



DONALDSON COAL

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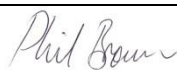
Annual Review

Abel Underground Coal Mine

1 January 2017 – 31 December 2017

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TITLE BLOCK

Name of Operation	Abel Underground Coal Mine
Name of Operator	Donaldson Coal Pty Ltd
Development consent / project approval #	05_0136
Name of holder of development consent / project approval	Donaldson Coal Pty Ltd
Mining Lease #	ML1618 and ML 1653
Name of holder of mining lease	Donaldson Coal Pty Ltd
Water licence #	20BL171935
Name of holder of water licence	Donaldson Coal Pty Ltd
MOP/RMP start date	02/05/2016
MOP/RMP end date	01/05/2019
Annual Review start date	01/01/2017
Annual Review end date	31/12/2017
<p>I, Phillip Brown, certify that this audit report is a true and accurate record of the compliance status of the Abel Underground Coal Mine for the period 1 January 2017 to 31 December 2017 and that I am authorised to make this statement of behalf of Newcastle Coal Company Pty Ltd.</p> <p><i>Note.</i></p> <p><i>a) The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000.</i></p>	
Name of authorised reporting officer	Phillip Brown
Title of authorised reporting officer	Environment and Community Superintendent
Signature of authorised reporting officer	
Date	27/03/2018

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1. STATEMENT OF COMPLIANCE

The compliance status of relevant approvals was reviewed for the reporting period and is summarised in Table 1.1. It was determined that there were two non-compliances during the reporting period. The non-compliances recorded during the reporting period have been ranked according to the risk matrix included in Table 1.2.

Table 1.1 Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	Yes / No
Project Approval 05_0136	No
Mining Lease 1618	Yes
Mining Lease 1653	Yes
Water Licence 20BL171935	No

Table 1.2 Non-compliances

Relevant Approval	Condition #	Condition Description (summary)	Compliance Status	Comment	Where Addressed in Annual
PA 05_0136	2/11a	Ensure that all new buildings and structures, and any alterations or additions are constructed in accordance with the relevant requirements of the BCA.	Non-compliant	Construction Certificates have been received but not Occupation Certificates. Certifying body inspected once and requested changes. Changes have been made and the Certifying body	11
Water Licence 20BL171935	7	Provide the office of water with an annual compliance report, to report on the results of the groundwater monitoring and contingency plan, within (3) three months of the end of the water year being reported on.	Non-compliant	The necessary information has been included in the respective AEMRs and this Annual review. The Annual Review is prepared following each calendar year and therefore has not been submitted within 3 months of the water year (i.e. by 30 September).	11

Compliance Status Key

Risk level	Colour code	Description
<i>High</i>	Non-compliant	<i>Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence.</i>
<i>Medium</i>	Non-compliant	<i>Non-compliance with:</i> <ul style="list-style-type: none"> • <i>potential for serious environmental consequences, but is unlikely to occur; or</i> • <i>potential for moderate environmental consequences, but is likely to occur.</i>
<i>Low</i>	Non-compliant	<i>Non-compliance with:</i> <ul style="list-style-type: none"> • <i>potential for moderate environmental consequences, but is unlikely to occur; or</i> • <i>potential for low environmental consequences, but is likely to occur.</i>
<i>Administrative non-compliance</i>	Non-compliant	<i>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).</i>

2. INTRODUCTION

2.1 OVERVIEW OF OPERATIONS

The Abel Underground Coal Mine (the “mine”) is located approximately 23km northwest of Newcastle, New South Wales (see Figure 2.1). Following the grant of Project Approval 05_0136 in June 2007, the Company undertook construction and mining activities until **the mine was placed in care and maintenance from 28 April 2016**. Activities undertaken to date include the following.

- i) Construction of surface infrastructure and facilities, including the administration offices, amenities, service and storage facilities and car parking area, within the surface infrastructure area.
- ii) Initial mine construction involving the formation of three mining portals and underground roadways and construction of the ventilation, conveying and coal stockpiling systems.
- iii) Coal recovery using bord and pillar methods including first and second workings.

Several of the earlier activities, relating to the mine, involving the formation of the box cut within which the surface facilities and ROM stockpiles are located, were undertaken as part of the approved Donaldson Open Cut Coal Mine.

2.2 SCOPE AND FORMAT

This Annual Review for the Abel Underground Coal Mine has been compiled by Donaldson Coal Pty Ltd (the “Company”). Donaldson Coal Pty Ltd became part of Yancoal Australia Limited in July 2012.

This is the second Annual Review submitted for the mine, following eight Annual Environmental Management Reports, and is applicable for the period 1 January to 31 December 2017 (“the reporting period”).

This Annual Review generally follows the format and content requirements identified in the Annual Review Guideline dated October 2015.

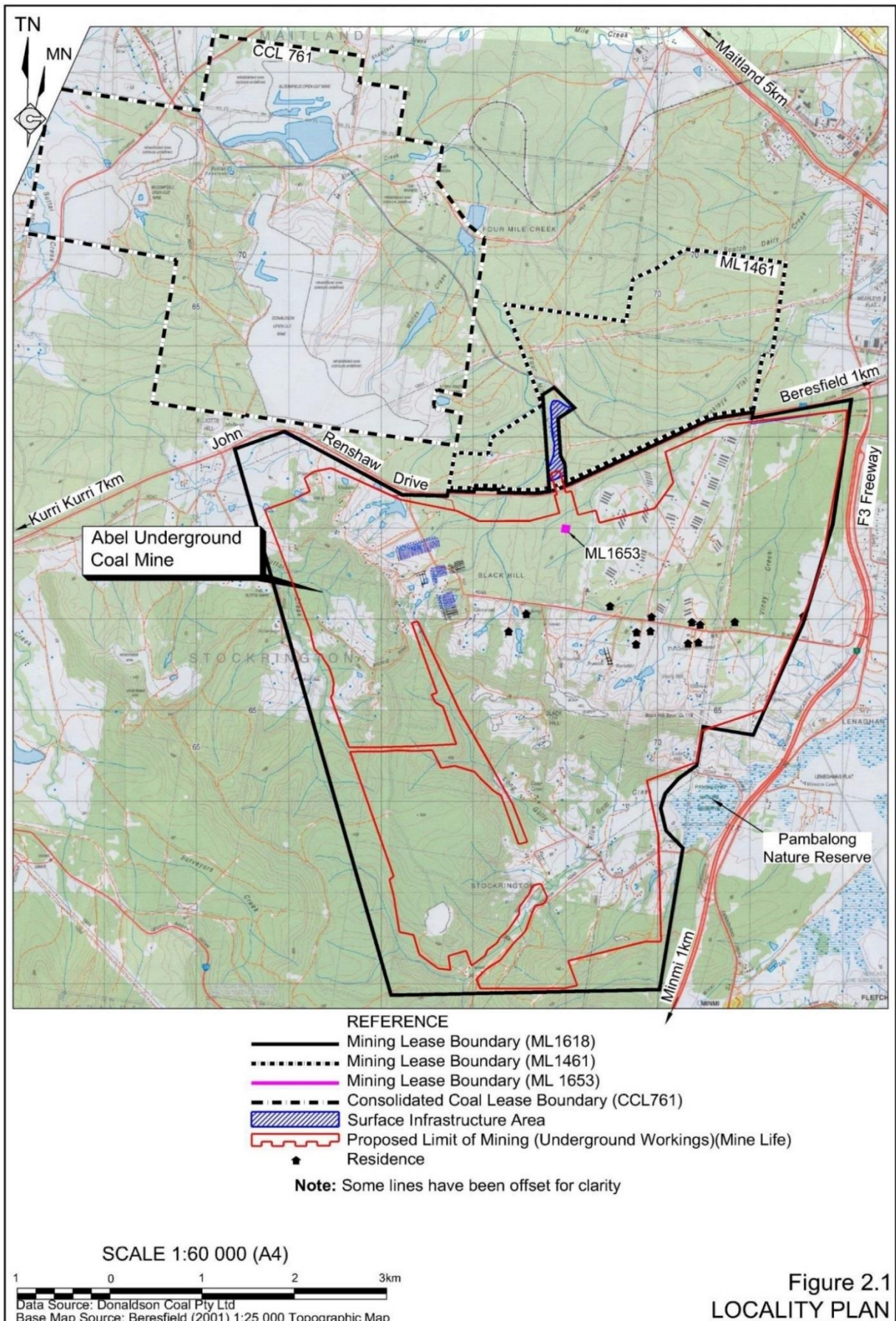


Figure 2.1 Locality Plan

2.3 KEY PERSONNEL CONTACT DETAILS

Donaldson Coal Pty Ltd owns the Abel Underground mining operation and is the holder of the current mining lease. Donaldson is also the mining operator. **Table 2.1** outlines the site personnel responsible for the various aspects of the operation during the reporting period.

Table 2.1 Site Personnel

Position	Site Personnel
Operations Manager, Abel Underground Coal Mine	Mr Aaron McGuigan
Environment and Community Superintendent, Abel Underground Coal Mine	Mr Phillip Brown

The following contacts have been provided for the Abel Underground Coal Operations Manager, Mr Aaron McGuigan, and the Environment and Community Superintendent, Mr Phillip Brown.

Table 2.2 Contact Details

Abel Underground Coal Mine 1132 John Renshaw Drive BLACKHILL NSW 2322	PO Box 2216 GREEHILLS NSW 2323
Phone: (02) 4015 1100	Community Hotline (24hrs): 1800 111 271
Fax: (02) 4015 1159	
e-mail:	donaldson@doncoal.com.au
Internet:	www.doncoal.com.au

A 24-hour Environmental Hotline (Tel: 1800 111 271) is maintained by the Company. Details of calls are taken by the Environment & Community Superintendent for further actioning, if required.

3. APPROVALS

Table 3.1 provides a current list of statutory instruments in effect, including the date of grant of all leases, subleases, consents, approvals and licences.

Table 3.1 Donaldson Coal Mine – Approvals, Leases and Licences

Consent/Lease/Licence	Issue Date	Expiry Date	Details / Comments
Project Approval 05_0136	7 June 2007	31 December 2030	Granted by the (then) Minister for Planning and last modified on 04 December 2013.
Mining Lease ML 1618*	15 May 2008	15 May 2029	Granted by the Minister for Primary Industries. Incorporates 2755ha of surface area.
Mining Lease ML 1653*	21 January 2011	21 January 2032	Granted by the Minister for Primary Industries. Incorporates 0.25ha of surface area. Issued construction of ventilation shaft.
Environment Protection Licence No. 12856	9 July 2008 (licence version date 21 December 2011)	Not applicable	Issued by the (then) Department of Environment and Climate Change (EPA).
Water Licence 20BL171935	5 August 2013	4 August 2018	Bore licence to intercept groundwater issued by the (then) NSW Office of Water.
* See Figure 2.1			

It is noted that this Annual Review has been prepared to fulfil the annual reporting requirements of Project Approval 05_0136, ML 1618, ML 1653, and Water Licence 20BL171935. A separate Annual Return has continued to be submitted to the NSW EPA in accordance with the requirements of Environment Protection Licence 12856.

The Company also holds Exploration Licence 5497 (see Figure 2.1) which was granted on 22 July 1998, renewed on 09 December 2014 and has an expiry date of 22 July 2017.

4. OPERATIONS SUMMARY

4.1 MINING OPERATIONS

Coal mining activities ceased on the 28th April 2016 and the site placed in 'Care and Maintenance'. No coal mining was undertaken during the reporting period or is planned during the next reporting period.

Table 4.1 presents a summary of the production statistics.

Table 4.1 Production Summary

Material	Approved limit (specify source)	Previous reporting period (actual)	This reporting period (actual)	Next reporting period (forecast)
<i>Waste Rock / Overburden</i>	None Specified	500	0	0
ROM Coal / Ore	6100 000	265 425	0	0
Coarse Reject	None Specified	0	0	0
Fine Reject (Tailings)	None Specified	0	0	0
Saleable Product	None Specified	265 425	0	0

4.2 OTHER OPERATIONS DURING THE REPORTING PERIOD

During the reporting period no exploration, land preparation or construction activities were undertaken. Additionally, no coal processing or transportation activities were undertaken within ML's 1618 and 1653 and EL 5497 during the reporting period.

Environmental monitoring activities continued throughout the reporting period including surface water, ground water, flora and fauna and rehabilitation monitoring. Results of this monitoring is summarised in Sections 6 and 7.

4.3 NEXT REPORTING PERIOD

The activities proposed for 2018 will principally involve continued monitoring and, if required, maintenance activities in accordance with the approved MOP for Care and Maintenance. The following provides a summary of the planned activities.

Exploration

The Company currently does not intend to undertake any drilling within ML1618 or ML1653 during the 2018 reporting period.

Mining

No mining is currently planned to be undertaken during the 2018 reporting period.

Rehabilitation

No specific rehabilitation activities are currently planned for the 2018 reporting period. Any rehabilitation works undertaken will relate to rehabilitation of any subsidence impacts or to ongoing maintenance, principally erosion and sediment control.

Monitoring

The following monitoring will be undertaken during the next reporting period.

- Air Quality – ongoing deposited dust, TSP and PM₁₀ monitoring will continue to be undertaken.

- Surface water – ongoing surface water quality and flow monitoring at a range of routine monitoring sites located within Blue Gum Creek, Viney Creek, Buttai Creek, Four Mile Creek and a number of local water storages. This monitoring will be undertaken as part of the integrated monitoring with the Bloomfield, Donaldson and Tasman Mines.
- Groundwater – ongoing groundwater quality and level monitoring will be undertaken as part of the integrated network of monitoring bores for the Bloomfield, Donaldson and Tasman Mines. Measurement of the quality and volume of inflow water to the underground workings will also continue to be undertaken.
- Noise – noise monitoring will continue, if required, or the frequency for monitoring will be reviewed.
- Flora & Fauna – flora & fauna surveys and reporting will continue to be undertaken in accordance with approved Flora and Fauna Management Plan.
- Meteorological – the on-site meteorological station at the Abel Mine will be maintained and data collated.
- Subsidence monitoring will continue to be undertaken in accordance with the approved subsidence monitoring programs.

Community Consultation and Liaison

The community consultative committee will continue to be convened during the next reporting period. It is expected that meetings will continue to be held quarterly unless otherwise agreed with the committee. The 24-hour environmental hotline will be maintained and a register retained of any complaints received.

5. ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

The 2016 Annual Review was forwarded to DRG and DPE on 31 March 2017. Feedback was received from the DRE dated 19 July 2017 noting the Annual Review was to 'the satisfaction of the Secretary' with no further action required.

Feedback from DPE was received on 22 May 2017. The Annual Review was considered to satisfy the requirements of the Project Approval. No further actions were required.

