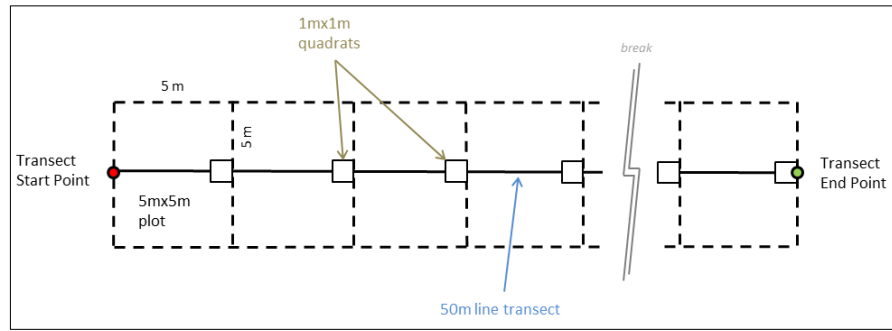


Table 8-15 – Western Coal Services Rehabilitation Monitoring Program – Monitoring sites

Type	Site name	Rehab year	Rehab age	Years monitored							
				2010	2011	2012	2013	2014	2015	2016	2017
Analogue	CSV A3	N/A	N/A			X	X		X		X
	CSV A4	N/A	N/A						X		X
Rehabilitation	CSV R3	2007	8 years	X	X	X	X	X	X	X	X
	CSV R4	1990s	~20 years				X	X	X	X	X
	CSV R5	2007	8 years				X	X	X	X	X
	CSV R6	2007	8 years						X	X	X
	CSV R7 ¹⁵	1990s	~20 years							X	X

¹⁵ New transect established in 2016



Monitoring Results Summary

The following key findings from the 2017 site performance assessment are noted:

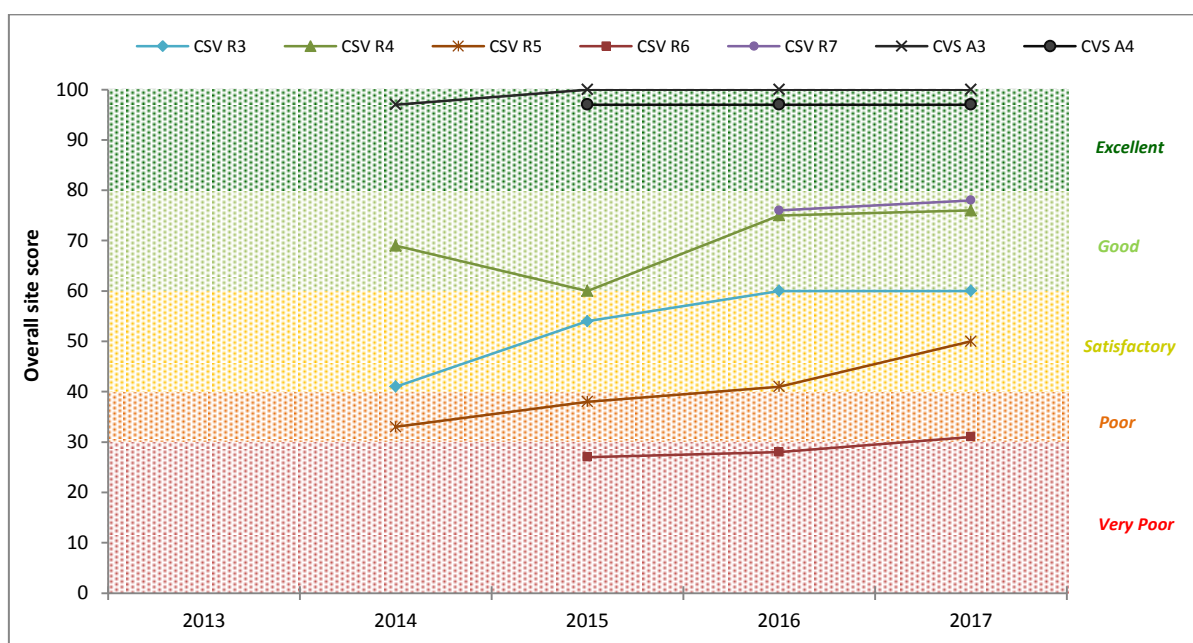
As a function of their older age, vegetation communities at CSV R4 and CSV R7 are well established and have shown little annual change in performance condition. They remained the strongest performing sites and maintained overall scores towards the higher end of the 'good' performance range of values (scores of 76 and 78 respectively, consistent with last year's).

Likewise, rehabilitation condition at CSV R3 remained consistent in 2017 (performance score of 60, same as last year). This site also achieved a 'good' overall performance; however its score was towards the lower end of the 'good' performance range of values.

CSV R5 experienced an increase in performance condition in 2017 (overall score of 50 against 41 in 2016), however remained within the 'satisfactory' performance range of values. This increase in overall site score was attributable to the improved LFA results recorded at this site in 2017.

A very slight improvement in performance condition was recorded for CSV R6 in 2017 with an overall score of 31 (against 28 in 2016). Overall rehabilitation performance however remained 'poor' at this site and, consistently with previous years, the poorest of all monitoring sites.

Overall site scores 2014-2017 are provided in image below.



Monitoring Conclusions and Recommendations

The 2017 monitoring results – together with previous years data, indicate that rehabilitation performance scores generally are on a slowly improving trend across the site (particularly for those areas of younger rehabilitation).

Areas of older rehabilitation maintained good to excellent performance which compared positively against the benchmarks set by the analogue sites, particularly in terms of landform stability, ground cover and vegetation structure. Overall, these areas appear to be on a trajectory towards achieving a vegetation community meeting the site's rehabilitation objectives, with one notable exception being the lack of long-lived canopy eucalypt species at CSV R7 which may prove detrimental over the long term.

In contrast, performance condition remained well below analogue benchmarks in areas of younger rehabilitation, which can be expected given the relatively young age of rehabilitation (9 years). Given the

overall absence of severe disturbance factors across these areas (i.e. erosion, weeds), it is expected that condition should keep improving over time. However at the time of the 2017 monitoring the following key deficiencies remain in younger rehabilitated areas:

1. Poor to very poor ground cover (grass cover or litter cover) resulting in poor landscape function,
2. Lack of a suitable surface growing media (topsoil or suitable alternative),
3. Sub-adequate vegetation community structure, particularly with sparse densities of eucalypt trees (especially at CSV R5 and CSV R6) – resulting in poor foliage canopy cover,
4. Limited and/or stunted vegetation growth (likely linked to deficiencies in the growing media); and
5. Poor habitat complexity and ecological niches as available to native fauna.

Although some of these parameters should naturally improve over time, others may require management actions in order to ensure self-sustaining rehabilitated landforms. In particular, any remediation works and ameliorative actions should in priority target those sites that show the lowest performance as reflected by their overall site rating (refer to Section 8.0).

The key lessons learned from the annual monitoring program and the key factors to address in order to improve the performance of post mined rehabilitated lands at WCS include:

1. Selection of appropriate species in the revegetation mix, including species for all strata including ground cover herbaceous species together with longer living species of lower storey shrubs and upper canopy species (eucalypts).
2. Undertake regular walkthrough of rehabilitated areas post localised heavy rainfall events (i.e. >25mm) to visually monitor for the occurrence of localised erosion and consider implementing remediation works as required if overall landform stability gets compromised.
3. Undertake maintenance tubestock plantings of endemic canopy eucalypt species in areas where trees are failing to establish – including older rehabilitation areas around CSV R7. Species selected for plantings should be aligned to the targeted native vegetation communities and include species known to succeed at the site and on post-mined rehabilitated lands locally.
4. Consider implementing a weed control program specifically targeting Blackberry in older rehabilitation areas (and also St John's Wart which although not recorded in 2017, was recorded in previous years) whilst the populations are at a manageable level.
5. Due to the lack of topsoil, the younger rehabilitated areas would greatly benefit from the addition / spread of organic material on the surface to enhance ground cover and organic matter. This can be in the form of brush material from local native plants, wood chips/mulch, compost, bio-solids, etc.

For all future rehabilitation areas or re-work/maintenance areas, the following should be considered:

1. If topsoil is not to be used, it is recommended that a suitable alternative (for example mulch, compost or bio-solids) is considered for surface spreading during early rehabilitation works to enhance ground cover and soil organic matter content.
2. Use fast establishing and fast growing non-persistent cover crop species (such as Japanese Millet, cereal Rye-corn or Oats) to protect and stabilise the soil surface during the early phase of the rehabilitation program and to help kick-start the soil nutrient cycling process.
3. Install habitat structures such as rock or timber emplacements, stag trees as well as water features such as dams to encourage fauna re-colonisation and provide sheltered sites for plant regeneration as well as assisting in the prevention of erosion.
4. A clear lesson from this monitoring program is that vegetation community composition and structure is best achieved in areas where canopy eucalypt species have been established through tubestock plantings. It is recommended that this practice is considered in future rehabilitation activities – i.e. direct seeding can first be undertaken across the area with a species mix containing ground covers and low/mid storey shrub species (primary colonisers), then followed by eucalypt tubestock plantings at adequate densities throughout.

The full report can be provided on requested to regulatory groups.

Due to the size of this report (14MB) it is too large to insert fully in this Annual Review for sending to regulatory parties.

Appendix O – Community Information

Community Information Line

A community information line is available for WCS to receive calls from the local community. The community information line (6355 9500) operates 24 hours a day, 7 days a week.

Community Consultation Committee Meetings

Community Consultation meetings were held in April and October and an Extraordinary Meeting held in August 2017.

Community Consultation Committee Meetings provide a forum for discussion on issues of interest to the community that relate to the Lidsdale and Wallerawang area from Centennial operations including Western Coal Services, Lidsdale Siding, Springvale Mine and Angus Place Mine, including a review of community complaints in the period.

No specific issues action or management actions were identified for Western Coal Services by the committee.

Community Consultation Committee meeting minutes for 2017 are uploaded to the Centennial Coal website and can be viewed at

<https://data.centennialcoal.com.au/domino/centennialcoal/cc205.nsf/Published.xsp?site=Springvale%20Coal%20Services&type=Community%20Consultative%20Committee&date=All>

Community Complaints

In accordance with Schedule 5, Condition 11a, WCS is required to make a complaints register available monthly on the Centennial Coal website. Figure 8-33 graphically presents community complaints from April 2014 to December 2017.

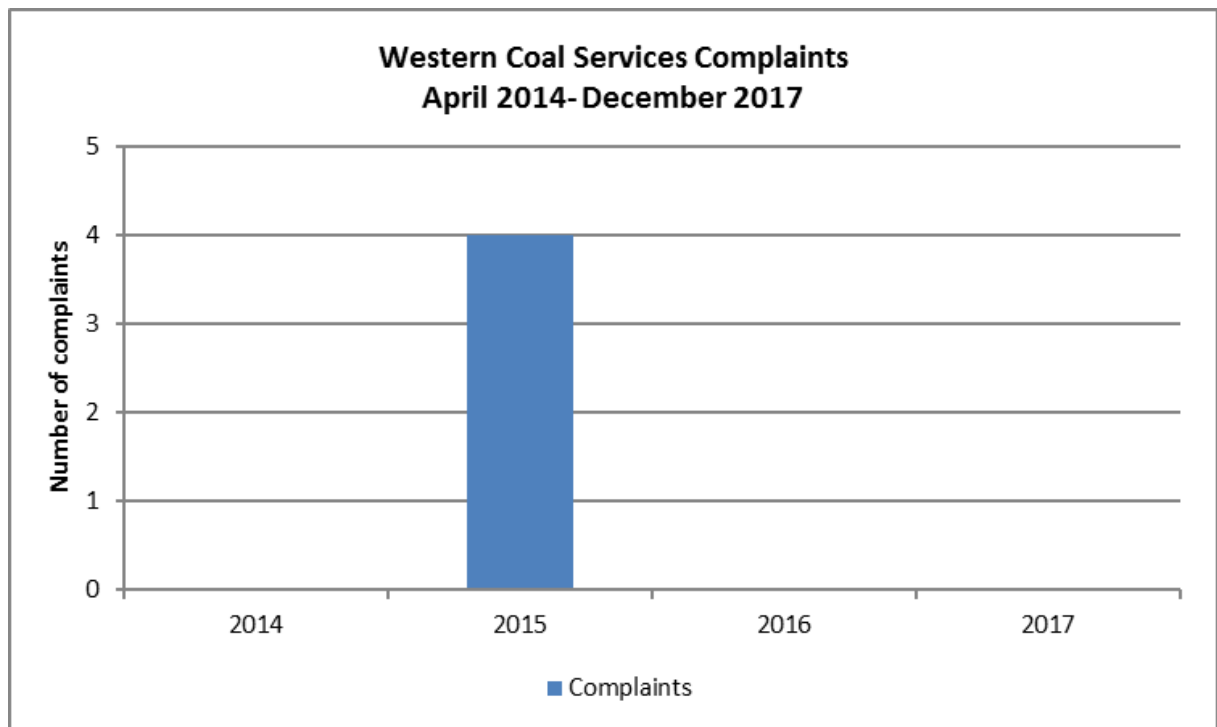


Figure 8-33 – Western Coal Services Historical Complaints

The community complaints register is provided in Table 8-16 and can be viewed at <https://data.centennialcoal.com.au/domino/centennialcoal/cc205.nsf/Published.xsp?site=Springvale%20Coal%20Services&type=Community%20Complaints%20Register&date=All>.

Table 8-16 – Western Coal Services Community Complaints Register

Period	Complaint Reference Number	Complaint Date	Complaint Information	Springvale Coal PTY Limited Response
April 2014	-	-	Nil complaints received	-
May 2014	-	-	Nil complaints received	-
June 2014	-	-	Nil complaints received	-
July 2014	-	-	Nil complaints received	-
August 2014	-	-	Nil complaints received	-
September 2014	-	-	Nil complaints received	-
October 2014	-	-	Nil complaints received	-
November 2014	-	-	Nil complaints received	-
December 2014	-	-	Nil complaints received	-
January 2015	4/2015/ccapp1000197	28/01/2015	A resident of Wolgan Road complained of a noisy roller on the overland conveyor system.	The noisy roller was identified and removed approximately an hour after the complaint was received. The resident was satisfied with the action taken.
February 2015	4/2015/ccapp1000199	05/02/2015	Abnormal conveyor roller noise identified by resident.	Defective roller identified adjacent to Skelly Road. Roller was replaced at 10 am on 05/02/15.
March 2015	4/2015/ccapp1000220	09/03/2015	Abnormal noise from the overland conveyor identified by complainant.	Coal technicians immediately investigated the overland conveyor for abnormal noise emissions and unable to identify noise source. The issue either self-corrected or was not related to the overland conveyor system. The complainant advised the noise was no longer evident when contacted at approximately 10 am on the 9 March 2015. No further action required.
March 2015	4/2015/ccapp1000216	24/03/2015	A visitor of a resident staying in a caravan at the residents property adjacent to the operations advised of increased noise disturbance from the overland conveyor.	An inspection of the overland conveyor failed to detect any abnormal operation of the conveyor adjacent to the property. The resident was advised that no defects identified on the overland conveyor adjacent to the property. March 2015 attended noise monitoring results were provided to resident.
April 2015	-	-	Nil complaints received	-
May 2015	-	-	Nil complaints received	-
June 2015	-	-	Nil complaints received	-
July 2015	-	-	Nil complaints received	-

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Period	Complaint Reference Number	Complaint Date	Complaint Information	Springvale Coal PTY Limited Response
August 2015	-	-	Nil complaints received	-
September 2015	-	-	Nil complaints received	-
October 2015	-	-	Nil complaints received	-
November 2015	-	-	Nil complaints received	-
December 2015	-	-	Nil complaints received	-
January 2016	-	-	Nil complaints received	-
February 2016	-	-	Nil complaints received	-
March 2016	-	-	Nil complaints received	-
April 2016	-	-	Nil complaints received	-
May 2016	-	-	Nil complaints received	-
June 2016	-	-	Nil complaints received	-
July 2016	-	-	Nil complaints received	-
August 2016	-	-	Nil complaints received	-
September 2016	-	-	Nil complaints received	-
October 2016	-	-	Nil complaints received	-
November 2016	-	-	Nil complaints received	-
December 2016	-	-	Nil complaints received	-
January 2017	-	-	Nil complaints received	-
February 2017	-	-	Nil complaints received	-
March 2017	-	-	Nil complaints received	-
April 2017	-	-	Nil complaints received	-
May 2017	-	-	Nil complaints received	-
June 2017	-	-	Nil complaints received	-
July 2017	-	-	Nil complaints received	-
August 2017	-	-	Nil complaints received	-
September 2017	-	-	Nil complaints received	-
October 2017	-	-	Nil complaints received	-
November 2017	-	-	Nil complaints received	-
December 2017	-	-	Nil complaints received	-

Appendix P – Independent Audit Information

MCW Environmental was engaged by Ivanhoe Coal Pty Ltd to carry out an independent environmental audit of the Western Coal Services facility. The audit was undertaken during the first quarter of 2016.

The recommendations made by the auditor are in an action plan which has been submitted to the DPE. Actions are entered into the Centennial Compliance Database and actions assigned to the appropriate personnel for completion.

An update on performance is provided in Table 8-17.

Table 8-17 – Independent Audit Summary

Condition Number	Condition	Compliance Status	Status
SSD-5579 C2.9	<p>Surrender of Existing Development Consents</p> <p>Prior to the end of December 2015, or as otherwise agreed by the Director-General, the Applicant shall surrender all existing development consents or approvals that it holds for the site in accordance with section 104A of the EP&A Act.</p> <p><i>Please refer to Table 10-1, Independent Environmental Audit (IEA) - Western Coal Services, for additional condition text and tables.</i></p>	Non-compliant	<p>On 4 April 2014, Centennial was granted Development Consent (SSD-5579) for the WCS Project.</p> <p>Centennial, in accordance with Condition 9 Schedule 2 of the Development Consent conditions, is required to surrender all existing development approvals relating to the WCS operations.</p> <p>In accordance with Section 97(1)(e) of the Environmental Planning and Assessment Regulation 2000, landowner consent is required to be obtained in order to surrender the consents.</p> <p>One development approval (DA 06-0017 as modified) is in existence over the WCS operations.</p> <p>DA 06-0017 was granted by the (then) Minister for Planning on 12 May 2006.</p> <p>This development consent is no longer relevant to the WCS operations as all operations at the facility are now covered by SSD-5579.</p> <p>As such the development approval is required to be surrendered by Centennial.</p> <p>In 2015 and 2016, gap analysis of the SSD-5579 Development Consent verses Development Consent DA 06-0017 was completed that demonstrated that SSD-5579 provides ongoing authorisation for coal transport and processing operations until the 30 June 2039.</p> <p>DA 06-0017 is on land owned by Energy Australia, and Centennial Springvale Pty Limited and Springvale Kores Pty Limited as joint tenants.</p> <p>Consultation with Energy Australia commenced in April 2016 with formal landowner consent to surrender DA 06-0017 was received in June 2016.</p> <p>Internal Centennial consultation with Joint venture land owners Centennial Springvale Pty Limited and Springvale Kores Pty Ltd was completed in Q3 and Q4 2016, with formal landowner consent to surrender DA 06-0017 was received in December 2016.</p> <p>WCS submitted a revised MOP on 29/11/2017 to DRG that included a revised Rehabilitation Cost Estimate (RCE) for activities undertaken and proposed for WCS that amalgamated and replaced the previous RCE's for Lambert's Gully and Western Main sites.</p> <p>Approval of this MOP and associated amalgamation of previous RCE's into a consolidated WCS RCE was the final action required (previously unidentified) to complete actions allowing the surrender of the DA 06-0017.</p> <p>Approval for the MOP was received in Q1 2018, and as such Formal surrender of consent DA 06-0017 is proposed to be completed in Q2 2018.</p>

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Condition Number	Condition	Compliance Status	Status
SSD-5579 3.6	<p>Hours of Operation</p> <p>Except for the carrying out of construction, the Applicant shall comply with the operating hours in Table 2.</p> <p><i>Please refer to Table 10-1, Independent Environmental Audit (IEA) - Western Coal Services, for additional condition text and tables.</i></p>	Compliant	<p>As detailed in Table 4-2 above all operations complied.</p> <p>No changes as previously reported in the 2016 Annual Review have occurred.</p>
SSD-5579 3.7	<p>Noise Criteria</p> <p>Except for the carrying out of construction, and for the land in Table 1, the Applicant shall ensure that the noise generated by the development does not exceed the criteria in Table 3 at any residence on privately owned land.</p> <p><i>Please refer to Table 10-1, Independent Environmental Audit (IEA) - Western Coal Services, for additional condition text and tables.</i></p>	Non-compliant	<p>A Penalty Notice was issued by DPE to WCS for noise exceedances and failure to comply with SSD_5570 Schedule 3 Condition 7 on 31/01/2017 from July 2014 to December 2016 on 30/01/2017.</p> <p>A Draft Order was issued by DPE to WCS for noise exceedances and failure to comply with SSD_5570 Schedule 3 Condition 7 on 31/01/2017.</p> <p>WCS provided the DPE a response to the Draft Orders and Penalty Notice on 17/02/2017. This response included ;</p> <ol style="list-style-type: none"> 1. A request that the Draft Order was not issued. 2. Outline of noise mitigation work carried out to date. 3. A Work Plan setting out proposed activities for ensuring that its operations WCS reduce their noise and achieve compliance with consented noise limits. 4. A communications strategy. 5. A commitment to provide regular updates of progress on noise mitigation works. <p>Responses, actions, and reporting in accordance with the WCS works plan were conducted throughout 2017.</p> <p>Numerous consultations, meetings, and discussions were facilitated between WCS representatives the DPE and other stakeholders in 2017 around noise management, MOD 2, and revised noise impact assessment works.</p> <p>Specific items that were completed were reported in Works Plan quarterly updates provided to the DPE including the following items completed specific to WCS:</p> <ol style="list-style-type: none"> 1. MOD 2 of SSD_5579 was submitted and approved to for changes to the applicability of noise criteria from noise generated by the operation of the overland coal conveyor, Wallerawang haul road or Mount Piper haul road, and for requirements to prepare and implement a Noise Reduction Study for the overland coal conveyor and SCSS. 2. Additional installation of low noise idlers across sections of the Overland Conveyor system in the Lidsdale area. <p>Noise monitoring was undertaken in accordance with the WRNMP (2016) and stated commitments from the Works Plan in 2017.</p> <p>The WRNMP (2017) submission was not approved by the DPE in the period for the WCS appendix (F).</p>
SSD-5579 3.8	<p>Operating Conditions</p> <p>The Applicant shall:</p> <ol style="list-style-type: none"> a) Implement best management practice to minimise the construction, operational and road noise of the development; b) Operate a comprehensive noise management system 	Non-compliant	<p>A Penalty Notice was issued by DPE to WCS for noise exceedances and failure to comply with SSD_5570 Schedule 3 Condition 7 on 31/01/2017 from July 2014 to December 2016 on 30/01/2017.</p> <p>A Draft Order was issued by DPE to WCS for noise exceedances and failure to comply with SSD_5570 Schedule 3 Condition 7 on 31/01/2017.</p> <p>WCS provided the DPE a response to the Draft Orders and Penalty Notice on 17/02/2017. This response included ;</p>

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Condition Number	Condition	Compliance Status	Status
	<p>that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide the day-to-day planning of coal transport and processing operations, and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions of this consent;</p> <p>c) Minimise the noise impacts of the development during meteorological conditions under which the noise limits in this consent do not apply (see Appendix 5);</p> <p>d) Co-ordinate noise management on site with the noise management of other approved developments and/or projects on or in the vicinity of the site to minimise cumulative noise impacts; and</p> <p>e) Carry out regular monitoring to determine whether the development is complying with the relevant conditions of this consent, to the satisfaction of the Director-General.</p>		<ol style="list-style-type: none"> 1. A request that the Draft Order was not issued. 2. Outline of noise mitigation work carried out to date. 3. A Work Plan setting out proposed activities for ensuring that its operations WCS reduce their noise and achieve compliance with consented noise limits. 4. A communications strategy. 5. A commitment to provide regular updates of progress on noise mitigation works. <p>Responses, actions, and reporting in accordance with the WCS works plan were conducted throughout 2017.</p> <p>Numerous consultations, meetings, and discussions were facilitated between WCS representatives the DPE and other stakeholders in 2017 around noise management, MOD 2, and revised noise impact assessment works.</p> <p>Specific items that were completed were reported in Works Plan quarterly updates provided to the DPE including the following items completed specific to WCS:</p> <ol style="list-style-type: none"> 1. MOD 2 of SSD_5579 was submitted and approved to for changes to the applicability of noise criteria from noise generated by the operation of the overland coal conveyor, Wallerawang haul road or Mount Piper haul road, and for requirements to prepare and implement a Noise Reduction Study for the overland coal conveyor and SCSS. 2. Additional installation of low noise idlers across sections of the Overland Conveyor system in the Lidsdale area. <p>Noise monitoring was undertaken in accordance with the WRNMP (2016) and stated commitments from the Works Plan in 2017.</p> <p>The WRNMP (2017) submission was not approved by the DPE in the period for the WCS appendix (F).</p>
SSD-5579 3.9	<p>Noise Management Plan</p> <p>The Applicant shall prepare and implement a Noise Management Plan for the development to the satisfaction of the Director-General. This plan must:</p> <ol style="list-style-type: none"> a) Be prepared in consultation with the EPA, and submitted to the Director-General for approval within 4 months of the date of this approval, unless otherwise agreed by the Director-General; b) Describe the measures that would be implemented to ensure compliance with the noise criteria and operating conditions in this consent; c) describe the proposed noise management system in detail; and d) Include a monitoring program that: <ul style="list-style-type: none"> - evaluates and reports on: <ul style="list-style-type: none"> • the effectiveness of the on-site noise management system; • compliance against the noise criteria in this consent; and • compliance with the noise 	Compliant	<p>The WCS NMP was included in the WRNMP approved in 2016</p> <p>Where periodic and regular internal review and audit of WCS compliance to the WMP indicate various items to modify in the plan, amendment is proposed in accordance with approval timelines in accordance with formal processes established by Centennial for the variation and amendment to regional plans.</p> <p>The WRNMP was amended in April 2017 to meet approval timelines for the Airlie Mine approval.</p> <p>The WRNMP (2017) submission was not approved by the DPE in the period for the WCS appendix (F).</p>

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Condition Number	Condition	Compliance Status	Status
	<p>operating conditions;</p> <ul style="list-style-type: none"> - includes a program to calibrate and validate real-time noise monitoring results with attended monitoring results over time (so the real-time noise monitoring program can be used as a better indicator of compliance with the noise criteria and as a trigger for further attended monitoring); and - defines what constitutes a noise incident, and includes a protocol for identifying and notifying P&I and relevant stakeholders of any noise incidents. 		
SSD-5579 3.20 and EPL L1.1	<p>Water Pollution</p> <p>Unless an EPL authorizes otherwise, the Applicant shall comply with Section 120 of the POEO Act.</p>	Non-Compliant	<p>WCS received a Show Cause Notice from DPE on 16/06/2017 where DPE had formed the view that there are reasonable grounds to believe that WCS had failed to comply with Schedule 3, Condition 23 of the SSD_5579 made from observations at Transfer Tower 03 (TT03) where:</p> <ol style="list-style-type: none"> 1. Coal fines had been transported by water flow and had deposited in areas off site. 2. Coir logs and sediment fencing had been installed along the fence line, however erosion channels had formed through/under the erosion controls allowing the transport of coal fines off site. 3. A rock dam had been constructed outside of the boundary of the site to capture coal fines, however this was full and had overflowed, and allowing overflow of coal fines. 4. A gully had formed along overland conveyor 3 that was directed towards the open gate, allowing coal fines to be transported off site with no controls. 5. A bund had been installed under overland conveyor 3 that diverted water flows under the conveyor away from the sediment trap near the transfer tower allowing coal fines to be transported offsite. 6. There were no erosion and sediment controls along overland conveyor 4 preventing off site movement of coal fines. <p>WCS provided a response to DPE on 07/07/2017 in relation to the above non-compliance.</p> <p>WCS received 3 x Penalty Notices in relation to this Non Compliance:</p> <ol style="list-style-type: none"> 1. Issued on the 18/08/2017 by the NSW Department of Planning and Environment (DPE) for Failure to comply with Schedule 3 Condition 23 of SSD-5579. 2. Issued on the 13/10/2017 by the NSW Department of Planning and Environment (DPE) for Breaching Condition Authorisation of ML1352. 3. Issued on the 13/10/2017 by the NSW Department of Planning and Environment (DPE) for Breaching Condition Authorisation of ML1352. <p>WCS entered into a voluntary undertaking with the DPE on the 31/10/2017 to implement actions and options to prevent future transport of coal fines off site in the vicinity of TT03.</p> <p>WCS provided various correspondence and works plan updates as part of the requirements of this Voluntary Undertaking in 2017, and progressed and completed numerous items in relation to identified actions.</p> <p>The WCSWMP was updated to incorporate changes to site operations and the outcomes of the Project Approval Modification (MOD 1) and was submitted to the DPE for</p>

