DONALDSONCOAL

Part of the Yancoal Australia Group

ABN: 87 073 088 945

Annual Review

Donaldson Coal Mine

1 November 2017 – 31 October 2018

This page has intentionally been left blank

DONALDSON COAL

PTY LTD

ABN: 87 073 088 945

Annual Review

for the

Donaldson Coal Mine

Compiled for:

Donaldson Coal Pty Ltd
ABN 87 073 088 945
1132 John Renshaw Drive
BLACKHILL NSW 2322

Telephone: (02) 4015 1140
Facsimile: (02) 4934 2736
Email: donaldson@doncoal.com.au

Compiled by:

R.W. Corkery & Co. Pty. Limited
Geological & Environmental Consultants
ABN: 31 002 033 712

R.W. CORKERY & CO. PTY. LIMITED

Brooklyn Office:
1st Floor, 12 Dangar Road
PO Box 239
BROOKLYN NSW 2083

Telephone: (02) 9985 8511
Email: brooklyn@rwcorkery.com

Orange Office:
62 Hill Street
ORANGE NSW 2800

Telephone: (02) 6362 5411
Email: orange@rwcorkery.com

Brisbane Office:
Suite 5, Building 3
Pine Rivers Office Park
205 Leitchs Road
BRENDALE QLD 4500

Telephone: (07) 3205 5400
Email: brisbane@rwcorkery.com

Ref No. 737/20

January 2019

DONALDSONCOAL
Part of the Yancoal Australia Group

TITLE BLOCK

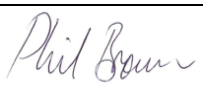
Name of Operation	Donaldson Coal Mine
Name of Operator	Donaldson Coal Pty Limited
Development consent / project approval #	DA 98/01173 and 118/698/22
Name of holder of development consent / project approval	Donaldson Coal Pty Limited
Mining Lease #	ML 1461
Name of holder of mining lease	Donaldson Coal Pty Limited
Water licence #	20WA218980, 20WA211590 and WAL41522
Name of holder of water licence	Donaldson Coal Pty Limited
MOP/RMP start date	16/05/2014
MOP/RMP end date	16/05/2021
Annual Review start date	1/11/2017
Annual Review end date	31/10/2018

I, Phillip Brown, certify that this audit report is a true and accurate record of the compliance status of the Donaldson Coal Mine for the period 01 November 2017 to 31 October 2018 and that I am authorised to make this statement of behalf of DONALDSON COAL PTY LIMITED.

Note.

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.*

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); Section 307A, 307B and 307C (false or misleading application/information/documents – maximum penalty 2 years imprisonment or $22,000, or both).*

Name of authorised reporting officer	Phillip Brown
Title of authorised reporting officer	Environment and Community Relations Superintendent
Signature of authorised reporting officer	
Date	30 January 2019

CONTENTS

Page

CONTENTS

Page

APPENDICES

FIGURES

TABLES

CONTENTS

Page

This page has intentionally been left blank

1. STATEMENT OF COMPLIANCE

The compliance status of relevant approvals was reviewed for the reporting period (see **Appendix 3**) and is summarised in **Table 1.1**. It was determined that there were no non-compliances during the reporting period.

Table 1.1
Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	Yes / No
Development Consent (combined DA 98/01173)	Yes
Mining Lease 1461	Yes

2. INTRODUCTION

2.1 OVERVIEW OF OPERATIONS

The Donaldson Coal Mine ("the mine") was an open cut coal mining operation located ~23km from the Port of Newcastle, north of John Renshaw Drive and west of Weakleys Drive. The mining lease is contained within the Cessnock and Maitland Local Government Areas. A locality plan and aerial photograph showing the location of the mine in a regional context is attached as **Appendix 1** of this report.

The mine commenced operation on 25 January 2001, following approval by the (then) Minister of Urban Affairs and Planning (now known as the Department of Planning and Environment) in 1999.

The first load of coal was railed from the mine on 26 March 2001. Up to 31 October 2013, approximately 13,002,548 tonnes of coal had been railed to both Hunter Valley power stations and international customers, through the Port of Newcastle.

Mining operations at the mine were completed in April 2013. Progressive rehabilitation activities have been undertaken throughout the operation of the mine and a final rehabilitation project commenced in May 2013. This involved removal of roads, excavation of contaminated material, decommissioning of the fuel storage area, buildings and other surface infrastructure, reshaping surfaces to the final landform, topsoil spreading, drainage line construction and seeding with local tree and shrub species. The rehabilitation works at the mine were completed in March 2014.

2.2 SCOPE AND FORMAT

This Annual Review for the Donaldson Coal Mine has been compiled by R.W. Corkery & Co. Pty. Limited on behalf of Donaldson Coal Pty Limited (the "Company"). Donaldson Coal Pty Limited is a fully owned subsidiary of Yancoal Australia Limited.

This is the third Annual Review submitted for the mine, following 12 Annual Environmental Management Reports, and is applicable for the period 1 November 2017 to 31 October 2018 ("the reporting period").

This Annual Review generally follows the format and content requirements identified in the NSW Department of Planning and Environment (DPE) *Annual Review Guideline* dated October 2015.

2.3 KEY PERSONNEL CONTACT DETAILS

Donaldson Coal Pty Ltd owns the 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, Donaldson Coal	Mr William Farnworth
Environment and Community Relations Superintendent, Donaldson Coal	Mr Phillip Brown

Table 2.2 outlines the contacts for the Donaldson Coal Operations Manager, Mr William Farnworth, and the Environment and Community Relations Superintendent, Mr Phillip Brown.

Table 2.2
Contact Details

Physical Address:	Donaldson Coal Mine 1132 John Renshaw Drive BLACKHILL NSW 2322
Postal Address:	PO Box 2275 GREEHILLS NSW 2323
Community Hotline (24hrs):	1800 111 271
Phone:	(02) 4015 1100
Fax:	(02) 4015 1159
e-mail:	donaldson@doncoal.com.au
Website:	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 Relations 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 licenses. It also includes information relating to the current Mining Operations Plan (MOP). Details of amendments to the MOP are described below.

Table 3.1
Donaldson Coal Mine – Approvals, Leases and Licences

Approval/Lease/Licence	Issue / Approval Date	Expiry Date	Details / Comments
Mining Lease (No. 1461)	22/12/1999	22/12/2020	Granted by the (then) Minister for Mineral Resources. Incorporates a surface area of 515.6ha (following excision of the Abel Surface Infrastructure Area from the lease in 2008).
Mining Operations Plan	16/05/2014	16/05/2021	Amended MOP as approved by the DTI DRE.
Development Consent (combined DA 98/01173 and 118/698/22)	14/10/1999 26/08/2005 24/06/2011	March 2011 31/12/13	• Certain conditions of the consent will continue to operate after the consent for mining operations has lapsed. • Variation to Development consent for modification to mining area. • Variation to Development Consent for extension of time for mining to be completed.
Environment Protection Licence (No. 11080).	13/09/2000	Not Applicable	Anniversary date 13 September Current licence version dated 2 December 2011. An application to surrender EPL11080 was lodged 18 April 2018 and remains pending.
Water Supply Works Approval 20WA218980	01/07/2016	30/06/2019	Bore Licence 20BL168123 was issued to cover groundwater extraction as a result of the active mining area. Following commencement of the *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016* in July 2016 20BL168123 was converted to a water supply works approval and water access licence with an allocation of 300ML/year.
Water Access Licence (WAL) 41522	01/07/2016	Continuing	
Water Supply Works Approval 20WA211590	01/08/09	31/07/22	Issued for the works associated with the open cut mining pits as located within the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009.*

4. OPERATIONS SUMMARY

4.1 MINING OPERATIONS

Coal mining activities ceased in April 2013 and all mining equipment was removed from site. 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)
Waste Rock / Overburden	No longer applicable	0	0	0
ROM Coal / Ore		0	0	0
Coarse Reject		0	0	0
Fine Reject (Tailings)		0	0	0
Saleable Product		0	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 ML1461 during the reporting period.

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

Rehabilitation activities were completed in March 2014 with no further rehabilitation work occurring during the reporting period.

4.3 NEXT REPORTING PERIOD

The activities proposed for 2018/2019 will principally involve continued monitoring and, if required, maintenance activities in accordance with the approved MOP. The following provides a summary of the planned activities.

Exploration

The Company currently does not intend to undertake any drilling within ML1461 during the 2018/2019 reporting period.

Mining

No further mining will be undertaken.

Rehabilitation

All rehabilitation works have previously been completed. Any rehabilitation works during the 2018/2019 reporting period will relate to ongoing maintenance, principally erosion and sediment control and vegetation establishment.