6. ENVIRONMENTAL PERFORMANCE

6.1 SUMMARY OF ENVIRONMENTAL PERFORMANCE

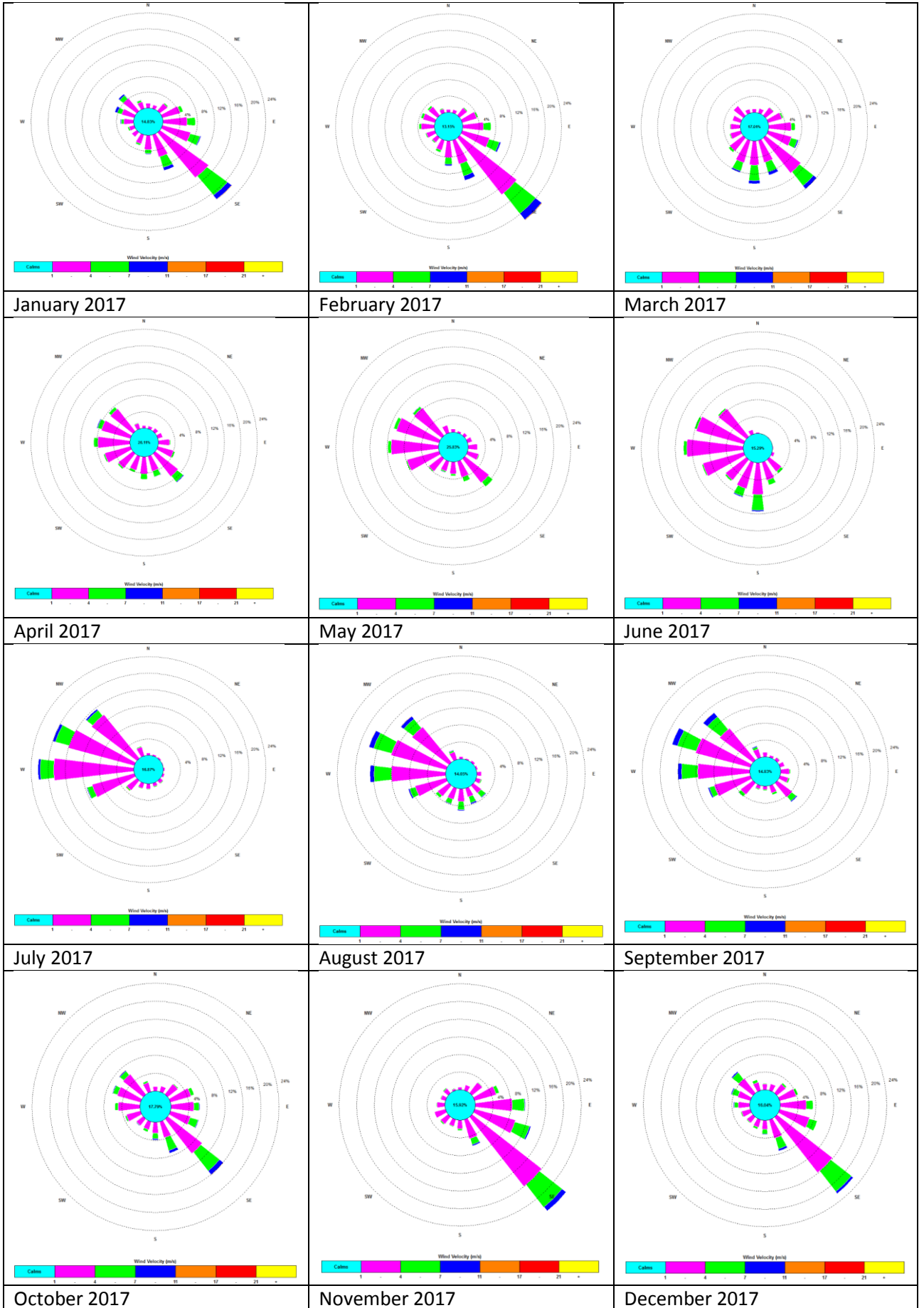
A summary of environmental performance for the principal environmental aspects is provided in **Table 6.1**. Further detail regarding specific environmental aspects is also provided in the following subsections.

Table 6.1 Environmental performance

Aspect	Approval criteria / EIS prediction	Performance during the reporting period	Trend/key management	Implemented/proposed management
Noise	No exceedance of applicable noise criteria.	No exceedances and no complaints.	Implies management measures are currently adequate.	No additional management action required.
Blasting	No exceedance of applicable blast criteria.	No complaints. Previous due diligence monitoring indicates compliance.	Implies management measures are currently adequate.	No additional management action required.
Air Quality	No exceedances of applicable air quality criteria.	No exceedances and no complaints.	Implies management measures are currently adequate.	No additional management action required.
Biodiversity	No significant impacts upon flora, fauna species, populations, communities or habitat.	No impacts upon flora, fauna species, populations, communities or habitat were recorded. No effect upon Pambalong Nature Reserve or Sub-tropical rainforest.	Implies current mining design and safeguards are currently adequate.	No additional management action required.
Heritage	Management in accordance with approved Aboriginal Heritage Management Plan.	No heritage items undermined during the reporting period. No subsidence impacts.	Implies no specific management actions were necessary.	No additional management action required.
Subsidence	Subsidence management in accordance with approved Subsidence management Plan / Extraction Plan.	All subsidence remained within predicted levels and no notifiable events occurred.	Implies management measures are currently adequate and predictions sufficiently accurate.	No additional management action required.

6.2 METEOROLOGICAL MONITORING

Abel operates a weather station onsite. Monthly windroses are presented below for the reporting period whilst **Table 6.2** provides the monthly rainfall data.



Dominant winds were consistent with previous years with North-Westerly winds dominant in the winter months and South-Easterly winds dominant in the summer months.

Period	Monthly Rainfall (mm)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
2007	13.4	96.4	101.4	84.6	59.7	315.2	16.5	79.6	28.3	35.0	163.8	49.5	1043.4
2008	153.4	154.3	46.0	237.6	2.2	105.4	17.4	13.4	27.2	8.4	73.3	62.6	901.2
2009	125.7	97.7	102.8	189.0	125.7	75.7	32.1	1.8	29.2	59.8	44.3	62.0	945.8
2010	89.0	52.1	83.9	37.1	89.4	112.8	65.3	38.5	26.0	80.6	171.1	55.9	901.7
2011	25.6	34.5	65.6	138	98.8	152.2	128.8	48.9	103.0	100.0	171.9	75.9	1143.2
2012	96.1	207.0	137.6	114.7	11.8	172.3	53.8	26.6	18.7	5.7	47.9	47.9	940.1
2013	166.7	226.6	97.9	89.4	60.9	96.5	11.2	9.7	21.2	49.5	261.8	2.6	1094.0
2014	15.6	108.3	112.8	99.3	44.3	31.4	24.6	104.0	42.4	55.0	38.4	133.4	809.5
2015	167.0	48.0	73.3	412.0	89.4	44.6	17.9	30.6	56.8	89.0	69.8	103.8	1202.2
2016	430.8	26.0	52.0	31.8	13.4	113.0	44.2	74.2	60.0	43.8	33.2	58.6	981.0
2017	66.9	71.7	150.4	94.5	12.7	128.5	3.2	6	12.6	77.7	44.2	49.3	717.7
Average	122.7	102.0	93.0	138.9	55.3	122.5	37.7	39.4	38.7	54.9	101.8	63.8	970.9

Note: Results relevant to this reporting period are in bold.

Table 6.2 Monthly Rainfall

Total rainfall during the 2017 calendar year was 717.7mm, 253.2mm below the average annual rainfall.

6.3 NOISE

Environmental Management

The principal management noise control prior to the site entering care and maintenance was the continued use of low modulated frequency reversing alarms on mobile equipment used on the surface.

Environmental Performance

Quarterly noise monitoring applicable to the Abel Mine commenced in December 2008 as an extension of the monitoring survey previously undertaken for the Donaldson Open Cut Coal Mine. Quarterly attended and unattended noise monitoring continued to be undertaken throughout the reporting period at six monitoring locations (see **Figure 6.1**) for quarters ending March, June, September and December 2017. Monitoring results are presented in **Table 6.3**.

With the Abel site in Care and Maintenance, the findings of the monitoring surveys show Abel Mine operations to be inaudible at the monitoring locations with noise attributable to non-mine related traffic, birds, cricket, insect and frog noise, wind and other extraneous sources. The monitoring events were undertaken whilst the Abel Mine was under care and maintenance. As the Abel operations were inaudible at all locations during all monitoring events, compliance with relevant noise criteria was considered to have been achieved.

Night time sleep disturbance criteria (LA1(1min)) was also in compliance during all monitoring events at all locations.

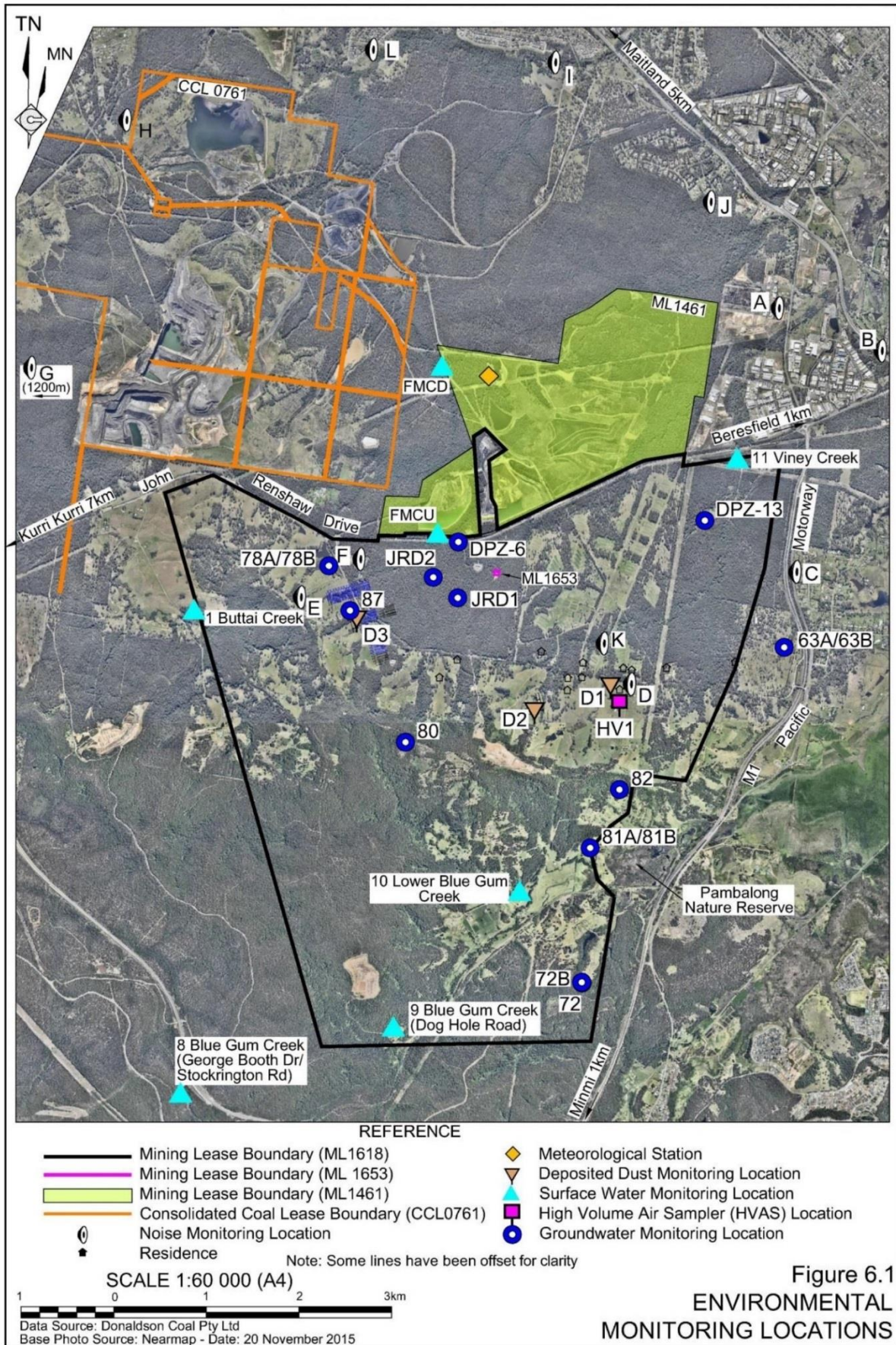


Figure 6.1
ENVIRONMENTAL
MONITORING LOCATIONS

Figure 6.1 Environmental Monitoring Location

	Location	D Black Hill School, Black Hill	F Black Hill Rd, Black Hill	G Buchanan Rd, Buchanan	I Lord Howe Dr, Ashtonfield	J Parish Dr, Thornton	L Kilshanny Av, Ashtonfield
Q1	Day (LA _{eq} (15 min))	IA	IA	IA	IA	IA	<25
	Evening (LA _{eq} (15 min))	IA	IA	IA	IA	IA	IA
	Night (LA _{eq} (15 min))	IA	IA	IA	<20	IA	32
	Night (LA ₁ (1min))	IA	IA	IA	26	IA	34
Q2	Day (LA _{eq} (15 min))	IA	IA	IA	IA	IA	IA
	Evening (LA _{eq} (15 min))	IA	IA	IA	<30	<30	31
	Night (LA _{eq} (15 min))	IA	IA	IA	<30	<30	<30
	Night (LA ₁ (1min))	IA	IA	IA	<30	<30	30
Q3	Day (LA _{eq} (15 min))	IA	IA	IA	IA	IA	IA
	Evening (LA _{eq} (15 min))	IA	IA	IA	IA	IA	IA
	Night (LA _{eq} (15 min))	IA	IA	IA	IA	IA	IA
	Night (LA ₁ (1min))	IA	IA	IA	IA	IA	IA
Q4	Day (LA _{eq} (15 min))	IA	IA	IA	IA	IA	IA
	Evening (LA _{eq} (15 min))	IA	IA	IA	IA	IA	IA
	Night (LA _{eq} (15 min))	IA	IA	IA	IA	IA	IA
	Night (LA ₁ (1min))	IA	IA	IA	IA	IA	IA
IA = Inaudible All noise levels are inclusive of Bloomfield CHPP							

Table 6.3 Quarterly Noise Monitoring

Reportable Incidents

No reportable incidents were recorded during the reporting period.

Further Improvements

Other than ongoing plant maintenance and noise monitoring (both attended and unattended), no other improvements are planned during the next reporting period. Given the results of previous noise monitoring and the placement of the Abel Mine into care and maintenance it is intended to review noise monitoring frequencies in consultation with relevant authorities, until such time as operational activities recommence.

6.4 BLASTING

No blasting was undertaken during the reporting period.

6.5 AIR QUALITY

Abel operates the following dust monitoring equipment:

- One High Volume Air Sampler (HVAS) measuring TSP;
- One HVAS measuring PM₁₀; and,
- Three Depositional Dust Gauges measuring insoluble solids.

The locations of dust monitoring equipment are shown in Figure 6.1. It is noted that measurements taken at any of these locations will include all background air pollution relevant to those locations, as well as any contribution occurring from the mine.

Environmental Management

Management of air quality during the reporting period included watering of access roads as required and maintenance of mobile equipment and on-site vehicles (including during care and maintenance) to reduce greenhouse and particulate emissions. As there was no operational activities occurring during the reporting period, no specific air quality management measures were required throughout the reporting period.