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Condition Number	Condition	Compliance Status	Status
			<p>review in the reporting period.</p> <p>The WCSWMP is compliant with all applicable development consent conditions, EIS commitments, Water Licensing and EPL requirements.</p>
SSD-5579 3.22	The Applicant shall manage the remediation of WCS and the Kerosene Vale Coal Stockpile Area to the satisfaction of the EPA.	Compliant	<p>Centennial have been communicating with the EPA on the progression of rehabilitation at WCS and Kerosene Vale.</p> <p>On the 3 June 2015 a copy of the Phase 2 Land Contamination Report was submitted to the EPA, and in March 2016 additional groundwater data was provided to the EPA at their request.</p> <p>Centennial shall commence preliminary works at Kerosene Vale in accordance with the objectives of the WCS MOP</p>
SSD-5579 3.23	<p>The Applicant shall comply with the performance measures in Table 10 to the satisfaction of the Director-General.</p> <p><i>Please refer to Table 10-1, Independent Environmental Audit (IEA) - Western Coal Services, for additional condition text and tables.</i></p>	Non-Compliant	<p>WCS received a Show Cause Notice from DPE on 16/06/2017 where DPE had formed the view that there are reasonable grounds to believe that WCS had failed to comply with Schedule 3, Condition 23 of the SSD_5579 made from observations at Transfer Tower 03 (TT03) where:</p> <ol style="list-style-type: none"> 1. Coal fines had been transported by water flow and had deposited in areas off site. 2. Coir logs and sediment fencing had been installed along the fence line, however erosion channels had formed through/under the erosion controls allowing the transport of coal fines off site. 3. A rock dam had been constructed outside of the boundary of the site to capture coal fines, however this was full and had overflowed, and allowing overflow of coal fines. 4. A gully had formed along overland conveyor 3 that was directed towards the open gate, allowing coal fines to be transported off site with no controls. 5. A bund had been installed under overland conveyor 3 that diverted water flows under the conveyor away from the sediment trap near the transfer tower allowing coal fines to be transported offsite. 6. There were no erosion and sediment controls along overland conveyor 4 preventing off site movement of coal fines. <p>WCS provided a response to DPE on 07/07/2017 in relation to the above non-compliance.</p> <p>WCS received 3 x Penalty Notices in relation to this Non Compliance:</p> <ol style="list-style-type: none"> 1. Issued on the 18/08/2017 by the NSW Department of Planning and Environment (DPE) for Failure to comply with Schedule 3 Condition 23 of SSD-5579. 2. Issued on the 13/10/2017 by the NSW Department of Planning and Environment (DPE) for Breaching Condition Authorisation of ML1352. 3. Issued on the 13/10/2017 by the NSW Department of Planning and Environment (DPE) for Breaching Condition Authorisation of ML1352. <p>WCS entered into a voluntary undertaking with the DPE on the 31/10/2017 to implement actions and options to prevent future transport of coal fines off site in the vicinity of TT03.</p> <p>WCS provided various correspondence and works plan updates as part of the requirements of this Voluntary Undertaking in 2017, and progressed and completed numerous items in relation to identified actions.</p> <p>The WCSWMP was updated to incorporate changes to site operations and the outcomes of the Project Approval Modification (MOD 1) and was submitted to the DPE for review in the reporting period.</p> <p>The WCSWMP is compliant with all applicable development consent conditions, EIS commitments, Water Licensing and</p>

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Condition Number	Condition	Compliance Status	Status
			EPL requirements.
SSD-5579 3.24	<p>Water Management Plan</p> <p>The Applicant shall prepare and implement a Water Management Plan for the development to the satisfaction of the Director-General. This plan must:</p> <p>Be prepared in consultation with the EPA, SCA, NOW, LCC, Forestry Corporation of NSW and Energy Australia by suitably qualified and experienced person/s whose appointment has been approved by the Director-General;</p> <p>Be submitted to the Director-General for approval within 4 months of the date of this consent, unless otherwise agreed by the Director-General;</p> <p><i>Please refer to Table 10-1, Independent Environmental Audit (IEA) - Western Coal Services, for additional condition text and tables.</i></p>	Compliant	<p>The WCSWMP was updated to incorporate changes to site operations and the outcomes of the Project Approval Modification (MOD 1) and was submitted to the DPE for approval in the reporting period.</p> <p>The WCSWMP is compliant with all applicable development consent conditions, EIS commitments, Water Licensing and EPL requirements.</p> <p>The WMP review included appropriate water management procedures for the operation to ensure compliance with monitoring requirements specified in approvals, licenses and management plans, including triggers for duplicate samples to be taken for licensed discharge points, and a comprehensive review of surface water modelling, ground water modelling, site water and salt balances, hydrogeological studies, and a range of other items associated with the proposed modification of the WCS Development Consent SSD_5579 to receive residuals from the proposed Springvale Water Treatment Plant project (SWPT).</p>
SSD-5579 3.44	<p>Progressive Rehabilitation</p> <p>The Applicant shall progressively rehabilitate the site, including the Kerosene Vale Stockpile Area, as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim rehabilitation strategies must be employed where areas prone to dust generation are not subject to active operations but cannot yet be permanently rehabilitated.</p>	Compliant	<p>Centennial have been communicating with the EPA on the progression of rehabilitation at WCS and Kerosene Vale.</p> <p>On the 3 June 2015 a copy of the Phase 2 Land Contamination Report was submitted to the EPA, and in March 2016 additional groundwater data was provided to the EPA at their request.</p> <p>Centennial shall commence preliminary works at Kerosene Vale in accordance with the objectives of the Rehabilitation and Closure Plan. These will include:</p> <ul style="list-style-type: none"> • Disposal of the inert waste material at a licensed waste facility. • Finalisation of the 2013 draft Asbestos Assessment Report. • Undertaking of soil testing and characterisation to determine soil additives and fertilizer requirements. • Progressive revegetation of the stockpiles using direct sowing techniques. • Review of the application of sediment and erosion controls at Kerosene vale, focusing on sediment control at primary sources such as the stockpile. <p>Preliminary works at Kerosene Vale will be completed by 30 June 2017.</p> <p>All rehabilitation works at Kerosene Vale nominated within the approved Mining Operations Plan (MOP) will be completed by the end of the MOP term, October 2022.</p>
SSD-5579 5.2	<p>Adaptive Management</p> <p>The Applicant shall assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in this consent. Any exceedance of these criteria and/or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation. Where any exceedance of these criteria and/or performance measures</p>	Non-Compliant	<p>Water</p> <p>WCS received a Show Cause Notice from DPE on 16/06/2017 where DPE had formed the view that there are reasonable grounds to believe that WCS had failed to comply with Schedule 3, Condition 23 of the SSD_5579 made from observations at Transfer Tower 03 (TT03) where:</p> <ol style="list-style-type: none"> 1. Coal fines had been transported by water flow and had deposited in areas off site. 2. Coir logs and sediment fencing had been installed along the fence line, however erosion channels had formed through/under the erosion controls allowing the transport of coal fines off site. 3. A rock dam had been constructed outside of the boundary of the site to capture coal fines, however this was full and had overflowed, and

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Condition Number	Condition	Compliance Status	Status
	<p>has occurred, the Applicant must, at the earliest opportunity:</p> <p>Take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;</p> <p>Consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and</p> <p>Implement remediation measures as directed by the Secretary, to the satisfaction of the Director-General.</p>		<p>allowing overflow of coal fines.</p> <ol style="list-style-type: none"> 4. A gully had formed along overland conveyor 3 that was directed towards the open gate, allowing coal fines to be transported off site with no controls. 5. A bund had been installed under overland conveyor 3 that diverted water flows under the conveyor away from the sediment trap near the transfer tower allowing coal fines to be transported offsite. 6. There were no erosion and sediment controls along overland conveyor 4 preventing off site movement of coal fines. <p>WCS provided a response to DPE on 07/07/2017 in relation to the above non-compliance.</p> <p>WCS received 3 x Penalty Notices in relation to this Non Compliance:</p> <ol style="list-style-type: none"> 1. Issued on the 18/08/2017 by the NSW Department of Planning and Environment (DPE) for Failure to comply with Schedule 3 Condition 23 of SSD-5579. 2. Issued on the 13/10/2017 by the NSW Department of Planning and Environment (DPE) for Breaching Condition Authorisation of ML1352. 3. Issued on the 13/10/2017 by the NSW Department of Planning and Environment (DPE) for Breaching Condition Authorisation of ML1352. <p>WCS entered into a voluntary undertaking with the DPE on the 31/10/2017 to implement actions and options to prevent future transport of coal fines off site in the vicinity of TT03.</p> <p>WCS provided various correspondence and works plan updates as part of the requirements of this Voluntary Undertaking in 2017, and progressed and completed numerous items in relation to identified actions.</p> <p>Noise</p> <p>A Penalty Notice was issued by DPE to WCS for noise exceedances and failure to comply with SSD_5570 Schedule 3 Condition 7 on 31/01/2017 from July 2014 to December 2016 on 30/01/2017.</p> <p>A Draft Order was issued by DPE to WCS for noise exceedances and failure to comply with SSD_5570 Schedule 3 Condition 7 on 31/01/2017.</p> <p>WCS provided the DPE a response to the Draft Orders and Penalty Notice on 17/02/2017. This response included ;</p> <ol style="list-style-type: none"> 6. A request that the Draft Order was not issued. 7. Outline of noise mitigation work carried out to date. 8. A Work Plan setting out proposed activities for ensuring that its operations WCS reduce their noise and achieve compliance with consented noise limits. 9. A communications strategy. 10. A commitment to provide regular updates of progress on noise mitigation works. <p>Responses, actions, and reporting in accordance with the WCS works plan were conducted throughout 2017.</p> <p>Numerous consultations, meetings, and discussions were facilitated between WCS representatives the DPE and other stakeholders in 2017 around noise management, MOD 2, and revised noise impact assessment works.</p> <p>Specific items that were completed were reported in Works Plan quarterly updates provided to the DPE including the following items completed specific to WCS:</p> <ol style="list-style-type: none"> 3. MOD 2 of SSD_5579 was submitted and approved to for changes to the applicability of noise criteria from noise generated by the operation of the

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Condition Number	Condition	Compliance Status	Status
			<p>overland coal conveyor, Wallerawang haul road or Mount Piper haul road, and for requirements to prepare and implement a Noise Reduction Study for the overland coal conveyor and SCSS.</p> <p>4. Additional installation of low noise idlers across sections of the Overland Conveyor system in the Lidsdale area.</p> <p>Biodiversity</p> <p>WCS (and other listed Centennial Sites) received a Warning Letter from DPE on 27/06/2017 for failing to secure arrangements for biodiversity offsets by 31/12/2016, or gaining an extension to do so in accordance with Schedule 3, Condition 25 of SSD-5579.</p> <p>WCS (and other listed Centennial sites) entered into a Voluntary Undertaking with DPE on 14/07/2017 to implement a schedule of works to secure Biodiversity Offset Areas in accordance with Schedule 3, Condition 25 of SSD-5579.</p> <p>Centennial progressed the Western Region Biodiversity Offset Strategy during 2017, with OEH and DPE in accordance with this Voluntary Undertaking.</p> <p>A revised Western Region Biodiversity Offset Strategy was submitted to OEH in December 2017 for their endorsement.</p>
L2.2	Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.	Compliant	All monitoring and reporting of discharges in 2017 was undertaken in compliance with approval conditions.
SoC 3.3	Material haulage will be managed to maintain compliance with the approved noise criteria on the private Haul Roads.	Compliant	<p>As detailed in Table 4-2 above all operations complied.</p> <p>No changes as previously reported in the 2016 Annual Review have occurred.</p> <p>No noise exceedances in 2017 were attributed to haulage.</p>
SoC 3.4	Reduction of truck movements along Mt Piper Haul Road during prevailing noise enhancing weather conditions in order to meet the nominated Project Specific Noise Criteria. The default level will be zero trucking during these conditions until such time as noise monitoring confirms the truck movements required to meet the Project Specific Noise Criteria during these conditions.	Compliant	<p>As detailed in Table 4-2 above all operations complied.</p> <p>No changes as previously reported in the 2016 Annual Review have occurred.</p> <p>No noise exceedances in 2017 were attributed to haulage.</p>
SoC 5.7	Apply for a separate EPL covering the entire PAA that includes LDP 003 (Kerosene Vale Stockpile Area) and LDP 006 and LDP 007 (conveyor at Duncan Street, Lidsdale).	Non-Compliant	<p>WCS operates in accordance with an existing Environmental Protection Licence EPL 3607.</p> <p>Centennial have initiated discussions with the Environment Protection Authority (EPA) in relation to application and timing for an independent EPL for WCS.</p>
SoC 5.11	<p>To better understand the groundwater linkages, within 12 months of Project Approval, a baseline groundwater monitoring program will be established for the Springvale Coal Services Site. The baseline groundwater monitoring program will include:</p> <ul style="list-style-type: none"> Quarterly monitoring of water levels from a network of monitoring bores following the completion of construction; Six monthly sampling of monitoring bores for field 	Compliant	<p>Ground Water management at WCS was included in investigations under the Upper Cocks River Action and Monitoring Plan submitted to the Secretary for approval in September 2016 following consultation with various stakeholders including WaterNSW, DPI-Water, the Environment Protection Authority and Energy Australia.</p>

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Condition Number	Condition	Compliance Status	Status
	<p>analysis of pH, EC and temperature and laboratory analysis on major ions, pH, EC, TDS, dissolved arsenic, cadmium, chromium, copper, iron, lead, manganese, nickel and zinc; and</p> <ul style="list-style-type: none">• An annual review so that its capacity as an accurate predictive tool can be assessed and maintained.		

Appendix Q – Incidents and Non-Compliances

Figure 8-34 summarises the incidents by element and category occurring at Western Coal Services during the reporting period.

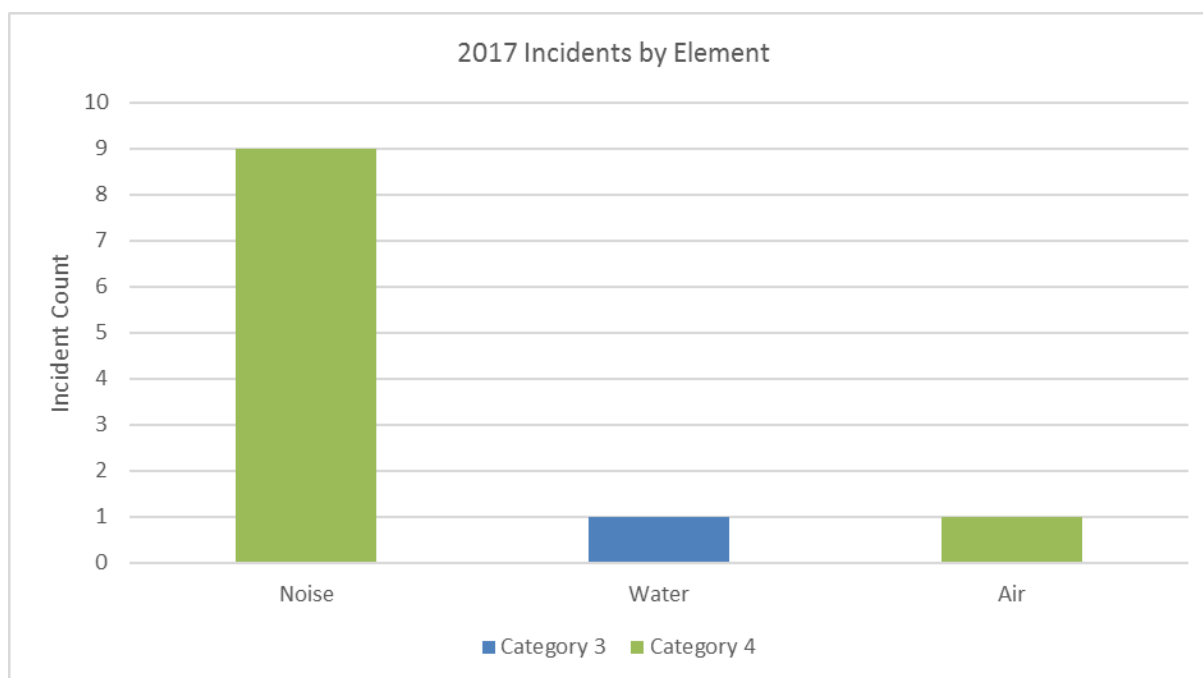


Figure 8-34 – Summary of Environmental Incidents

Table 8-18 contains a summary for each incident and/or non-compliance during the Annual Review reporting period.

Table 8-18 – Incident/Non-Compliance Summary¹⁶

Nature of the incident/non-compliance	Development Consent SSD_5579, Condition 3.7 EPL 3607, L4.1 Exceedance of noise limits
Date of incident/ non-compliance	16/01/2017; 17/01/2017; 15/02/2017; 16/02/2017; 04/05/2017; 13/06/2017; 14/06/2017; 26/07/2017; 27/07/2017; 09/08/2017; 10/08/2017; 11/09/2017; 12/09/2017; 17/10/2017; 12/12/2017; 13/12/2017
The location of the incident/ non-compliance (include a figure if appropriate), if known	NM1, NM2, NM3, NM4, NM6, NM7
Incident category	4
Detail the cause of the incident/non-compliance, including investigation findings	The exceedance of the noise criteria is related to conveyor operations and CHPP continuum.
Detail action that has been, or will be, taken to mitigate	Specific items that were completed were reported in noise Works

¹⁶ A **Category 4 incident**, within Centennial's incident reporting system is one that is reportable to government as a condition of approval/license; is outside predictions; has the potential to cause environmental harm; requires remediation; is the result of a community complaint.

A **Category 3 incident** is one where a penalty Infringement notice has been received or remediation is required or environmental harm has occurred (either on or off site) or is likely to occur (either on or off site)

A **Category 2 incident** is one where the company has been convicted of an offence in a court of law, being a Tier 2 offence under the POEO Act, significant actual or potential material harm to the environment or significant remediation is required.

A **Category 1 incident** is one where the company has been convicted of an offence in a court of law, being a Tier 1 offence under the POEO Act or major actual or potential harm to the environment.

any adverse effects of the incident/ non-compliance	<p>Specific items that were completed were reported in Works Plan quarterly updates provided to the DPE including the following items completed specific to WCS:</p> <ol style="list-style-type: none"> 1. MOD 2 of SSD_5579 was submitted and approved to for changes to the applicability of noise criteria from noise generated by the operation of the overland coal conveyor, Wallerawang haul road or Mount Piper haul road, and for requirements to prepare and implement a Noise Reduction Study for the overland coal conveyor and SCSS. 2. Additional installation of low noise idlers across sections of the Overland Conveyor system in the Lidsdale area. <p>Additionally works identified in the WCS 2018 Noise Reduction Study will be completed.</p>
Detail action that has been, or will be, taken to prevent recurrence of the incident/ non-compliance	<p>Specific items that were completed were reported in Works Plan quarterly updates provided to the DPE including the following items completed specific to WCS:</p> <ol style="list-style-type: none"> 3. MOD 2 of SSD_5579 was submitted and approved to for changes to the applicability of noise criteria from noise generated by the operation of the overland coal conveyor, Wallerawang haul road or Mount Piper haul road, and for requirements to prepare and implement a Noise Reduction Study for the overland coal conveyor and SCSS. 4. Additional installation of low noise idlers across sections of the Overland Conveyor system in the Lidsdale area. <p>Additionally works identified in the WCS 2018 Noise Reduction Study will be completed.</p>
Consultation with relevant agency (who, when and the response), or agencies if more than one	DPE have been informed on each exceedance occasion as well as several meetings to discuss regional noise management issues and proposed changes with EPA and other stakeholders.

Nature of the incident/non-compliance	Development Consent SSD_5579, Condition 3.24 ML 1352, Condition 5(b) Surface water runoff
Date of incident/ non-compliance (if known; if not known state not known)	02/06/2017
The location of the incident/ non-compliance (include a figure if appropriate), if known	Coal fines observed migrating offsite at TT03.
Incident category	3
Detail the cause of the incident/non-compliance, including investigation findings	Controls at Transfer Tower 03 (TT03) between OL3 and OL4 had not been maintained in accordance with the Centennial Western Coal Services Project Water Management Plan.
Detail action that has been, or will be, taken to mitigate any adverse effects of the incident/ non-compliance	<p>WCS entered into a voluntary undertaking with the DPE on the 31/10/2017 to implement actions and options to prevent future transport of coal fines off site in the vicinity of TT03.</p> <p>WCS provided various correspondence and works plan updates as part of the requirements of this Voluntary Undertaking in 2017, and progressed and completed numerous items in relation to identified actions.</p>
Detail action that has been, or will be, taken to prevent recurrence of the incident/ non-compliance	<p>WCS entered into a voluntary undertaking with the DPE on the 31/10/2017 to implement actions and options to prevent future transport of coal fines off site in the vicinity of TT03.</p> <p>WCS provided various correspondence and works plan updates as part of the requirements of this Voluntary Undertaking in 2017, and progressed and completed numerous items in relation to identified actions.</p>
Consultation with relevant agency (who, when and the response), or agencies if more than one	DPE and DRG.

Nature of the incident/non-compliance	Development Consent SSD_5579, Condition 3.13 Air quality exceedance
Date of incident/ non-compliance (if known; if not known state not known)	23/09/2017 – 24/09/2017
The location of the incident/ non-compliance (include a figure if appropriate), if known	WCS TEOM Blackmans Flat
Incident category	4
Detail the cause of the incident/non-compliance, including investigation findings	<p>Instantaneous PM10 concentrations were compliant until 9:00 pm on 23 September 2017 when a significant increase in wind speed caused the PM10 to spike to 517 $\mu\text{g}/\text{m}^3$ at 22:15 pm.</p> <p>PM10 mass concentration remained above 50 $\mu\text{g}/\text{m}^3$ until 8:00 am on 24 September 2017.</p> <p>This resulted in the short term criteria for particulate matter <10μm (PM10) 24 hour mass concentration limit (50 $\mu\text{g}/\text{m}^3$) being exceeded for a period of 22 hours from 1:00 am to 11:00 pm on 24 September 2017.</p>
Detail action that has been, or will be, taken to mitigate any adverse effects of the incident/ non-compliance	Investigations and reporting completed
Detail action that has been, or will be, taken to prevent recurrence of the incident/ non-compliance	Investigations and reporting completed
Consultation with relevant agency (who, when and the response), or agencies if more than one	DPE

Table 8-19 – Summary of Regulatory Actions

Compliance Type	Agency	Number	Response
Caution Notices	Nil	N/A	N/A
Draft Order	DPE	1 x Noise	Accepted
Warning Letters	DPE	1 x Biodiversity	Accepted
Penalty Notices	DPE	1 x Noise 3 x Water	Accepted and paid
Voluntary Undertakings	DPE	1 x Water 1 x Biodiversity	Accepted and commenced
Prosecutions	Nil	N/A	N/A

Appendix R – AEMR Report



Centennial Coal

**Annual Compliance Report
for
Western Coal Services**

Mining Titles

(ML 204, ML 564, PLL 133, CCL 733, CL 361, CL 394, ML 1319, ML 1352, ML 1448)

March 2018



Mining Titles	Mining Lease 204
	Mining Lease 564
	Private Lands Lease 133
	Consolidated Coal Lease 733
	Coal Lease 361
	Coal Lease 394
	Mining Lease 1319
	Mining Lease 1352
	Mining Lease 1448
Reporting Date	March 2018
Reporting Period	2017
Operation	Western Coal Services
Mining Title by Holder	ML 204 Centennial Springvale Pty Limited and SK Kores Pty Limited
	ML 564 Centennial Springvale Pty Limited and SK Kores Pty Limited
	PLL 133 Centennial Springvale Pty Limited and SK Kores Pty Limited
	CCL 733 Centennial Springvale Pty Limited and SK Kores Pty Limited
	CL 361 Centennial Springvale Pty Limited and SK Kores Pty Limited
	CL 394 Centennial Springvale Pty Limited and SK Kores Pty Limited
	ML 1319 Centennial Springvale Pty Limited and SK Kores Pty Limited
	ML 1352 Centennial Springvale Pty Limited and SK Kores Pty Limited
	ML 1448 Cyprus Springvale Pty Limited and Samsung Development (Aust) Pty Limited



Author

Neil Thompson
Environment Coordinator
Springvale Coal Services

Author Signature

A handwritten signature in black ink, appearing to read 'Neil Thompson', written over a horizontal line.



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EXECUTIVE SUMMARY

Western Coal Services is operated by Springvale Coal Pty Ltd (Springvale) which is wholly owned by Centennial Springvale Pty Limited .

This report relates to the following Western Coal Services titles:

- ML 204 has been held since initial grant date on 27 May 1910
- ML 564 has been held since initial grant date on 2 May 1922
- PLL 133 has been held since initial grant date on 10 August 1922
- CCL 733 has been held since initial grant date on 23 May 1990
- CL 361 has been held since initial grant date on 17 July 1990
- CL 394 has been held since initial grant date on 27 May 1992
- ML 1319 has been held since initial grant date on 5 July 1993
- ML 1352 has been held since initial grant date on 26 May 1994
- ML 1448 has been held since initial grant date on 31 May 1999.

This report has been compiled to fulfil Condition 4 of the above titles and covers the period CY2017.

The report contains a summary of compliance against conditions outlined in the renewed mining titles. For the reporting period, Springvale was compliant with all conditions of the above titles.



1. BACKGROUND

1.1 Location and Access

Western Coal Services (WCS) is located in the Western Coalfield of NSW, approximately twenty kilometres north-west of the City of Lithgow and east of the township of Lidsdale.

1.2 Site History

Coal mining began at the Lamberts Gully site in 1942 under the name Big Spur.

The site was later named Western Main. Below the open cut mine is an extensive series of underground workings which were part of the old Western Main Colliery, which mined the Lithgow Seam for over fifty years from the 1940's to 1990's.

Open cut mining has also occurred on the site since the 1940's as an adjunct to the underground operations.

Between 1980 and 1994 the previous owners developed the following open cuts:

- Bund Cut, Road Cut and Road Cut Extension.
- Western Main Open Cut Extension.
- Knoll Cut.

The original Development Consent for the Lamberts Gully Open Cut was granted to Springvale Coal by Lithgow City Council on 14 September 1998, which approved the extension of previous open cut operations on the Western Main Colliery Holding.

Springvale Coal then prepared an Environmental Assessment for the purpose of extending the area of extraction of the Lamberts Gully Open Cut Mine and obtained Project Approval from the then Minister from Planning in April 2006.

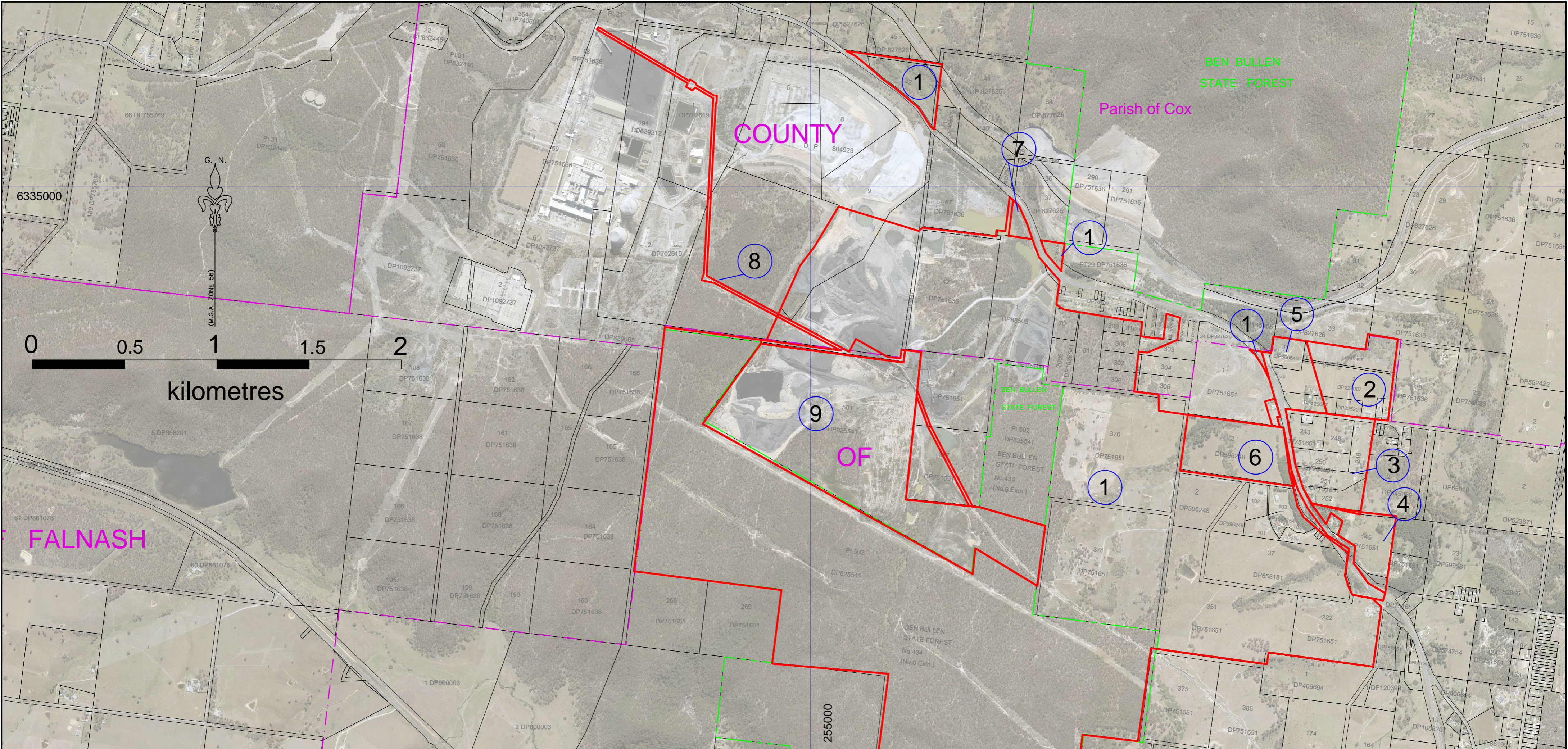
The recent open cut operation was operational from 1994 to 2010 and primarily utilised bulldozers, loaders and dump trucks.