Monitoring

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

- Surface water – ongoing surface water quality monitoring in accordance with the site Water Management Plan. Monitoring will be undertaken by CBased Environmental.
- Groundwater – ongoing groundwater level and quality monitoring will be undertaken by CBased Environmental.
- Flora and Fauna – Kleinfelder Australia Pty Ltd will continue to undertake annual flora and fauna surveys and reporting. Global Soil Systems will also undertake the 2 yearly rehabilitation monitoring.

Community Consultation and Liaison

The 24-hour environmental hotline will be maintained and a register retained of any complaints received.

5. ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

The 2016/2017 Annual Review was forwarded to the Resources Regulator within the Department of Planning and Environment (DPE) and the DPE compliance unit on 25 January 2018. Feedback was received from the Resources Regulator dated 13 July 2018 confirming the Annual Review was considered to satisfy the requirements of the relevant conditions of ML1461.

Feedback from the DPE compliance unit was received on 9 October 2018 requiring an amended Annual Review incorporating additional information to be submitted by 27 November 2018. The amended Annual Review was submitted on 26 November 2018 with feedback from the DPE compliance unit received on 7 December 2018 confirming acceptance of the revised Annual Review. No further actions were required.

Table 5.1 summarises the actions arising from the previous Annual Review and which were addressed to DPE's satisfaction in the revised Annual Review.

Table 5.1
Actions from the previous Annual Review

Action required from previous Annual Review	Requested by	Action taken by the Operator	Where discussed in Annual Review
Formatting – please update the header to the correct reporting period	DPE Compliance Unit	Correct reporting period included in header.	All pages.
Appendices – please ensure the appendices are attached to the submission email.	DPE Compliance Unit	The appendices were provided to the Regulator.	NA
Social impacts – please include discussion of the social impacts of the mine as required by Schedule 2 condition 114(iv) of the approval.	DPE Compliance Unit	Annual Review updated to include additional detail regarding social impacts.	Section 9
Water budget – please include the outcome of the water budget for the reporting year, the quantity of water used from mine storages and details of any discharge of any water from the site, as required by Schedule 2 condition 114(viii) of the approval.	DPE Compliance Unit	Water budget information included in the Annual Review.	Section 7.1
Rehabilitation – please identify the agreed post rehabilitation land uses, as required by the *Annual Review Guideline*.	DPE Compliance Unit	Annual Review updated to include additional detail.	Section 8.1
Community – please revise the reporting period noted in this section.	DPE Compliance Unit	Correct reporting period included.	Section 9

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 implications	Implemented/proposed management actions
Noise	DA Condition 15 – approved noise limits range from 35dB(A) to 50dB(A).	No complaints.	Implies management measures are currently adequate.	No additional management action required.
Blasting	DA Condition 24 – Overpressure 115dB(A) and max 120dB(A) -Vibration 5mm/s and max 10mm/s	No blasts undertaken.	No specific management implications given no blasts undertaken.	No specific management actions required.
Air Quality	DA Condition 37 Annual Average TSP 90ug/m3 & deposited dust 4g/m2/month.	No complaints.	Implies management measures are currently adequate.	No additional management action required.
Biodiversity	DA Condition 70 – Provision of compensatory habitat.	There have been no significant negative impacts on biodiversity within the Donaldson Bushland Conservation Area over the last 17 years. *Tetratheca juncea* numbers slightly decline but at a slower rate than previously.	Trend has been an increase in biomass which has now plateaued. Overall fauna diversity consistent, however, decrease in birds with an interior habitat speciality since 2012 (possibly due to large-scale clearing associated with adjacent industrial estate in 2012). Continued maturation of mine rehabilitation areas may reverse this trend. Continued increase in ground species density appears to be the probable cause for the decline in the *Tetratheca juncea* population.	Proposed hazard control burn to promote *Tetratheca Juncea* habitat within the Bushland Conservation Area. Continued monitoring of flora and fauna trends.
Heritage	DA Condition 81-86 – Aboriginal Heritage Conservation Area & Management Plan	No heritage items identified or disturbed during the reporting period. No complaints or other management issues.	Implies no specific management actions were necessary.	No additional management action required.

6.2 METEOROLOGICAL MONITORING

An on-site automated weather station continued to be operated recording rain, wind speed and direction. **Figure 6.1** presents the monthly wind roses for the reporting period whilst **Table 6.2** provides the monthly rainfall data.