Environmental Performance

A review of the dust monitoring data for the period suggests that there has been no significant change in the regional dust levels as a result of activities at the Donaldson Coal Mine compared to the previous reporting period. Monthly deposited dust monitoring was undertaken by the Company at a total of three locations surrounding and relevant to the Abel Mine. Total Suspended Particulates (TSP) and Particulate Matter <10µm (PM₁₀) monitoring was also undertaken at the existing High Volume Air Sampling (HVAS) station located approximately 2 300m southeast of the surface infrastructure area at Blackhill (located at Site D1).

A summary of the air quality monitoring data for the 2017 Annual Review reporting period is provided in **Table 6.4** and **Figures 6.2** to **6.5**.

Depositional Dust Gauges

Results were recorded at three (3) dust gauges over the 12 month period. Results were generally obtained with acceptable levels of contamination from other sources, such as insects, bird droppings and vegetation. A summary of the results is presented in **Table 6.4**.

Month	Monthly Dust Deposition Rate (g/m ² /month)					
	D1		D2		D3	
	Insoluble	Ash	Insoluble	Ash	Insoluble	Ash
January	0.4	0.3	0.7	0.4	1	0.6
February	0.6	0.6	11	9	1.6	1.1
March	0.5	0.2	0.8	0.5	2.3	1.3
April	0.2	0.1	4.1	1.1	0.6	0.3
May	0.2	0.1	0.4	0.2	0.4	0.4
June	0.4	0.2	4.4	2.1	0.9	0.5
July	0.4	0.2	0.5	0.2	1.1	0.5
August	0.3	0.3	0.5	0.3	0.6	0.4
September	0.5	0.3	0.6	0.4	1.1	0.7
October	0.7	0.4	0.7	0.4	1	0.8
November	0.8	0.4	1.8	0.8	1.1	0.7
December	0.7	0.4	0.7	0.4	0.8	0.5
Annual Average	0.48	0.29	2.28	1.32	1.05	0.65

Table 6.4 Dust Deposition 2017

The highest monthly dust deposition measurement was 11g/m²/month (insoluble solids) at D2 and occurred in February 2017. This sample had considerable contamination with the ash content recording 9g/m²/month indicating that the inorganic component (e.g. bird droppings, insects, leaves etc.) equated to the majority of the deposited material (See **Table 6.4**).

The annual average monthly deposition rates for the reporting period were between 0.48g/m²/month and 2.28g/m²/month which is significantly below the criteria of 4g/m²/month, indicating good air quality with respect to dust deposition.

Figure 6.2 shows the historical average annual rolling averages for each depositional dust gauge. Since commencement of the Abel operations, the rolling annual average deposited dust levels have remained low although spikes are evident due to local events. When accounting for such events, no specific trends are evident at the three dust deposition locations. The rolling annual average is highly influence by one off events such as the high result of 11g/m²/month in February that is responsible for the recent spike at D2.

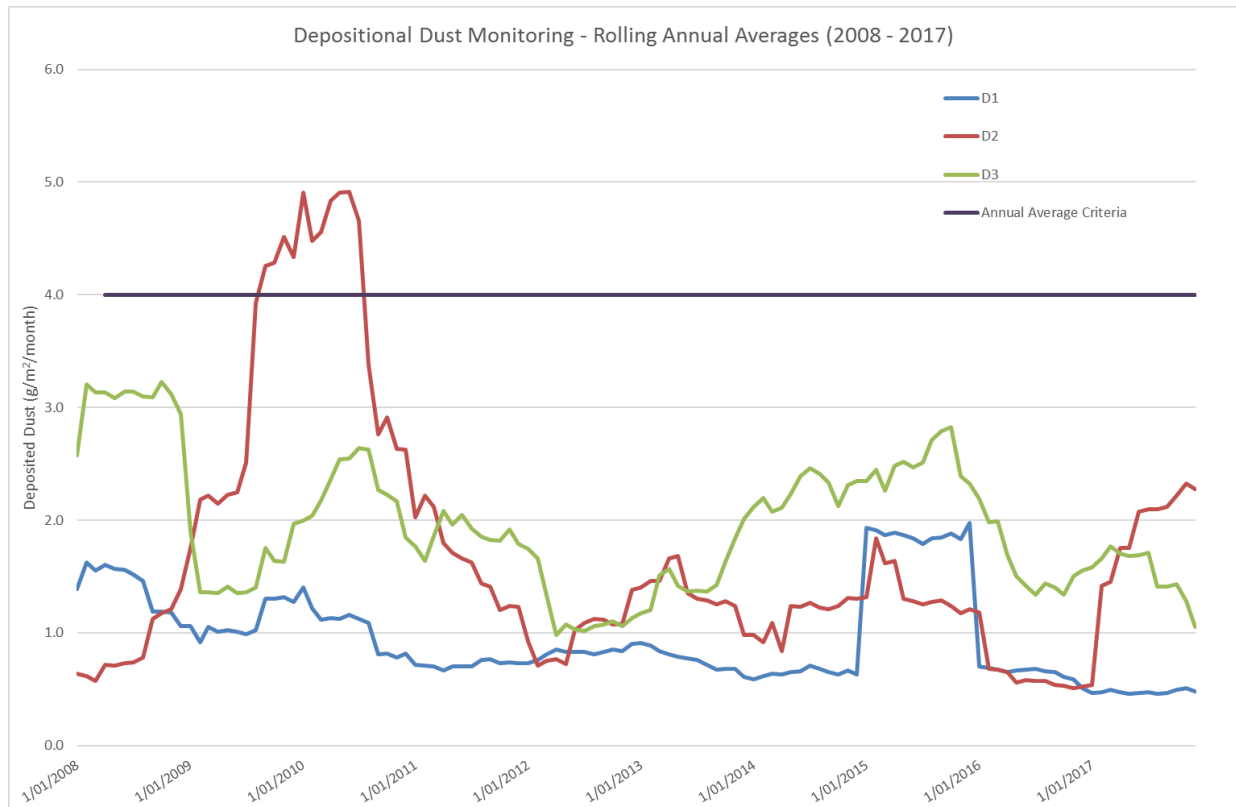


Figure 6.2 Deposited Dust Monitoring 2008 to 2017

Suspended Particulates – PM₁₀ and TSP

The suspended particulate monitoring results show that the highest 24-hour average PM₁₀ concentration was 42.6µg/m³, measured on 11 February 2017 which is below the 50µg/m³ 24-hour *National Environment Protection Measures* (NEPM) goal (see **Figure 6.3**).

The annual average PM₁₀ concentration for Blackhill was 16.9µg/m³ for the 12 months to 31 December 2017 whilst the annual average TSP concentration was 35.3µg/m³. The annual monitoring results also indicate that suspended particulate concentrations are well below the annual average criteria of 30µg/m³ and 90µg/m³ respectively.

Excepting an annual trend of lower 24-hour average PM₁₀ during the winter months and higher 24-hour averages during the summer months, no long-term trends are currently apparent. Similarly, the rolling

annual averages for PM₁₀ and TSP have fluctuated higher or lower by approximately 5µg/m³ and 10µg/m³ respectively (see **Figure 6.4** and **6.5**). However, the annual averages remain similar to the long-term averages (from 1 January 2008) of 14.8µg/m³ and 30.4µg/m³ respectively.

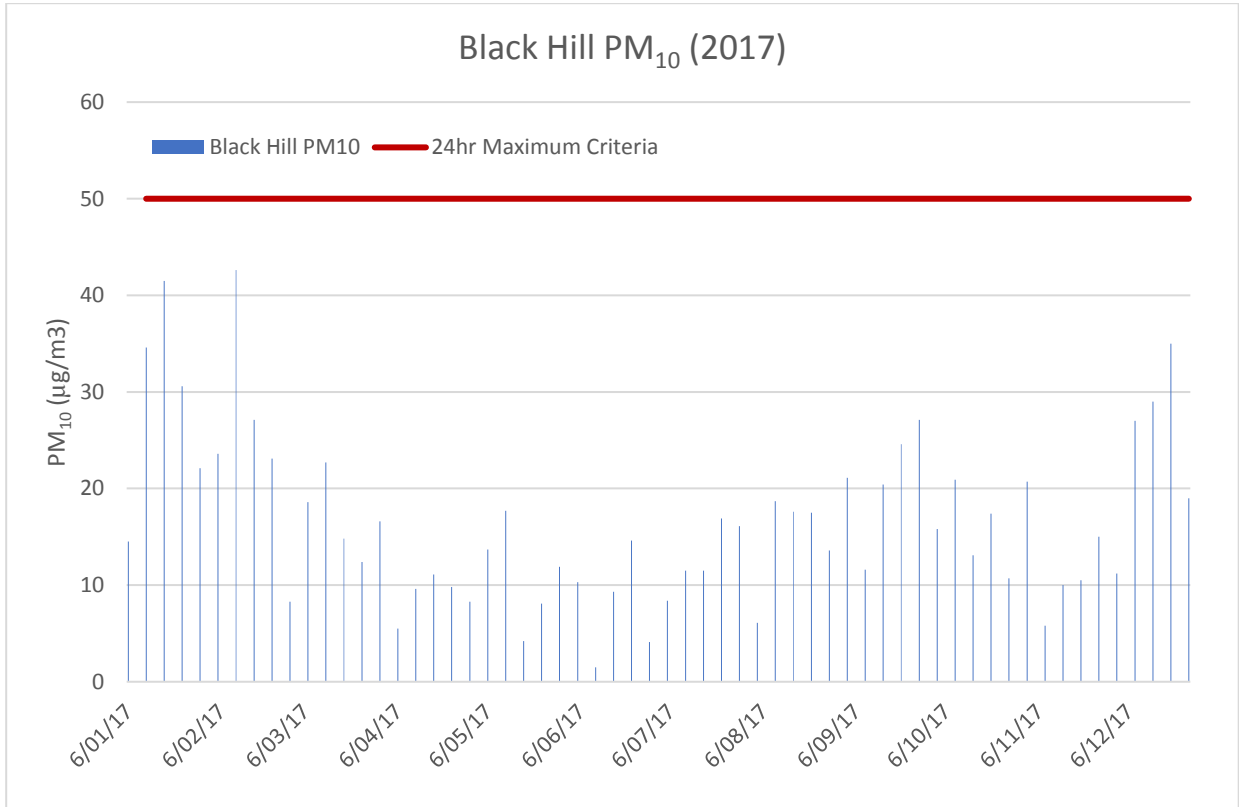


Figure 6.3 Black Hill - HVAS PM10 (2017)

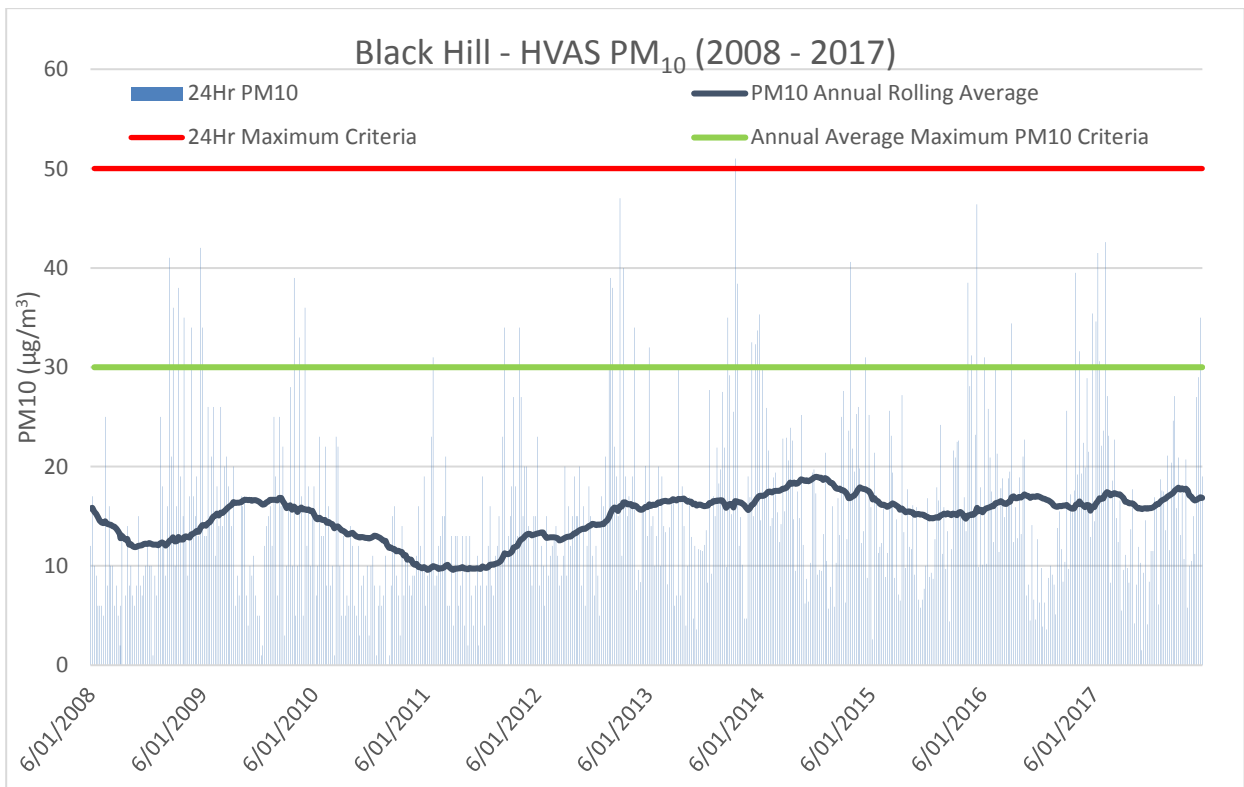


Figure 6.4 Black Hill HVAS – PM10 (2008 – 2017)

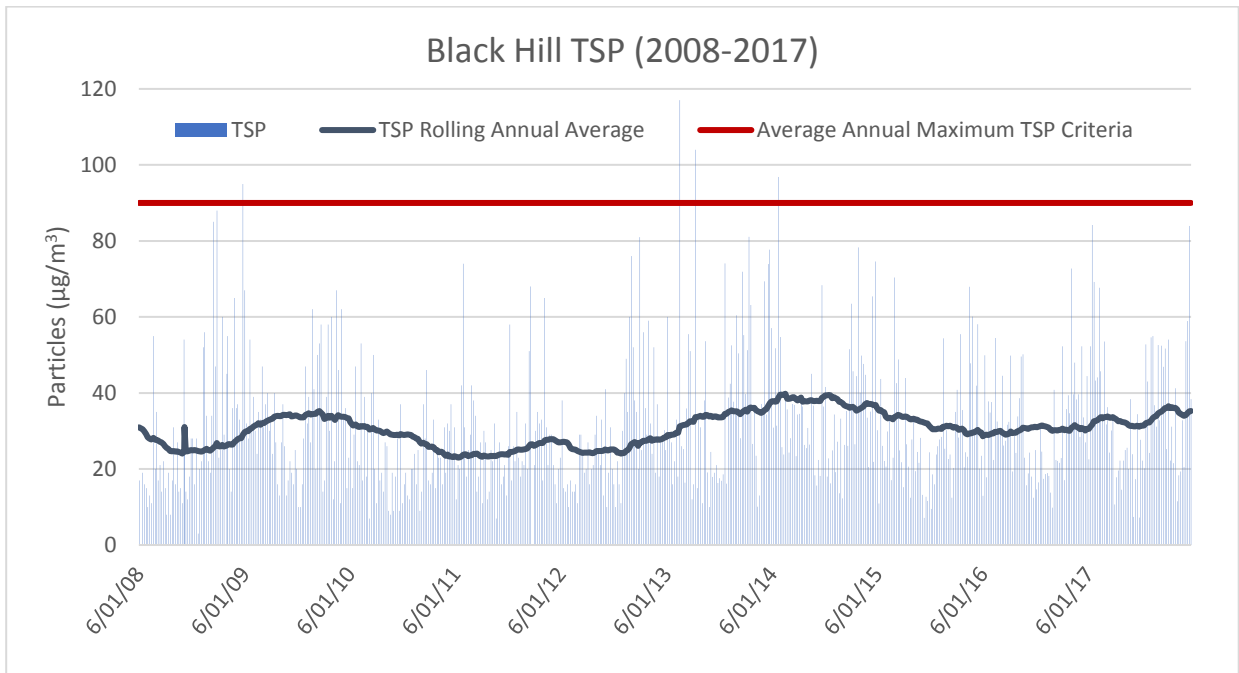


Figure 6.5 Black Hill – TSP (2008 – 2017)

Reportable Incidents

No reportable air quality incidents were recorded during the 2017 Annual Review reporting period.