Coal extraction activities ceased at Lamberts Gully on 30 June 2010.

An Environmental Impact Statement (EIS) was submitted to the former Department of Planning and Infrastructure (now Department of Planning and Environment – DP&E) by Springvale Coal Pty Limited (Springvale Coal) seeking approval for the expansion of existing operations at the site.

This project application was approved by the then Minister for Planning and Infrastructure on 4 April 2014, with a new Development Consent granted (SSD_5579) for WCS.

WCS Mining Leases are illustrated in Figure PC6657 below.



DETAILS OF MINING TITLES HELD UNDER THE MINING ACT						
Plan Ref.	Lease Type	Lease No.	Mining Act	Registered Holder	Lease Date	Expiry Date
1	Consolidated Coal Lease	733	1973	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	23-May-1990	03-July-2027
2	Private Lands Lease	133	1906	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	10-August-1922	10-August-2024
3	Mining Lease	564	1906	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	02-May-1922	02-May-2023
4	Mining Lease	204	1973	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	27-May-1910	27-May-2033
5	Coal Lease	361	1973	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	17-July-1990	16-July-2032
6	Coal Lease	394	1973	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	27-May-1992	27-May-2034
7	Mining Lease	1319	1992	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	05-July-1993	05-July-2035
8	Mining Lease	1352	1992	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	23-June-1994	23-June-2036
9	Mining Lease	1448	1992	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	31-May-1999	30-May-2020

LEGEND

Parish Boundaries Shown :

State Forest Shown :

Mining Lease Boundary:

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LOCATION

SEAM

DRAWN

CHECKED

APPROVED

SCALE

WCS

NA

C.P.T.

P.C.D.

P.C.D.

Refer to scalebar

Plan Showing
Western Coal Services
And Associated Mining Leases

Centennial Coal

WCS

DATE 16-03-2018

PC6657



2. GENERAL STATUS

WCS operates under a variety of mining authorities consisting of mining leases, coal leases, authorisations and exploration licences.

Details of ML 204, ML 564, PLL 133, CCL 733, CL 361, CL 394, ML 1319, ML 1352, ML 1448 are summarised in Table 1 below

Table 1 ML 204, ML 564, PLL 133, CCL 733, CL 361, CL 394, ML 1319, ML 1352, ML 1448 General Details

Mining Title	Title Holder	Date Granted	Renewal Date	Expiry Date
ML 204	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	27 May 1910	08 May 2014	27 May 2033
ML 564	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	2 May 1922	17 January 2003	2 May 2023
PLL 133	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	10 August 1922	24 May 2004	10 August 2024
CCL 733	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	23 May 1990	23 December 2008	3 July 2027
CL 361	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	17 July 1990	20 December 2010	16 July 2032
CL 394	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	27 May 1992	16 June 2014	27 May 2034
ML 1319	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	5 July 1993	8 May 2014	5 July 2035
ML 1352	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	26 May 1994	2 March 2015	23 June 2036
ML 1448	Cyprus Springvale Pty Limited and Samsung Development (Aust) Pty Limited	31 May 1999	-	31 May 2020

There has been no transfer or relinquishment of ML 204, ML 564, PLL 133, CCL 733, CL 361, CL 394, ML 1319, ML 1352, ML 1448 since the renewal date.

3. STATUS ON COMPLIANCE CONDITIONS

Table 2 WCS Status of Compliance with lease conditions

Relevant Title	Condition Number	Condition Content	Status	Comment
ML 204 CCL 733 CL 361 CL 394 ML 1319 ML 1352	1	<p>Notice to Landholders</p> <p>(a) Within a period of three months from the date of grant renewal of this mining lease, the lease holder must serve on each landholder a notice in writing indicating that this mining lease has been granted/renewed and whether the lease includes the surface. A plan identifying each landholder and individual land parcel subject to the lease area, and a description of the lease area must accompany the notice. (b) If there are ten or more landholders, the lease holder may serve the notice by publication in a newspaper circulating in the region where the lease area is situated. The notice must indicate that this mining lease has been granted/renewed; state whether the lease includes the surface and must contain a plan and description of the lease area. If a notice is made under condition 1(b), compliance with condition 1(a) is not required.</p>	Compliant	WCS undertook no renewal of these titles in the reporting period.
ML 564 PLL 133 ML 1448	1	<p>Extraction of coal</p> <p>The lease holder shall extract as large a percentage of the coal in the subject area as is practicable consistent with the provisions of the Coal Mines Regulations Act 1982 and the Regulations thereunder and shall comply with any direction given or which may be given in this regard by the Minister.</p>	Compliant	No coal was extracted from seams covered by these tenements by WCS.
ML 204 CL 394 ML 1319 ML 1352	2	<p>Rehabilitation</p> <p>Any disturbance resulting from the activities carried out under this mining lease must be rehabilitated to the satisfaction of the Minister.</p>	Compliant	<p>Rehabilitation activities have been undertaken on these titles within the reporting period.</p> <p>Further details are provided in the WCS 2017 Annual Review section 6.14</p>
CCL 733 CL 361	2	<p>Environmental Harm</p> <p>The proponent shall implement as practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation or rehabilitation of the development.</p>	Compliant	Measures for minimisation of environmental harm are addressed in the Site Environmental Management System which includes management plans.
ML 564 PLL 133 ML 1448	2	<p>Mining, Rehabilitation, Environmental Management Process (MREMP) Mining Operations Plan</p> <p>(1) Mining operations, including mining purposes, must be conducted in accordance with a Mining Operations Plan (the Plan) satisfactory to the Director-General. The Plan together with environmental conditions of development consent and other approvals will form the basis for:</p> <p>(a) ongoing mining operations and environmental management; and</p>	Compliant	<p>WCS Mining Operations Plan (MOP) covers the period January 2018 to December 2024 and was accepted by the Department on 26 February 2018.</p> <p>Rehabilitation activities are detailed within the WCS 2017 Annual Review section 6.14</p>

Relevant Title	Condition Number	Condition Content	Status	Comment
		<p>(b) ongoing monitoring of the project.</p> <p>(2) The Plan must be prepared in accordance with the Director-General's guidelines current at the time of lodgement.</p> <p>(3) A Plan must be lodged with the Director-General:</p> <p>(a) prior to the commencement of operations</p> <p>(b) subsequently as appropriate prior to the expiry of any current Plan; and</p> <p>(c) in accordance with any direction issued by the Director-General.</p> <p>(4) The Plan must present a schedule of proposed mine development for a period of up to seven (7) years and contain diagrams and documentation which identify:</p> <p>(a) area(s) proposed to be disturbed under the Plan;</p> <p>(b) mining and rehabilitation method(s) to be used and their sequence;</p> <p>(c) areas to be used for disposal of tailings/waste;</p> <p>(d) existing and proposed surface infrastructure;</p> <p>(e) progressive rehabilitation schedules;</p> <p>(f) areas of particular environmental sensitivity;</p> <p>(g) water management systems (including erosion and sediment controls);</p> <p>(g) proposed resource recovery; and</p> <p>(i) where the mine will cease extraction during the term of the plan, a closure plan including final rehabilitation objectives/methods and post mining landuse/vegetation</p> <p>(5) The Plan when lodged will be reviewed by the Department of Mineral Resources.</p> <p>(6) The Director-General may within two (2) months of the lodgement of a Plan, require modification and relodgement.</p> <p>(7) If requirement in accordance with clause (6) is not issued within two months of the lodgement of a Plan, lease holder may proceed with implementation of the Plan submitted subject to the lodgement of the required security deposit within the specified time.</p> <p>(8) During the life of the Mining Operations Plan, proposed modification to the Plan must be lodged with the Director-General and will be subject to the review process outlined in clauses (5) – (7) above.</p>		<p>Prior to this, the site operated under the Western Coal Services Mining Operations Plan (period November 2015 to October 2022) which was accepted by the Department on 23 December 2015.</p>

Relevant Title	Condition Number	Condition Content	Status	Comment
ML 204 CL 394 ML 1319 ML 1352	3	<p>Mining Operations Plan and Annual Rehabilitation report</p> <p>(a) The lease holder must comply with an approved Mining Operations Plan (MOP) in carrying out any significant surface disturbing activities, including mining operations, mining purposes and prospecting. The lease holder must apply to the Minister for approval of a MOP. An approved MOP must be in place prior to commencing any significant surface disturbing activities, including mining operations, mining purposes and prospecting.</p> <p>(b) The MOP must identify the post mining land use and set out a detailed rehabilitation strategy which:</p> <p>(i) identifies areas that will be disturbed;</p> <p>(ii) details the staging of specific mining operations, mining purposes and prospecting;</p> <p>(iii) identifies how the mine will be managed and rehabilitated to achieve the post mining land use;</p> <p>(iv) identifies how mining operations, mining purposes and prospecting will be carried out in order to prevent and or minimise harm to the environment; and</p> <p>(v) reflects the conditions of approval under:</p> <ul style="list-style-type: none"> - the <i>Environmental Planning and Assessment Act 1979</i>; - the <i>Protection of the Environment Operations Act 1997</i>; and - any other approvals relevant to the development including the conditions of this mining lease. <p>(c) The MOP must be prepared in accordance with the ESG3: Mining Operations Plan (MOP) Guidelines September 2013 published on the Department's website at www.resources.nsw.gov.au/environment</p> <p>(d) The lease holder may apply to the Minister to amend an approved MOP at any time.</p> <p>(e) It is not a breach of this condition if:</p> <p>(i) the operations which, but for this condition 3(e) would be a breach of condition 3(a), were necessary to comply with a lawful order or direction given under the <i>Environmental Planning and Assessment Act 1979</i>, the <i>Protection of the Environment Operations Act 1997</i>, the <i>Mine Health and Safety Act 2004/Coal Mine Health and Safety Act 2002</i> and <i>Mine Health and Safety Regulation 2007/Coal Mine Health and Safety Regulation 2006</i> or the <i>Work Health and Safety Act 2011</i>; and</p> <p>(ii) the Minister had been notified in writing of the terms of the order or direction prior to the operations constituting the breach being carried out.</p> <p>(f) The lease holder must prepare a Rehabilitation Report to the satisfaction of the Minister.</p>	Compliant	<p>Western Coal Services Mining Operations Plan covers the period January 2018 to December 2024 and was accepted by the Department on 26 February 2018.</p> <p>Rehabilitation activities are provided within the WCS 2017 Annual Review section 6.14</p> <p>Prior to this, the site operated under the Western Coal Services Mining Operations Plan (period November 2015 to October 2022) which was accepted by the Department on 23 December 2015.</p>

Relevant Title	Condition Number	Condition Content	Status	Comment
		<p>The report must:</p> <p>(i) provide a detailed review of the progress of rehabilitation against the performance measures and criteria established in the approved MOP;</p> <p>(ii) be submitted annually on the grant anniversary date (or at such other times as agreed by the Minister); and</p> <p>(iii) be prepared in accordance with any relevant annual reporting guidelines published on the Department's website at www.resources.nsw.gov.au/environment</p> <p>Note: The Rehabilitation Report replaces the Annual Environmental Management Report.</p>		
CCL 733 CL 361	3	<p>Mining Operations Plan</p> <p>(a) Mining operations must not be carried out otherwise than in accordance with: a Mining Operations Plan (MOP) which has been approved by the Director-General of the Department of Primary Industries.</p> <p>b) The MOP must:</p> <p>i) identify areas that will be disturbed by mining operations;</p> <p>ii) detail the staging of specific mining operations;</p> <p>iii) identify how the mine will be managed to allow mine closure;</p> <p>iv) identify how mining operations will be carried out on site in order to prevent and or minimise harm to the environment;</p> <p>v) reflect the conditions of approval under:</p> <ul style="list-style-type: none"> - the <i>Environmental Planning and Assessment Act 1979</i> - the <i>Protection of the Environment Operations Act 1997</i> - and any other approvals relevant to the development including the condition of this lease; and <p>(vi) have regard to any relevant guidelines adopted by the Director-General.</p> <p>c) The titleholder may apply to the Director-General to amend an approved MOP at any time.</p> <p>d) It is not a breach of this condition if:</p> <p>i) the operations constituting the breach were necessary to comply with a lawful order or direction given under the <i>Mining Act 1992</i>, the <i>Environmental Planning and Assessment Act 1979</i>, <i>Protection of the Environment Operations Act 1997</i> or the <i>Occupational Health and Safety Act 2000</i>; and</p> <p>ii) the Director-General had been notified in writing of the terms of the order or direction prior to the</p>	Compliant	<p>Western Coal Services Mining Operations Plan covers the period January 2018 to December 2024 and was accepted by the Department on 26 February 2018.</p> <p>Rehabilitation activities are provided within the WCS 2017 Annual Review section 6.14</p> <p>Prior to this, the site operated under the Western Coal Services Mining Operations Plan (period November 2015 to October 2022) which was accepted by the Department on 23 December 2015.</p>

Relevant Title	Condition Number	Condition Content	Status	Comment
		<p>operations constituting the breach being carried out.</p> <p>e) A MOP ceases to have affect 7 years after date of approval or other such period as identified by the Director-General. An approved amendment to the MOP under condition 5 does not constitute an approval for the purpose of this paragraph unless otherwise identified by the Director-General.</p>		
ML 564 PLL 133 ML 1448	3	<p>Annual Environmental Management Report (AEMR)</p> <p>(1) Within 12 months of the commencement of mining operations and thereafter annually or, at such other times as may be allowed by the Director-General, the lease holder must lodge an Annual Environmental Management Report (AEMR) with the Director-General.</p> <p>(2) The AEMR must be prepared in accordance with the Director-General's guidelines current at the time of reporting and contain a review and forecast of performance for the preceding and ensuing twelve months in terms of:-</p> <p>(a) the accepted Mining Operations Plan;</p> <p>(b) development consent requirements and conditions;</p> <p>(c) Environment Protection Authority and Department of Land and Water Conservation licences and approvals;</p> <p>(d) any other statutory environmental requirements;</p> <p>(e) details of any variations to environmental approvals applicable to the lease area. and</p> <p>(f) where relevant, progress towards final rehabilitation objectives.</p> <p>(3) After considering an AEMR the Director-General may, by notice in writing, direct the lease holder to undertake operations, remedial actions or supplementary studies in the manner and within the period specified in the notice to ensure that operations on the lease area are conducted in accordance with sound mining and environmental practice.</p> <p>(4) The lease holder shall, as and when directed by the Minister, co-operate with the Director-General to conduct and facilitate review of the AEMR involving other government agencies.</p>	Compliant	<p>This report has been prepared to satisfy the requirements of this condition.</p> <p>Additional information on compliance with this condition is provided in the WCS 2017 Annual Review.</p>

Relevant Title	Condition Number	Condition Content	Status	Comment
ML 204 CL 394 ML 1319 ML 1352	4	<p>Compliance Report</p> <p>(a) The lease holder must submit a Compliance Report to the satisfaction of the Minister. The report must be prepared in accordance with any relevant guidelines or requirements published by the Minister for compliance reporting.</p> <p>(b) The Compliance Report must include:</p> <p>(i) the extent to which the conditions of this mining lease or any provisions of the Act or the regulations applicable to activities under this mining lease, have or have not been complied with;</p> <p>(ii) particulars of any non-compliance with any such conditions or provisions,</p> <p>(iii) the reasons for any such non-compliance;</p> <p>(iv) any action taken, or to be taken, to prevent any recurrence, or to mitigate the effects, of that non-compliance.</p> <p>(c) The Compliance Report must be lodged with the Department annually on the grant anniversary date for the life of this mining lease.</p> <p>(d) In addition to annual lodgement under condition 4(c) above, a Compliance Report:</p> <p>(i) must accompany any application to renew this mining lease under the Act;</p> <p>(ii) must accompany any application to transfer this mining lease under the Act; and</p> <p>(iii) must accompany any application to cancel, or to partially cancel, this mining lease under the Act.</p> <p>(e) Despite the submission of any Compliance Report under (c) or (d) above, the titleholder must lodge a Compliance Report with the Department at any date or dates otherwise required by the Minister.</p> <p>(f) A Compliance Report must be submitted one month prior to the expiry of this mining lease, where the licence holder is not seeking to renew or cancel this mining lease.</p>	Compliant	<p>This report has been prepared to satisfy the requirements of this condition.</p> <p>Additional information on compliance with this condition is provided in the 2017 WCS Annual Review.</p>
CCL 733 CL 361	4	<p>Environment Management Reporting</p> <p>The lease holder must lodge Environmental Management Reports (EMR) with the Director-General annually or at dates otherwise directed by the Director-General.</p>	Compliant	<p>This report has been prepared to satisfy the requirements of this condition.</p> <p>Additional information on compliance with this condition is provided in the 2017 WCS Annual Review.</p>

Relevant Title	Condition Number	Condition Content	Status	Comment
ML 204 CL 394 ML 1319 ML 1352	5	<p>Environment Incident Report</p> <p>(a) The lease holder must notify the Department of all:</p> <p>(i) breaches of the conditions of this mining lease or breaches of the Act causing or threatening material harm to the environment; and</p> <p>(ii) breaches of environmental protection legislation causing or threatening material harm to the environment (as defined in the <i>Protection of the Environment Administration Act 1991</i>), arising in connection with significant surface disturbing activities, including mining operations, mining purposes and prospecting operations, under this mining lease. The notification must be given immediately after the lease holder becomes aware of the breach. Note. Refer to www.resources.nsw.gov.au/environment for notification contact details.</p> <p>(b) The lease holder must submit an Environmental incident Report to the Department within seven (7) days of all breaches referred to in condition 5(a) (i) and (ii). The Environmental incident Report must include:</p> <p>(i) the details of the mining lease;</p> <p>(ii) contact details for the lease holder;</p> <p>(iii) a map identifying the location of the incident and where material harm to the environment has or is likely to occur;</p> <p>(iv) a description of the nature of the incident or breach, likely causes and consequences;</p> <p>(v) a timetable showing actions taken or planned to address the incident and to prevent future incidents or breaches referred to in 5(a).</p> <p>(vi) a summary of all previous incidents or breaches which have occurred in the previous 12 months relating to significant surface disturbing activities, including mining operations, mining purposes and prospecting operations under this mining lease.</p> <p>Note. The lease holder should have regard to any relevant Director General's guidelines in the preparation of an Environmental incident Report. Refer to www.resources.nsw.gov.au/environment for further details.</p> <p>(c) In addition to the requirements set out in conditions 5(a) and (b), the lease holder must immediately advise the Department of any notification made under section 148 of the <i>Protection of the Environment Operations Act 1997</i> arising in connection with significant surface disturbing activities including mining operations, mining purposes and prospecting operations, under this mining lease.</p>	<p>Compliant ML1319, CL394, ML204</p> <p>Non-Compliant ML1352</p>	<p>There have been no surface disturbing activities undertaken during the reporting period.</p> <p>A Non-compliance during the reporting period relating to surface water runoff (ML 1352, Condition 5(b)) is provided in the 2017 Annual Review.</p> <p>WCS received 2 x Penalty Notices in relation to failing to comply with ML1352 condition 5(b) Issued on the 13/10/2017 by the NSW Department of Planning and Environment (DPE) for Breaching Condition Authorisation of ML1352.</p>

Relevant Title	Condition Number	Condition Content	Status	Comment
CCL 733 CL 361	5	<p>The EMR must:</p> <ul style="list-style-type: none"> a) report against compliance with the MOP; b) report on progress in respect of rehabilitation completion criteria; c) report on the extent of compliance with regulatory requirements; and d) have regard to any relevant guidelines adopted by the Director-General; 	Compliant	<p>This report has been prepared to satisfy the requirements of this condition.</p> <p>Additional information on compliance with this condition is provided in the 2017 WCS Annual Review.</p>
ML 204 CL 394 ML 1319	6	<p>Subsidence Management</p> <p>The lease holder must not commence or undertake underground mining operations that may cause subsidence of the surface other than in accordance with an Eligible Subsidence Management Plan approved by the Director-General.</p> <p>For the purposes of this condition, an 'Eligible Subsidence Management Plan' means:</p> <ul style="list-style-type: none"> (i) A Subsidence Management Plan prepared in accordance with current government guidelines for the preparation of Subsidence Management Plans; or (ii) Those parts of an Extraction Plan or another type of plan: <ul style="list-style-type: none"> - prepared, either in whole or in part, with reference to current government guidelines for the preparation of a Subsidence Management Plan; and - approved for the purposes of the <i>Environmental Planning and Assessment Act 1979</i> (or any planning legislation which replaces that Act) by the Minister or Director-General of the Department of Planning & Infrastructure, or another officer of that Department authorised to approve such a plan, which relate to issues of subsidence. 	Compliant	<p>No underground mining operations that can cause subsidence have occurred within the reporting period.</p> <p>There is no requirement to submit a Subsidence Management Plan or Extraction Plan for these titles.</p>
CCL 733 CL 361	6	Additional environmental reports may be required on specific surface disturbing operations or environmental incidents from time to time as directed in writing by the Director-General and must be lodged as instructed.	Compliant	No additional environmental reports were required during the reporting period.
ML 204 CL 394 ML 1319	7	<p>Resource Recovery</p> <p>The lease holder must optimise recovery of the minerals that are the subject of this mining lease to the extent economically feasible.</p>	Compliant	No resource recovery occurred on these titles in the reporting period.
CCL 733 CL 361	7	<p>Rehabilitation</p> <p>Disturbed land must be rehabilitated to a sustainable/agreed end land use to the satisfaction of the Director-General.</p>	Compliant	Rehabilitation activities within the reporting period are addressed within the 2017 Annual Review section 6.14.

Relevant Title	Condition Number	Condition Content	Status	Comment
ML 204 CL 394 ML 1319 ML 1352	8	<p>Security</p> <p>The lease holder is required to provide and maintain a security deposit to secure funding for the fulfilment of obligations of all or any kind under the mining lease, including obligations of all or any kind under the mining lease that may arise in the future.</p> <p>The amount of the security deposit to be provided has been assessed by the Minister.</p> <p>The leases covered by the Group Security include: [AS REFERENCED IN EACH MINING LEASE DOCUMENT]</p>	Compliant	Centennial has a combined security deposit in place with the Department.
CCL 733 CL 361	8	<p>Subsidence Management</p> <p>(a) The lease holder shall prepare a Subsidence Management Plan prior to commencing any underground mining operations which will potentially lead to subsidence of the land surface.</p> <p>(b) Underground mining operations which will potentially lead to subsidence include secondary extraction panels such as longwalls or miniwalls, associated first workings (gateroads, installation roads and associated main headings, etc), and pillar extractions, and are otherwise defined by the <i>Applications for Subsidence Management Approvals guidelines (EDG17)</i></p> <p>(c) The lease holder must not commence or undertake underground mining operations that will potentially lead to subsidence other than in accordance with a Subsidence Management Plan approved by the Director-General, an approval under the Mine Health & Safety Act 2004, or the document <i>New Subsidence Management Plan Approval Process - Transitional Provisions (EDP09)</i>.</p> <p>(d) Subsidence Management Plans are to be prepared in accordance with the <i>Guideline for Applications for Subsidence Management Approvals</i>.</p> <p>(e) Subsidence Management Plans as approved shall form part of the Mining Operations Plan required under Condition 3 and will be subject to the Annual Environmental Management Report process as set out under Condition 4. The SMP is also subject to the requirements for subsidence monitoring and reporting set out in the document <i>New Approval Process for Management of Coal Mining Subsidence - Policy</i>.</p>	Compliant	<p>No underground mining operations that can cause subsidence have occurred within the reporting period.</p> <p>There is no requirement to submit a Subsidence Management Plan or Extraction Plan for these titles.</p>
ML 204 CL 394 ML 1319 ML 1352	9	<p>Cooperation Agreement</p> <p>The lease holder must make every reasonable attempt, and be able to demonstrate its attempts, to enter into a cooperation agreement with the holder(s) of any overlapping title(s). The cooperation agreement should address but not be limited to issues such as</p> <ul style="list-style-type: none"> - access arrangements - operational interaction procedures - dispute resolution - information exchange - well location 	Compliant	No overlapping titles held by other parties.

Relevant Title	Condition Number	Condition Content	Status	Comment
		<ul style="list-style-type: none"> - timing of drilling - potential resource extraction conflicts; and - rehabilitation issues. 		
CCL 733 CL 361	9	<p>Working Requirement</p> <p>The lease holder must:</p> <p>(a) ensure that at least 29 competent people are efficiently employed on the lease area on each week day except Sunday or any week day that is a public holiday, OR</p> <p>(b) expend on operations carried out in the course of prospecting or mining the lease area, an amount of not less than \$507,500.00 per annum whilst the lease is in force.</p> <p>The Minister may at any time or times, by instrument in writing served on the lease holder, increase or decrease the expenditure required or the number of people to be employed.</p>	Compliant	Not applicable. No workings undertaken in any coal seam.
ML 564 PLL 133	9	<p>Barriers</p> <p>The lease holder shall not work or cause to be worked any seam of coal within the subject area without leaving, if the Minister, so directs, a barrier of such width or a protective pillar or pillars of such size or sizes against any surface improvement of any feature whether natural or artificial.</p>	Compliant	Not applicable. No workings undertaken in any coal seam.
ML 204 CL 394 ML 1319 ML 1352		<p>Exploration Reporting</p> <p>The lease holder must lodge reports to the satisfaction of the Minister in accordance with section 163C of the <i>Mining Act 1992</i> and in accordance with clause 57 of the <i>Mining Regulation 2010</i>.</p> <p>Reports must be prepared in accordance with Exploration Reporting: A guide for reporting on exploration and prospecting in New South Wales (Department of Trade and Investment, Regional Infrastructure and Services, 2010).</p>	Compliant	Exploration reports submitted.
ML 204	10	<p>Special Conditions</p> <p>Barriers</p> <p>(a) The lease holder shall not work or cause to be worked any seam of coal within the subject area without leaving, if the Minister, by order, given in writing to the lease holder, so directs, a barrier of such width or a protective pillar or pillars of such size or sizes as is specified in the order, against any surface improvements or any feature whether natural or artificial.</p> <p>(b) Unless with the consent of the Minister and subject to such conditions as he may impose the lease holder shall not work or cause to be worked any seam of coal in the barrier of 9.144 metres in width as shown by red edging on the plan hereto.</p>	Compliant	Not applicable. No workings undertaken in any coal seam.