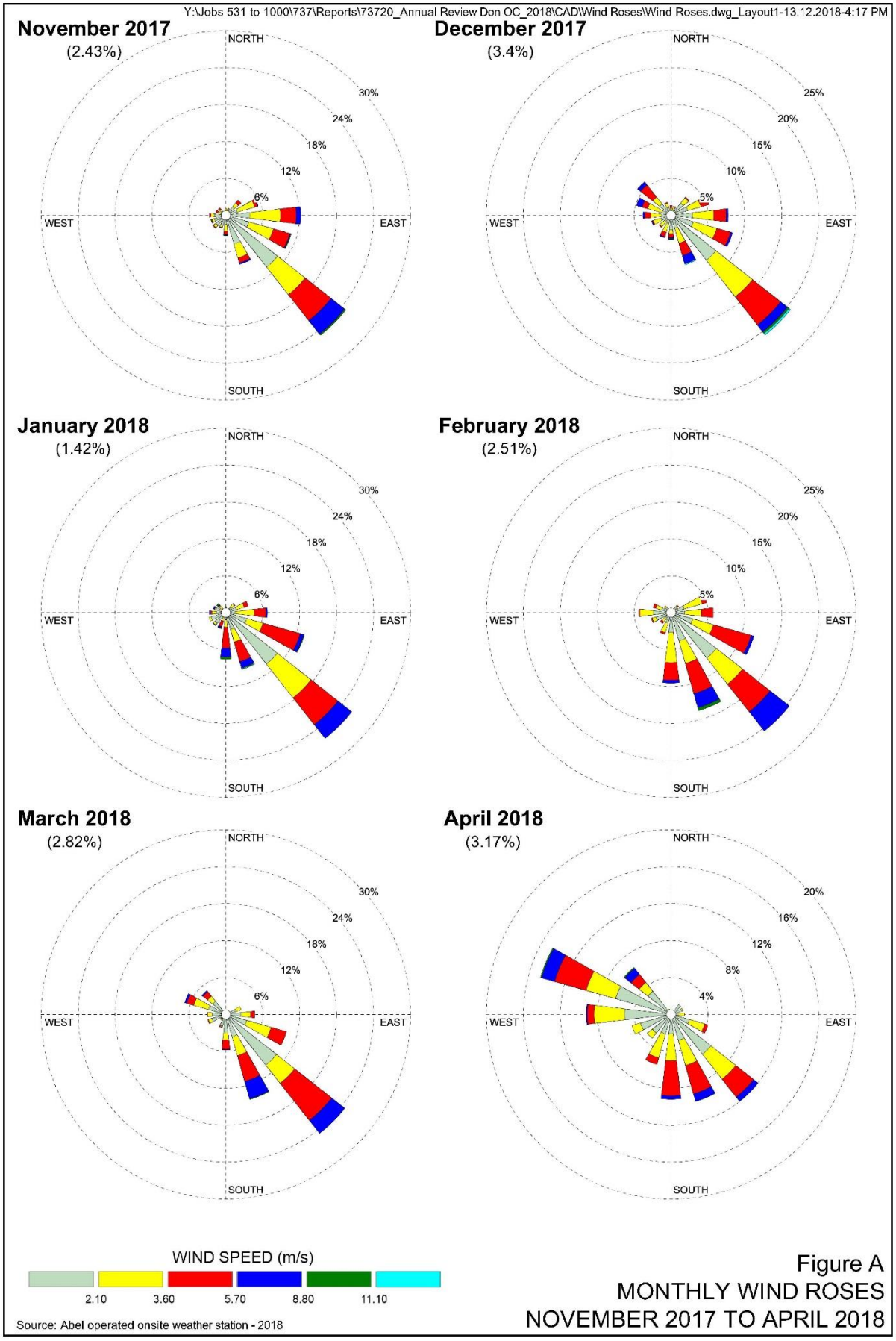


Figure 6.1a Monthly Wind Roses 2017/2018

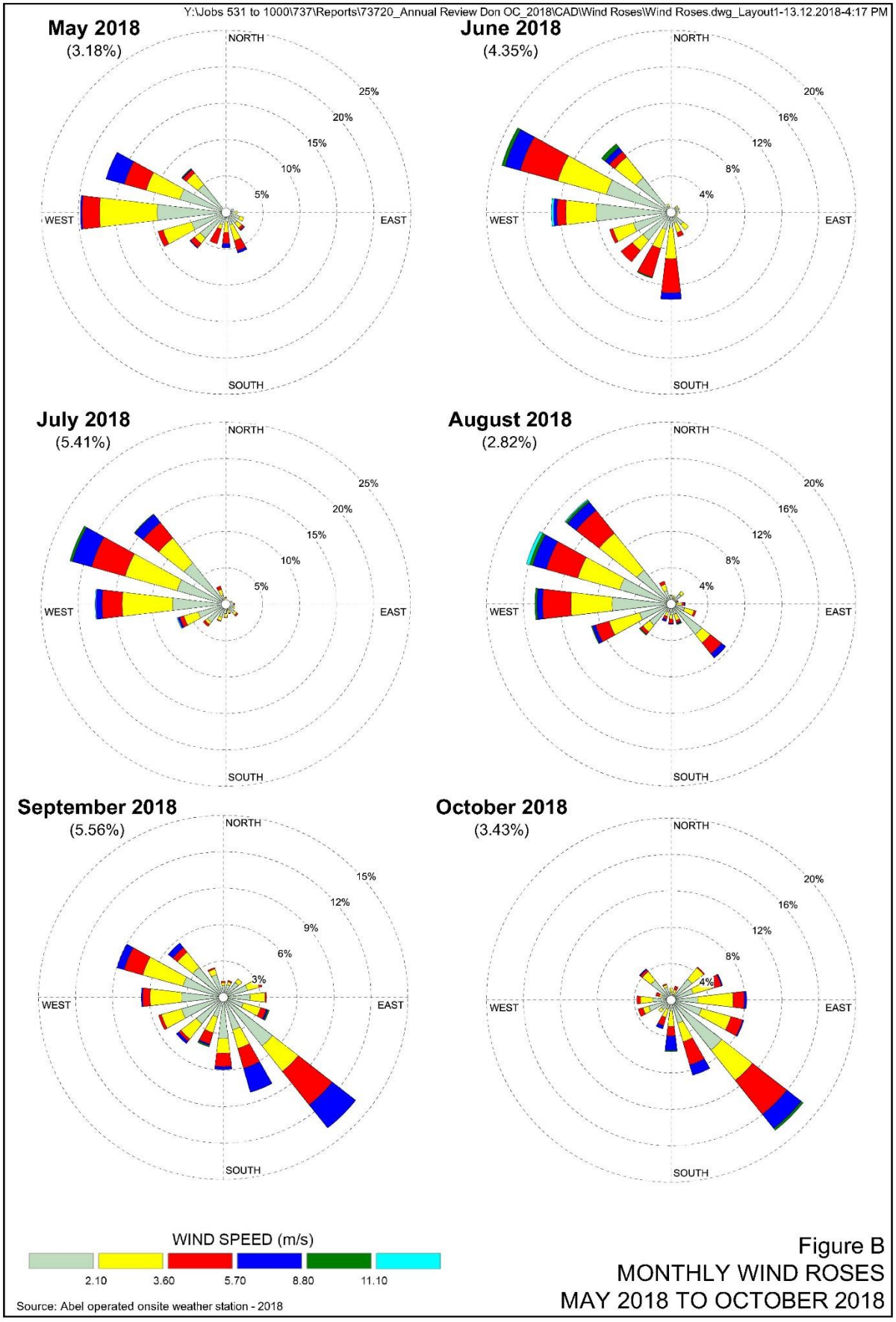


Figure 6.1b Monthly Wind Roses 2017/2018

Table 6.2
Monthly Rainfall

Average Monthly Rainfall (mm)													
Period	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Total**
2000	61.0	32.0	279.0	146.0	45.0	24.0	27.0	31.0	33.0	47.0	106.0	32.0	863.0
2001	46.0	169.0	193.0	114.0	244.0	3.4	63.0	22.0	12.0	31.0	91.0	38.0	1026.4
2002	48.0	281.0	184.0	66.4	62.1	30.0	30.0	21.0	17.4	18.8	56.2	149.2	964.1
2003	6.0	90.0	22.2	77.0	135.0	13.2	43.0	27.4	0.0	63.2	137.6	39.0	653.6
2004	86.0	176.6	80.0	33.6	17.4	9.4	15.4	43.1	61.2	136.0	77.4	69.8	805.9
2005	64.4	95.8	127.8	57.4	61.8*	56.8	7.2	0.8	37.0	84.0	22.8	9.6	625.4
2006	29.8	47.4	63.6	4.6	7.8	43.8	42.6	49.2	162.4	25.4	37.8	35.6	550.0
2007	13.4	88.0	102.0	86.0	60.0	301.0	17.0	79.6	19.8	17.2	163.8	49.5	997.3
2008	153.4	154.3	46.0	237.6	2.2	122.9	30.0	28.5	195.3	62.2	73.3	62.6	1168.3
2009	11.3	97.7	136.5	157.2	125.7	75.7	32.1	1.8	29.2	59.8	51.4	62.0	840.4
2010	0.0	52.1	83.9	37.1	89.4	112.8	65.3	38.5	26.4	80.6	171.1	39.9*	797.1
2011	26.0	34.5	65.6	137.9	98.8	152.0	129.0	49.0	103.0	100.0	171.9	75.9	1143.6
2012	96.1	207.0	137.6	114.7	11.8	172.3	53.8	26.6	18.7	5.7	21.8	1.2	867.3
2013	1.0	100.0	64.2	65.8	59.8	63.8	71.8	9.6	21.8	27.0	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	59.0	69.8	103.8	1172.2
2016	430.8	26.0	78.0	31.8	13.4	113.0	44.2	74.2	60.0	43.8	44.5	41.8	1001.5
2017	66.9	71.7	150.4	94.5	12.7	128.5	3.2	6.0	12.6	77.7	**66.8**	**41.6**	624.2
2018	**6.6**	**120.0**	**191.4**	**52.8**	**7.0**	**107.4**	**4.2**	**21.4**	**55.4**	**109.0**			
Minimum	*0.0*	*26.0*	*22.2*	*4.6*	*2.2*	*3.4*	*3.2*	*0.8*	*0.0*	*5.7*	*21.8*	*1.2*	*550.0*
Average	*70.0*	*105.2*	*115.3*	*106.6*	*62.5*	*84.5*	*38.0*	*35.0*	*50.8*	*58.0*	*93.9*	*56.6*	*889.1*
Maximum	*430.8*	*281.0*	*279.0*	*412.0*	*244.0*	*301.0*	*129.0*	*104.0*	*195.3*	*136.0*	*261.8*	*149.2*	*1172.2*

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

During the reporting period winds dominated from the southeastern quadrant between November 2017 and March 2018 and during September and October 2018 whilst between April and August 2018 winds dominated from the west/northwest. Total rainfall during the reporting period was 783.6mm, 105.5mm less than the average rainfall recorded to date.

6.3 NOISE

As mining ceased in April 2013, no noise monitoring was undertaken for the Donaldson Open Cut Coal Mine during the reporting period. Based on the absence of activities and community complaints, no specific noise management measures were required and no further improvements are currently considered necessary. No further monitoring is currently proposed.

6.4 BLASTING

No blasting was undertaken during the reporting period.

6.5 AIR QUALITY

Environmental Management

The Donaldson Air Quality Management Plan (Holmes Air Sciences, 2007) details the range of measures employed to control airborne dust. As there were no operational activities during the reporting period and the majority of the site has been rehabilitated, no specific air quality management measures were required throughout the reporting period.

Environmental Performance

The Company operates the following dust monitoring equipment.

- Nine Depositional Dust Gauges measuring insoluble solids.
- Two HVAS measuring PM_{10}.
- One High Volume Air Sampler (HVAS) measuring TSP.
- One continuous Dustrak monitor measuring PM_{10}.

The locations of dust monitoring equipment are outlined in **Appendix 1** and the results of monitoring presented as follows. 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.

Depositional Dust Gauges

A summary of the deposited dust results for the reporting period is presented in **Table 6.3**. Results were generally obtained with acceptable levels of contamination from other sources such as insects, bird droppings and vegetation.

Table 6.3
Depositional Dust Monitoring Results Nov 2017 to Oct 2018

Sample Site	No. Samples Required	No. samples collected and analysed	Maximum Insoluble Solids (g/m^2/month)	Minimum Insoluble Solids (g/m^2/month)	Annual Average Insoluble Solids (g/m^2/month)
DG1	12	12	0.8	0.3	0.5
DG2	12	12	3.1	0.5	1.1
DG3	12	12	5.1	0.3	1.5
DG4	12	12	1.2	0.4	0.8
DG7	12	12	2.0	0.4	1.0
DG8	12	12	2.4	0.5	1.3
DG9	12	12	2.3	0.8	1.4
DG11	12	12	3.0	0.6	1.4
DG12	12	12	1.5	0.5	0.9
Average	**12**	**12**	**2.4**	**0.5**	**1.1**

During the reporting period, all gauges were in compliance with the Donaldson Air Quality Management Plans targeted air quality goals, with annual average insoluble solid results for each gauge substantially below the Annual Average criteria of 4g/m^2/month. Given that all mining and earthmoving activities have been completed at the Donaldson Coal Mine, results are indicative of the background environment inclusive of other local or regional sources. **Figure 6.2** shows the historical average annual rolling averages for each depositional dust gauge. Results are generally consistent with the trends and ranges previously recorded.