Further Improvements

No other improvements relating to air pollution are planned or considered necessary.

6.6 BIODIVERSITY

During the reporting period, biodiversity values have principally been managed through the ongoing implementation of the flora and fauna monitoring program for the disturbance area and compensatory habitat area. These management measures are outlined in detail within the 'Flora and Fauna Management Plan' prepared for the mine.

No mining was undertaken during the reporting period within areas that would lead to subsidence under or near the Pambalong Nature Reserve or under sub-tropical rainforest. Hence, no specific flora or fauna management measures were required above these areas.

Ongoing survey work was completed by Kleinfelder Australia Pty Ltd during the reporting period as part of the Dam Monitoring and Management Plan, Sub-tropical Rainforest Monitoring Plan and Pambalong Nature Reserve Monitoring Plan.

Macroinvertebrate sampling also continued to be undertaken within Blue Gum Creek upstream of the Pambalong Nature Reserve by 'Niche Environment and Heritage' during Spring and Autumn 2017. A summary of the principal results is provided as follows.

6.6.1 Macroinvertebrates – Blue Gum creek

Macroinvertebrate surveys have been undertaken within Blue Gum Creek at Stockrington Road and Dog Hole Road since 2009 and 2008 respectively. Monitoring during the reporting period included an

assessment of Riparian Channel Environmental (RCE) ranking and aquatic ecology diversity (utilising the SIGNAL index).

During the Spring monitoring of 2017, access to Blue Gum Creek Upstream site on Stockrington Road was restricted due to a change in ownership of the land.

At the upstream site the RCE ranking in Autumn was 38 and at the downstream site the RCE was 38 in Autumn and 35 in Spring. RCE scores above 40 reflect a stream in good condition, between 20 and 40 reflect a stream in moderate condition and below 20 indicates a stream in poor condition. The 2017 RCE rankings are consistent with previous monitoring events which range from 31 to 41 as shown in **Figure 6.6**.

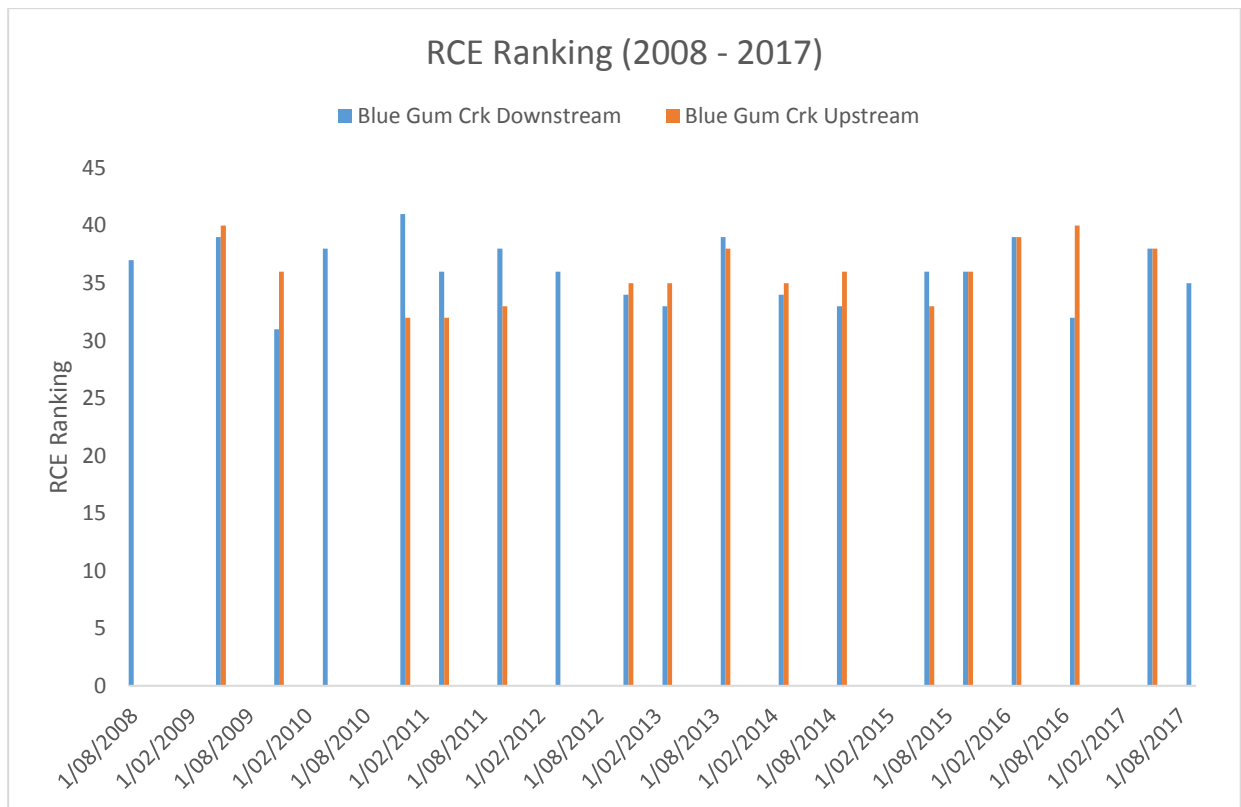


Figure 6.6 Blue Gum Creek RCE Ranking (2008 – 2017)

Figure 6.7 provides a summary of the biological characteristics recorded during monitoring undertaken to date. It is noted that the use of the SIGNAL2 index was adopted in 2015 and results in a lower score than the original SIGNAL index utilised in previous monitoring.

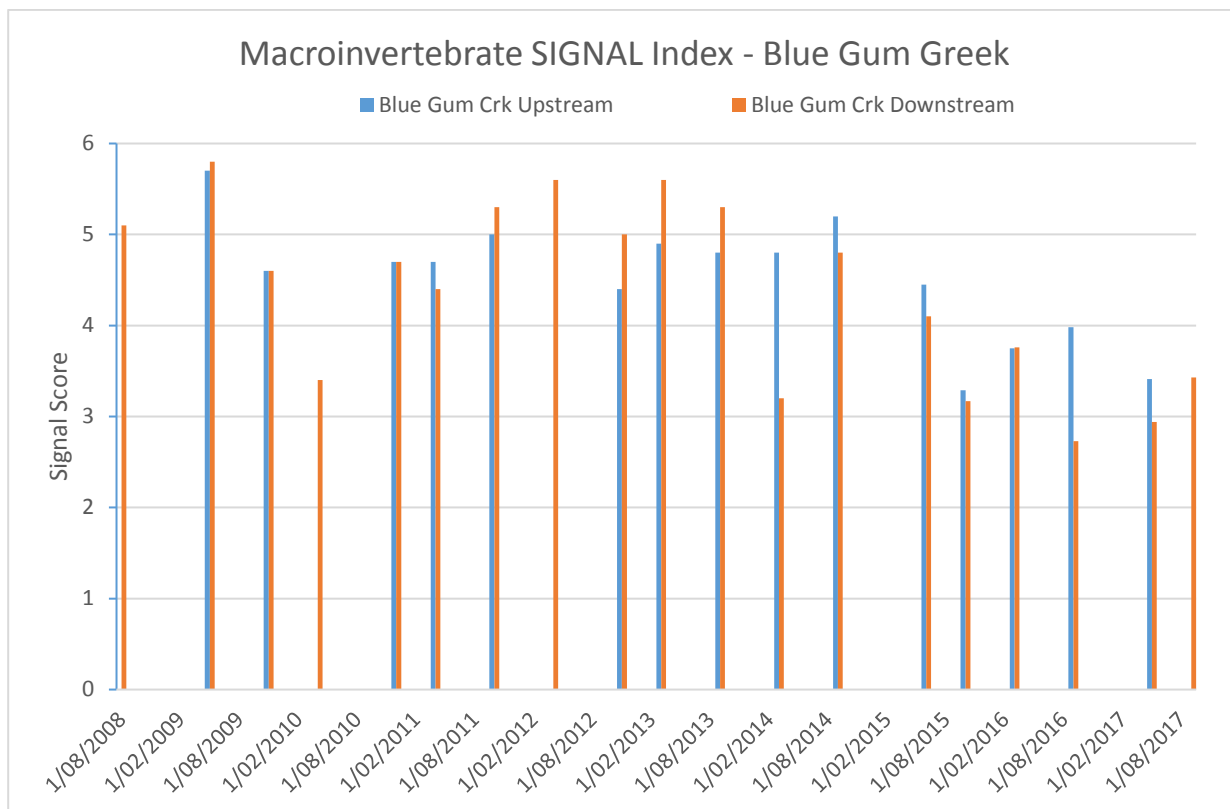


Figure 6.7 Macroinvertebrate SIGNAL Index – Blue Gum Creek

The upstream and downstream SIGNAL scores since 2015 have been <4 which is considered poor and potentially the result of pollution from erosion, siltation, weeds and elevated salinity. Despite the SIGNAL scores, sensitive mayfly taxa (Leptophlebiidae) were recorded both upstream and downstream.

Overall, Blue Gum Creek appears degraded and in poor stream health with the presence of weeds, rubbish and significant erosion at the upstream site and weeds and disturbance from vegetation removal at the downstream site. This poor stream health is unrelated to the Able mining operations and is more likely related to disturbance factors such as roadways, agriculture, and past high flow events. Given these other disturbance sources and consideration that Abel Mine is in a ‘Care and Maintenance’ phase, the ongoing monitoring program will be reviewed to determine whether the current monitoring sites remain appropriate locations.

6.6.2 Dam Monitoring

Dam monitoring was conducted by Kleinfelder in December 2017. The following is an extract summary from Kleinfelder’s ‘2017 Abel Underground Coal Mine Dam Monitoring and Management Survey’ report. *‘Over time, the number of participants (land holders) with surveyed dams has declined due to a range of factors including lack of interest and changing ownership. In 2017, only 44 dams were surveyed for amphibians out of a possible 65 dams surveyed in 2008, only two out of the four dams were surveyed for Blue-billed Duck, and only 48 dams out of the original 87 were surveyed for Maundia triglochoides. Species diversity and composition data for frogs, in addition to abundance for water-dependent bird species, were recorded at each of the targeted dams for the 2017 survey. These data provide a means of measurement and evaluation of potential subsidence impacts at each of the dams over time. The data collected over the last ten years will enable evaluation of potential subsidence impacts in the future.’*

‘No frog species listed as threatened under State or Commonwealth legislation were recorded during field surveys. A total of seven species of frog were detected across all dams during 2017 surveys. There has been a general pattern of decline in total species recorded since 2011. There is a negative correlation between the mean number of frog species per dam and average temperature in the three months preceding the survey. However, no correlation between total rainfall during these months and number of

frog species recorded was found. Temperature, or some other factor, and not rainfall, is possibly the limiting factor for frog diversity in the area.

The Blue-billed Duck was not detected during 2017 surveys. A total of 63 bird species, including 23 waterbirds and 40 woodland/forest birds have been recorded between 2008 and 2017 across all of the dams surveyed. The 2017 surveys detected 17 species (6 waterbirds and 11 woodland/forest birds) across the two dams. Waterbird diversity and abundance at both dams has been relatively constant over the survey years. The abundance and diversity of woodland/forest bird species has fluctuated more widely, however, results in 2017 were similar to the averages across all survey years. These results suggest that activity at the Abel underground mine has not had a negative impact on bird diversity at either of these dams.

No individuals of the threatened plant, *Maundia triglochinos* were identified. However *Eichhornia crassipes* (water hyacinth), a Weed of National Significance listed under the Biosecurity Act 2015 was identified in 11 dams. Other weed species detected included: *Cortaderia seloana* (Pampas Grass) – one dam; *Rubus fruticosus* spp. agg. (Blackberry) – 24 dams; *Lantana camara* (Lantana) – 26 dams.'

6.6.3 Sub-tropical Rainforest Monitoring

Annual monitoring has been conducted at Long Gully Creek for the past 10 years (2008 to 2017) with 'Kleinfelder' conducting the 2017 monitoring. The Subtropical Rainforest Monitoring Plan (SRMP) is designed to examine the stability of the rainforest/dry forest interface and floristic and faunal diversity. Whilst these areas have not been undermined, the information collected will allow best practice measures to be incorporated into the future Subsidence Management Plan(s) to be developed for this area.

The following is an extract from the '2017 Subtropical Rainforest Monitoring' that summarises the findings of the report.

'The area of transition between dry and moist forest at Transect 1 has expanded since the 2008 baseline survey, with the width of the moist forest increasing. Both transects have seen a decrease in the total number of species during 2017 when compared with 2008. At Transect 1, 54 and 49 species were recorded in 2008 and 2017, respectively. At Transect 2, 51 and 49 species were recorded in 2008 and 2017, respectively. Along both Transect 1 and 2, particularly at the end of the transects, there has been an increase in the number of moist species recorded and a decline in the number of dry species within each 5 m segment. Along both Transect 1 and Transect 2 there has been a decline in Foliage Projective Cover (FPC) since the original 2008 survey event. However, this is not an isolated occurrence in the current survey. When data from the 2017 survey are compared to that of the 2009 and 2016 surveys, the total FPC along both transects is relatively similar. While severe storms occurred around Newcastle in 2015, which has likely reduced canopy cover; reduced levels of ground, shrub and midstorey stratum since the baseline survey may reflect natural loss in vegetation between periods of disturbance, particularly an absence of fire.