Relevant Title	Condition Number	Condition Content	Status	Comment
CCL 733	10	<p>Control of Operations</p> <p>a) If an Environmental Officer of the Department believes that the lease holder is not complying with any provision of the Act or any condition of this lease relating to the working of the lease, he may direct the lease holder to:-</p> <p>(i) cease working the lease; or</p> <p>(ii) cease that part of the operation not complying with the Act or conditions; until in the opinion of the Environmental Officer the situation is rectified.</p> <p>b) The lease holder must comply with any direction given. The Director-General may confirm, vary or revoke any such direction.</p> <p>c) A direction referred to in this condition may be served on the Mine Manager.</p>	Compliant	No directions were received relating to control of operations during the reporting period.
CCL 733 CL 361	11	<p>Reports</p> <p>The lease holder must provide an exploration report, within a period of twenty-eight days after each anniversary of the date this lease has effect or at such other date as the Director-General may stipulate, of each year. The report must be to the satisfaction of the Director-General and contain the following:</p> <p>a) Full particulars, including results, interpretation and conclusions, of all exploration conducted during the twelve months period;</p> <p>b) Details of expenditure incurred in conducting that exploration;</p> <p>c) A summary of all geological findings acquired through mining or development evaluation activities;</p> <p>d) Particulars of exploration proposed to be conducted in the next twelve months period;</p> <p>e) All plans, maps, sections and other data necessary to satisfactorily interpret the report.</p>	Compliant	Exploration reports submitted.
CCL 733 CL 361	12	<p>Licence to Use Reports</p> <p>(a) The lease holder grants to the Minister, by way of a non-exclusive licence, the right in copyright to publish, print, adapt and reproduce all exploration reports lodged in any form and for the full duration of copyright.</p> <p>b) The non-exclusive licence will operate as a consent for the purposes of section 365 of the Mining Act 1992.</p>	Compliant	

Relevant Title	Condition Number	Condition Content	Status	Comment
CCL 733 CL 361	13	<p>Confidentiality</p> <p>a) All exploration reports submitted in accordance with the conditions of this lease will be kept confidential while the lease is in force, except in cases where:</p> <p>(i) the lease holder has agreed that specified reports may be made non-confidential.</p> <p>(ii) reports deal with exploration conducted exclusively on areas that have ceased to be part of the lease.</p> <p>b) Confidentiality will be continued beyond the termination of a lease where an application for a flow-on title was lodged during the currency of the lease. The confidentiality will last until that flow-on title or any subsequent flow-on title, has terminated.</p> <p>c) The Director-General may extend the period of confidentiality.</p>	Compliant	
CCL 733 CL 361	14	<p>Terms of the non-exclusive licence</p> <p>The terms of the non-exclusive copyright licence granted under condition 12 are:</p> <p>a) the Minister may sub-licence others to publish, print, adapt and reproduce but not on-licence reports.</p> <p>b) the Minister and any sub- licensee will acknowledge the lease holder's and any identifiable consultant's ownership of copyright in any reproduction of the reports, including storage of reports onto an electronic database.</p> <p>c) the lease holder does not warrant ownership of all copyright works in any report and, the lease holder will use best endeavours to identify those parts of the report for which the lease holder owns the copyright.</p> <p>d) there is no royalty payable by the Minister for the licence.</p> <p>e) if the lease holder has reasonable grounds to believe that the Minister has exercised his rights under the non-exclusive copyright licence in a manner which adversely affects the operations of the lease holder, that licence is revocable on the giving of a period of not less than three months notice.</p>	Compliant	
ML 1448	14	<p>Shafts, Drifts, Adits</p> <p>Operations shall be conducted in such a manner as not to cause any danger to persons or stock and the lease holder shall provide and maintain adequate protection to the satisfaction of the Minister around each shaft or excavation opened up or used by the lease holder.</p>	Compliant	Not applicable. No workings undertaken in any coal seam.

Relevant Title	Condition Number	Condition Content	Status	Comment
CCL 733	15	<p>Blasting</p> <p>a) Ground Vibration</p> <p>The lease holder must ensure that the ground vibration peak particle velocity generated by any blasting within the lease area does not exceed 10 mm/second and does not exceed 5 mm/second in more than 5% of the total number of blasts over a period of 12 months at any dwelling or occupied premises as the case may be, unless determined otherwise by the Department of Environment and Climate Change.</p> <p>b) Blast Overpressure</p> <p>The lease holder must ensure that the blast overpressure noise level generated by any blasting within the lease area does not exceed 120 dB (linear) and does not exceed 115 dB (linear) in more than 5% of the total number of blasts over a period of 12 months, at any dwelling or occupied premises, as the case may be, unless determined otherwise by the Department of Environment and Climate Change.</p>	Compliant	No blasting was undertaken during the reporting period.
ML 1448	15	<p>Dumps</p> <p>The lease holder shall comply with any direction, given or which may be given by the Inspector regarding the dumping, depositing or removal of material extracted as well as the stabilisation and revegetation of any dumps of coal, minerals, mine residues, tailings or overburden situated on the subject area or the associated colliery holding.</p>	Compliant	No directions were received relating to waste dumps during the reporting period.
CCL 733 CL 361	16	<p>Safety</p> <p>Operations must be carried out in a manner that ensures the safety of persons or stock in the vicinity of the operations. All drill holes shafts and excavations must be appropriately protected, to the satisfaction of the Director-General, to ensure that access to them by persons and stock is restricted. Abandoned shafts and excavations opened up or used by the lease holder must be filled in or otherwise rendered safe to a standard acceptable to the Director-General.</p>	Compliant	All operations were carried out in a safe manner during the reporting period.
ML 1448	16	The lease holder shall comply with any direction given or which may be given by the Minister regarding the spraying of coal dumps on the subject area.	Compliant	No directions were received relating to the spraying of coal dumps during the reporting period.
CCL 733 CL 361	17	<p>Exploratory Drilling</p> <p>a) At least twenty eight days prior to commencement of drilling operations the lease holder must notify the relevant Department of Water and Energy Regional Hydrologist of the intention to drill exploratory drill holes together with information on the location of the proposed holes.</p> <p>b) If the lease holder drills exploratory drill holes he must satisfy the Director-General that:-</p> <p>(i) all cored holes are accurately surveyed and permanently marked in accordance with Departmental</p>	Compliant	Exploration reports submitted.

Relevant Title	Condition Number	Condition Content	Status	Comment
		<p>guidelines so that their location can be easily established;</p> <p>(ii) all holes cored or otherwise are sealed to prevent the collapse of the surrounding surface;</p> <p>(iii) all drill holes are permanently sealed with cement plugs to prevent surface discharge of groundwaters;</p> <p>(iv) if any drill hole meets natural or noxious gases it is plugged or sealed to prevent their escape;</p> <p>(v) if any drill hole meets an artesian or sub-artesian flow it is effectively sealed to prevent contamination of aquifers.</p> <p>(vi) once any drill hole ceases to be used the hole must be sealed in accordance with Departmental guidelines. Alternatively, the hole must be sealed as instructed by the Director-General.</p> <p>(vii) once any drill hole ceases to be used the land and its immediate vicinity is left in a clean, tidy and stable condition.</p>		
CCL 733 CL 361	18	<p>Prevention of Soil Erosion and Pollution</p> <p>Operations must be carried out in a manner that does not cause or aggravate air pollution, water pollution (including sedimentation) or soil contamination or erosion, unless otherwise authorised by a relevant approval, and in accordance with an accepted Mining Operations Plan. For the purpose of this condition, water shall be taken to include any watercourse, waterbody or groundwaters. The lease holder must observe and perform any instructions given by the Director-General in this regard.</p>	Compliant	Operations were carried out in a manner that did not cause or aggravate air pollution, water pollution (including sedimentation) or soil contamination or erosion during the reporting period.
ML 1448	18	<p>Management and Rehabilitation of Lands (General)</p> <p>The lease holder shall not interfere in any way with any fences on or adjacent to the subject area unless with the prior written approval of the owner thereof or the Minister and subject to such conditions as the Minister may stipulate.</p>	Compliant	No interference with any fences on or adjacent to the subject area was undertaken during the reporting period.
CCL 733 CL 361	19	<p>Transmission lines, Communication lines and Pipelines</p> <p>Operations must not interfere with or impair the stability or efficiency of any transmission line, communication line, pipeline or any other utility on the lease area without the prior written approval of the Director-General and subject to any conditions he may stipulate.</p>	Compliant	No interference with the stability or efficiency of any transmission line, communication line, pipeline or any other utility was undertaken during the reporting period.
ML 564 PLL 133 ML1448	19	<p>Management and Rehabilitation of Lands (General)</p> <p>The lease holder shall observe any instruction given or which may be given by the Minister with a view to minimising or prevent public inconvenience or damage to public or private property.</p>	Compliant	

Relevant Title	Condition Number	Condition Content	Status	Comment
CCL 733	20	<p>Fences, Gates</p> <p>(a) Activities on the lease must not interfere with or damage fences without the prior written approval of the owner thereof or the Minister and subject to any conditions the Minister may stipulate.</p> <p>(b) Gates within the lease area must be closed or left open in accordance with the requirements of the landholder.</p>	Compliant	No interference with any fences on or adjacent to the subject area was undertaken during the reporting period.
ML 564 PLL 133 ML 1448	20	If required to do so by the Minister and within such time as may be stipulated by the Minister the lease holder shall carry out to the satisfaction of the Minister surveys of structures, building and pipelines on adjacent landholdings to determine the effect of operations on any such structures, buildings and pipelines.	Compliant	No directions were received relating to surveys of structures, building and pipelines on adjacent landholdings during the reporting period.
CCL 733 CL 361	21	<p>Roads and Tracks</p> <p>a) Operations must not affect any road unless in accordance with an accepted Mining Operations Plan or with the prior written approval of the Director-General and subject to any conditions he may stipulate.</p> <p>b) The lease holder must pay to the designated authority in control of the road (generally the local council or the Roads and Traffic Authority) the cost incurred in fixing any damage to roads caused by operations carried out under the lease, less any amount paid or payable from the Mine Subsidence Compensation Fund.</p>	Compliant	
ML 1448	21	If so directed by the Minister the lease holder shall rehabilitate to the satisfaction of the Minister any lands within the subject area which may have been disturbed by the lease holder.	Compliant	Rehabilitation activities within the reporting period are addressed within the 2017 Annual Review.
CCL 733	22	Access tracks must be kept to a minimum and be positioned so that they do not cause any unnecessary damage to the land. Temporary access tracks must be ripped, topsoiled and revegetated as soon as possible after they are no longer required for mining operations. The design and construction of access tracks must be in accordance with specifications fixed by the Department of Environment and Climate Change.	Compliant	
ML 564 PLL 133 ML 1448	22	Upon completion of operations on the surface of the subject area or upon the expiry or sooner determination of this authority or any renewal thereof, the lease holder shall remove from such surface such buildings, machinery, plant, equipment, constructions and works as may be directed by the Minister and such surface shall be rehabilitated and left in a clean, tidy and safe condition to the satisfaction of the Minister.	Compliant	

Relevant Title	Condition Number	Condition Content	Status	Comment
CCL 733	23	<p>Trees and Timber</p> <p>a) The lease holder must not fell trees, strip bark or cut timber on the lease without the consent of the landholder who is entitled to the use of the timber, or if such a landholder refuses consent or attaches unreasonable conditions to the consent, without the approval of a warden.</p> <p>b) The lease holder must not cut, destroy, ringbark or remove any timber or other vegetative cover on the lease area except such as directly obstructs or prevents the carrying on of operations. Any clearing not authorised under the <i>Mining Act 1992</i> must comply with the provisions of the <i>Native Vegetation Act 2003</i>.</p> <p>c) The lease holder must obtain all necessary approvals or licences before using timber from any Crown land within the lease area.</p>	Compliant	
ML 564 PLL 133 ML 1448	23	If so directed by the Minister the lease holder shall rehabilitate to the satisfaction of the Minister and within such time as may be allowed by the Minister any lands within the subject area which may have been disturbed by mining or prospecting operations whether such operations were or were not carried out by the lease holder.	Compliant	Rehabilitation activities within the reporting period are addressed within the 2017 WCS Annual Review section 6.14.
ML 1448	24	The lease holder shall take all precautions against causing outbreak of fire on the subject area.	Compliant	Precautions against causing outbreak of fire were undertaken during the reporting period.
CCL 733 CL 361	25	<p>Resource Recovery</p> <p>a) Notwithstanding any description of mining methods and their sequence or of proposed resource recovery contained within the Mining Operations Plan, if at any time the Director-General is of the opinion that minerals which the lease entitles the lease holder to mine and which are economically recoverable at the time are not being recovered from the lease area, or that any such minerals which are being recovered are not being recovered to the extent which should be economically possible or which for environmental reasons are necessary to be recovered, he may give notice in writing to the lease holder requiring the holder to recover such minerals.</p> <p>b) The notice shall specify the minerals to be recovered and the extent to which they are to be recovered, or the objectives in regard to resource recovery, but shall not specify the processes the lease holder shall use to achieve the specified recovery.</p> <p>c) The lease holder must, when requested by the Director-General, provide such information as the Director-General may specify about the recovery of the mineral resources of the lease area.</p> <p>d) The Director-General shall issue no such notice unless the matter has firstly been thoroughly discussed with and a report to the Director-General has incorporated the views of the lease holder.</p> <p>e) The lease holder may object to the requirements of any notice issued under this condition and on receipt of such an objection the Minister shall refer it to a Warden for inquiry and report under</p>	Compliant	No resource recovery occurred on these titles in the reporting period.

Relevant Title	Condition Number	Condition Content	Status	Comment
		Section 334 of the Mining Act, 1992. f) After considering the Warden's report the Minister shall decide whether to withdraw, modify or maintain the requirements specified in the original notice and shall give the lease holder written notice of the decision. The lease holder must comply with the requirements of this notice.		
ML 1448	25	The lease holder shall provide and maintain to the satisfaction of the Minister efficient means to prevent contamination, pollution, erosion or siltation of any river, stream, creek, tributary, lake, dam, reservoir, watercourse or catchment area or any undue interference to fish or their environment and shall observe any instruction given or which may be given by the Minister with a view to preventing or minimising the contamination, pollution, erosion or siltation of any river, stream, creek, tributary, lake, dam, reservoir, watercourse or catchment area or any undue interference to fish or their environment.	Compliant	
CCL 733 CL 361	26	Indemnity The lease holder must indemnify and keep indemnified the Crown from and against all actions, suits, claims and demands of whatsoever nature and all costs, charges and expenses which may be brought against the lease holder or which the lease holder may incur in respect of any accident or injury to any person or property which may arise out of the construction, maintenance or working of any workings now existing or to be made by the lease holder within the lease area or in connection with any of the operations notwithstanding that all other conditions of this lease shall in all respects have been observed by the lease holder or that any such accident or injury shall arise from any act or thing which the lease holder may be licensed or compelled to do.	Compliant	
ML 1448	26	Blasting The lease holder shall monitor noise and vibration and institute controls, generally in accordance with the recommendations of Australian Standard AS-2187-1993 and ANZEC Guidelines. (a) Ground Vibration The lease holder shall design all blasts on the basis that the ground vibration peak particle velocity generated by any blasting within the subject area, shall not exceed the levels in or conditions of the EPA Licence for the mine, at any dwelling or occupied premises not owned by the lease holder, the holder of an authority under the Mining Act, or not subject to a valid agreement with the lease holder, with respect to the effects of blasting. (b) Blast Overpressure The lease holder shall design all blasts on the basis that the blast overpressure noise level generated by any blasting within the subject area, shall not exceed the levels in or conditions of the EPA Licence for the mine, at any dwelling or occupied premises not owned by the lease holder, the holder of an authority under the Mining Act, or not subject to valid agreement with the lease holder, with respect	Compliant	No blasting was undertaken during the reporting period.

Relevant Title	Condition Number	Condition Content	Status	Comment
		to the effects of blasting.		
ML 564 PLL 133 ML 1448	27	Trees (Planting and Protection of) Flora and Fauna and Arboreal Screens If so directed by the Minister, the lease holder shall ensure that operations are carried out in in such manner so as to minimise disturbance to flora and fauna within the subject area.	Compliant	
CCL 733 CL 361	28	Security a) The single security given and maintained with the Minister by the lease holder for the purpose of ensuring the fulfilment by the lease holder of obligations under Mineral Leases No's. 204 and 564 and Private Lands Lease No. 133 (Act 1906), Consolidated Coal Lease No. 733 and Coal Leases No's. 361 and 394 (Act 1973) and Mining Lease No. 1319 (Act 1992) Coal Lease No. 377 and Mining Purposes Lease No. 314 (Act 1973) and Mining Leases No's 1303, 1323, 1326, 1352, 1448, 1537 and 1588 (Act, 1992) is extended to apply to the renewal of this lease. b) If the lease holder fails to fulfil any one or more of the obligations under this lease, then the security held may be applied at the discretion of the Minister towards the cost of fulfilling such obligations. For the purpose of this clause the lease holder shall be deemed to have failed to fulfil the obligations of the lease if the lease holder fails to comply with any condition or provision hereof, any provision of the Act or regulations made thereunder or any condition or direction imposed or given pursuant to a condition or provision hereof or of any provision of the Act or regulations made thereunder. (c) The lease holder must provide the security required by sub-clause a) in one of the following forms: (i) cash, (ii) a security certificate in a form approved by the Minister and issued by an authorised deposit-taking institution.	Compliant	Centennial has a combined security deposit in place with the Department.
ML 1448	28	Notwithstanding the provisions of Condition No 36 e (i) the lease holder shall not fell trees, strip bark or cut timber on any land within the subject area except with the approval of the owner/occupier and subject to the payment to the owner of the trees, bark or timber of compensation as agreed or as assessed by the Warden.	Compliant	
ML 1448	29	The lease holder shall maintain an arboreal screen to the satisfaction of the Minister within such parts of the subject area as may be specified by the Minister and shall plant such trees or shrubs as may be required by the Minister to preserve the arboreal screen in a condition satisfactory to the Minister.	Compliant	
CCL 733	30	Suspension of Mining Operations The holder of a consolidated mining lease may not suspend mining operations in the mining area	Compliant	Mining operations were not suspended during the reporting period.

Relevant Title	Condition Number	Condition Content	Status	Comment
		other than in accordance with the consent of the Minister.		
ML 1448	30	The lease holder shall conduct operations in such a manner as not to cause or aggravate soil erosion and the lease holder shall observe and perform any instructions given or which may be given by the Minister with a view to minimising or preventing soil erosion.	Compliant	Operations were carried out in a manner that did not cause or aggravate soil erosion during the reporting period.
CCL 733 CL 361	31	<p>Cooperation Agreement</p> <p>The licence holder must make every reasonable attempt, and be able to demonstrate their attempts, to enter into a cooperation agreement with the holder(s) of any overlapping petroleum title(s). The cooperation agreement should address but not be limited to issues such as:</p> <ul style="list-style-type: none"> - access arrangements - operational interaction procedures - dispute resolution - information exchange - well location - timing of drilling - potential resource extraction conflicts and - rehabilitation issues. 	Compliant	No overlapping titles held by other parties.
ML 564 PLL 133 ML 1448	31	<p>Roads</p> <p>The lease holder shall pay to Council of the City of Lithgow, Department of Land and Water Conservation or the Chief Executive, Roads and Traffic Authority the cost incurred by such Council or Department or Chief Executive of making good any damage caused by operations carried on by or under the authority of the lease holder to any road adjoining or traversing the surface or the excepted surface, as the case may be of the subject area.</p> <p>PROVIDED HOWEVER that the amount to be paid by the lease holder as aforesaid shall be reduced by such sum of money if any as may be paid to the said Council the Department of Land and Water Conservation or the Chief Executive, Roads and Traffic Authority as the case may be from the Mine Subsidence Compensation Fund constituted under the <i>Mine Subsidence Compensation Act 1961</i>, in settlement of claim for compensation for the same damage.</p>	Compliant	
CCL 733 CL 361	32	<p>Catchment Areas</p> <p>a) The lease holder shall carry out operations in such a way as to conform strictly to all provisions of the <i>Sydney Water Catchment Management Act 1998</i> and the regulations thereunder applying to the</p>	Compliant	Operations conformed with the provisions of the <i>Sydney Water Catchment Management Act 1998</i> and regulations during the reporting period.

Relevant Title	Condition Number	Condition Content	Status	Comment
		<p>prevention of pollution of the Warragamba Outer Catchment Area or the preservation of the purity of the water supply provided thereby or derived therefrom or for the protection of the property of Sydney Catchment Authority [hereinafter referred to as the 'the Authority'] on the Outer/ Catchment Area and also to all requirements of the Authority from time to time under the said Act or any of the regulations for the time being in force.</p> <p>b) If the lease holder shall at any time be using or about to use any process which in the opinion of the Authority is likely to pollute the Outer Catchment Area or the water supply or to endanger any property of the Authority on the Outer Catchment Area the lease holder upon service of a notice in writing under the hand of the Minister to do so shall:</p> <p>(i) discontinue the use of such process immediately, or</p> <p>(ii) thereafter refrain from adopting such process at any time, as the case may require.</p> <p>c) The lease holder shall provide and maintain to the satisfaction of the Minister efficient means to prevent the contamination, pollution, erosion or siltation of any stream or watercourse or Outer Catchment Area and shall observe any instruction given or which may be given by the Minister with a view to preventing or minimising the contamination, pollution or siltation of any stream watercourse or Outer Catchment Area.</p> <p>d) The lease holder hereby covenants with Us Ours Heirs and Successors and as a separate covenant the lease holder hereby covenants with the Authority and its Successors that the lease holder shall at all times hereafter save harmless and keep Us and the said Authority and Our Heirs and Successors and the Successors of the said Authority indemnified from payment of compensation and from and against all actions proceedings claims and demands in respect of any injury loss of damage arising out of or in any way connected with any interference with or deprivation or loss of access to the land and premises of this authority which may occur by reason of any works or operations undertaken or carried out by the said Authority or arising out of or in any way connected with any discontinuance or alteration of any process consequent upon the service of a notice in pursuance of the provisions of Condition 32 (b) or arising out of or in any way connected with the operation of any regulations relating to Outer Catchment Areas in force at the date hereof or made by the said Authority at any time hereafter and the lease holder hereby agrees that for the purpose of this condition the said Authority shall be deemed to be a party to this authority.</p> <p>e) The lease holder shall:</p> <p>(i) Make such provisions for sanitation as may be directed by the Authority and shall at all times observe and perform any requirements of the said Authority respecting sanitation.</p> <p>(ii) not establish any camps or habitations within any area under the control of the Authority unless with the consent of the Authority.</p> <p>(iii) Not sink any drillhole within the stored waters on the subject area nor within 40 metres of the top water level thereof unless with the consent of the Authority.</p>		

Relevant Title	Condition Number	Condition Content	Status	Comment
		<p>(iv) Not sink any drillhole within any watercourse on the Warragamba Outer Catchment Area nor within 100 metres thereof unless with the consent of the Authority.</p> <p>(v) Not interfere with or impede the use of the Authority tracks or endanger their stability in any way by reason of the operations unless with the consent of the Authority.</p> <p>(vi) Not construct any road to the sites of any drillholes unless with the consent of the Authority to the proposed route and type of road construction.</p> <p>(vii) Not interfere in any way with any fences on or adjacent to the Warragamba Outer Catchment Area unless with the consent in writing of the owner thereof or the Authority.</p> <p>(viii) Give twenty eight days notice to the General Manager, Catchment Operations and Major Projects, Sydney Catchment Authority, Penrith, of its intention to commence drilling operations.</p> <p>(ix) Not cut or remove any timber except such as directly obstructs or prevents the carrying on of operations and the lease holder shall obtain the consent in writing of the Authority before making use of the timber so cut for other than in connection with operations.</p> <p>(x) Complete work in relation to rehabilitation within the Warragamba Outer Catchment Area before termination of the authority to the satisfaction of the Authority.</p>		
CL 361	32	<p>Special Condition</p> <p>(a) Subject to paragraph (b) of this condition coal mining operations within that part of the subject area beneath Trunk Road No. 55 shall be restricted to the driving of access headings and associated cut-throughs.</p> <p>(b) The Driving of any such headings and cut-throughs shall only be carried out in accordance with such plans as may be approved by the Chief Inspector of Coal Mines and subject to such conditions as he may impose.</p>	Compliant	
ML 1448	32	<p>In the event of operations being conducted on the surface of any road, track or firetrail traversing the subject area or in the event of such operations causing damage to or interference with any such road, track or firetrail the lease holder, at his own expense, shall if directed to do so by the Minister provide to the satisfaction of the Minister an alternate road, track or firetrail in a position as required by the Minister and shall allow free and uninterrupted access along such alternate road, track or firetrail and, if required to do so by the Minister, the lease holder shall upon completion of operations rehabilitate the surface of the original road, track or firetrail to a condition satisfactory to the Minister.</p>	Compliant	
ML 1448	33	<p>Catchment Areas (see also Condition numbers 56 and 57 re: Sydney Water Catchment)</p> <p>(a) Operations shall be carried out in such a way as not to cause any pollution of the Cocks River Catchment Area.</p>	Compliant	

Relevant Title	Condition Number	Condition Content	Status	Comment
		<p>(b) If the lease holder is using or about to use any process which in the opinion of the Minister is likely to cause contamination of the waters of the said Catchment Area the lease holder shall refrain from using or cease using as the case may require such process within twenty four (24) hours of the receipt by the lease holder of a notice in writing under the hand of the Minister requiring the lease holder to do so.</p> <p>(c) The lease holder shall comply with any regulations now in force or hereafter to be in force for the protection from pollution of the said Catchment Area.</p>		
ML 564 PLL 133	34	<p>Catchment Areas</p> <p>(a) The lease holder shall carry out operations in such a way as to conform strictly to all provisions of the <i>Sydney Water Catchment Management Act 1998</i> and the regulations thereunder applying to the prevention of pollution of the Warragamba Outer Catchment Area or the preservation of the purity of the water supply provided thereby or derived therefrom or for the protection of the property of Sydney Catchment Authority [hereinafter referred to as the 'the Authority'] on the Outer Catchment Area and also to all requirements of the Authority from time to time under the said Act or any of the regulations for the time being in force.</p> <p>(b) If the lease holder shall at any time be using or about to use any process which in the opinion of the Authority is likely to pollute the Outer Catchment Area or the water supply or to endanger any property of the Authority on the Outer Catchment Area the lease holder upon service of a notice in writing under the hand of the Minister to do so shall:</p> <p>(i) discontinue the use of such process immediately, or</p> <p>(ii) thereafter refrain from adopting such process at any time, as the case may require.</p> <p>(c) The lease holder shall provide and maintain to the -satisfaction of the Minister efficient means to prevent the contamination, pollution, erosion or siltation of any stream or watercourse or Outer Catchment Area and shall observe any instruction given or which may be given by the Minister with a view to preventing or minimising the contamination, pollution or siltation of any stream watercourse or Outer Catchment Area.</p> <p>(d) The lease holder hereby covenants with Us Ours Heirs and Successors and as a separate covenant the lease holder hereby covenants with the Authority and its Successors that the lease holder shall at all times hereafter save harmless and keep Us and the said Authority and Our Heirs and Successors and the Successors of the said Authority indemnified from payment of compensation and from and against all actions proceedings claims and demands in respect of any injury loss of damage arising out of or in any way connected with any interference with or deprivation or loss of access to the land and premises of this authority which may occur by reason of any works or operations undertaken or carried out by the said Authority or arising out of or in any way connected with any discontinuance or alteration of any process consequent upon the service of a notice in pursuance of the provisions of Condition 34(b) or arising out of or in any way connected with the operation of any regulations</p>	Compliant	Operations conformed with the provisions of the <i>Sydney Water Catchment Management Act 1998</i> and regulations during the reporting period.