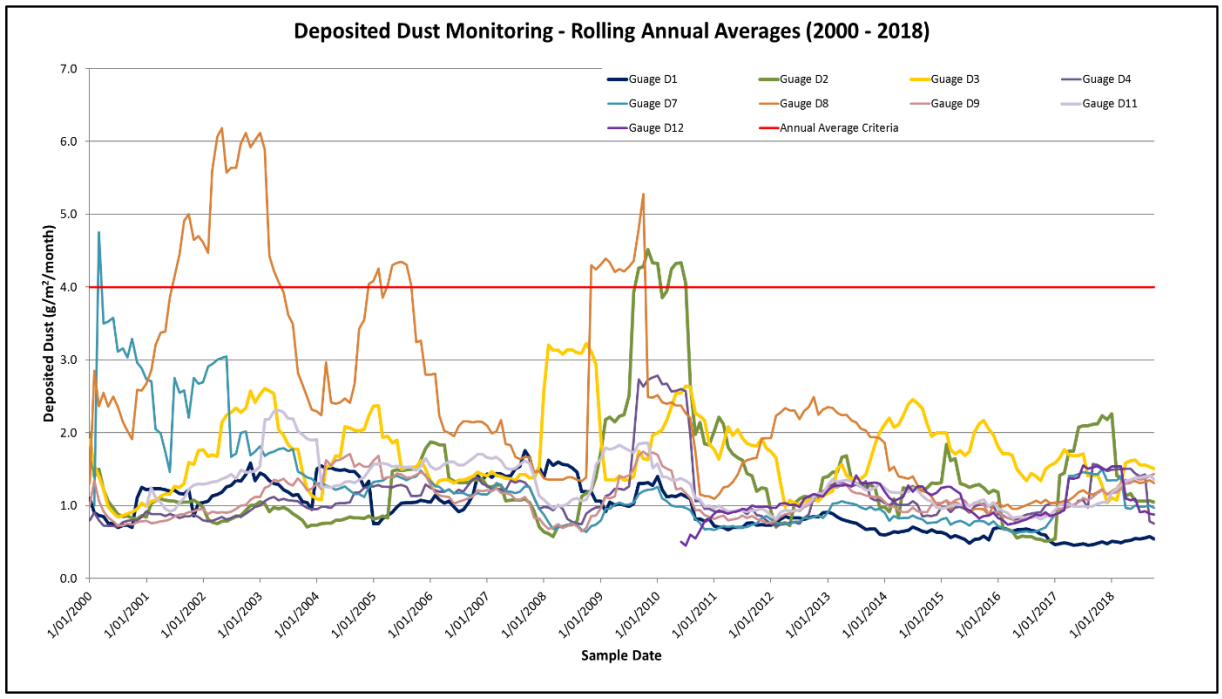


Figure 6.2 Deposited Dust Monitoring 2000 to 2018

High Volume Air Samplers

This section outlines the results of the HVASs located at Blackhill Primary School and the Beresfield Golf Course. Two sets of measurements have been performed during the reporting period, PM_{10} (particulate matter of diameter less than 10µm) and TSP (total suspended particulate matter). **Table 6.4** displays the data capture rate for the three high volume air sampler units during the period.

Table 6.4
High Volume Air Sampler Data Capture Rate

Monitoring Location	Data Capture Rate (%)
Blackhill Primary School (PM_{10})	100
Blackhill Primary School (TSP)	100
Beresfield Golf Course (PM_{10})	100

PM_{10}

Table 6.5 provides a summary of the PM_{10} monitoring results for the reporting period whilst **Figure 6.3** displays the monitoring results since commencement of monitoring.

Table 6.5
HVAS Monitoring Results – PM_{10} (Nov 2017 to Oct 2018)

Sample Site	No Samples Required	No samples collected and analysed	Maximum PM_{10} Value ($\mu g/m^3$)	Minimum PM_{10} Value ($\mu g/m^3$)	Mean PM_{10} Value ($\mu g/m^3$)
Blackhill Primary School	61	61	48.3	3.6	16.5
Beresfield Golf Course	61	61	49.0	4.2	19.9

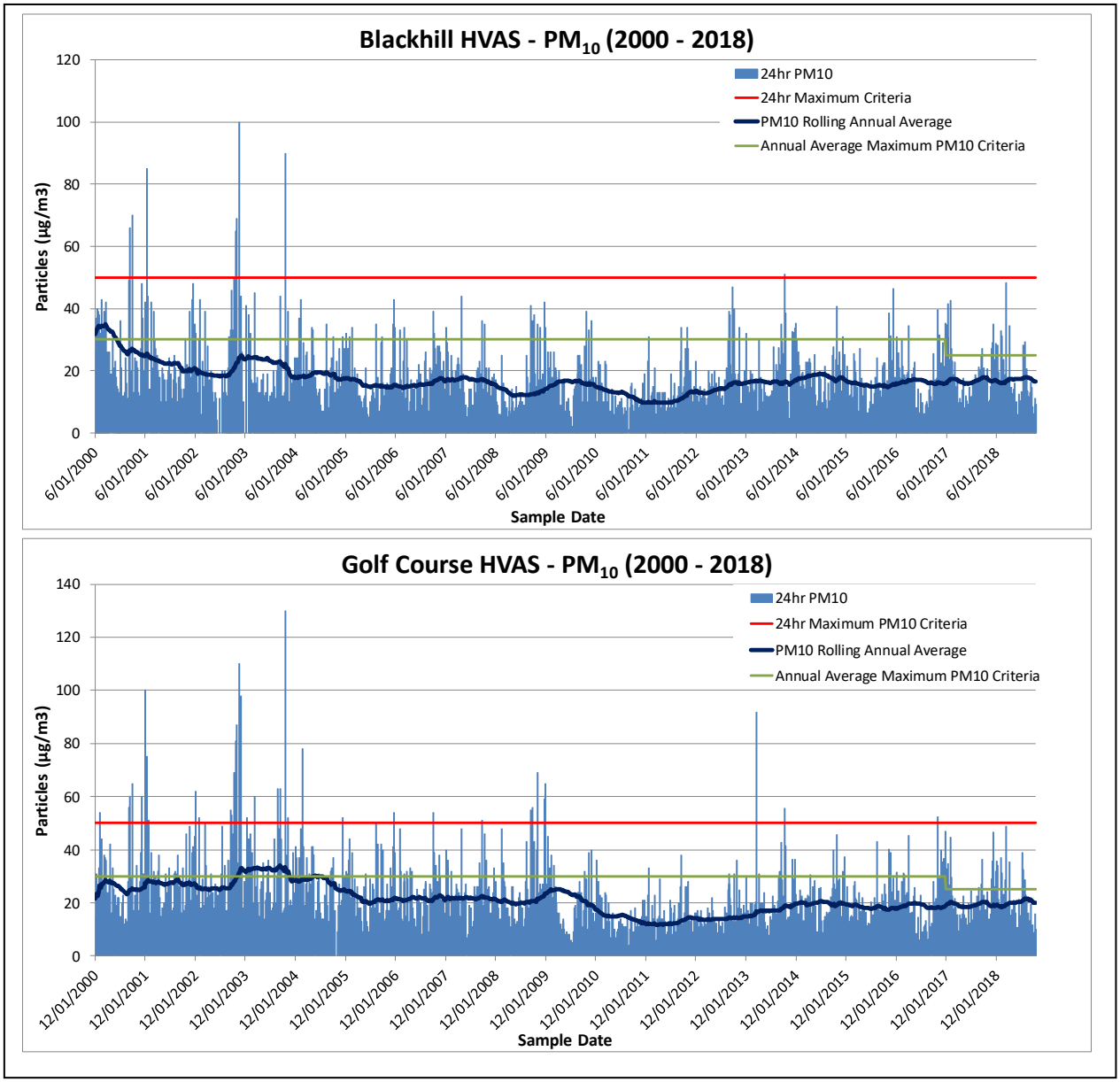


Figure 6.3 HVAS Results – PM_{10} (2000 to 2018)

No exceedances occurred during the reporting period with the annual average PM_{10} at both monitoring sites below the annual average maximum criteria[1] of 25µg/m^3. The highest 24-hour average PM_{10} measurement was 49.0µg/m^3 measured at the Beresfield Golf Course on 20 March 2018. This remains below the 50µg/m^3 24-hour *National Environment Protection Measures* (NEPM) goal.