*In total in 2017, (i.e. at both forest types) 45 fauna species were recorded. This comprised three arboreal mammal, three terrestrial mammal, 29 bird and 10 bat species. Three of these species are threatened species listed under the NSW Biodiversity Conservation Act 2016; Eastern Bentwing-bat (*Miniopterus schreibersii oceanensis*), Southern Myotis (*Myotis macropus*) and Eastern Freetail-bat (*Mormopterus norfolkensis*). No reptile or amphibian species were recorded during the 2017 surveys.*

A total of 35 and 31 fauna species were detected in the dry forest and rainforest habitats, respectively. Ten insectivorous bat species (equal with the highest number of bat species recorded at the site) were detected in 2017. The number of bird species recorded in 2017 (29) was just below the yearly average of 32 species. Similar numbers of arboreal and terrestrial mammal species were recorded in 2017 compared to previous years.

The annual monitoring continues to provide robust baseline information on the natural variation in the diversity of species in the Long Gully Creek system. The growing dataset will provide a valuable benchmark against which future underground mining impacts can be assessed.'

6.6.4 Pambalong Nature Reserve Monitoring

Whilst no mining occurred which could potentially impact upon the Pambalong Nature Reserve, monitoring was undertaken as part of the Pambalong Nature Reserve Monitoring Plan. The 2016/2017 survey represents the ninth year of baseline monitoring. The monitoring plan is aimed at building a picture of what constitutes normal variation so that any impacts from mining in the future can be identified, should they occur.

During the 2016/2017 survey a total of 98 fauna species consisting of 73 birds, 1 reptile, 19 mammals (13 bats), and 5 frogs. Of these, six microbat species and two bird species, are listed as threatened under the Threatened Species Conservation Act.

There were no significant changes to the spatial extent of vegetation communities. A total of 105 flora species were detected with 3 flora species recorded that had not been found in previous surveys.

Reportable Incidents

No reportable incidents relating to biodiversity were recorded during the 2017 reporting period.

6.7 HERITAGE

No mining operations occurred at Abel mine site during the reporting period, resulting in no impacts to the identified Aboriginal heritage sites.

In accordance with the August 2014 Abel Underground Mine: Aboriginal Heritage Management Plan (Donaldson Coal, 2014), annual reporting documenting the results of monitoring undertaken in accordance with the plan will be prepared and provided to either the Mindaribba or Awabakal Local Aboriginal Land Councils (LALCs) (as applicable to the area monitored), DPE and OEH. Given that no mining was undertaken within panels relevant to the identified heritage items during the 2017 reporting period, no specific monitoring was completed. The first of the annual reports is therefore planned following the recommencement of mining operations.

Donaldson and MLALC enjoy a good working relationship and to date there have been no complaints or incidents recorded in relation to the management of sites of Aboriginal cultural heritage.

Reportable Incidents

No reportable incidents were recorded during the 2017 reporting period.

6.8 SUBSIDENCE

During the reporting period, no underground workings occurred. Monitoring has continued and included survey assessment, photographic monitoring and visual inspections. A comparison of surveyed subsidence levels against predicted levels for all panels completed to date is provided within Subsidence Management Reports.

During the reporting period a range of subsidence monitoring was undertaken in accordance with the approved monitoring programs including regular visual inspections and photographic monitoring. A summary of the outcomes of this monitoring and any actions taken is outlined as follows.

- Surface cracking occurred above the worked panels within vegetated areas, cleared areas, private access tracks, and local government road. Surface cracking remained within predictions

and remedial works were completed in consultation with the relevant landowners and infrastructure owners.

- Impacts to Blackhill Road were within predictions and the infrastructure remained within a safe and serviceable condition.
- All subsidence impacts on the Hunter Water Corporation Waterline, Ausgrid Powerlines and TransGrid Transmission Towers were within predicted levels with no subsidence impacts or management actions required during the reporting period.
- There have been no other observed and/or reported subsidence impacts, incidents, service difficulties, community complaints during the reporting period that would require notification under the SMP approvals or plans.

Monitoring including subsidence surveys and photographic and visual monitoring will be continued in accordance with the approved Subsidence Management Plans.

6.9 WASTE MANAGEMENT

In accordance with *Schedule 3, Condition 25* of Project Approval 05_0136, a summary of waste management during the reporting period is provided as follows.

Wastes generated on site during the reporting period included the following.

- Greases, oils, filters, tyres and batteries from maintenance of vehicles and equipment.
- Bulk scrap metal and plastics from discarded equipment.
- General office wastes, e.g. paper and cardboard
- General waste generated by employees, e.g. food scraps, paper, cardboard, aluminium and steel cans.
- Wastewater and sewage from bathhouses.

As no mining operations occurred during the reporting period, no waste rock or coal reject material was generated.

Waste oil was stored within 205L drums, 1 000L IBCs or the waste oil tank within the oil store before being removed from site, along with used oil filters and oily rags, by J R Richards & Sons. Excess waste oil drums that were stored external to bunded areas were removed and a purpose built bunded storage container is utilised to ensure adequate bunded storage is available.

Paper, cardboard, steel, aluminium and any other recyclable material was stored separately in 1.5m³ and 3.0m³ skip bins for recycling. Paper, cardboard and general waste material continued to be collected by J R Richards & Sons on a regular basis whilst scrap metal was also collected by J R Richards & Sons on an as-needs basis. The scrap steel/drum crusher continued to be used.

All general wastes were stored in skip bins and removed by J R Richards & Sons. All wastewater (greywater) and sewage generated within the on-site bathhouses was treated using the sewage treatment system with treated water being transferred to the Big Kahuna Dam. The treatment system was approved by Council on 24 August 2011.

The approximate volume of each waste stream generated during the reporting period is presented in **Table 6.4** together with the proportion of waste recycled. The volume of waste generated and proportion of waste recycled, reduced in 2017 due to the site being in Care and Maintenance for the first full year since operations finished in 2016.

Waste Stream	Total Volume (kg)
Effluent (Off Site)	0
Waste Oil & Oil Filters	2900
Paper & Cardboard	1 170
Scrap Steel	14,100
Timber	0
Other wastes	484
Mixed Solid Waste	28,715
Total Waste (kg)	47369
Recycled Waste	18,258
Recycling %	38.54%

Table 6.5 Approximate Waste Volumes during 2017

As part of the Company's Environmental Management Strategy, it is a requirement for contractors and employees to minimise waste generation wherever possible and to dispose of all waste in a satisfactory manner. Waste volumes will continue to be monitored throughout the sites Care and Maintenance phase and opportunities to minimise waste or increase recycling implemented, where appropriate.

7. WATER MANAGEMENT

7.1 WATER TAKE

Water Licence 20BL171935 issued for the Abel Mine operation provides for up to 500ML of water take annually. The Abel Mine is not actively dewatered in advance of mining, rather passive inflows occur into the mine workings and are transferred between mining areas or to the surface.

The net groundwater inflow volume has been estimated to be 232ML for the current water year 01 July 2016 to 30 June 2017 (see **Table 7.1**). Further detail regarding estimated groundwater inflows is provided in Section 7.3. No take of water from the overlying alluvial aquifers has occurred to date.

Water Licence #	Water sharing plan, source, and management zone	Entitlement	Passive take/inflow	Active pumping	Total
20BL171935	Not Applicable to water year – issued and regulated under <i>Water Act 1912</i> *	500ML	232ML	0	232ML

* The *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016* commenced 1 July 2016 and will be applicable to the 2016/2017 water year. However, the existing water licence has not yet been transferred to a Water Access Licence as regulated by the *Water Management Act 2000*.

Table 7.1 Water Take – 1 July 2016 to 30 June 2017

No compensatory water has been required to be supplied throughout the life of the mine.

7.2 SURFACE WATER

Environmental Management

As part of the Water Management Plan, Abel Mine transfers water from the underground workings and West Pit to the Big Kahuna Dam and then to Bloomfield mine, as required. Surface water monitoring sites specified for the Abel Mine are aimed at detecting indirect impacts such as from underground mining activities and activities in the surface infrastructure area. Monitoring at Sites FMCU and FMCD commenced prior to the commencement of the Abel Mine and serve to provide baseline data. Monitoring at Sites 1, 8, 10 and 11 commenced in 2006 and provide baseline data and can also be used to assess impacts attributable to the Abel Mine.

Environmental Performance

Surface water monitoring data for the reporting period is summarised in **Table 7.2** and presented graphically in **Figures 7.1 to 7.3** with the full graphical presentation since 2008 presented in **Figures 7.4 to 7.6**. It is noted that monitoring at additional sites identified within the Integrated Environmental Monitoring Program incorporating the Abel Mine, Donaldson Mine, Tasman Underground Coal Mine and Bloomfield Colliery were undertaken and will be reported within their respective Annual Reviews.

The pH values during the reporting period at all sites were slightly acidic to slightly alkaline. Some sites had short term results that were below the water quality trigger of 6.5 for Lowland Rivers in NSW outlined in the *Guidelines for Fresh and Marine Water Quality* (ANZECC 2000). Overall, during the reporting period there were no significant differences in pH between the upstream and downstream sites.

No long-term trends in pH are apparent with the average pH across all sites since 2008 ranging between 6.7 and 7.3.