Relevant Title	Condition Number	Condition Content	Status	Comment
		relating to Outer Catchment Area in force at the date hereof or made by the said Authority at any time hereafter and the lease holder hereby agrees that for the purpose of this condition the said Authority shall be deemed to be a party to this authority.		
ML 564 PLL 133	35	<p>The lease holder shall:</p> <p>(a) Make such provisions for sanitation as may be directed by the Authority and shall at all times observe and perform any requirements of the said Authority respecting sanitation.</p> <p>(b) not establish any camps or habitations within any area under the control of the Authority unless with the consent of the Authority.</p> <p>(c) Not sink any drillhole within the stored waters on the subject area nor within 40 metres of the top water level thereof unless with the consent of the Authority.</p> <p>(d) Not sink any drillhole within any watercourse on the Warragamba Outer Catchment Area nor within 100 metres thereof unless with the consent of the Authority.</p> <p>(e) Not interfere with or impede the use of the Authority tracks or endanger their stability in any way by reason of the operations.</p> <p>(f) Not construct any road to the sites of any drillholes unless with the consent of the Authority to the proposed route and type of road construction.</p> <p>(g) Not interfere in any way with any fences on or adjacent to the Warragamba Outer Catchment Area unless with the consent in writing of the owner thereof or the Authority.</p> <p>(h) Give twenty eight days notice to the General Manager, Catchment Operations and Major Projects, Sydney Catchment Authority, Penrith, of its intention to commence drilling operations.</p> <p>(i) Not cut or remove any timber except such as directly obstructs or prevents the carrying on of operations and the lease holder shall obtain the consent in writing of the Authority before making use of the timber so cut for other than in connection with operations.</p> <p>(j) Complete work in relation to rehabilitation within the Warragamba Outer Catchment Area before termination of the authority to the satisfaction of the Corporation.</p>	Compliant	
ML 564	35	<p>(Additional Clauses as requested by the Sydney Catchment Authority)</p> <p>(k) Consult with the Authority with regards to appropriate initial survey mapping and other studies of surface features above the lease and surrounds and their condition particularly drainage lines, hanging swamps, rock pools, cliff lines, rock overhangs, fracture patterns and lineaments. The lease area and surrounds should be surveyed at appropriate intervals during mining to measure subsidence impacts on the surface. The initial survey results and reports on the continued monitoring should be sent to the General Manager Catchment Operations and Major Projects, Sydney Catchment Authority, Penrith.</p>	Compliant	

Relevant Title	Condition Number	Condition Content	Status	Comment
		(l) Consult with the Authority and take account of their input in the planning phase of rehabilitation to ensure the measures to be undertaken are to the satisfaction of the Authority with regards to water quality protection and future landuse.		
ML 1448	37	<p>Trig. Stations and Survey Marks</p> <p>(a) The marks in connection with any trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) erected on or near the subject area shall not be interfered with and the unrestricted right of access to such station by authorised persons and also the right to clear sight lines to surrounding stations is reserved at all times.</p> <p>(b) The lease holder shall take all necessary precautions to preserve the trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) and the cairn, mast and vanes which might be erected upon the subject area.</p> <p>(c) No buildings or other structures shall be erected which would make observations to and from surrounding trigonometrical stations difficult to effect.</p> <p>(d) In the event of operations interfering with or damaging any trigonometrical station, Permanent Mark or State Mark (under the Survey Co-ordination Act, 1949) erected on or near the subject area, or if required to do so by the Minister, the lease holder shall relocate any such trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) to the satisfaction of, and in a position required by, the Department of Land and Water Conservation, the Land Information Centre, Bathurst and the Minister and, if required to do so by the Minister, and subject to such conditions as the Minister may impose, the lease holder, upon completion of operations shall relocate any such trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) to its original position.</p>	Compliant	No interference to trig stations or survey marks occurred during the reporting period.
PLL 133 ML 1448	41	<p>Transmission Lines, Communication Lines and Pipelines</p> <p>The lease holder shall as far as is practicable so conduct operations as not to interfere with or impair the stability or efficiency of any transmission line, communication line or pipeline traversing the surface or the excepted surface of the subject area and shall comply with any direction given or which may be given by the Minister in this regard.</p>	Compliant	No interference with the stability or efficiency of any transmission line, communication line, pipeline or any other utility was undertaken during the reporting period.
PLL 133 ML 1448	43	<p>Aboriginal Object or Aboriginal Place</p> <p>The lease holder shall not knowingly destroy, deface or damage any Aboriginal object or Aboriginal place within the subject area except in accordance with an authority issued under the <i>National Parks and Wildlife Act, 1974</i>, and shall take every precaution in drilling, excavating or disturbing the land against any such destruction, defacement or damage.</p>	Compliant	No Aboriginal object or Aboriginal place was destroyed, defaced or damaged during the reporting period.

Relevant Title	Condition Number	Condition Content	Status	Comment
ML 564 PLL 133	44	<p>Labour/Expenditure</p> <p>The lease holder shall during each year of the term of the authority:</p> <p>(a) ensure that at least one (1) worker is efficiently employed on the subject area; or</p> <p>(b) expend on operations carried out in the course of prospecting or mining the subject area, an amount of not less than \$17,500.00.</p> <p>The Minister may, at any time after a period of two (2) years from the date on which this authority has effect or from the date on which the renewal of this authority has effect, increase or decrease the amount of expenditure of labour required.</p>	Compliant	
ML 1448	44	<p>Labour/Expenditure</p> <p>The lease holder shall during each year of the term of the authority:</p> <p>(a) ensure that at least four (4) workers is efficiently employed on the subject area; or</p> <p>(b) expend on operations carried out in the course of prospecting or mining the subject area, an amount of not less than \$70,000.00.</p> <p>The Minister may, at any time after a period of two (2) years from the date on which this authority has effect or from the date on which the renewal of this authority has effect, increase or decrease the amount of expenditure of labour required.</p>	Compliant	
ML 564 PLL 133 ML 1448	45	<p>Additional Information</p> <p>The lease holder shall if directed by the Minister and within such time as the Minister may stipulate furnish to the Minister:</p> <p>(a) information regarding the ownership of the land within the subject area;</p> <p>(b) information regarding the ownership of the coal within the subject area prior to 1st January, 1982;</p> <p>(c) an indemnity in a form approved by the Minister indemnifying the Crown and the Minister against any wrong payment effected as a result of incorrect information furnished by the lease holder;</p> <p>(d) information regarding the financial viability of the lease holder and operations within and associated with the subject area; and</p> <p>(e) information regarding shareholdings in the lease holder.</p>	Compliant	

Relevant Title	Condition Number	Condition Content	Status	Comment
ML 564 PLL 133	46	<p>Service of Notices</p> <p>Within a period of three (3) months from the date of service of the notice of renewal, or within such further time as the Director General may allow, the lease holder shall serve on each landholder within the subject area a notice in writing indicating that this authority has been renewed and whether the authority includes the surface. The notice shall be accompanied by an adequate plan and description of the subject area.</p> <p>If there are ten (10) or more landholders affected the lease holder may serve the notice by publication in a newspaper circulating in the region where the subject area is situated. The notice shall indicate that this authority has been renewed, state whether the authority includes the surface and shall contain an adequate plan and description of the subject area.</p>	Compliant	
ML 564 PLL 133 ML 1448	47	<p>Inspectors</p> <p>(a) Where an Inspector under the <i>Mining Act 1992</i> is of the opinion that any condition of this authority relating to operations within the subject area, or any provision of the Mining Act, 1992, relating to operations within the subject area, are not being complied with by the lease holder, the Inspector may serve on the lease holder a notice stating that and give particulars of the reason why, and may in such notice direct the lease holder:</p> <p>(i) to cease operations within the subject area in contravention of that condition or Act; and</p> <p>(ii) to carry out within the specified time works necessary to rectify or remedy the situation.</p> <p>(b) The lease holder shall comply with the directions contained in any notice served pursuant to sub paragraph (a) of this condition. The Director General may confirm, vary or revoke any such direction.</p> <p>(c) A notice referred to in his condition may be served on the Colliery Manager.</p>	Compliant	
ML 564 PLL 133 ML 1448	48	<p>Indemnities</p> <p>The lease holder shall indemnify and keep indemnified the Crown from and against all actions suits and claims and demands of whatsoever nature and all costs charges and expense which may be brought against the lease holder or which the lease holder may incur respect of any accident or injury to any person or property which may arise out of the construction maintenance or working of any workings now existing or to be made by the lease holder within the boundaries of the subject area or in connection with any of the operations notwithstanding that all other conditions of this authority shall in all respects have been observed by the lease holder or that any such accident or injury shall arise from any act or thing which the lease which the lease holder may be licensed or compelled to do hereunder.</p>	Compliant	

Relevant Title	Condition Number	Condition Content	Status	Comment
PLL 133 ML 1448	49	The lease holder shall save harmless the Crown from payment of compensation and from and against all claims, actions, suits or demands whatsoever in the event of any damage resulting from mining operations under or near the subject area.	Compliant	
ML 564 PLL 133 ML 1448	50	<p>Prospecting (General)</p> <p>(a) Where the lease holder desires to commence prospecting operations in the subject area the lease holder shall notify the Director General in writing and shall comply with such additional conditions as the Minister may impose including any condition requiring the lodgement of an additional bond or other form of security for rehabilitation of the area affected by such operations.</p> <p>(b) Where the lease holder notifies the Director General pursuant to sub paragraph (E) of this condition the lease holder shall furnish with that notification details of the type of prospecting methods that would be adopted and the extent and location of the area that would be affected by thorn.</p>	Compliant	
ML 564	51	<p>Security Deposit</p> <p>(a) The lease holder shall, upon request by the Director General, lodge with the Minister the sum of \$813,000.00 as security for the fulfilment of the obligations of the lease holder under Mineral Leases No's 204 and 564 and Private Lands Lease No. 133 (Act 1906), Consolidated Coal Lease No. 733 and Coal Leases No's. 361 and 394 (Act, 1973) and Mining Lease No. 1319 (Act 1992). In the event that the lease holder fails to fulfil any of the lease holder's obligations under those authorities the said sum may be applied at the discretion of the Minister .towards the cost of fulfilling such obligations. For the purposes of the clause a lease holder shall be deemed to have failed to fulfil the lease holder's obligations under these authorities, if the lease holder fails to comply with any condition or provision of these authorities, any provision of the Act or regulations made thereunder or any condition or direction imposed or given pursuant to a condition or provision of these authorities or of any provision of the Act or regulations made thereunder.</p> <p>(b) The lease holder must provide the security required by sub-clause (a) hereof in one of the following forms:</p> <p>(i) cash, or</p> <p>(ii) a security certificate in such form and given by such surely as may from time to time be approved by the Minister.</p> <p>(c) The minster may at any time, vary the amount of security required in accordance with this condition.</p>	Compliant	Centennial has a combined security deposit in place with the Department.

Relevant Title	Condition Number	Condition Content	Status	Comment
PLL 133	51	<p>Security Deposit</p> <p>(a) The lease holder shall, upon request by the Director General, lodge with the Minister the sum of \$915,000.00 as security for the fulfilment of the obligations of the lease holder under Mineral Leases No's 204 and 564 and Private Lands Lease No. 133 (Act 1906), Consolidated Coal Lease No. 733 and Coal Leases No's. 361 and 394 (Act, 1973) and Mining Lease No. 1319 (Act 1992). In the event that the lease holder fails to fulfil any of the lease holder's obligations under those authorities the said sum may be applied at the discretion of the Minister .towards the cost of fulfilling such obligations. For the purposes of the clause a lease holder shall be deemed to have failed to fulfil the lease holder's obligations under these authorities, if the lease holder fails to comply with any condition or provision of these authorities, any provision of the Act or regulations made thereunder or any condition or direction imposed or given pursuant to a- condition or provision of these authorities or of any provision of the Act or regulations made thereunder.</p> <p>(b) The lease holder must provide the security required by sub-clause (a) hereof in one of the following forms:</p> <p>(i) cash, or</p> <p>(ii) a security certificate in such form and given by such surely as may from time to time be approved by the Minister.</p> <p>(c) The minster may at any time, vary the amount of security required in accordance with this condition.</p>	Compliant	Centennial has a combined security deposit in place with the Department.
ML 1448	51	<p>Security Deposit</p> <p>(a) The lease holder shall, upon request by the Director General, lodge with the Minister the sum of \$10,000.00 in accordance with Instructions for Manner of Lodgement of Security Deposits as security for the fulfilment of the obligations of the -lease holder under this authority. In the event that the lease holder fails to fulfil any of the lease holder's obligations under this authority the said sum may be applied at the discretion of the Minister towards the cost of fulfilling such obligations. For the purposes of the clause a lease holder shall be deemed to have failed to fulfil the lease holder's obligations under this authority, if the lease holder fails to comply with any condition or provision of this authority, any provision of the Act or regulations made thereunder or any condition or direction imposed or given pursuant to a condition or provision of this authority or of any provision of the Act or regulations made thereunder.</p> <p>(b) The Minister may at may time after the commencement of this authority or any renewal thereof, vary the amount of security required in accordance with this condition.</p> <p>(c) Where the amount of security has been increased pursuant to Clause (b) hereof the lease holder shall, within two (2) months of being-requested by the Minister, lodge a security for the amount of security required, in which case the Minister shall refund or release to the lease holder the security</p>	Compliant	Centennial has a combined security deposit in place with the Department.

Relevant Title	Condition Number	Condition Content	Status	Comment
		previously lodged.		
ML 564 PLL 133 ML 1448	54	Royalty at Additional Rate The lease holder shall during the term of this authority pay to the Minister royalty at the additional rate as prescribed by the Regulations for coal recovered by open cut mining methods from the area.	Compliant	
ML 564	56	Special Barrier The lease holder shall not work or cause to be worked any seam of coal directly beneath the Blackmans Flat substation, unless with the consent of the Minister and subject to such conditions as he may impose.	Compliant	
ML 1448	56	<p>(a) The lease holder shall carry out operations in such a way as to conform strictly to all provisions of the <i>Water Board (Corporatisation) Act, 1994</i>, as amended, and the regulations thereunder applying to the prevention of pollution of the Warragamba Outer Catchment Area or the preservation of the purity of the water supply provided thereby or derived therefrom or for the protection of the property of Sydney Water Corporation Limited (A.C.N. 063 279 649) [hereinafter referred to as the 'the Corporation'] on the Outer Catchment Area and also to all requirements of the Corporation from time to time under the said Act or any of the regulations for the time being in force.</p> <p>(b) If the lease holder shall at any time be using or about to use any process which in the opinion of the Corporation is likely to pollute the Outer Catchment Area or the water supply or to endanger any property of the said Corporation on the Outer Catchment Area the lease holder upon service of a notice in writing under the hand of the Minister to do so shall:</p> <p>(i) discontinue the use of such process within twenty four (24) hours, or</p> <p>(ii) thereafter refrain from adopting such process at any time, as the case may require.</p> <p>(c) The lease holder shall provide and maintain to the satisfaction of the Minister efficient means to prevent the contamination, pollution, erosion or siltation of any stream or watercourse or Outer Catchment Area and shall observe any instruction given or which may be given by the Minister with a view to preventing or minimising the contamination, pollution or siltation of any stream watercourse or Outer Catchment Area.</p> <p>(d) The lease holder hereby covenants with Us Ours Heirs and Successors and as a separate covenant the lease holder hereby covenants with the Corporation and its Successors that the lease holder shall at all times hereafter save harmless and keep Us and the said Corporation and Our Heirs and Successors and the Successors of the said Corporation indemnified from payment of compensation and from and against all actions proceedings claims and demands in respect of any injury loss of damage arising out of or in any way connected with any interference with or deprivation or loss of access to the land and premises of this authority which may occur by reason of any works or operations undertaken or carried out by the said Corporation or arising out of or in any way</p>	Compliant	Operations conformed with the provisions of the <i>Water Board (Corporatisation) Act 1994</i> and regulations during the reporting period.

Relevant Title	Condition Number	Condition Content	Status	Comment
		connected with any discontinuance or alteration of any process consequent upon the service of a notice in pursuance of the provisions of Condition [56(b)] or arising out of or in any way connected with the operation of any regulations relating to Outer Catchment Area in force at the date hereof or made by the said Corporation at any time hereafter and the lease holder hereby agrees that for the purpose of this condition the said Corporation shall be deemed to be a party to this authority.		
ML 1448	57	<p>The lease holder shall:</p> <p>(a) Make such provisions for sanitation as may be directed by the Corporation and shall at all times observe and perform any requirements of the said Corporation respecting sanitation.</p> <p>(b) not establish any camps or habitations within any area under the control of the Corporation unless with the consent of the Corporation.</p> <p>(c) Not sink any drill hole within any watercourse on the Warragamba Outer Catchment Area unless with the consent of the Corporation.</p> <p>(d) Not interfere with or impede the use of the Corporation tracks or endanger their stability in any way by reason of the operations.</p> <p>(e) Not construct any road to the sites of any drill holes unless with the consent of the Corporation to the proposed route and type of road construction.</p> <p>(f) Not interfere in any way with any fences on or adjacent to the Warragamba Outer Catchment Area unless with the consent in writing of the owner thereof or the Corporation.</p> <p>(g) Give three (3) days notice to the Corporation's Resident Engineer, Pipe Head, Guildford of the lease holder's intention to commence drilling operations.</p> <p>(h) Not cut or remove any timber except such as directly obstructs or prevents the carrying on of operations and the lease holder shall obtain the consent in writing of the Corporation before making use of the timber so cut for other than in connection with operations.</p> <p>(i) Complete work in relation to rehabilitation within the Warragamba Outer Catchment Area before termination of the authority to the satisfaction of the Corporation.</p>	Compliant	

Appendix S – Groundwater Information

Groundwater monitoring was undertaken during 2017 in accordance with the WCSWMP, Development Consent SSD_5579 and Environmental Impact Statement Mitigation and Management Measures listed in Table 6-5.

Groundwater monitoring locations are shown in Appendix A and details are provided in Table 8-21.

Groundwater monitoring data have been presented graphically to show a comparison with historic data trends.

Table 8-21 – Groundwater monitoring locations

Monitoring bore	Ground level elevation (m AHD)	Collar elevation (m AHD)	Bore depth (m bgl)	Aquifer
BH01	912.367	N/A	18.3	Lithgow Seam (unmined)
BH02	N/A	N/A	30	Marrangaroo Formation
BH03	905.16	N/A	18.57	Saturated overburden
BH04	929.98	930.71	27.51	Lithgow Seam workings (void)
BH05	928.83	929.59	30.19	Lithgow Seam (unmined pillar)
BH06	905.35	905.9	9.3	Lithgow Seam
BH07	924.24	925.16	33	Up-gradient saturated overburden
BH08	927.38	928.27	24.4	Lithgow Seam workings (void)
BH09	929.79	930.75	25.5	Lithgow Seam workings (void)
BH10	936.45	937.4	25.2	Lithgow Seam workings (void)
BH11	N/A	N/A	34.19	Marangaroo Formation
BH12	N/A	N/A	18.68	Marangaroo Formation
BH13	N/A	N/A	12.37	Backfill
BH15	940	N/A	25.5	Up-gradient Overburden

Note:

N/A denotes not available

m AHD: metres Australian Height Datum

m bgl: metres below ground level

Groundwater monitoring telemetry system

A groundwater monitoring telemetry system was installed in groundwater monitoring bores at Western Coal Services in July 2017. Groundwater level loggers and associated telemetry was installed in suitable groundwater monitoring bores. The location of groundwater monitoring bores at Western Coal Services is shown in Appendix A. Continuous groundwater level data obtained from the groundwater level loggers is included in Appendix I. Work was ongoing during 2017 to improve the reliability and coverage of the telemetry system. This work will continue during 2018.

Groundwater level

Groundwater level data for site monitoring bores are shown in Figure 8-35 to Figure 8-46. Monitoring bores BH10 and BH12 have been consistently dry. Review of groundwater hydrographs indicates a groundwater flow direction from the south west to the north east.

Groundwater levels have been relatively constant at BH15. Groundwater level at BH02 shows a strong historical decreasing trend between 2015 and 2017 with groundwater levels remaining relatively stable throughout 2017.

Groundwater levels at BH03 vary between 903 m AHD and 904 m AHD. Groundwater levels at BH03 are potentially influenced by water levels in surrounding surface water storages.

Groundwater levels at BH04, BH05, BH08 and BH09 appear to be influenced by water levels in DML Dam. Groundwater levels were stable at these sites between 2015 and March 2016. Between March 2016 and May 2016 the water level in DML Dam was lowered for water management purposes. This corresponded with a drop in groundwater level at BH04, BH05, BH08 and BH09. Groundwater levels at BH04, BH08 and BH09 continued to gradually decrease during the remainder of 2016 before stabilising at a lower level in 2017. Groundwater levels then appeared to increase between September 2017 and December 2017 at these monitoring locations. This increase is potentially due to an increase in water level in DML Dam. Water levels within DML Dam are not available over this period to confirm this.

Groundwater levels at BH01, BH11 and BH13 also appear to be influenced by water levels in DML Dam. Groundwater levels were stable at BH01 and BH13 between 2015 and March 2016. Between March 2016 and May 2016 the water level in DML Dam was lowered and groundwater level at BH01, BH11 and BH13 fell during this period. However, this was followed by a slight increase in groundwater level at these monitoring locations, potentially due to above average rainfall during the second half of 2016. Groundwater levels at BH01, BH11 and BH13 then showed a decrease during the first three months of 2017. This decrease is possibly in response to the lower levels in DML Dam. Groundwater levels at BH01, BH11 and BH13 then re-stabilised in mid-2017 at a level 1.5 m to 2 m lower than 2015 levels. Groundwater levels then appeared to increase between September 2017 and December 2017 at these monitoring locations. This increase is potentially due to an increase in water level in DML Dam.

Groundwater levels at BH07 and BH06 displayed an increasing trend during the second half of 2016. This period of elevated groundwater levels is likely due to above average rainfall during the second half of 2016. Throughout 2017, groundwater levels at these locations were generally decreasing due to generally average or below average rainfall.

Groundwater quality

Groundwater quality data are plotted in Figure 8-47 to Figure 8-73.

Groundwater pH is generally between 6 and 7 across the sites indicating neutral to slightly acidic groundwater. The exception to this is BH03 where pH has fluctuated between 3 and 5 and BH01 where pH is between 5 and 6 indicating slightly acidic to acidic groundwater.

Groundwater varies throughout the site from fresh at BH04 and BH05 to brackish-saline at BH08, BH09 and BH13. Electrical conductivity (EC) was increasing during 2017 at BH01, BH08 and BH09 and slightly increasing at BH15 and BH06. At BH07, EC and TDS showed notable increases in January 2017, followed by a decreasing trend throughout the remainder of 2017. EC showed considerable variability at BH13 during 2017 with EC increasing to a peak of 7110 $\mu\text{S}/\text{cm}$ in June before decreasing to below 5000 $\mu\text{S}/\text{cm}$ for the remainder of the year.

Trends in major ions correspond with trends in EC.

Dissolved iron, dissolved nickel and dissolved zinc were elevated at BH07 in January 2017 as shown in Figure 8-61, Figure 8-63 and Figure 8-64. Concentrations for these dissolved metals were decreasing at BH07 throughout the remainder of 2017. The trend in dissolved metal concentrations matches the trend in groundwater level at BH07. Based on a review of groundwater levels discussed above, BH07 is located up-

gradient of the site and cross gradient from the REA. Therefore, it is considered unlikely that activities within the site have impacted groundwater quality at BH07. However, a collection of a water quality sample from the REA would assist in confirming that the REA did not influence groundwater quality at BH07.

Total concentrations of iron, manganese, nickel and zinc were elevated at BH02 in August 2016 as shown in Figure 8-66, Figure 8-67, Figure 8-68 and Figure 8-69. Concentrations of these total metals were decreasing throughout the remainder of 2016 and throughout 2017. Throughout this period, concentrations generally remained within the range of typical values at BH02. It is unclear if the observed trend in total metals at BH02 is related to trends in dissolved metals at BH07.