Excepting an annual trend of lower 24-hour average PM_{10} during the winter months and higher 24-hour averages during the summer months, no long-term trends are currently apparent. Similarly, rolling annual average PM_{10} levels have remained relatively consistent since 2005.

Total Suspended Particles

TSP results for the reporting period are displayed in **Table 6.6** with the results since the commencement of monitoring shown in **Figure 6.4**.

Table 6.6
HVAS Results – TSP (Nov 2017 to Oct 2018)

Sample Site	No Samples Required	No samples collected and analysed	Maximum TSP Value (µg/m3)	Minimum TSP Value (µg/m3)	Mean TSP Value (µg/m3)
Blackhill Primary School	61	61	102.0	7.2	33.6

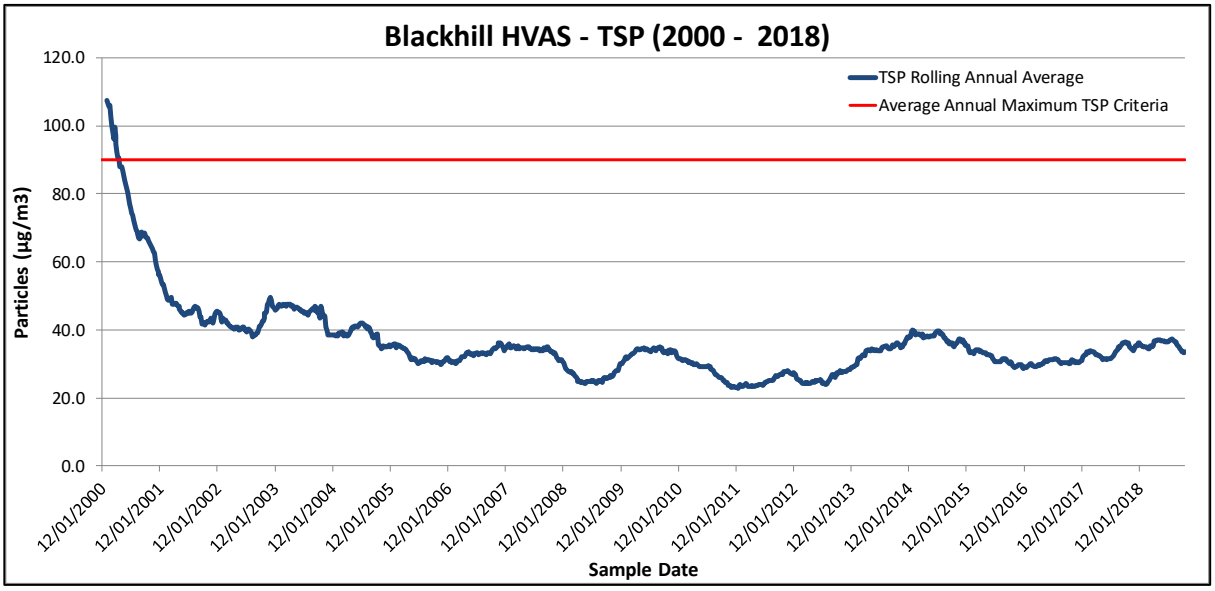


Figure 6.4 HVAS Results – TSP (2000 to 2018)

The annual average TSP result at Blackhill Primary School during the reporting period was 33.6µg/m^3, well below the annual average criteria of 90µg/m^3. While there are no specified criteria for a 24-hr TSP maximum in the development consents or Environment Protection License, the maximum TSP of 102.0µg/m^3 results is well below the US EPA short term good air quality criteria of 260µg/m^3.

[1] The Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales, published January 2017 reduced the annual average PM_{10} criteria from 30µg/m^3 to 25µg/m^3.

The ratio of the average PM_{10} to TSP over the 2017/18 Annual Review reporting period was 49%, which is consistent with the previous reporting period. No long-term trends are evident within the TSP data.

In summary, when reviewing the results in light of there having been no dust producing activities since March 2014, this indicates that between 2005 and 2014 Donaldson's operational activities had a low contribution to both PM_{10} and TSP. This is consistent with the previous environmental assessments which predicted no exceedance of air quality goals as a result of the operations.

Dustrak Monitor

Donaldson operates one continuous Dustrak air quality monitor at Blackhill Primary School. **Table 6.7** and **Figure 6.5** summarise the Dustrak monitoring data for the reporting period. The measurement of PM_{10} by optical methods (such as the Dustrak monitors) is known to be particularly sensitive to rainfall or high humidity events. Monthly inspections of the Dustrak monitor and regular servicing of the instrument assist with reducing occasions when the measurements become unstable or drift from sensible values.

Table 6.7
Dustrak Results – PM_{10} (Nov 2017 to Oct 2018)

Site	Data Collection	Days Sampled	Highest 24-hour average PM_{10}	Annual average PM_{10}	Lowest 24-hour average PM_{10}
Blackhill Primary School	Continuous	339	78.0	14.9	0.0

Note: Data in this table is for the annual reporting period 1 November 2016 to 31 October 2017 as reported by RCA Laboratories.

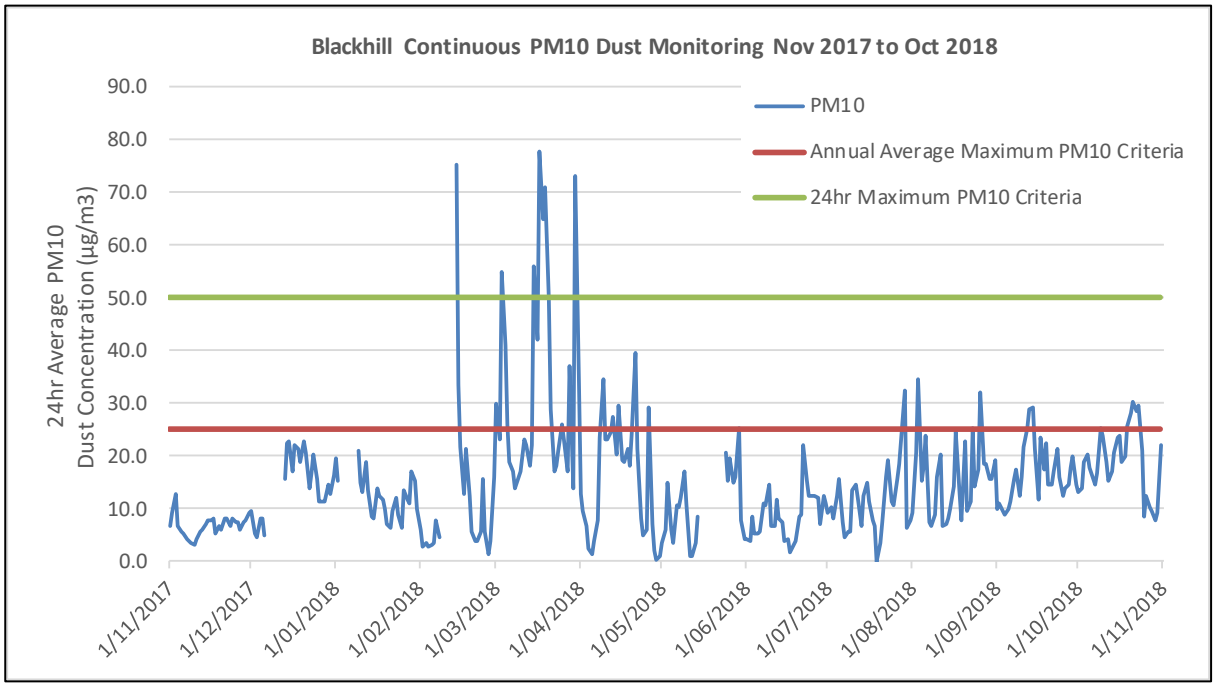


Figure 6.5 Results of Dustrak Continuous Monitoring

As can be seen from **Table 6.7**, samples were successfully collected for 339 days or 93% of the sampling period. Samples were not collected for a total of 17 days due to power outages occurring between 7 and 12 of December 2017, 3 and 8 of January 2018, and 9 and 13 of February 2018. A further nine days between 15 and 23 May 2018 was considered to be invalid due to calibration issues (with negative values being recorded).