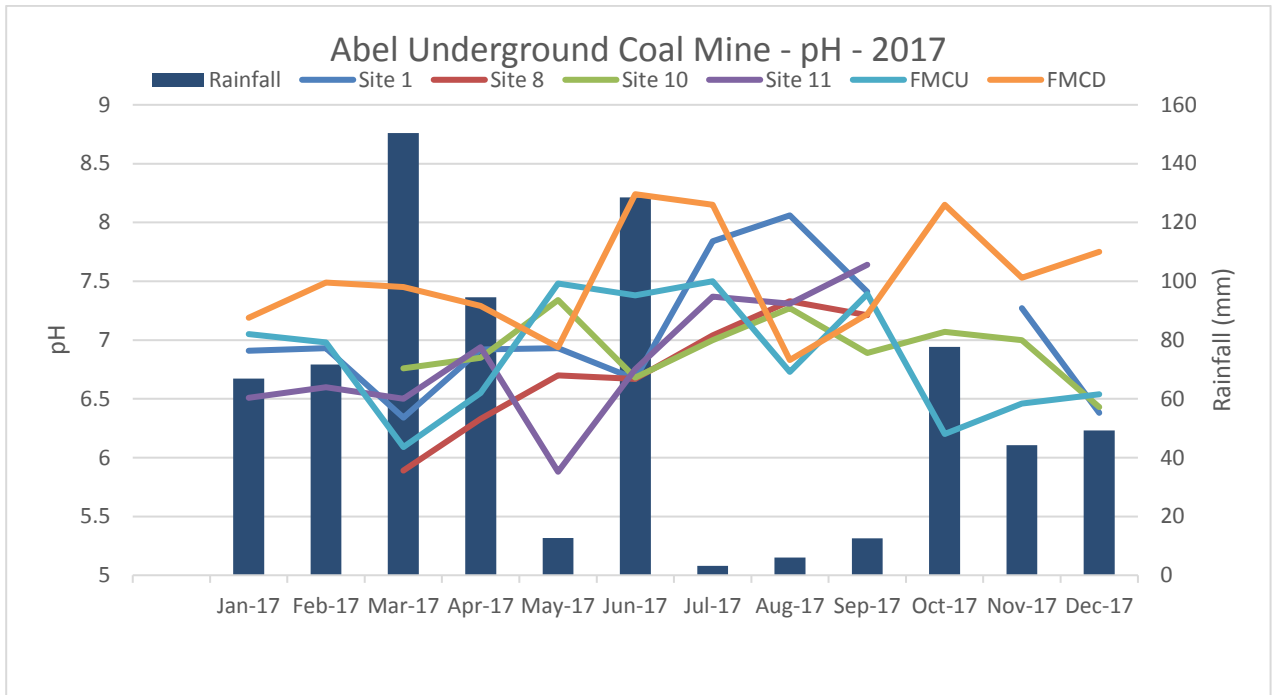


Figure 7.1 Abel Surface Water pH 2017

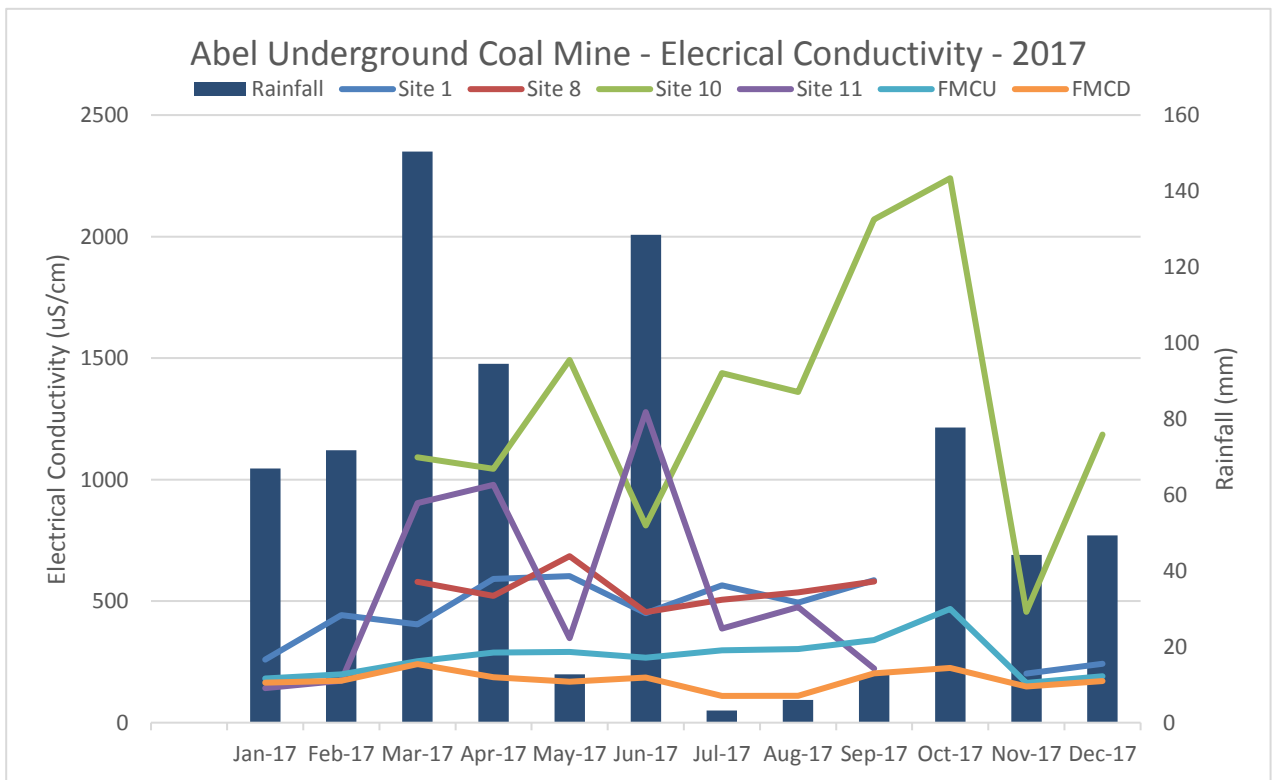


Figure 7.2 Abel Surface Water Electrical Conductivity 2017

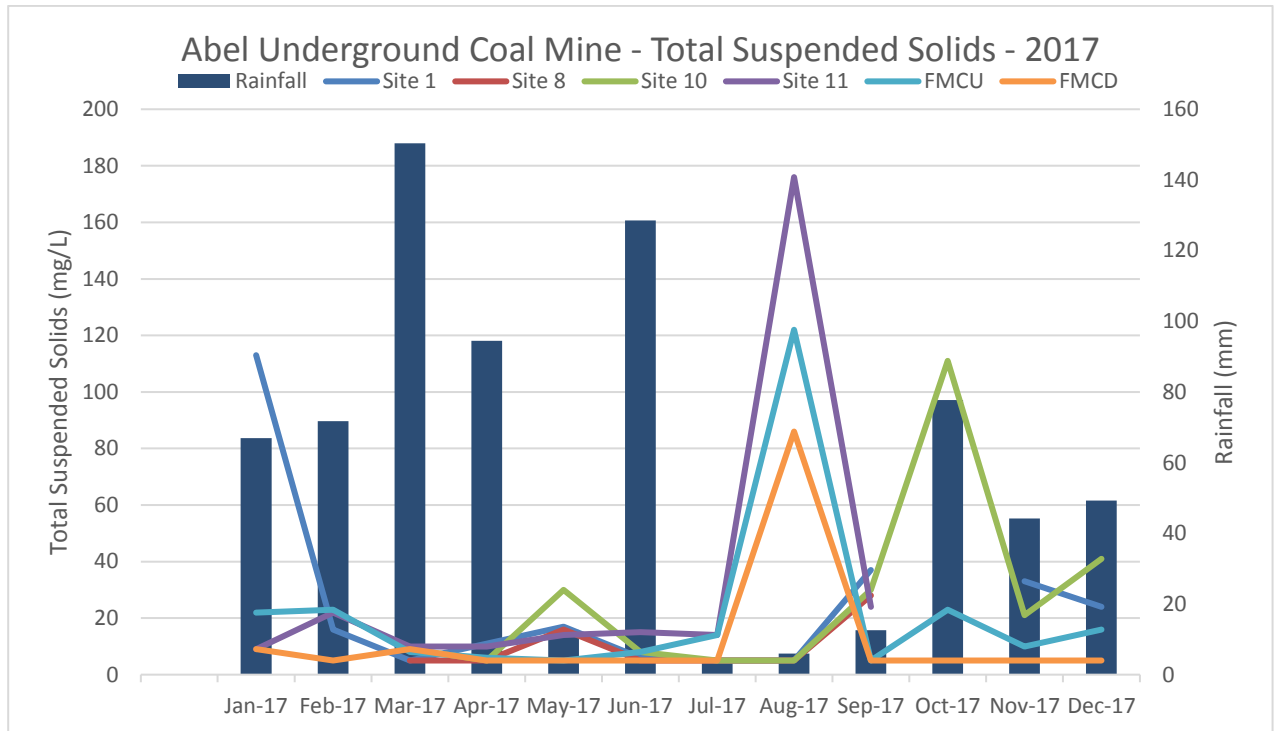


Figure 7.3 Abel Surface Water Total Suspended Solids 2017

The electrical conductivity (EC) results ranged between 110µS/cm and 2,240µS/cm for all sites with all but two results within the water quality trigger values for Lowland Rivers in NSW (125 to 2 200µS/cm) (ANZECC 2000) at all sample sites.

Whilst it is expected that rainfall will influence EC results, EC does not appear to be strongly correlated with the monthly rainfall. The average EC values upstream are higher than the corresponding downstream values. No other long-term trends in EC are apparent.

Turbidity and total suspended solids (TSS) levels were recorded on several occasions outside the quality trigger values for Lowland Rivers in NSW (6 to 50 NTU) outlined in the Guidelines for Fresh and Marine Water Quality (ANZECC 2000) and industry standard TSS criteria (50mg/L). Sites upstream and downstream of Abel mine recorded elevated levels of turbidity and TSS that were not associated with rainfall events or disturbance activities.

Sampling Site [^]	pH#	EC (µS/cm)#	Turbidity (NTU)	TSS (mg/L)
<i>Upstream of Underground Workings</i>				
1	6.34 – 8.06 (7.06)	202 – 603 (440)	10.5 – 321 (48)	5 – 113 (24)
8	5.89 – 7.33 (6.68)	348 – 685 (526)	3.1 – 37.5 (22.9)	5 – 28 (9)
10	6.43 – 7.34 (6.93)	456 – 2240 (1,319)	4.4 – 78.4 (23.2)	5 – 111 (26)
<i>Downstream of Underground Workings</i>				
11	5.88 – 7.64 (6.83)	142 – 1278 (545)	3.7 – 119 (20.7)	9 – 176 (33)
FMCU	6.09 - 7.50 (6.86)	163 – 468 (270)	13.9 – 32.3 (22.9)	5 – 122 (22)
FMCD	6.83 – 8.24 (7.52)	110 – 241 (174)	3.8 – 5.6 (4.75)	5 – 18 (12)
<i>Trigger Level</i>	<i>6.5 – 8.5*</i>	<i>125 to 2 200*</i>	<i>6 – 50 (NTU)*</i>	<i>50[@]</i>
[^] See Figure 6.1* ANZECC Chapter 3 – Aquatic Ecosystems – Lowland Rivers in NSW Industry Criterion [@]Standard Bold Text – Exceedance of Trigger Level # Field Measurement				

Table 7.2 Summary of Water Quality Monitoring Results - 2017

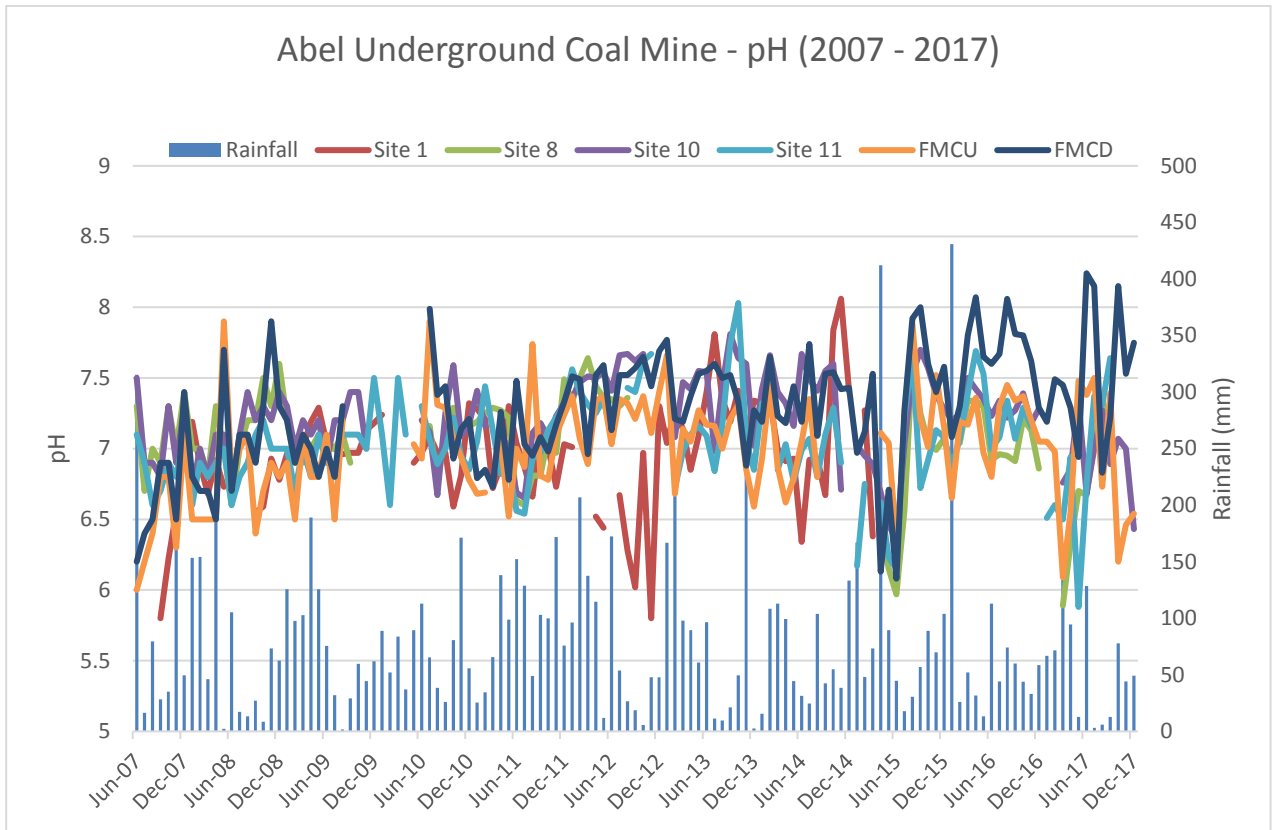


Figure 7.4 Abel Surface Water pH 2007 - 2017

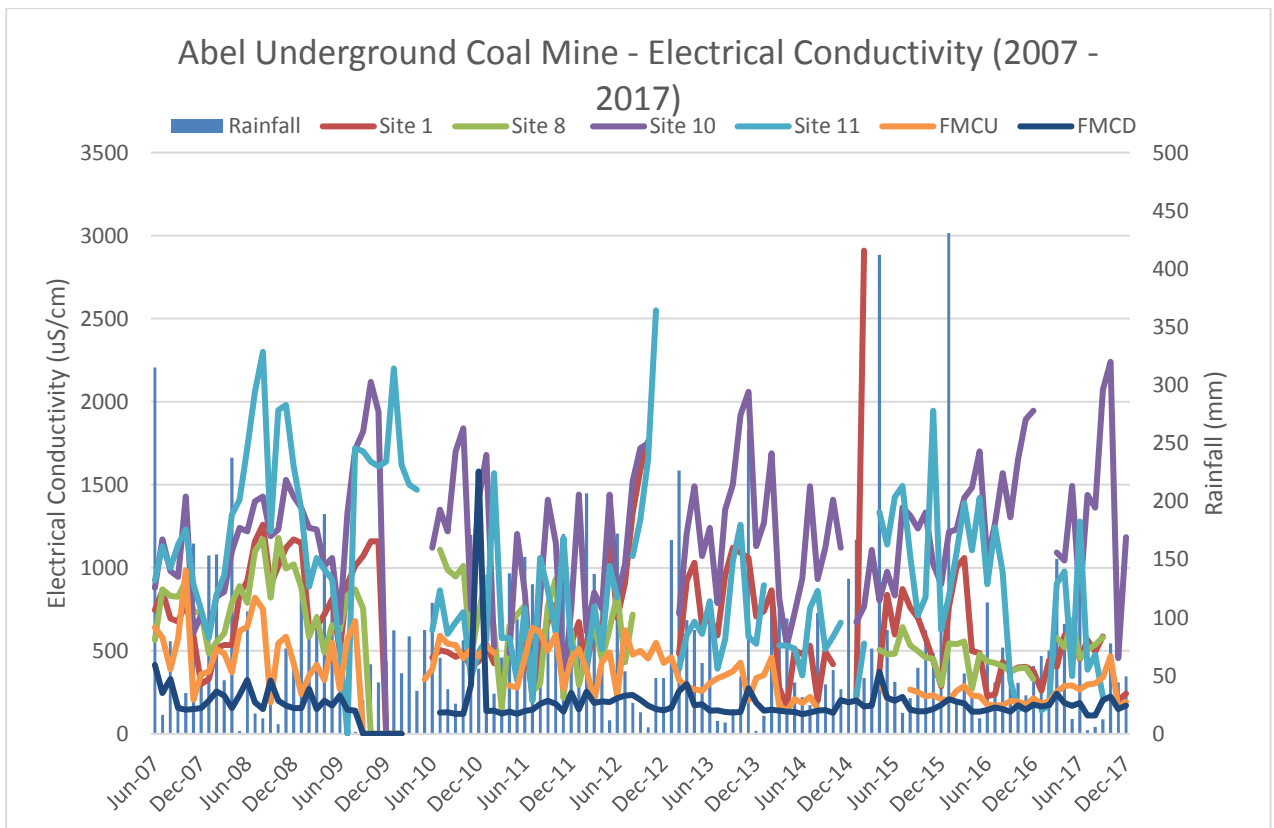


Figure 7.5 Abel Surface Water Electrical Conductivity 2007 - 2017

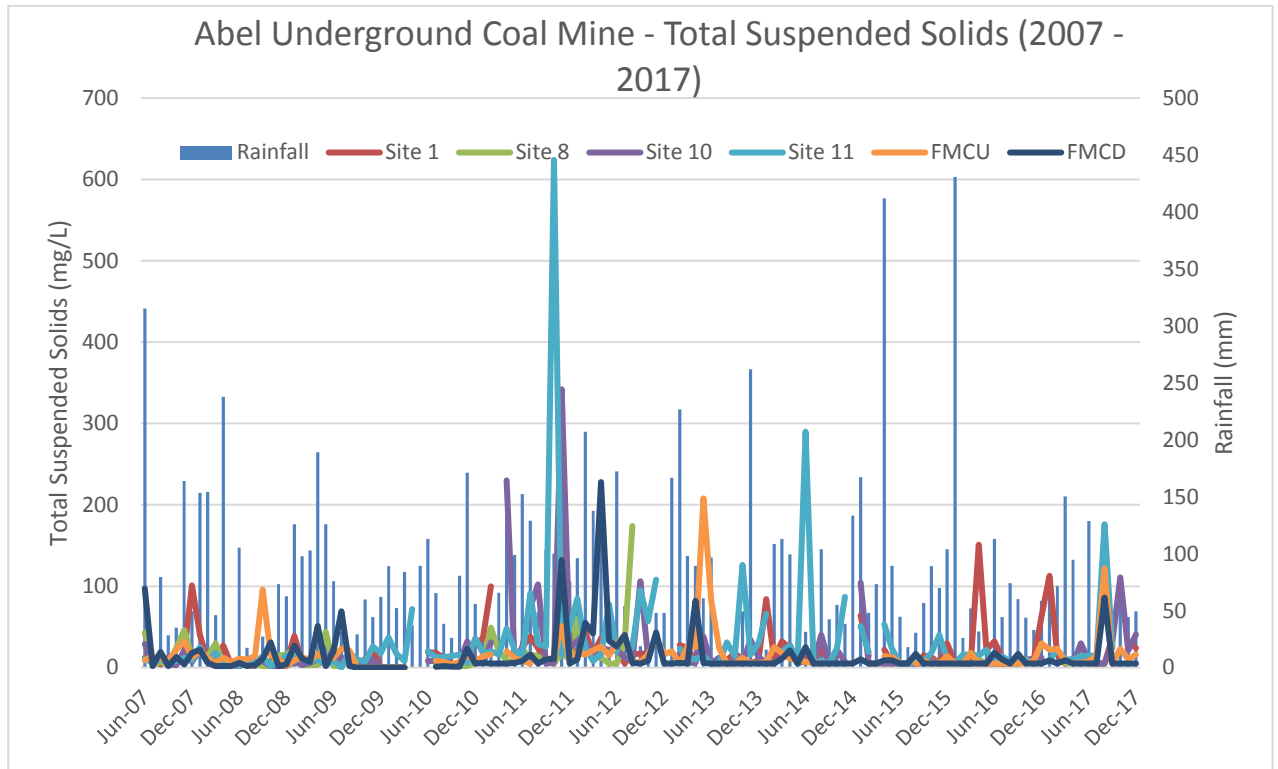


Figure 7.6 Abel Surface Water Total Suspended Solids 2007 - 2017

No long-term trends are apparent within the monitoring data with widely varying results with spikes in turbidity and TSS not necessarily correlated with monthly rainfall. Baseline monitoring results for both upstream and downstream sites have previously recorded significantly elevated TSS which are considered to form part of the natural variation.