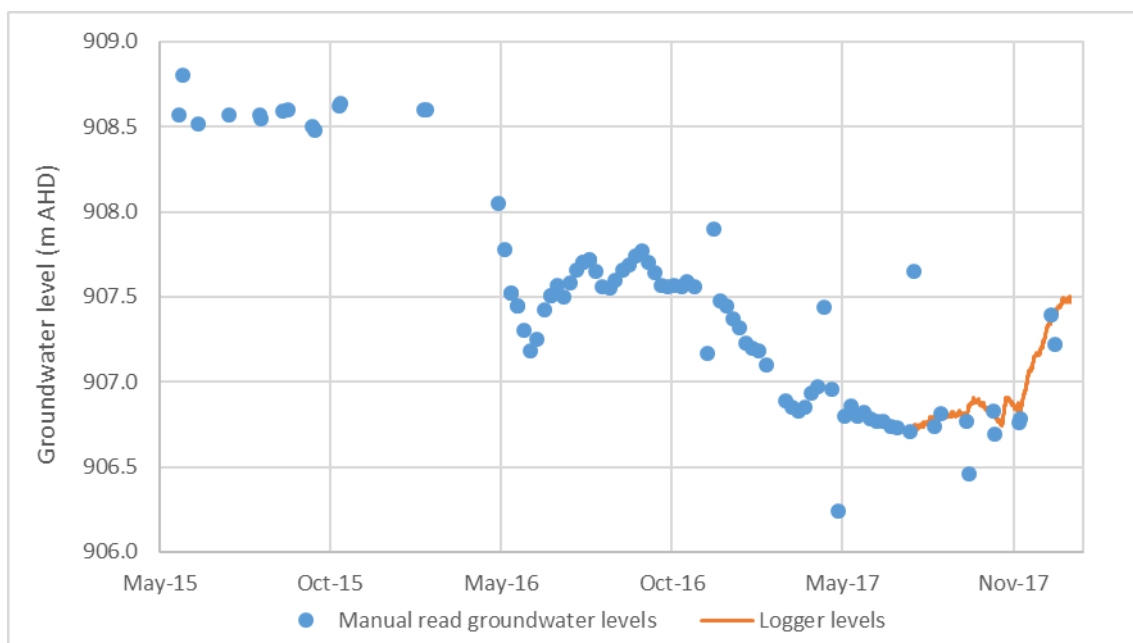


Figure 8-35 – Groundwater level BH01 2015 to 2017

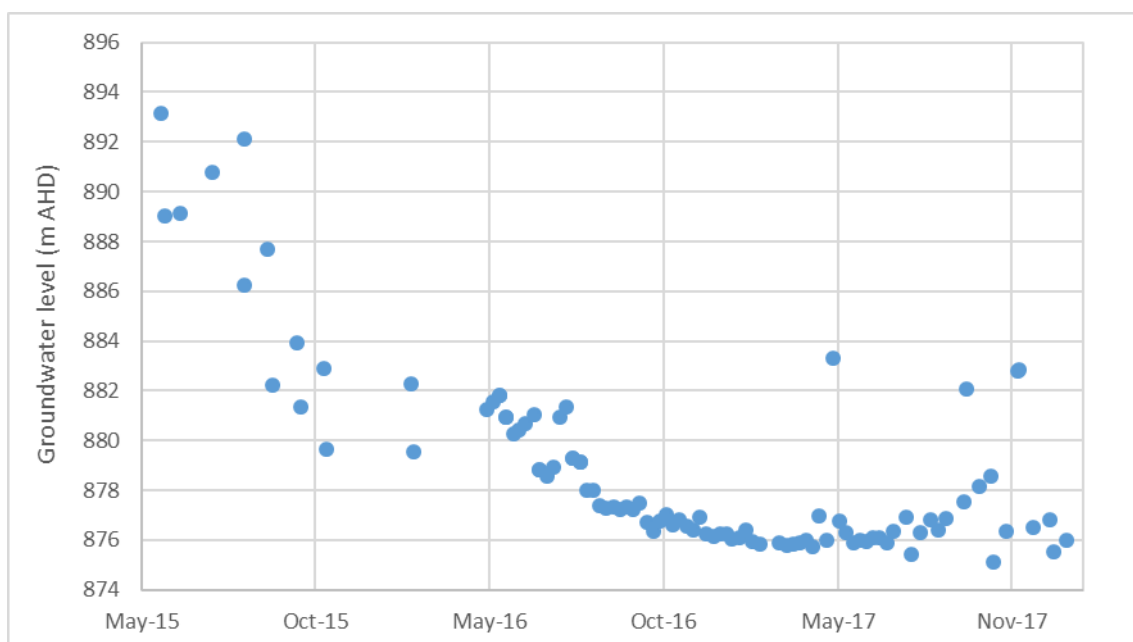


Figure 8-36 – Groundwater level BH02 2015 to 2017

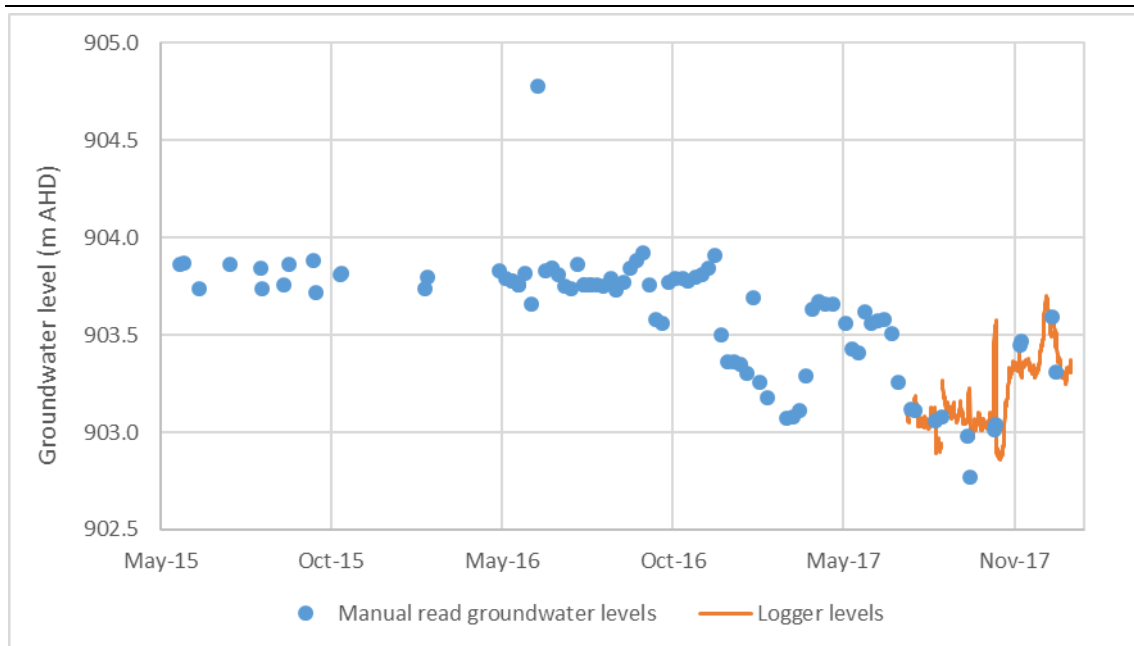


Figure 8-37 – Groundwater level BH03 2015 to 2017

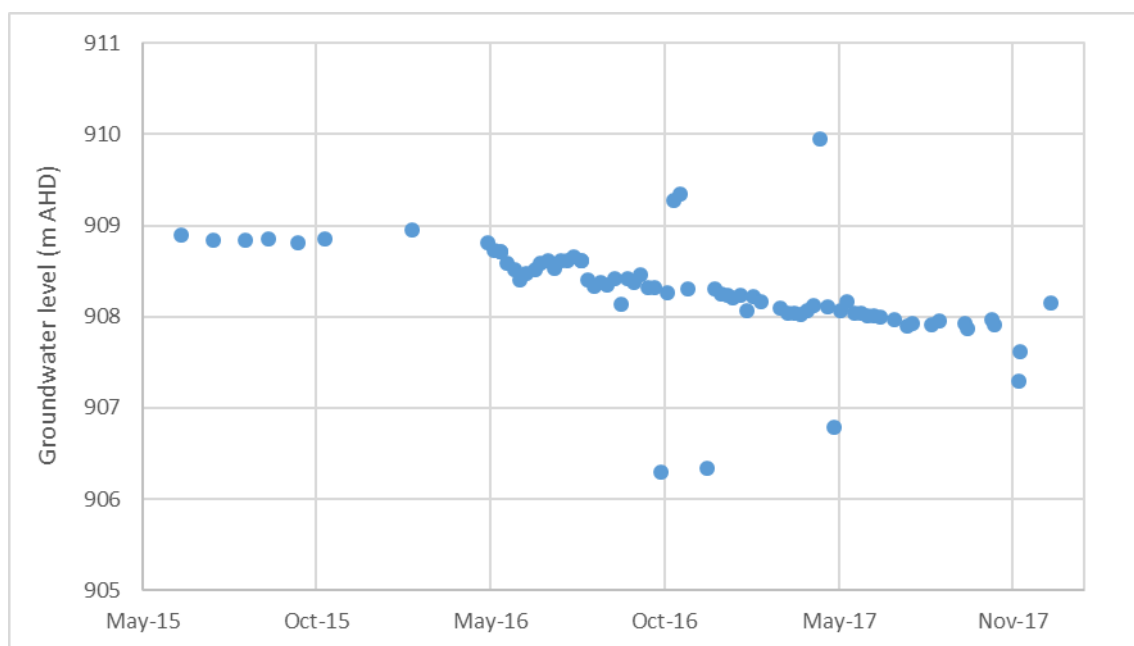


Figure 8-38 – Groundwater level BH04 2015 to 2017

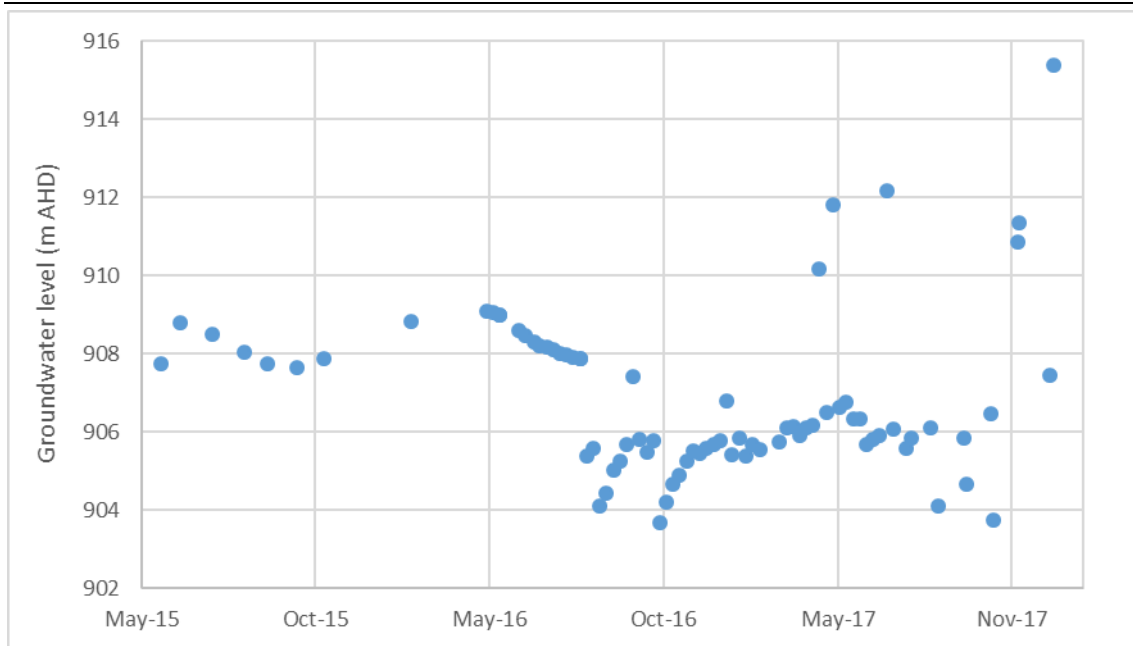


Figure 8-39 – Groundwater level BH05 2015 to 2017

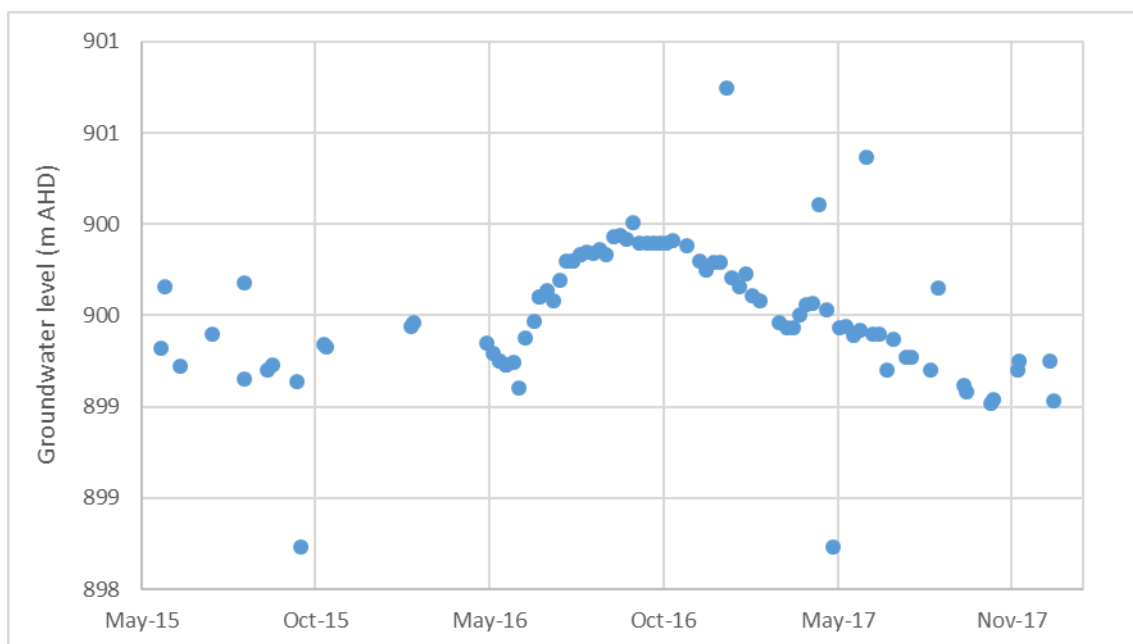


Figure 8-40 – Groundwater level BH06 2015 to 2017

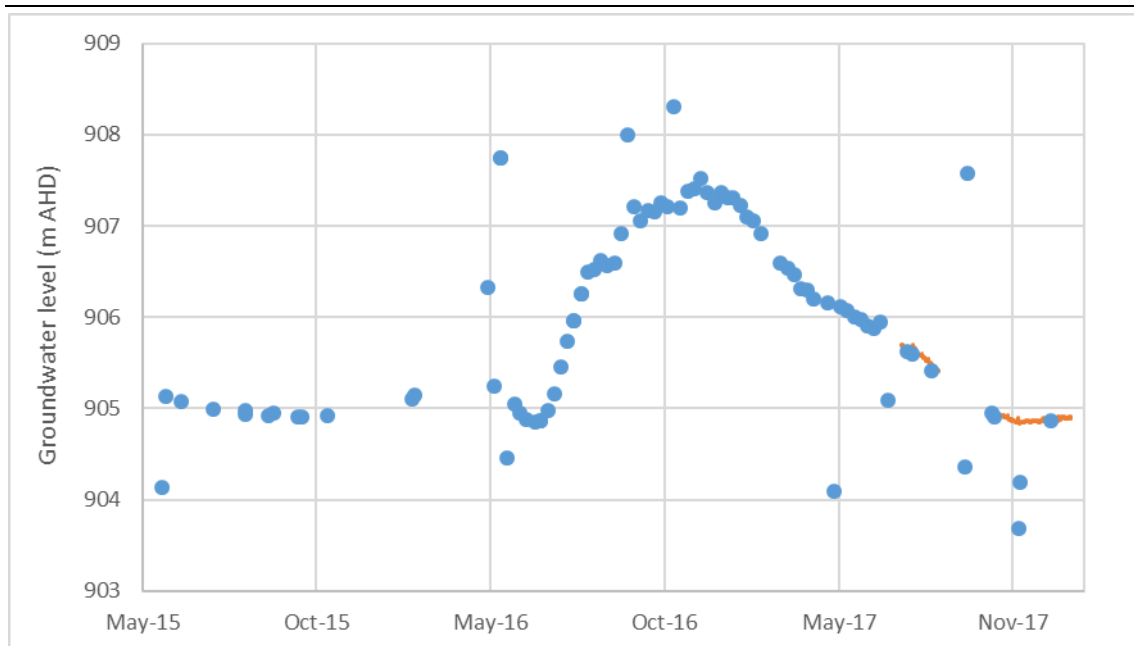


Figure 8-41 – Groundwater level BH07 2015 to 2017

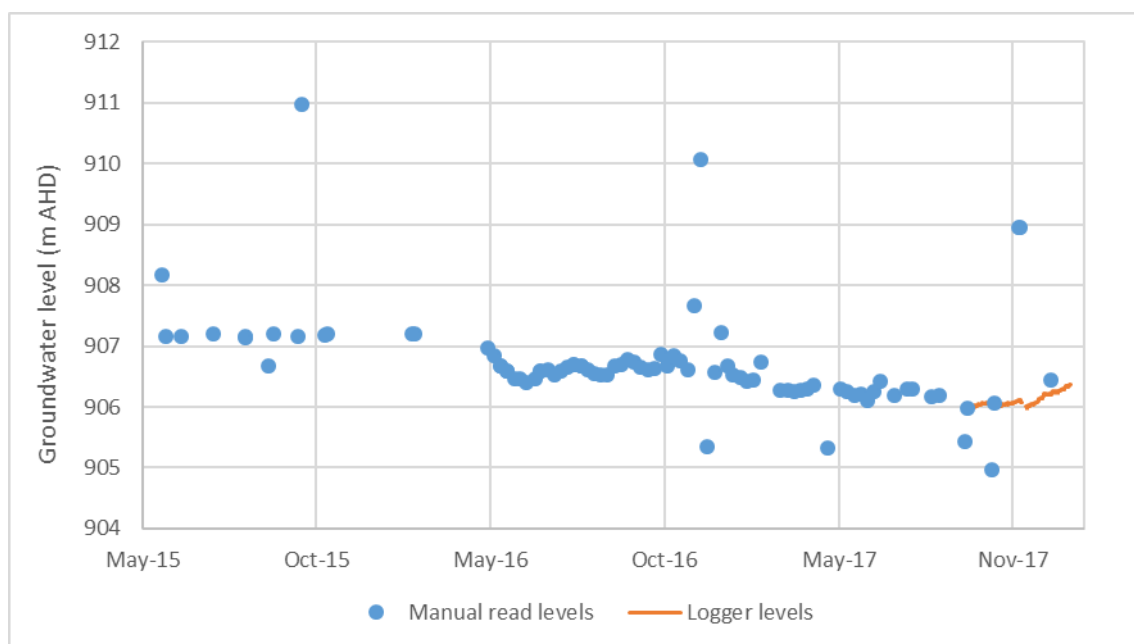
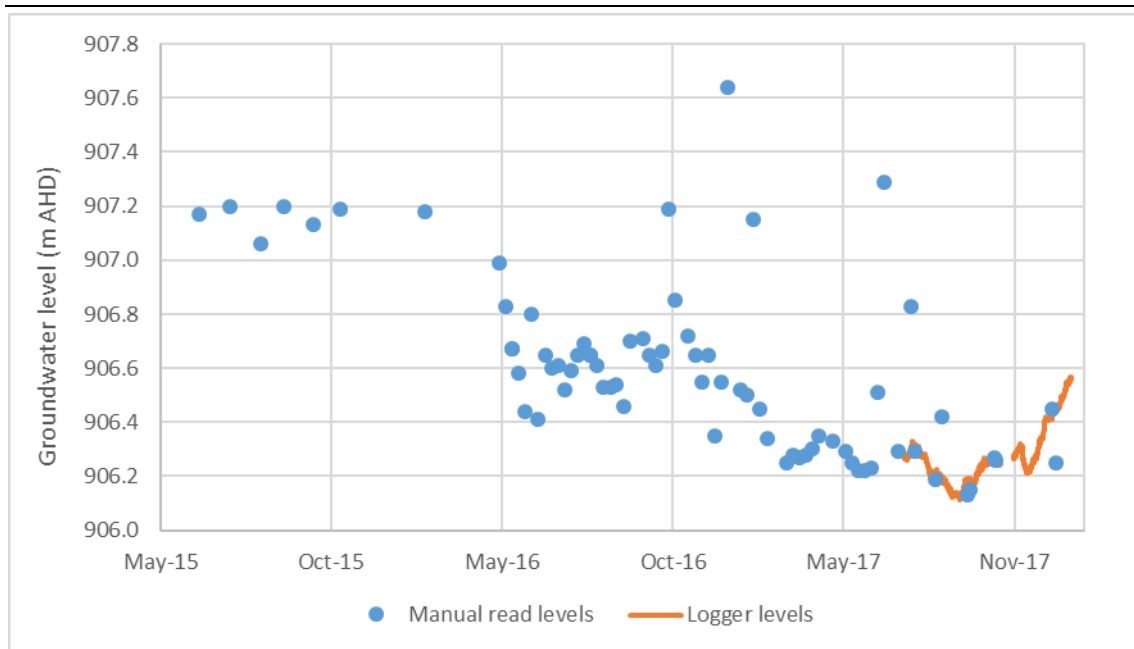
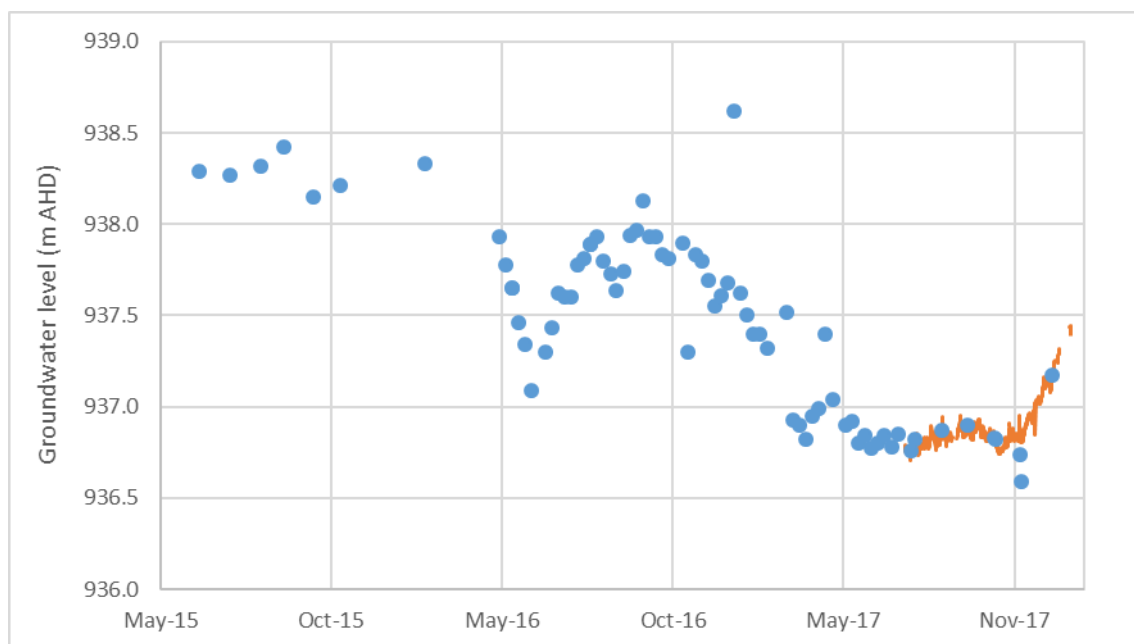