The average annual PM_{10} result of 14.9µg/m^3 from Dustrak monitoring is similar to the 16.5µg/m3 obtained from the PM_{10} HVAS at the Blackhill Primary School and therefore below the annual average criteria of 25µg/m^3. However, on seven days during the reporting period the 24hr results exceeded the 24-hour NEPM maximum criteria of 50µg/m^3, the highest being 78µg/m^3. These peaks are consistent with those recorded in previous reporting years. Given that no mining or earthmoving activities occurred and rehabilitation has been completed at the Donaldson Coal Mine, these exceedances are considered the result of other local or regional sources.

Reportable Incidents

No reportable air quality incidents were recorded during the 2017/18 Annual Review reporting period.

Further Improvements

No 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. These management measures are outlined in detail within the 'Flora and Fauna Management Plan' (dated May 2007) prepared for the mine. Full copies of the monitoring reports are provided as **Appendices 4** and **5**.

6.6.1 Flora

Environmental Management

Flora monitoring has been conducted through several flora surveys throughout the reporting period. Surveys have been conducted in the Bushland Conservation Area (BCA), rehabilitation areas and on *Tetratheca Juncea*. Management and monitoring of flora within rehabilitation areas is discussed in Section 8.2.

Bushland Conservation Area

Annual flora quadrat monitoring has been conducted in the BCA since 2001. In 2017 nine 20m x 20m quadrats were monitored for species richness, density, floristic composition and biomass parameters. Quadrat monitoring occurs in late spring to early summer each year and aims to monitor the influence of mining activities on flora around the mine site.

Regular inspections for weeds were also undertaken during the reporting period. Weed control measures were undertaken during the reporting period and targeted *Tradescantia fluminensis* (Small-leaf Spiderwort), *Lantana camara* (West Indian Lantana) and *Ageratina adenophora* (Mexican Devil). The primary means of controlling these weeds was through herbicide use and manual removal.

Tetratheca Juncea

There was one species of threatened flora identified during the preparation of the Environmental Impact Statement (EIS), namely *Tetratheca juncea* (Black-eyed Susan). As a result, a Tetratheca Juncea Management Plan was developed (Gunninah, 2000a) and a survey and identification report (Gunninah, 2000b) was completed, which located the boundaries of the population and defined the limit of the conservation precinct. Subsequent works during 2001 and 2002 extended the boundary and up to an additional two hundred (200) plants were found during routine monitoring and vegetation characterisation.

In addition, approximately four hundred (400) plants were discovered during routine pre-clearing surveys and monitoring episodes. A large proportion of these plants fell outside of the active mine area, adding further conservation significance to the area(s) identified and managed by Donaldson as the Tetratheca Juncea Conservation Area (TJCA).

In addition to the creation of the TJCA, the following additional control measures have previously been employed.

- The protection of 650ha of bushland around the mine to conserve habitat.
- Ongoing mapping and management protocols.
- Pre-clearing surveys by a qualified biologist prior to any clearing activities.

In 2005, a design was also developed for the experimental translocation of *Tetratheca Juncea* from the planned mine disturbance area. The experimental design for the translocation was based on a study being conducted in the Gwandalan area (Ecobiological, 2005). The ongoing monitoring of the translocated plants focused upon collecting data and information about the circumstances under which the plants are growing. Each plant and each recipient site was photographed following translocation and every twelve months for 5 years. The plants were monitored and watered on a weekly basis for 6 weeks post planting to help ensure maximum initial survival and inspected twice per year for the 5 year period.

Environmental Performance

Bushland Conservation Area

The following summary of environmental performance has been extracted and compiled from Kleinfelder (2018). A full copy of this report, including survey methodology, data and statistical analysis, is presented in **Appendix 4**.

The 2017 flora survey results show that the floristic composition of the monitoring sites is similar to the previous year, with an overall increase in plant species richness and structural components since the baseline survey in 2001. To date, a total of 288 flora species have been recorded across all survey events with 134 species recorded during the baseline survey and 180 species recorded during the 2017 survey. The cumulative number of species steadily increased until 2009 and has since levelled and stabilised. This is consistent with expected ecological processes and variables

and minor variations from year to year are most likely due to fluctuations in flowering times, particularly of annual herbaceous and orchid species, most likely caused by variation in climatic conditions and/or the life cycle of the species.

Despite minor year-to-year fluctuations, all biomass variables examined (i.e. basal area, height, foliage projective cover (FPC), and stand volume) have also shown substantial increases over the last 17 years since the baseline survey in 2001. The regression analyses also confirmed that the relationship between time and increases in FPC and stand volume were highly significant indicating that the community biomass has increased substantially across time.

Notwithstanding the significant increase since 2001, the progressive increase in biomass variables has slowed in recent years and remained either consistent for stand volume or slightly decreased for FPC. This plateau may be a result of the system reaching equilibrium and suggests that the vegetation may have reached the maximum biomass that conditions will allow. The protection of the Bushland Conservation Area from a history of logging, clearing, frequent fire, firewood collection and rubbish dumping has likely contributed to the significant increase in biomass at all monitored sites since 2001.

Overall, the recorded trends are indicative of a dynamic plant community with high recruitment from the seed pool, normally an indicator of a healthy, regenerating native plant community. Overall, Kleinfelder conclude that there have been no significant negative impacts on floristic diversity within the Donaldson Bushland Conservation Area over the last 17 years.

Tetratheca Juncea

A baseline report was completed in January 2003 by Barker Harle. This report describes the implementation of the Tetratheca Juncea Management Plan and includes baseline information for use in subsequent reports. Subsequent monitoring and reporting is undertaken on an annual basis.

The 2017 annual monitoring was completed by Kleinfelder (see **Appendix 5**). Kleinfelder (2018b) reported that the monitoring data has shown a declining population between 2005 and 2014, with a small recovery, followed by a continued decline. The probable cause for the continuing reduction was a measured increase in the density of ground species outcompeting *Tetratheca juncea*. The monitoring indicates that the *Tetratheca juncea* population would benefit from a fire which would both reduce the current level of competition and provide more nesting areas for tunnelling native bee pollinators.

Notwithstanding the overall decline, Kleinfelder note that there is a core of clumps that have survived over all, or the majority of, the 13 year monitoring period potentially representing a permanent population. Furthermore, the recent decline in flowering and consequent pollinator activity and seed set may have been a consequence of an exceptionally dry late winter and spring 2017. This may be confirmed through the ongoing monitoring.

Reportable Incidents

No reportable flora related incidents were recorded during the 2017/18 Annual Review period.

Further Improvements

Excluding continued weed control, including targeting of *Lantana camara*, there are no proposed improvements to the management of flora in the BCA or TJCA in the next reporting period**.**

6.6.2 Fauna

Environmental Management

Several species of threatened fauna were identified during the EIS and supplementary reports, including both the areas proposed for mining and the immediate environs. They include the following.

- The Powerful Owl.
- The Masked Owl.
- The Barking Owl.
- Sooty Owl.
- Varied Sittella.
- Yellow-bellied Sheathtail Bat.
- Eastern Bent-wing Bat.
- Eastern Freetail Bat.
- Eastern Cave Bat.
- Greater Broad-nose Bat.
- Little Bent-winged Bat.
- Southern Myotis.
- Little Lorikeet.
- Squirrel Glide.
- Eastern False Pipistrelle.

To ensure a high level of conservation for the threatened fauna species found on the site, the following measures have been taken.

- The protection of 650ha of bushland around the mine to conserve habitat.
- Ongoing survey and management protocols.
- Routine annual quadrant monitoring.
- Wild dog and fox baiting program.
- Placement of nest boxes in the Bushland Conversation Area to replace nesting sites destroyed by clearing.
- Ongoing and progressive rehabilitation of disturbed areas.

The following fauna monitoring activities were undertaken during the 2017/18 reporting period.

- Terrestrial and arboreal mammal trapping.
- Microbat trapping.
- Microbat call detection.
- Owl call playback.
- Spotlighting.
- Bird surveys.
- Nest box monitoring.
- Opportunistic herpetofauna recording.

These monitoring activities were carried out during summer and winter surveys, as well as during recolonization surveys of rehabilitated areas at the mine.

As a result of the 2017 nest box monitoring program (see below) identifying the need for nest box maintenance following the deterioration of nest boxes which had previously been installed on site, 15 nest boxes were replaced in September 2018 and a further 6 damaged nest boxes were repaired within the Bushland Conservation Area.

During the reporting period a wild dog and fox baiting program was also undertaken with baits placed between 27 September 2017 and 3 November 2017 at 19 locations surrounding the mine.

Environmental Performance

The following summary of environmental performance has been extracted and compiled from Kleinfelder (2018). A full copy of this report, including survey methodology, data and statistical analysis, is presented in **Appendix 4**.