The Environmental Assessment (Donaldson Coal, 2006) predicted no significant impacts upon surface water as a result of the mine activities. The monitoring results to date support that assessment.

Reportable Incidents

No reportable incidents occurred during the reporting period.

Further Improvements

No other surface water control measures are planned or considered necessary.

7.3 GROUNDWATER

Environmental Management

Monthly monitoring of regional groundwater levels and groundwater quality was undertaken throughout the reporting period in accordance with the Water Management Plan and Integrated Environmental Monitoring Plan.

Environmental Performance

The performance of groundwater management has been assessed by monitoring groundwater levels, inflows and water quality. These three parameters are discussed below.

Groundwater Levels

Piezometers located within and to the south of the Abel mine area are behaving predictably, with drawdown in the Donaldson Seams and by a lesser amount in most overburden piezometers responding as expected to mining activities. Piezometers to the west of the Abel mine area appear to likely be influenced by mining activity at the nearby Bloomfield coal operations.

Monitoring confirms that there is no evidence of any drawdown response in the alluvium or regolith groundwater. In particular, Piezometers 81A and 81B are located adjacent the Pambalong Nature Reserve (see Figure 6.1). Monitoring results from 81A (single vibrating wire transducer placed within the Lower Donaldson Seam) showed a drawdown response to mining the Donaldson Seam within the Abel Mine. However, Piezometer 81B is screened within overlying shallow Permian strata with water levels remaining stable. The lack of response in the shallow piezometer indicates there has been no mining impact on the Pambalong Nature Reserve.

Piezometers 63A and B are located to the east of the Abel Mine adjacent to the F3 Freeway and near the Hexham Swamp (see Figure 6.1). However, it appears that the shallow Piezometer 63B had failed or the bore has collapsed. Notwithstanding this, review of the responses from other shallow alluvium and regolith bores is still consistent with there being no impact on the Hexham Swamp.

Groundwater Inflows

Water Licence 20BL171935 allows for the take of 500ML of groundwater in the 2016/2017 financial year. During this period, groundwater inflows were conservatively estimated at 232ML, within the 500ML allocation limit. Water stored within underground workings was reduced during the 2016/2017 water licence period with water extracted from the underground workings metered. Water pumped from the mine was measured at 232ML which includes waters that were stored in underground workings at the start of the period.

Since the mine has been placed in care and maintenance, water has continued to be pumped from the underground workings, however, there have been smaller volumes of inflow and declining outflows. Groundwater model predictions for this stage of mining were for between 800ML and 1,000ML/year. Therefore, the actual inflow rates remain well below the predicted maximum rate.

Groundwater Quality

A summary of three representative bores located within the Abel underground mine area is presented in **Table 7.3** and **Figures 7.7 and 7.8** with the full graphical presentation since 2007 presented in **Figures 7.9 and 7.10**. They show that the pH values ranged between slightly acidic (5.76) and slightly alkaline (7.26) and EC values ranged between 304 μ S/cm and 4,560 μ S/cm, consistent with the ranges recorded in the previous period.

Sampling Site#	pH	EC ($\mu\text{S}/\text{cm}$)
DPZ – 6	5.93 – 6.93 (6.58)	1,720 – 2,470 (2,201)
DPZ – 13	6.87 – 7.02 (6.94)	4,250 – 4,560 (4,356)
JRD2	5.76 – 7.26 (6.66)	304 – 2,522 (1,357)
Source: Donaldson Coal Pty Ltd () = Average # see Figure 6.1		

Table 7.3 Summary of Groundwater Quality Monitoring Results – 2017

A downward trend in EC has been observed at bore DPZ13 (see **Figure 7.9**) starting in 2008 / 2009, which may be due to enhanced recharge following drawdowns in the coal measures as a result of mining. Whilst salinity has been relatively consistent within JRD2 and DPZ-6 since 2012, monitoring indicates occasional 'outliers' of significantly lower salinity. This is likely due to ingress of rainwater temporarily lowering the salinity.

In comparison to previously recorded groundwater quality, the Environmental Assessment baseline monitoring reported that the quality of groundwater sampled within the underground mining area of the Abel Mine was variable with total dissolved solids (TDS) ranging from less than 518mg/L to 13,000mg/L, which is approximately equivalent to EC readings of between 865 $\mu\text{S}/\text{cm}$ and 21,700 $\mu\text{S}/\text{cm}$. As results have been within previously recorded ranges, it is considered that, at this point in time, the activities of Abel Underground Coal Mine are not having an effect on groundwater quality.

Reportable Incidents

No reportable incidents were recorded during the 2016/17 reporting period.

Further Improvements

No other surface water control measures are planned or considered necessary.