Figure 8-42 – Groundwater level BH08 2015 to 2017

**Figure 8-43 – Groundwater level BH09 2015 to 2017****Figure 8-44 – Groundwater level BH11 2015 to 2017**

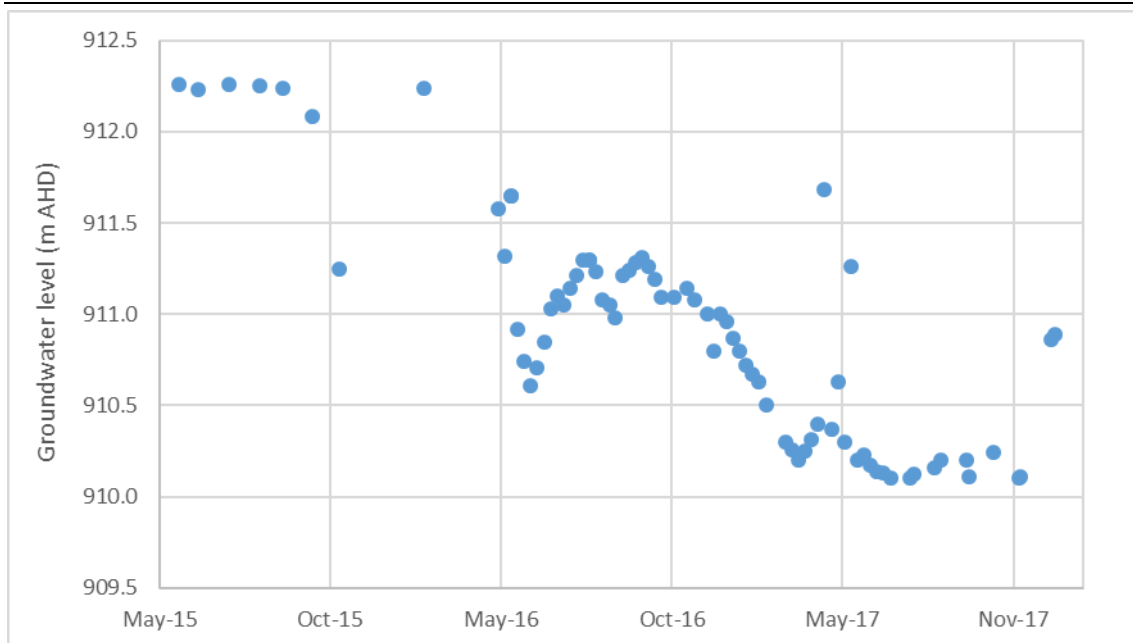


Figure 8-45 – Groundwater level BH13 2015 to 2017

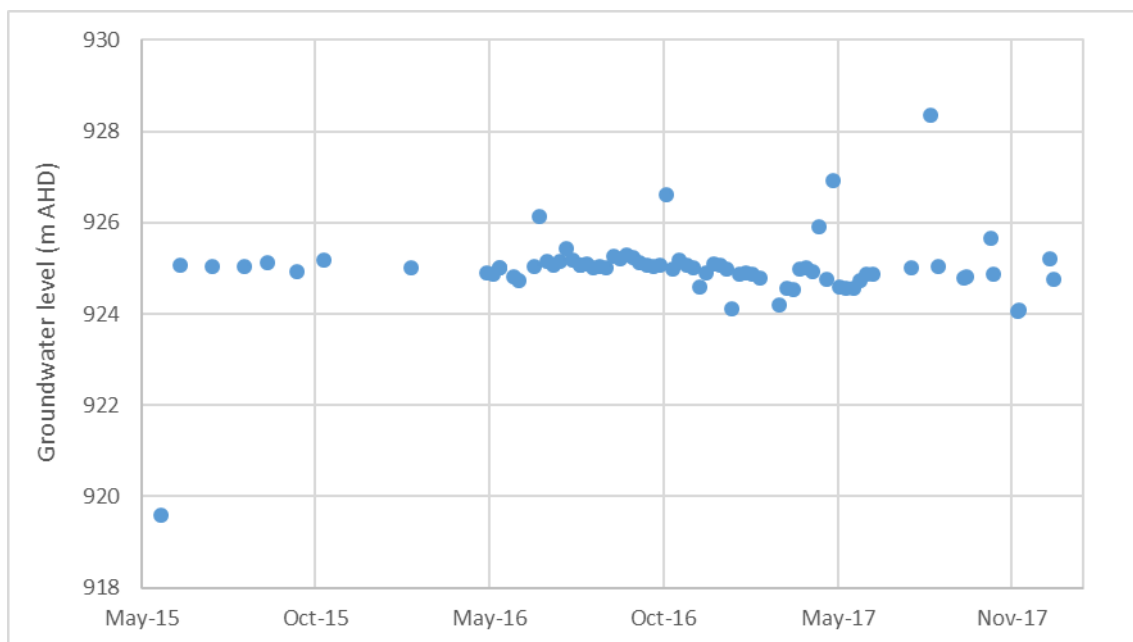


Figure 8-46 – Groundwater level BH15 2015 to 2017

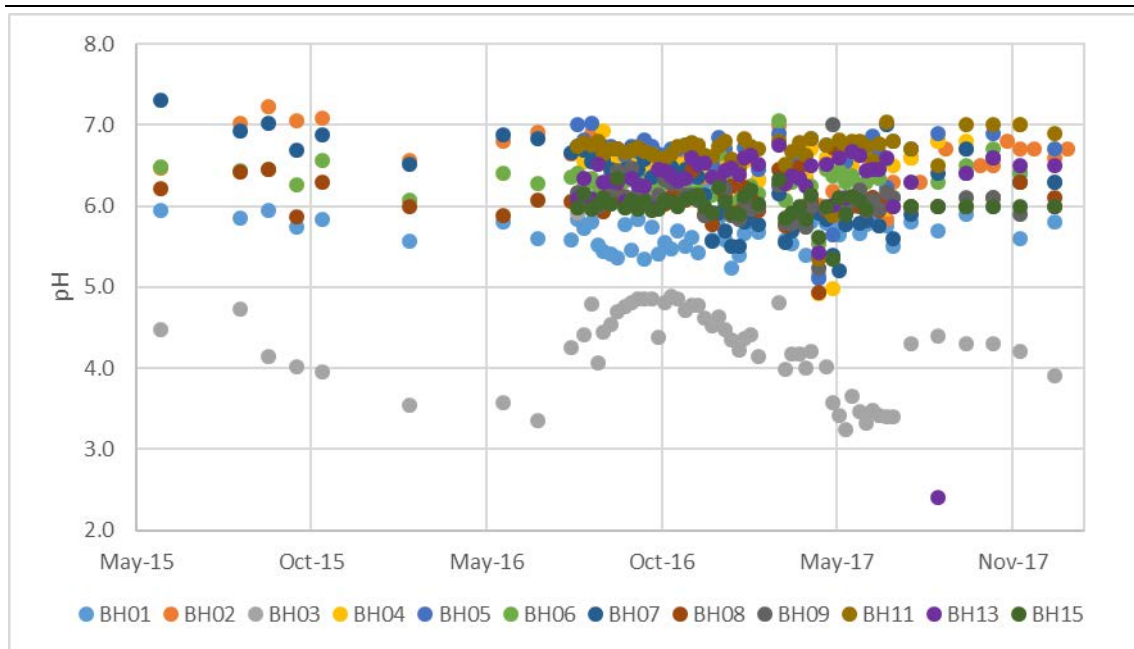


Figure 8-47 – pH 2015 to 2017

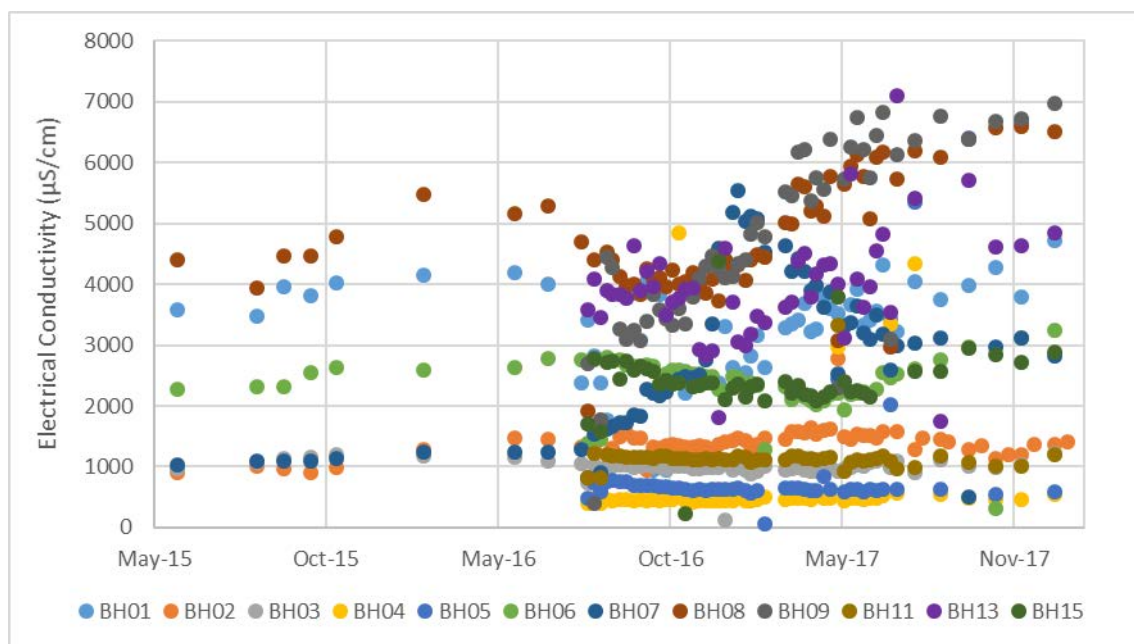


Figure 8-48 – Electrical conductivity 2015 to 2017

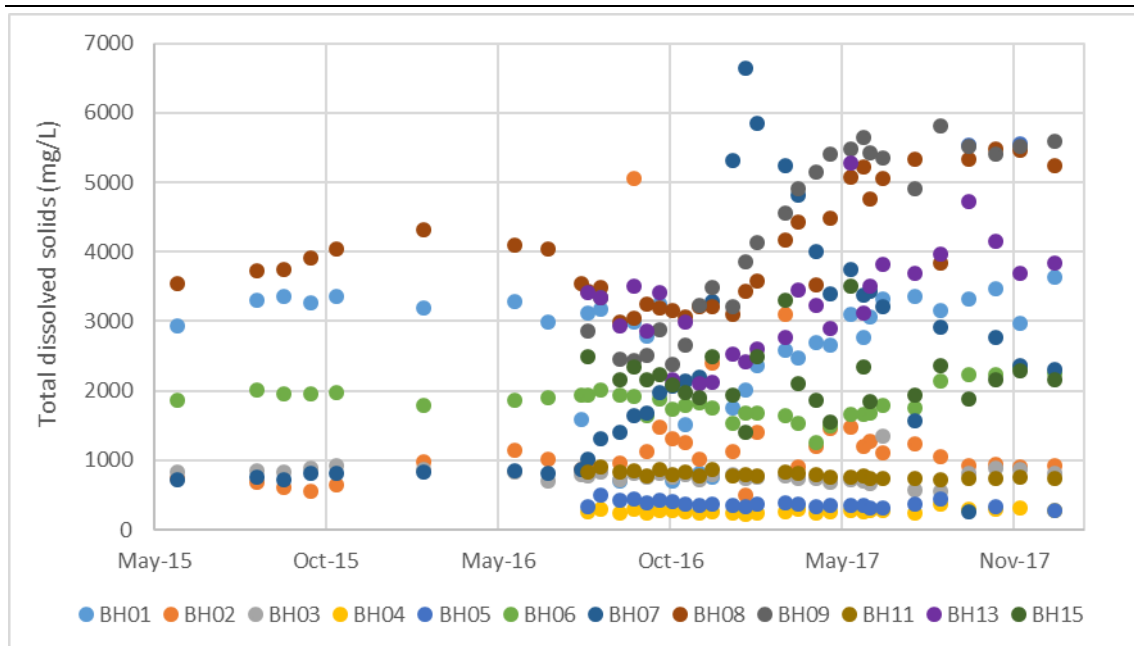


Figure 8-49 – Total dissolved solids 2015 to 2017

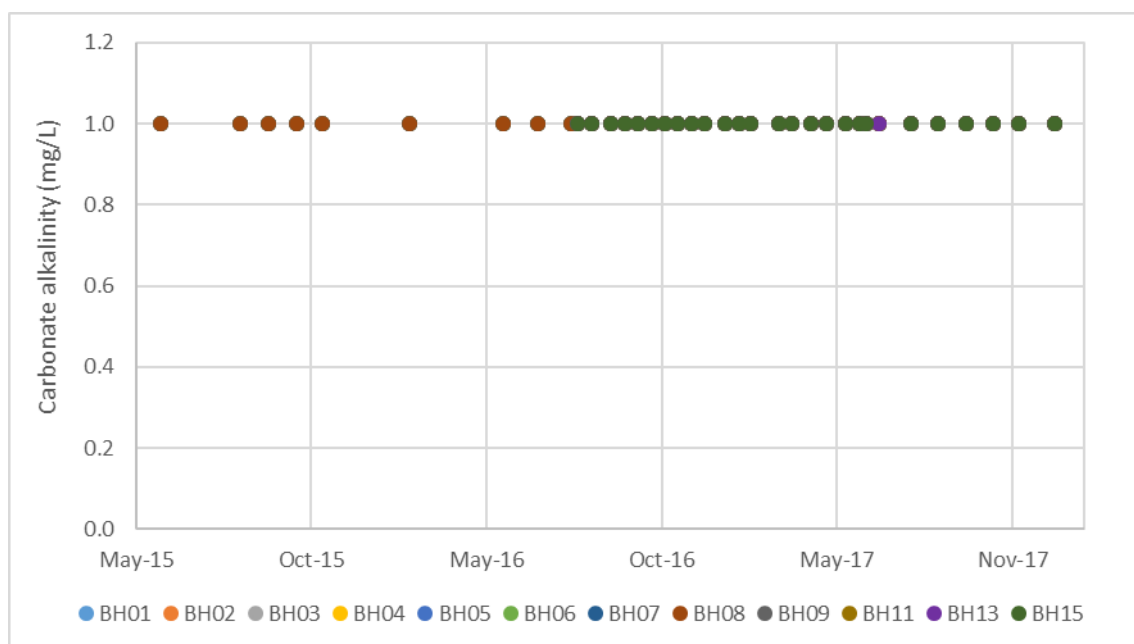


Figure 8-50 –Carbonate alkalinity 2015 to 2017

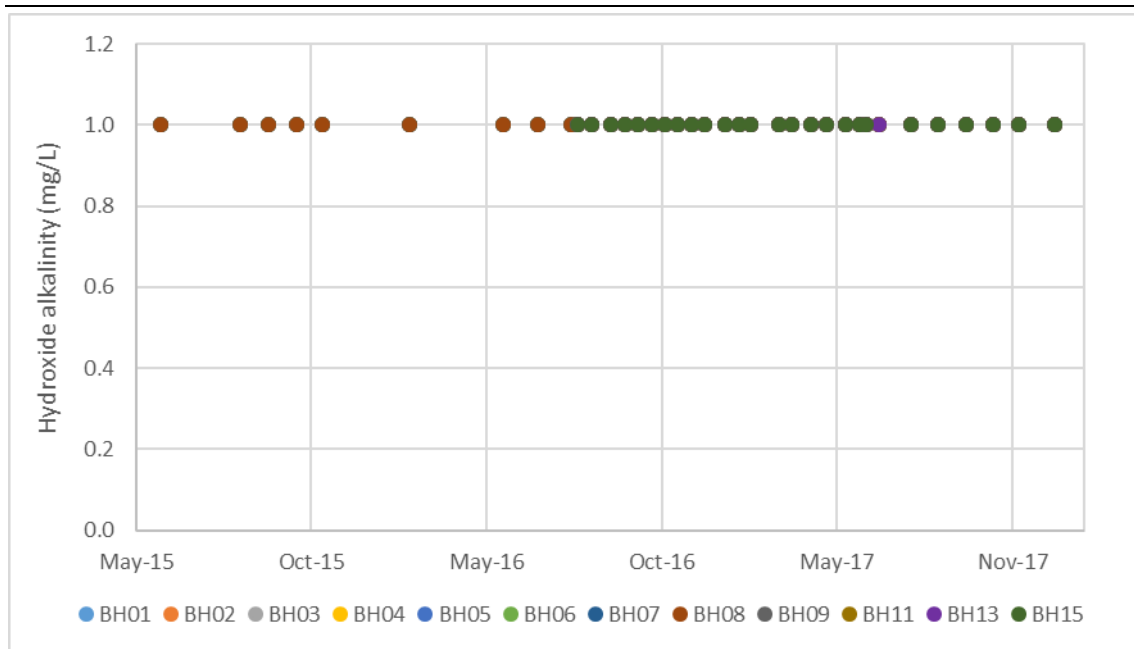


Figure 8-51 – Hydroxide alkalinity 2015 to 2017

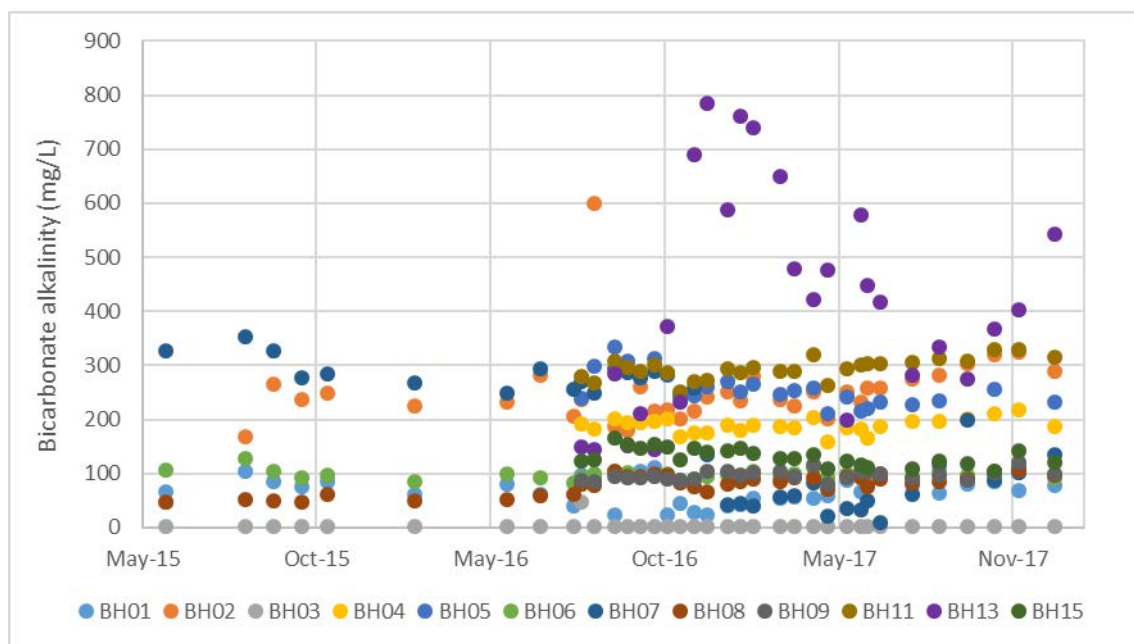


Figure 8-52 –Bicarbonate alkalinity 2015 to 2017

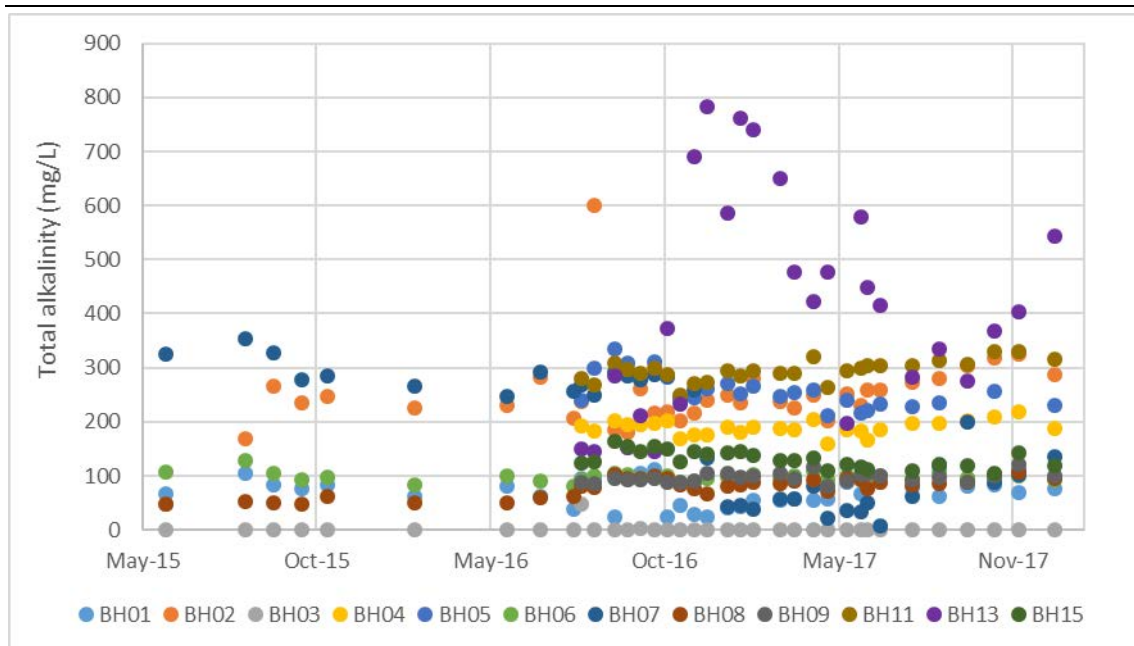


Figure 8-53 – Total alkalinity 2015 to 2017

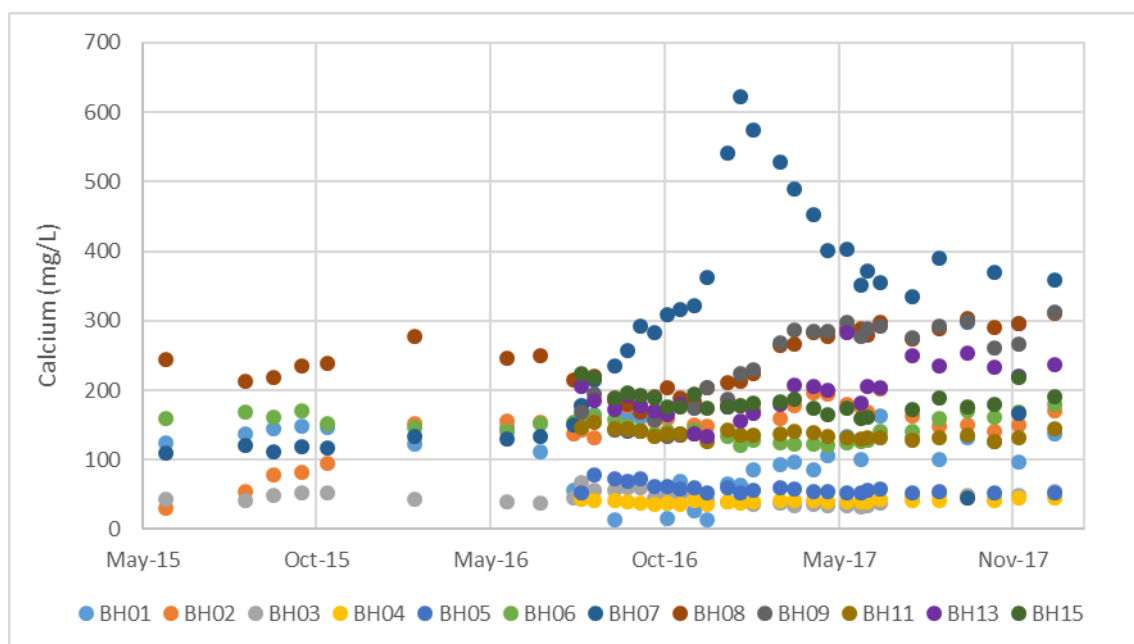
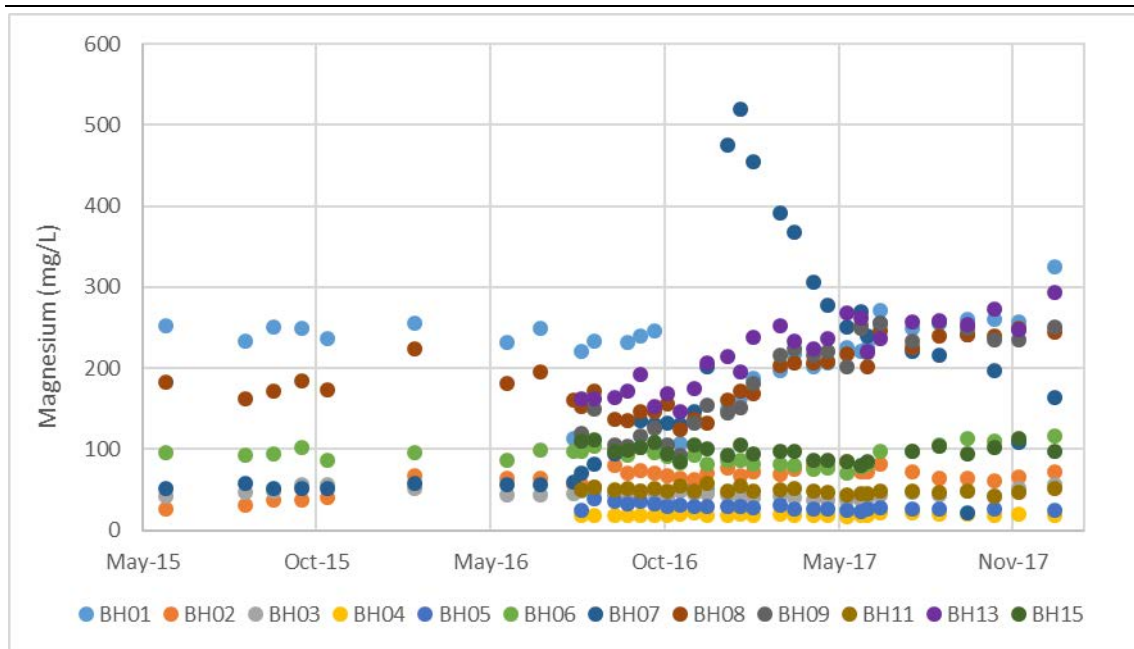
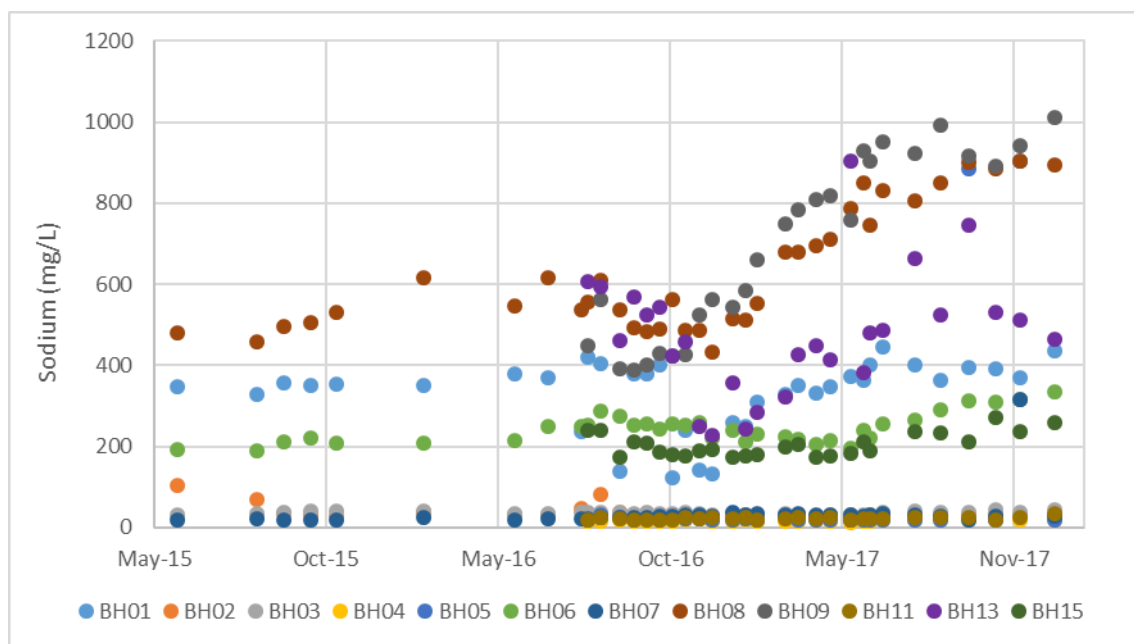