A total of 173 fauna species have been recorded since monitoring began in 2001. The 2017 survey detected a total of 87 fauna species consisting of 57 bird, three arboreal and five terrestrial mammal, 15 bat, five amphibian and two reptile species. Five of the bat species are listed as threatened under the *NSW Biodiversity Conservation Act 2016*. The fauna survey results were found to be similar to previous years with no significant decrease or increase in species richness during the 2017 survey. Two threatened owl species, Powerful Owl (*Ninox strenua*) and Masked Owl (*Tyto novaehollandiae*) were detected in 2017.

Whilst total species richness has remained consistent, similarity analysis of the species recorded during each survey event indicates that bird assemblages from the years 2013, 2015 and 2016 were the most dissimilar compared to other years. Further breakdown based on habitat preferences indicates that birds with generalist habitat preference have remained consistent, however there has been an approximately 12.5% decrease in the number of forest-interior specialist bird species but a 25% increase in forest edge/open grassland species since 2012 (with mining having ceased in April 2013). It is possible that changes in disturbance from mining have resulted in specialist species to move in or out of the area. However, it is possible that the decline is as a result of the large-scale clearing that occurred in the neighbouring industrial precinct in 2012. The creation of more edge habitat along nearly the entire eastern edge of the Bushland Conservation Area as a result of the industrial precinct may have made the habitat less suitable for interior specialists. Notwithstanding, with the continued maturation of the adjacent mine rehabilitation areas, these interior specialist species may return or recover to previous population levels.

Nest box surveys in 2017 (winter and summer average) recorded 54% of all available boxes showing signs of use (both actual animals present and evidence of usage). Since installation in 2005, nest box utilisation steadily increased until 2012 and has since steadily decreased. This pattern has been observed in several other nest box monitoring programs in native forest suggesting the effective lifespan of the current nest boxes is 8 to 10 years. As discussed above, as a result, a nest box replacement and repair program was completed in September 2018.

During the 2017 wild dog and fox baiting program a total of 9 bait takes by wild dogs and 10 takes by foxes was recorded.

Reportable Incidents

No reportable Fauna related incidents were recorded during the 2017/18 reporting period.

Further Improvements

Improvements during the next reporting period will principally be the assessment of the effectiveness of the installed and repaired nest boxes and continued general fauna survey within the Bushland Conservation Area together with statistical analysis of trends. There are no other proposed improvements to the management of fauna in the next reporting period**.**

6.7 HERITAGE

The following section outlines the commitment made by Donaldson for the protection of cultural and natural heritage of the area. A copy of a plan along with a summary table showing the known Aboriginal Cultural heritage sites is attached as **Appendix 2** of this report.

To date thirty-one (31) sites of Aboriginal Cultural Heritage have been identified on property owned by Donaldson. None of these sites were in areas that were impacted on by site activities during the 2017/18 Annual Review period.

No European heritage sites have been identified at the mine.

Archaeological Studies

The mine has been the subject of four archaeological studies since 1998. During each study the principal aims have been to:

- consult and involve the Aboriginal Community at every stage of the investigation and to provide continuous opportunities for the Aboriginal Community through the Mindaribba Local Aboriginal Land Council (MLALC) to participate in the interpretation and decision making process;
- identify and record by field survey the material evidence of Aboriginal cultural heritage or locations of potential evidence with the land owned by Donaldson;
- assess the archaeological significance and understand the Aboriginal significance of material evidence of Aboriginal cultural heritage of the study area; and
- assess the impacts of the mine on Aboriginal Cultural Heritage.

Management

In accordance with Conditions 84, 85 and 86 of the Development Consent, Donaldson has prepared an Aboriginal Sites Management Plan for the mine. Separate plans were produced for each year of operation at the mine. This provided a better opportunity to address specific issues for each year as well as an opportunity to review and address the management of Aboriginal Sites both inside the mine impact area and within associated bushland areas surrounding the mine.

The following control measures have been employed at the mine in order to ensure that reasonable duty of care is taken to ensure sites of Aboriginal cultural significance are not knowingly disturbed or destroyed.

- The MLALC is actively involved in the management of Aboriginal Sites at Donaldson.
- Representatives of the Lands Council are invited on site to monitor clearing and topsoil stripping activities.

Performance

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 and Further Improvements

No reportable incidents were recorded during the 2017/18 reporting period and no further improvements are currently considered necessary.

7. WATER MANAGEMENT

7.1 WATER BUDGET

The Donaldson Open Cut Mine is primarily free draining with runoff from rehabilitated areas returning to local catchments. All rehabilitated areas to the east of the site access road are now clean water and drain offsite except for the Big Kahuna Dam. Water from the Abel underground, Square Pit and West Pit are pumped to the Big Kahuna for storage.

During the reporting period the Abel underground mine transferred a total of 241ML into the Donaldson's Big Kahuna Dam and a total of 628.9ML of water was transferred from the Big Kahuna Dam to the Bloomfield mine site to be stored and used for operational purposes. There was no water discharged from Donaldson's licenced discharge point into Four Mile Creek.

There was no water used or imported to Donaldson mine for operations or rehabilitation. **Table 7.1** summarises the status of water storage at the beginning and end of the reporting period.

Table 7.1
Water Stored at Donaldson

	Volumes Held (m3)		
	Start of Period	**End of Period**	**Storage Capacity**
Sediment Dams	18	18	18
Big Kahuna	244	209	400
Discharge to Creek	0	0	0
Contaminated Water	N/A	N/A	N/A

This data assumes that water in the West and Square Pits are managed and used by the Abel underground mine.

7.2 SURFACE WATER

Environmental Management

The Water Management Plan (Perrens, 2000) details the measures employed by Donaldson to ensure protection of surface water on and around the mine site. Surface water monitoring has been ongoing since June 2000. A plan showing the location of the water monitoring sites is provided in **Appendix 1**. Routine sampling and analysis is undertaken at six (6) permanent surface water stream monitoring locations, when in flow. Opportunistic samples are also taken from various other locations around the mine area as required (sediment dams and mine water storage dams). The surface stream water monitoring sites include:

- Four Mile Creek Upstream (EM1);
- Four Mile Creek Downstream (EM2);
- Scotch Dairy Creek Upstream (EM3);
- Scotch Dairy Creek Downstream (EM4);
- Weakley's Flat Creek Downstream (EM5); and
- Weakley's Flat Creek Upstream (EM6).

Samples collected from the six existing stream sites are analysed for Electrical Conductivity (EC), pH, Total Dissolved Solids (TDS), Total Suspended Solids (TSS) and Sulfates (SO_4), on a monthly basis. A full suite analysis is also carried out on a quarterly basis and includes analysis for Electrical Conductivity (EC), pH, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Sulfates (SO_4), Calcium (Ca), Magnesium (Mg), Sodium (Na), Potassium (K), Chloride (Cl), Fluoride (Fl), Arsenic (As), Aluminium (Al), Barium (Ba), Cadmium (Cd), Cobalt (Co), Copper (Cu), Chromium (Cr), Iron (Fe), Manganese (Mn), Lead (Pb), Zinc (Zn), Total Alkalinity as $CaCO_3$, Turbidity, Nitrates and Phosphates (total).

In addition to the physical and chemical water quality work, biological monitoring (macroinvertebrates) has been ongoing as part of the environmental impact assessment. The program consists of:

- a pre-mining baseline survey;
- a construction survey; and
- twice yearly operational surveys.

Two monitoring surveys were completed during the 2017/18 reporting period, during July 2018 and November 2018.

In addition to water quality and biological monitoring, the following control measures are employed at Donaldson to ensure an appropriate level of protection to surface water on and around the mine site.

- Minimal disturbance and progressive rehabilitation (noting operational activities have now ceased).
- Source separation in order to separate water of differing quality.
- Collection and containment of mine water for dust suppression.
- Grey water and sewage is treated by bio-cycle technology.

In addition to these measures, inspections of drainage channels and structures were undertaken throughout the reporting period. No stabilisation or remedial works were required.

Environmental Performance

There were no water-related complaints or incidents during the 2017/18 reporting period.

Chemical and Physical Monitoring

A summary of three key parameters, required by the EPA Environmental Protection Licence, for the reporting period as well as the pre-mining baseline is included in **Table 7.2**. Monitoring results for pH and EC since the year 2000 are also presented graphically in **Figure 7.1** to assist in identifying trends.