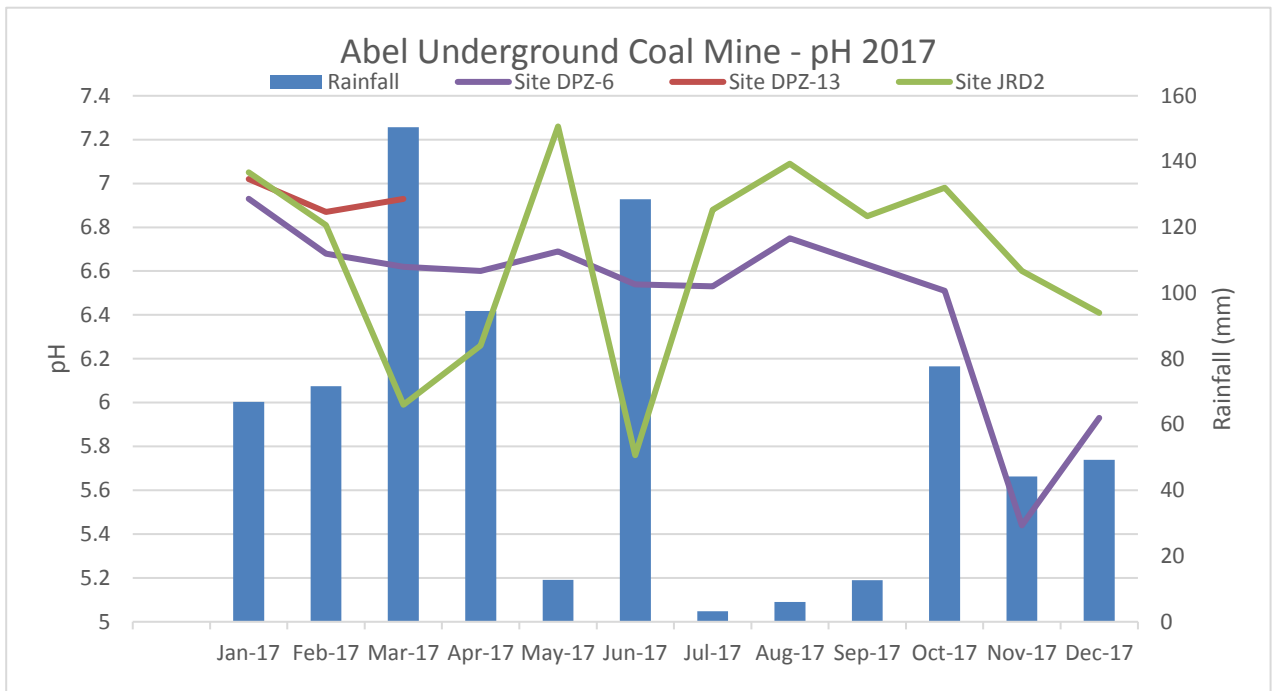


Figure 7.7 Abel Ground Water pH - 2017

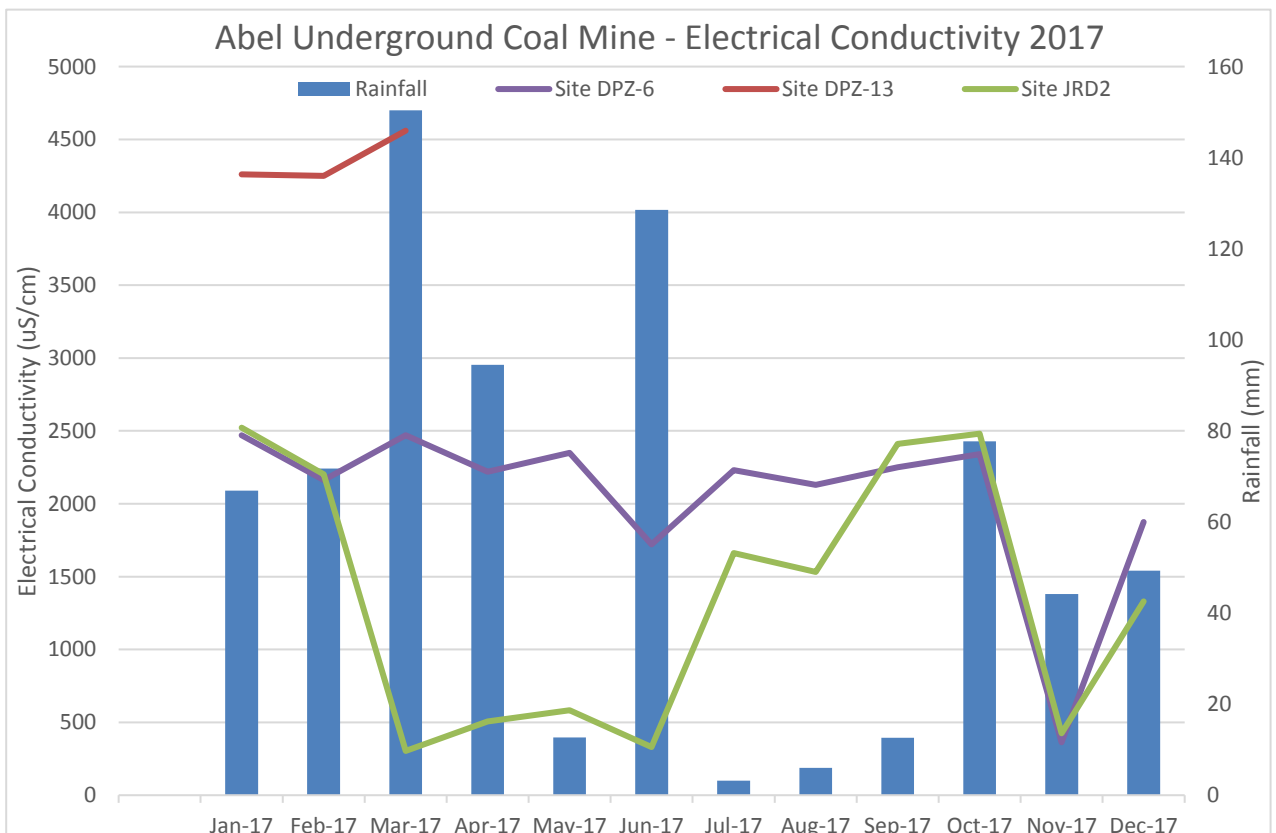


Figure 7.8 Abel Groundwater Electrical Conductivity - 2017

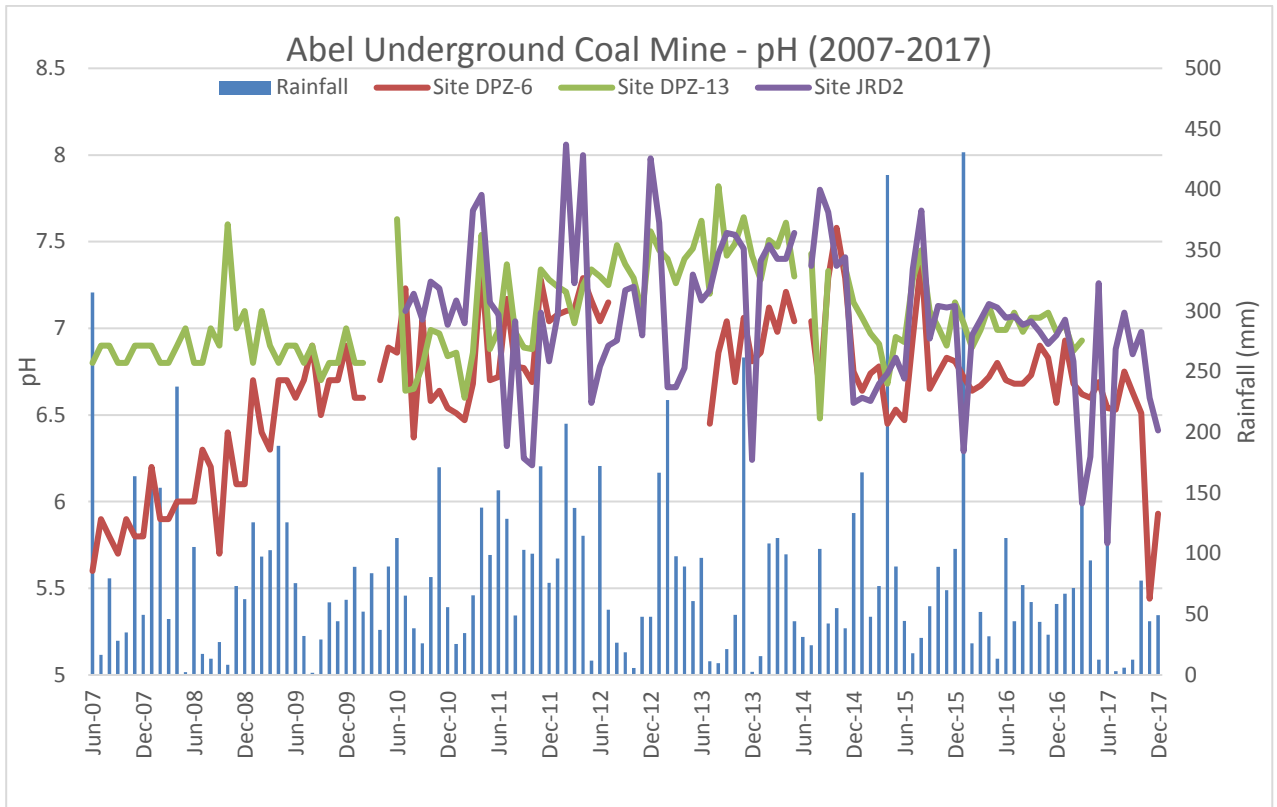


Figure 7.9 Abel Ground Water pH 2007 - 2017

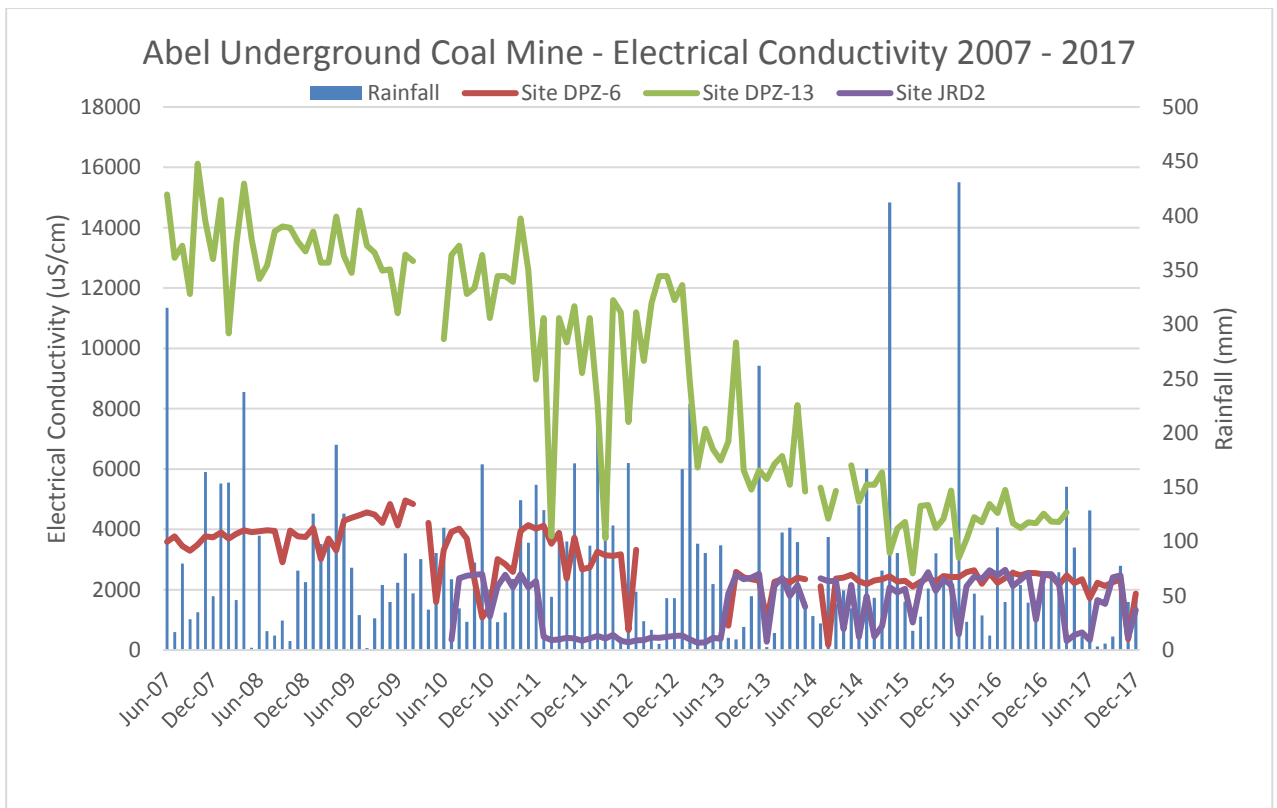


Figure 7.10 Abel Groundwater Electrical Conductivity 2007 - 2017

8. REHABILITATION**8.1 REHABILITATION PERFORMANCE DURING THE REPORTING PERIOD**

Figure 8.1 shows the status of rehabilitation and a summary of the areas of rehabilitation is provided in Table 8.1.

Mine Area Type	Previous Reporting Period (Actual)	This Reporting Period (Actual)	Next Reporting Period (Forecast)
	Year 9 (ha)	Year 10 (ha)	Year 11 (ha)
Total mine footprint	13.15 ¹	13.15 ¹	13.15 ¹
Total active disturbance	13.15 ²	13.15 ²	13.15 ²
Land being prepared for rehabilitation	0	0	0
Land under active rehabilitation	0	0	
Completed rehabilitation	0	0	0
Notes:			
1: Includes 0.41ha associated with the extended light vehicle car park, 0.23ha for the downcast ventilation shaft and 0.58ha relating to the upcast ventilation shaft but excludes underground mining areas. Areas that have been temporarily rehabilitated also included.			
2: Whilst some areas have been temporarily rehabilitated, all areas within ML 1618 surface infrastructure area are considered to be 'active'			

8.1 Rehabilitation Summary

No rehabilitation areas became available for DRE sign off and no final land use objectives were met during the reporting period. As the Abel Mine is an underground operation, the only significant rehabilitation will be during mine decommissioning. As outlined within the approved Mining Operations Plan, during decommissioning the creation of the final landform will involve blasting of the western side of the Abel Box Cut (as part of final landform creation within the West Pit) followed by grading using a dozer to create a maximum slope of 18 degrees. The northern side of the Abel Box Cut will also be blasted and graded to a maximum of 10 degrees, with a permanent vehicle access and egress ramp constructed to allow access to the final void for ongoing monitoring and management.

Surface infrastructure areas located within existing forested areas, such as the substation and ventilation shafts, will be returned to native vegetation. The current post mining land use goal for the Abel Box Cut is for use as water storage suitable for use in surrounding mining operations.

Within the surface infrastructure area, no permanent buildings were renovated or removed during the reporting period and, other than regular inspection and maintenance of previously temporarily rehabilitated areas (i.e. batter slopes) and retained vegetation, no specific rehabilitation activities were undertaken. Maintenance activities completed included ongoing spot control of weeds across the entire surface infrastructure area and maintenance of sediment and erosion structures.

Above the underground mining area, minor rehabilitation works were completed for surface cracks associated with subsidence. These cracks were within the predicted range and were excavated to the limit of the crack, backfilled, compacted, topsoiled and seeded. Road repair works were also completed for Blackhill Road in accordance with the Blackhill Road Management Plan. All road cracking was within predicted levels.

No exploration drilling occurred within ML 1618 or EL 5497 during the reporting period. No issues relating to the rehabilitation of old exploration holes / drill sites were raised during the reporting period.

No rehabilitation trials or research was undertaken during the reporting period and there was no variation to the rehabilitation activities as outlined within the approved Mining Operations Plan. There are currently no specific issues affecting the ability to successfully rehabilitate the site and therefore no specific management measures.

8.2 ACTIONS FOR THE NEXT REPORTING PERIOD

No specific rehabilitation works are planned during the next reporting period and no major rehabilitation work will be able to be undertaken until the decommissioning of the site. Any surface cracks that appear will be backfilled, compacted, topsoiled and seeded and ongoing repairs to any subsidence damage to public roads will be completed in accordance with the approved subsidence monitoring and management plans. Notably, any further rehabilitation works to Blackhill Road will be completed by the Mine Subsidence Board.

Maintenance works, such as erosion and sediment control, and ongoing control of weeds and feral pests will also be undertaken as required.

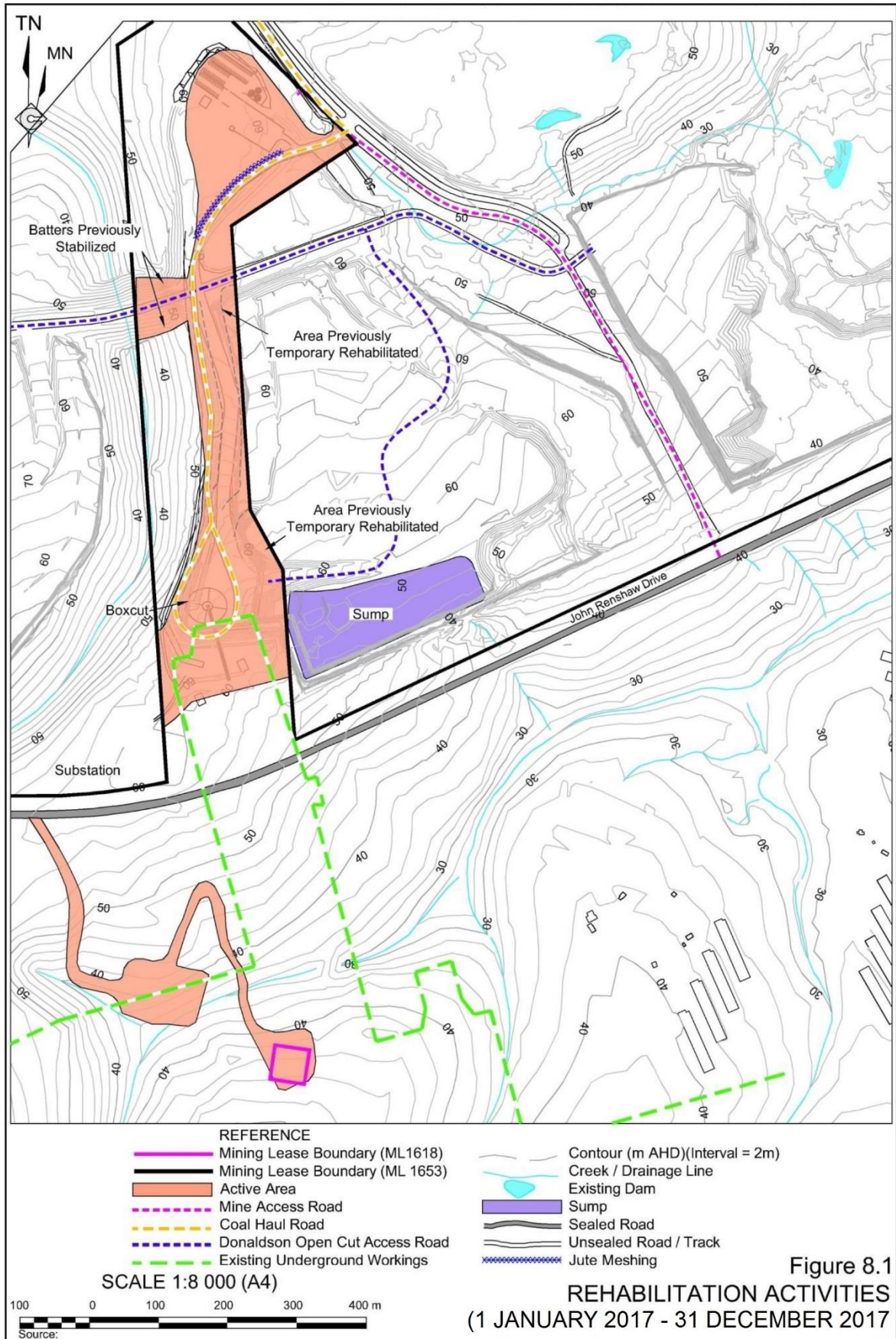


Figure 8.1 Status of Rehabilitation

9. COMMUNITY

9.1 COMMUNITY COMPLAINTS

No complaints were received during the 2017 reporting period. The last complaint was received on 2 October 2015. Since commencement of the Abel Mine, a total of six complaints have been received. Given that no further complaints have been received and the Abel Mine is currently under care and maintenance, no specific actions are currently deemed necessary.

9.2 COMMUNITY LIASION

The principal formal community consultation undertaken is the Community Consultative Committee. In accordance with Schedule 6 Condition 6 of the modified Project Approval 05_0136, the Company has established a Community Consultative Committee for the Abel Mine. During the reporting period, the committee consisted of:

- three to four representatives from the Company at each meeting (included during the year, Messrs Phillip Brown, Aaron McGuigan and Ryan Tubridy);
- five representatives of the local community (Messrs Alan Brown, Allan Jennings, Terry Lewin, Andrew Pace and Brad Ure); and
- One representative from Cessnock Council (Mr Ian Turnbull).

No representative from the Maitland City Council or Bloomfield Colliery was present at the committee meetings during the reporting period.

The committee was chaired by Mrs Margaret MacDonald-Hill, an independent chairperson appointed as the independent Chair by the Secretary, Department of Planning and Environment.

The committee held a total of two meetings during the reporting period (20 February, and 4 September). The meetings have continued to provide an opportunity for the Company to keep the community up to date with activities undertaken and programmed at the Abel Mine and for community members to table issues relating to the Abel Mine for the Company's consideration. It is noted that the Company provided presentations during each meeting to provide updates on the mine development / care and maintenance, environmental monitoring, subsidence management, planning, and other relevant matters.

10. INDEPENDENT AUDIT

The last independent environmental audit of the mine was undertaken in March 2015, in accordance with Schedule 5 Condition 5 of PA 05_0136. The independent audit confirmed a high degree of compliance and did not identify any non-compliance with the Project Approval or Statement of Commitments for the activities undertaken during the 2012 to 2015 period.

The next independent environmental audit is due in 2018.

11. INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD

During the reporting period there were no:

- reportable incidents or exceedances; or
- official cautions, warning letters, penalty notices or prosecution proceedings.

Two administrative non-compliances were recorded for the reporting period.

Project Approval 05_0136 Schedule 2 Condition 11 which requires that all new buildings and structures, and any alterations or additions are constructed in accordance with the relevant requirements of the BCA. Whilst construction certificates have been received for buildings within the surface infrastructure area the occupation certificates have not yet been received. The certifying body inspected once and requested changes prior to issuing the occupation certificate. The requested changes have been made and the certifying body requested to reinspect. However, the certifying body has not yet issued the final certificate. This will be followed up again during the 2018 reporting period. The Company believes that the buildings meet the BCA and no environmental or social impact has arisen from this administrative non-compliance.

Water Licence 20BL171935 requires an annual compliance report, which reports on the results of the groundwater monitoring and contingency plan, to be supplied to the NSW Office of Water (now DPI Water) within 3 months of the end of the water year being reported on (i.e. by end of September). Whilst the necessary information has been included in the respective AEMRs and this Annual review, the Annual Review is prepared following the calendar year and therefore has not been submitted within 3 months of the current water year (i.e. by 30 September 2017). The Company will consult with DPI Water in relation to the acceptance of the Annual Review reporting at this time interval and / or adjustment of the condition wording during the transfer of conditions from the current Water Licence to a Water Access Licence under the new Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016.

12. ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD

As outlined in Section 4.3, a range of monitoring, including surface water, groundwater, flora and fauna and subsidence monitoring are planned during the next reporting period. This monitoring represents a continuation of standard monitoring practices.

However, as discussed in Section 6.3, the need for / frequency of noise monitoring during care and maintenance is to be reviewed. As discussed in Section 6.5, consideration will also be given to the need for ongoing aquatic monitoring within Blue Gum Creek and/or whether the monitoring program is continued in its current form. Prior to the recommencement of mining operations, relevant dams will also be reassessed for frog habitat to account for changes such as eutrophication from stock, fertiliser applications or other farming practices as opposed to changes resulting from mining.

No other specific measures are currently deemed necessary to improve environmental or community performance.