Figure 8-54 – Calcium 2015 to 2017

**Figure 8-55 – Magnesium 2015 to 2017****Figure 8-56 – Sodium 2015 to 2017**

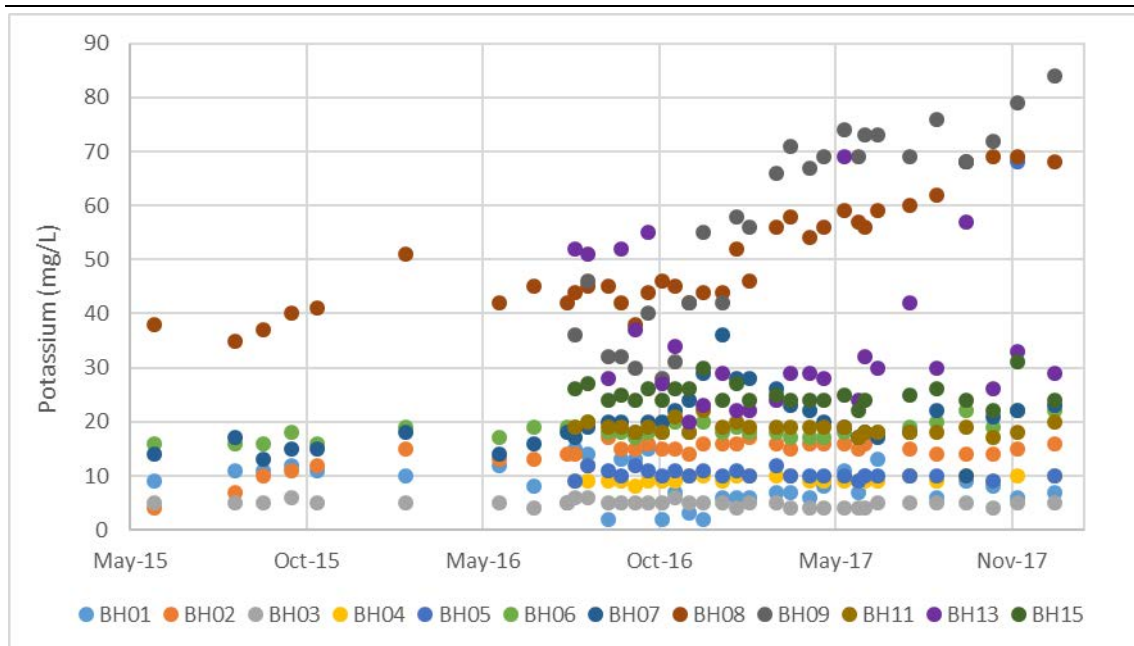


Figure 8-57 – Potassium 2015 to 2017

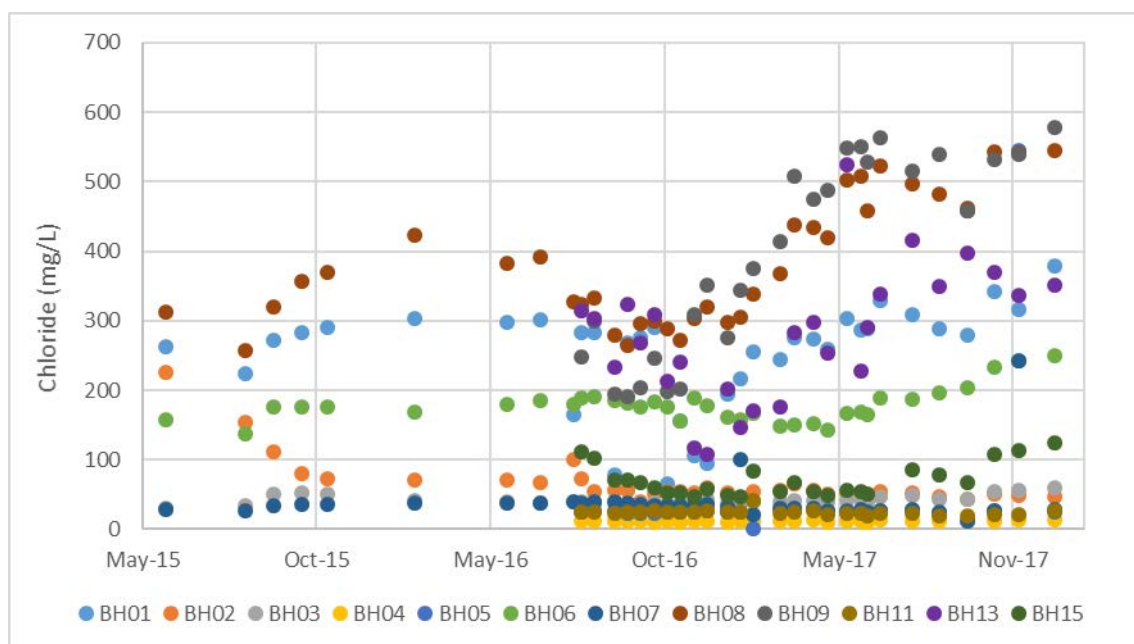


Figure 8-58 – Chloride 2015 to 2017

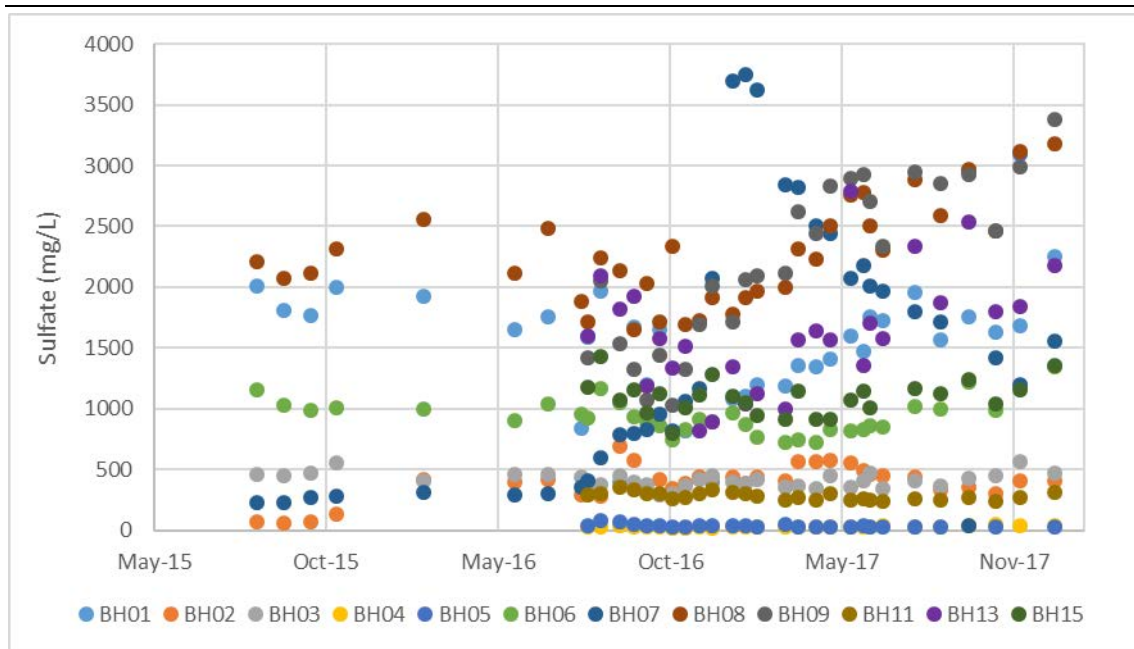


Figure 8-59 – Sulfate 2015 to 2017

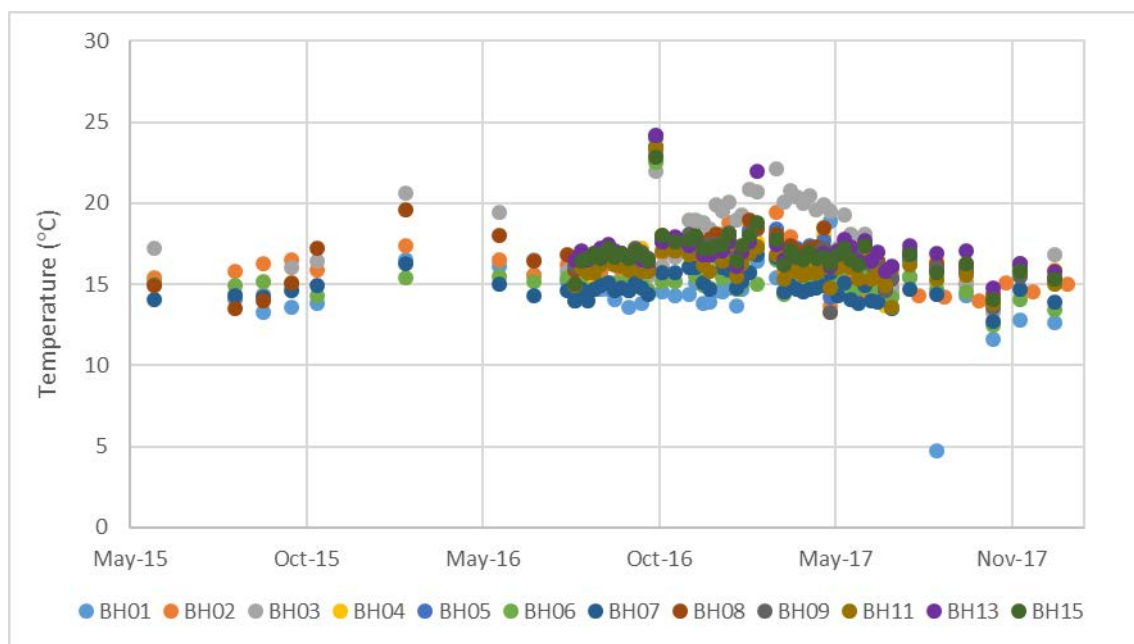


Figure 8-60 – Temperature 2015 to 2017

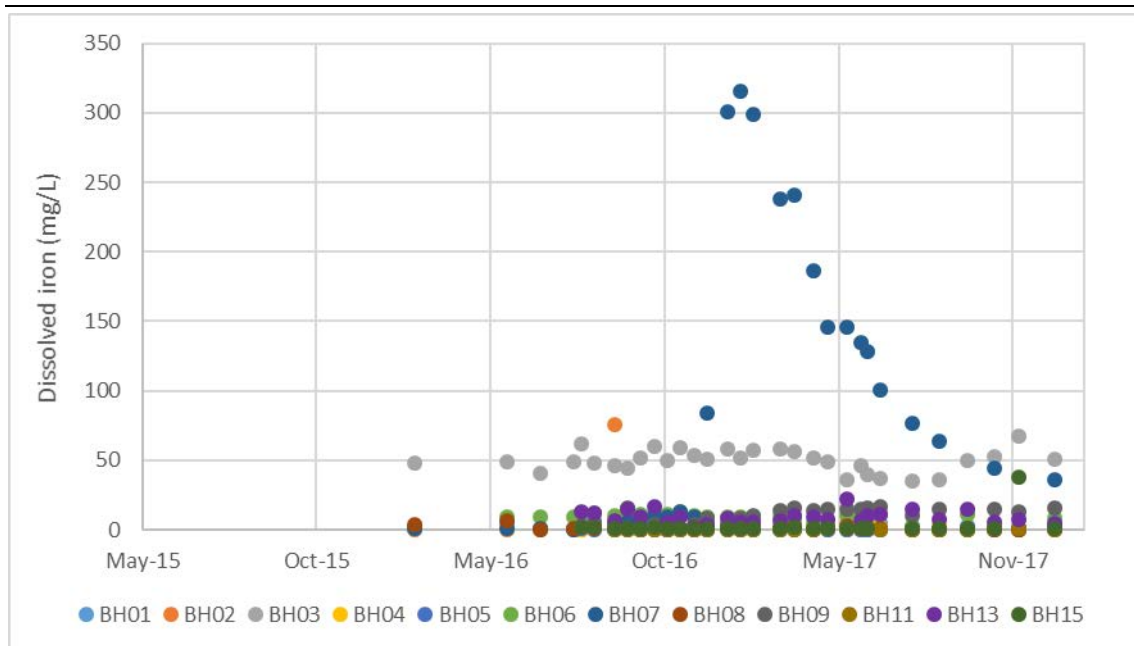


Figure 8-61 – Dissolved iron 2015 to 2017

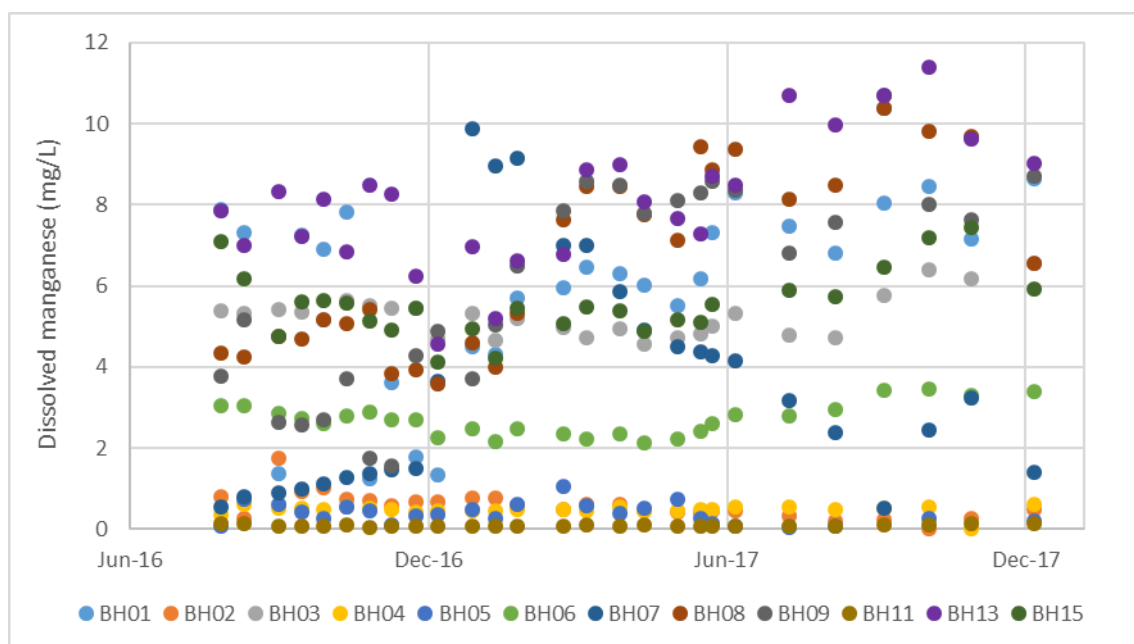


Figure 8-62 – Dissolved manganese 2016 to 2017

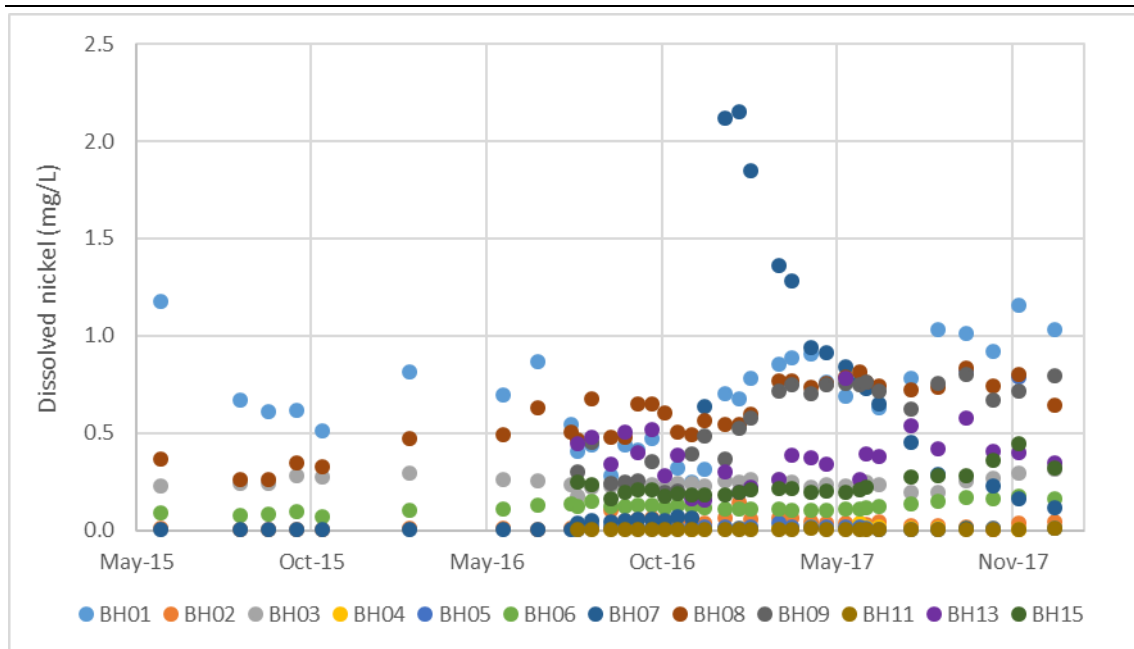


Figure 8-63 – Dissolved nickel 2015 to 2017

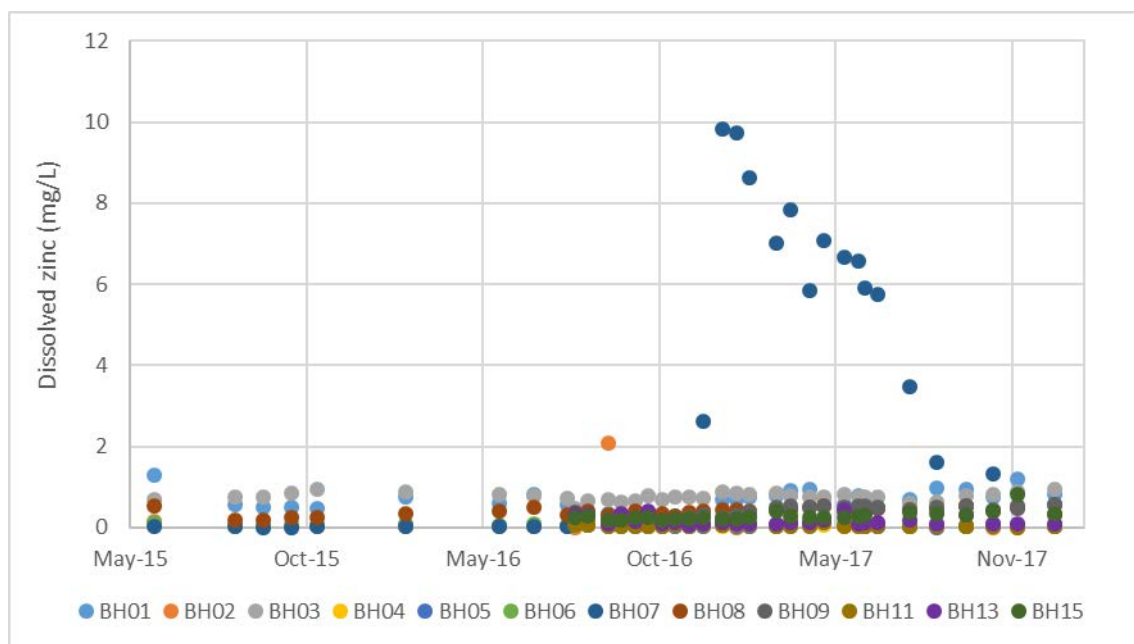


Figure 8-64 – Dissolved zinc 2015 to 2017

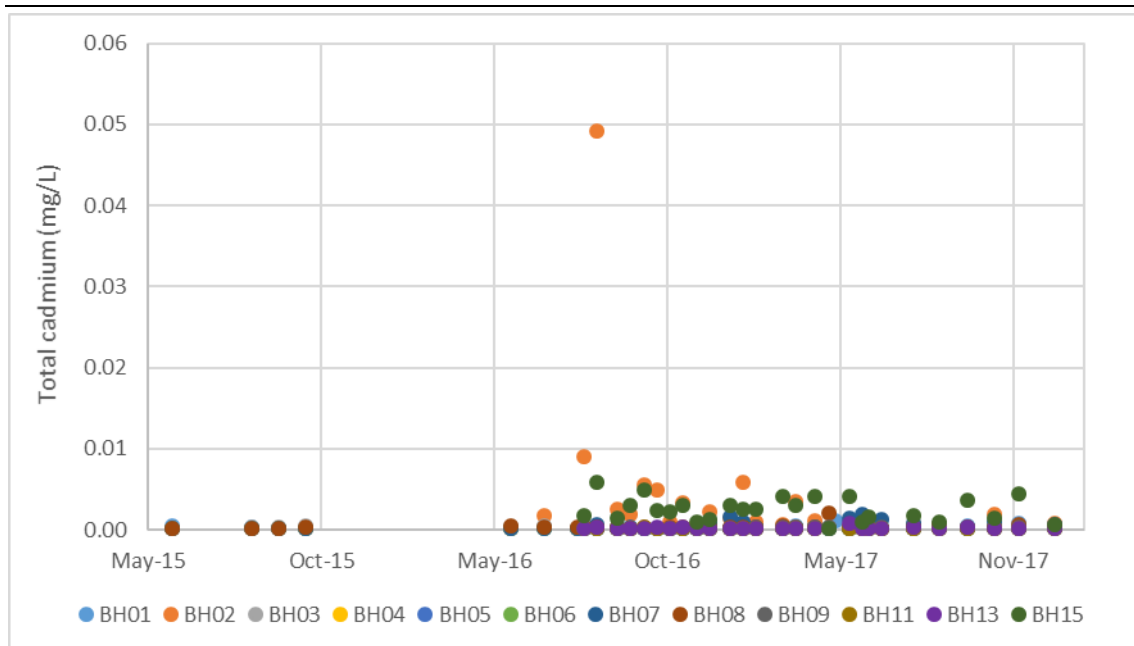


Figure 8-65 – Total cadmium 2015 to 2017

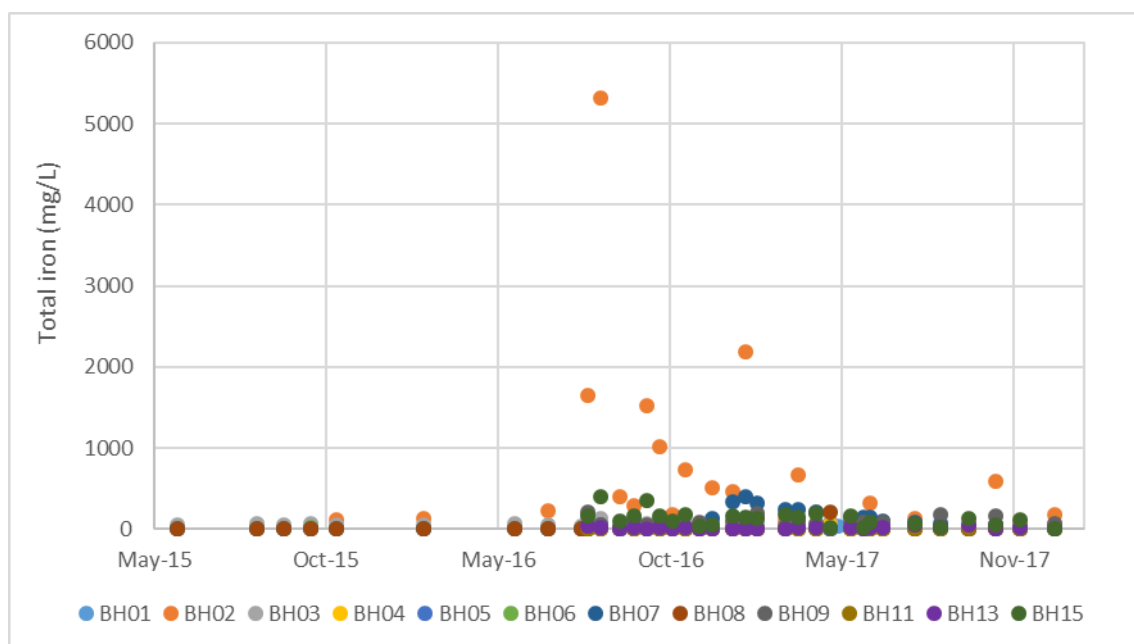


Figure 8-66 – Total iron 2015 to 2017

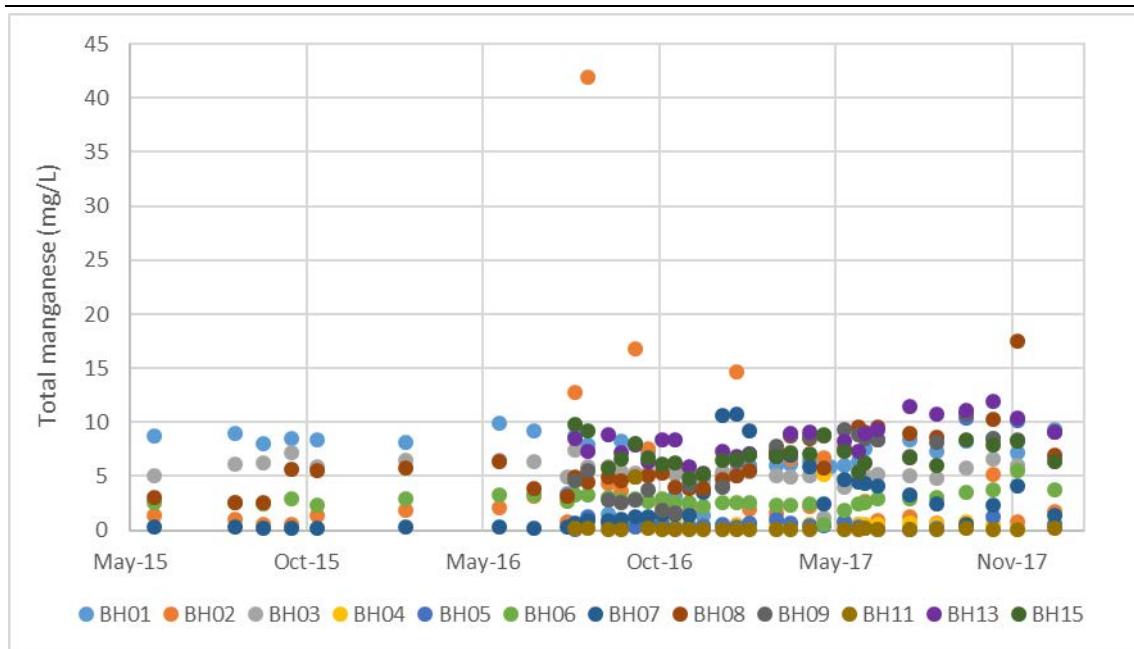


Figure 8-67 – Total manganese 2015 to 2017

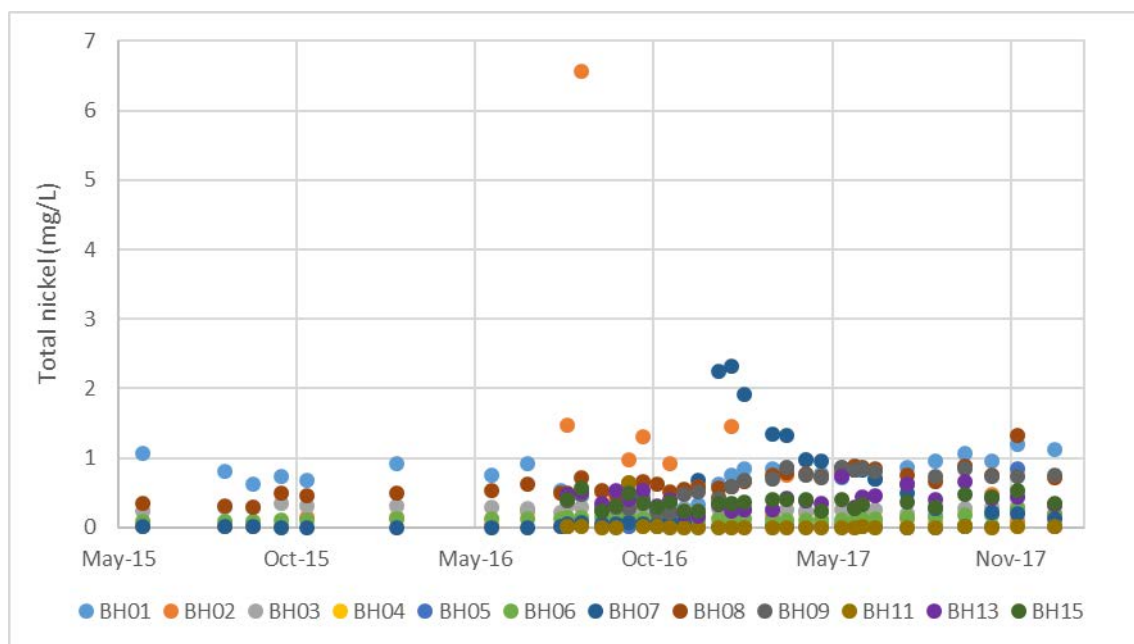


Figure 8-68 – Total nickel 2015 to 2017

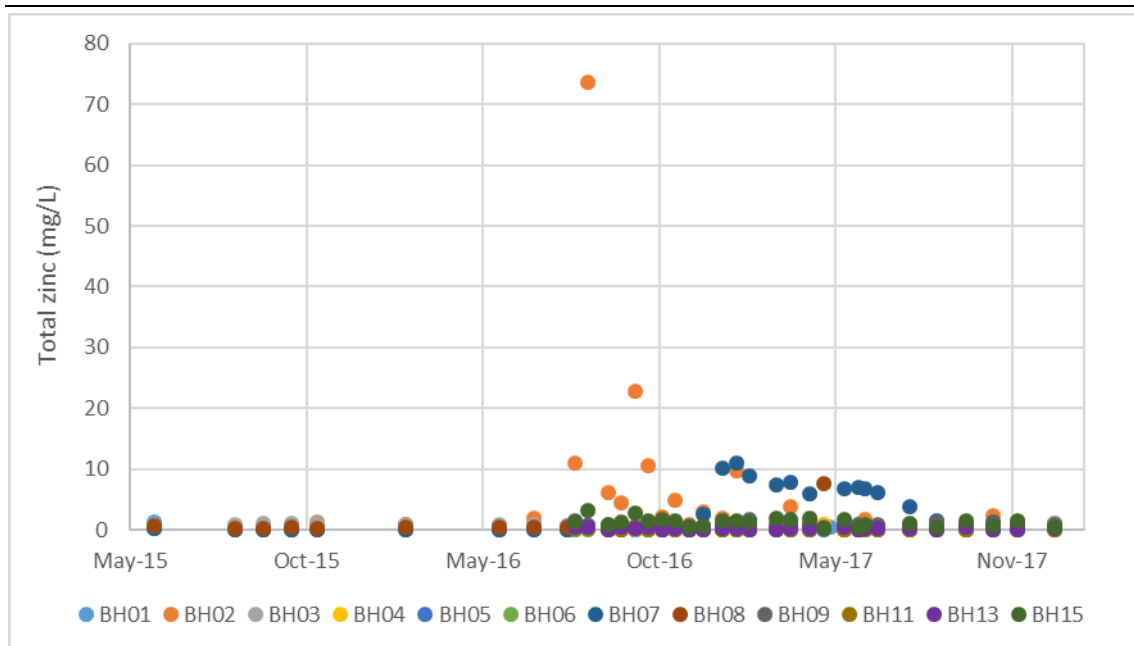


Figure 8-69 – Total zinc 2015 to 2017

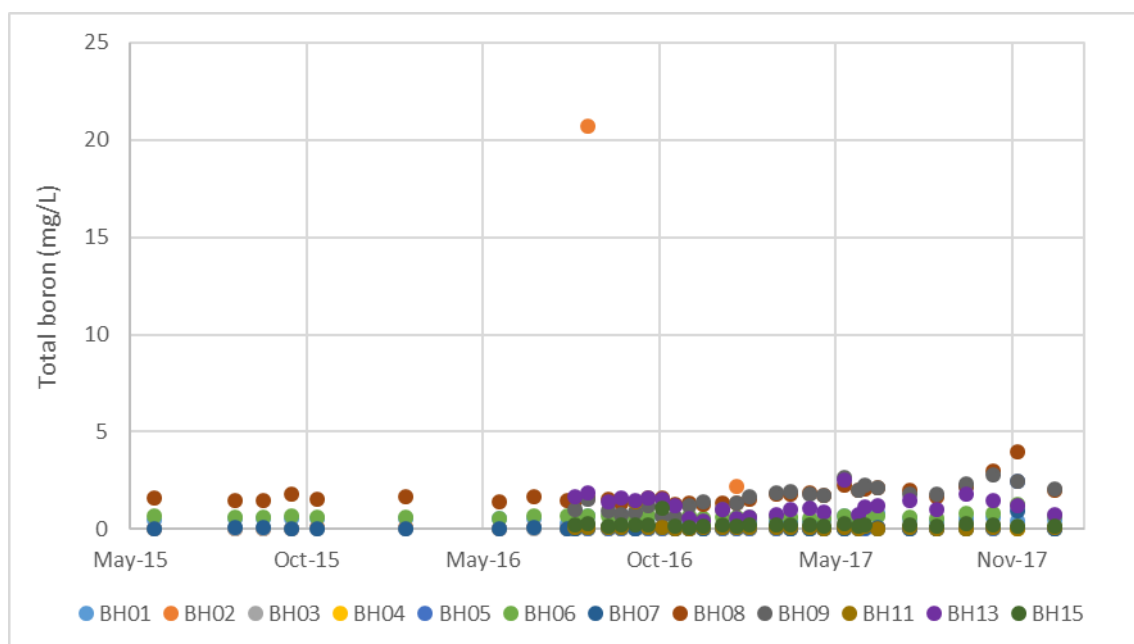
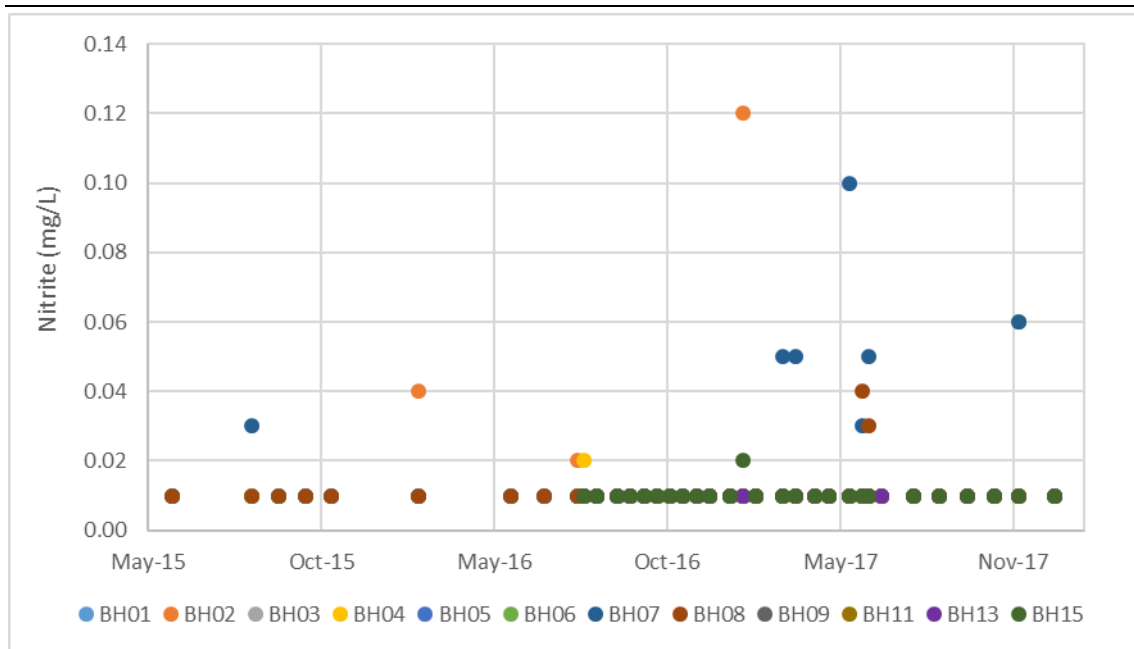
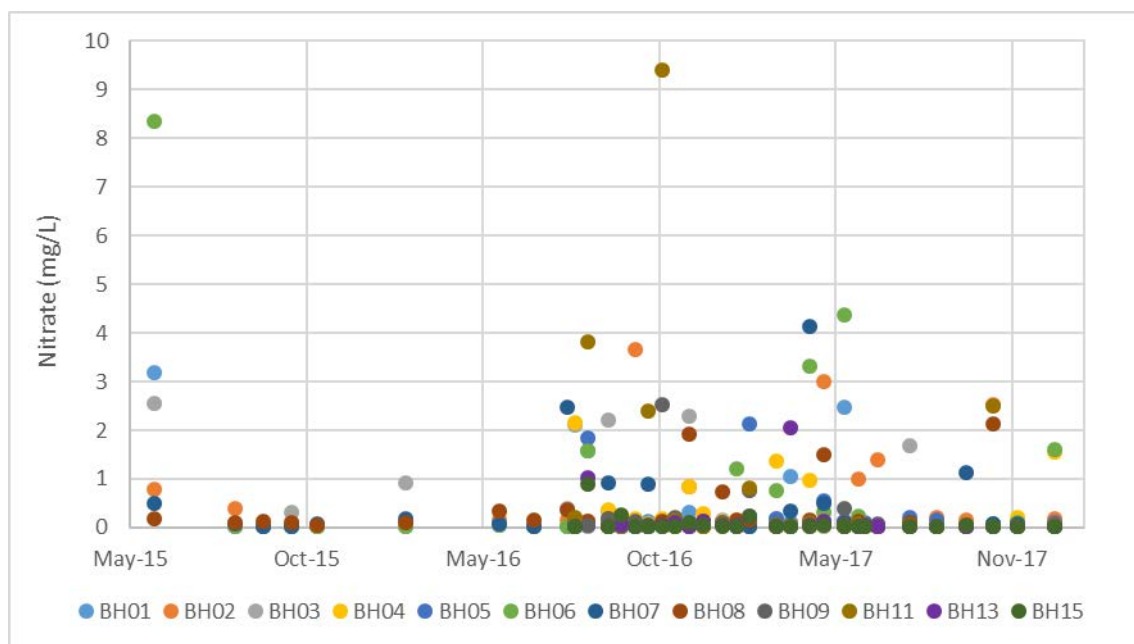


Figure 8-70 – Total boron 2015 to 2017

**Figure 8-71 – Nitrite 2015 to 2017****Figure 8-72 – Nitrate 2015 to 2017**

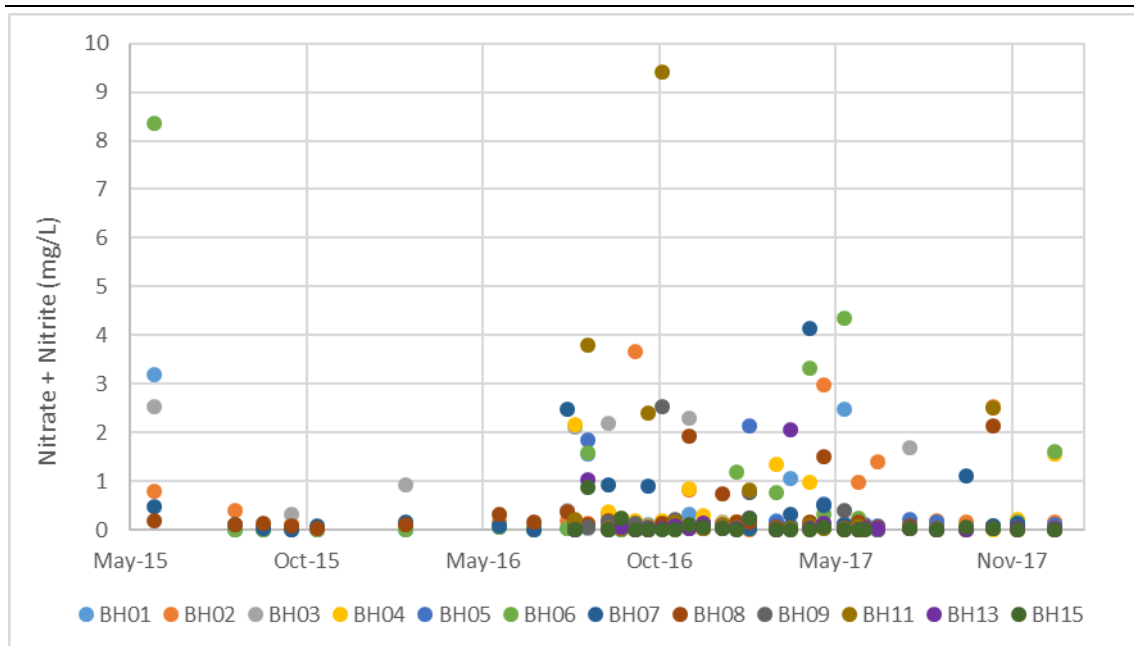


Figure 8-73 – Nitrate + Nitrite 2015 to 2017



Centennial Coal