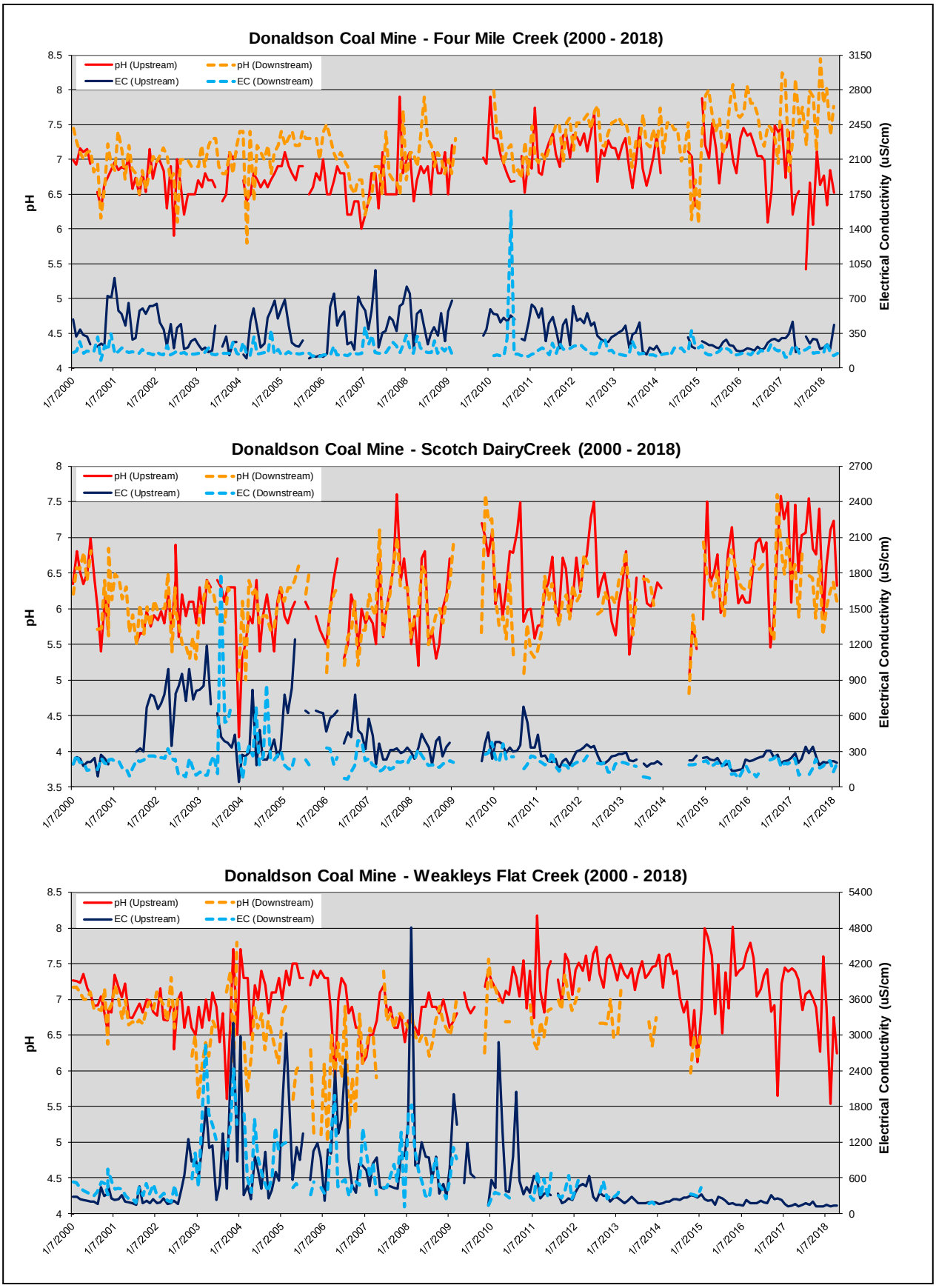


Figure 7.1 Surface Water Monitoring – 2000 to 2018

DONALDSONCOAL
Part of the Yancoal Australia Group

Table 7.2
Summary of Surface Water Quality Monitoring Results – 2017/2018

Sample Site	Pre-mining	2017						2018						Mean 2017 / 2018	Long-term Mean
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
Rainfall (mm)															
-	-	66.8	41.6	6.6	120.0	191.4	52.8	7.0	107.4	4.2	21.4	55.4	109.0	-	-
pH															
FMCU	*6.70 - 7.44*	**6.46**	**6.54**	Dry	**5.42**	**6.67**	**6.06**	7.11	**6.63**	6.77	**6.34**	6.84	**6.52**	***6.49***	*6.86*
FMCD	*6.40 - 7.73*	7.53	**7.75**	7.20	**7.98**	**7.89**	7.12	**8.44**	**7.80**	**8.02**	7.35	**7.76**	**8.03**	*7.74*	*7.20*
SDCU	*5.90 - 6.81*	6.53	**7.03**	**7.06**	**7.55**	**6.84**	**6.76**	**7.40**	**5.88**	6.61	**7.11**	**7.23**	6.32	***6.86***	*6.23*
SDCD	*5.80 - 6.80*	5.88	6.77	Dry	6.46	6.43	5.87	6.68	**5.63**	6.05	6.24	6.37	6.07	*6.22*	*6.12*
WFCU	*6.60 - 7.49*	7.28	6.85	7.07	7.12	7.02	6.88	**6.27**	**7.60**	6.90	**5.54**	6.75	**6.24**	*6.79*	*7.06*
WFCD	*6.40 - 7.28*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	*6.61*
Electrical Conductivity (µS/cm)															
FMCU	*265 – 522*	163.5	190.8	Dry	313.0	245.0	291.0	288.0	193.9	210.0	239.0	193.9	434.0	*251.1*	*368.4*
FMCD	*120 - 265*	149.2	170.9	190.9	208.2	151.8	157.1	154.8	147.7	255.0	149.5	126.6	148.4	*167.5*	*179.2*
SDCU	*71 - 200*	**206.3**	**236.0**	**343.0**	**285.0**	**340.0**	**256.0**	182.3	**211.3**	**204.0**	**221.0**	**217.0**	**202.7**	***242.1***	***366.3***
SDCD	*145 - 270*	102.5	118.2	Dry	109.6	151.2	232.0	161.8	176.7	212.0	224.0	129.5	210.4	*166.2*	*218.9*
WFCU	*200 - 310*	124.3	141.2	174.2	152.8	197.0	124.2	119.2	118.2	144.5	114.4	130.9	135.8	*139.7*	***567.8***
WFCD	*230 - 546*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	***613.1***
Total Suspended Solids (mg/L)															
FMCU	*32 - 180*	10	16	Dry	16	6	7	6	<5	<5	13	10	10	*10*	*25*
FMCD	*2 - 32*	5	<5	<5	10	8	<5	<5	26	<5	7	6	11	*10*	***33***
SDCU	*9 – 47*	32	**71**	**92**	**345**	20	<5	9	<5	<5	9	14	22	***68***	***156***
SDCD	*12 - 1283*	30	38	Dry	90	61	18	41	15	26	20	18	18	*34*	*98*
WFCU	*1 – 3*	**<5**	**8**	**5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**6**	**<5**	*5*	***25***
WFCD	*3 - 17*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	***56***

Bold values exceed pre-mining levels. Red values exceed ANZECC Guideline criteria.

FMCU = Four Mile Creek Upstream, FMCD = Four Mile Creek Downstream, SDCU = Scotch Dairy Creek Upstream

SDCD = Scotch Dairy Creek Downstream, WFCU = Weakly's Flat Creek Upstream, WFCD = Weakly's Flat Creek Downstream.

During the reporting period monthly pH values have been variable with a number of low pH values recorded, principally at the upstream location. In particular, Four Mile Creek Upstream recorded a pH of 5.42 on 22 February 2018, the lowest since monitoring commenced in the July 2000. However, the mean pH during the reporting period was 6.49, only slightly below the long-term mean of 6.9. Conversely, Four Mile Creek Downstream remained well above both the lower pre-mining pH and ANZECC criteria with a mean pH for the reporting period of 7.74, slightly above the long-term mean of 7.2.

The pH values recorded during the reporting period at both Scotch Dairy Creek Upstream, and Downstream and Weakley's Flat Creek Upstream at times were less than pre-mining levels but remained within previously recorded operational ranges. Weakley's Flat Creek Downstream remained dry throughout the reporting period. No specific trends in pH are apparent with substantial variability having been recorded since commencement of monitoring in July 2000.

Lower pH's appear to be correlated to periods of low flow within the creeks and could be the result of acidification from the surrounding soils which naturally have a pH in the order of 4.5 to 4.8 (GSS, 2015). The reason for the divergence of the pH between the Four Mile Creek Upstream and Downstream locations during the reporting period is thought to be the result of ongoing leakage from the Stoney Pinch Reservoir above the Four Mile Creek Downstream sample point. As can be seen from the results, the lower pH originates upstream and improves to neutral / slightly alkaline downstream. This is not mine related given that no operational activities or discharges occurred from either the Donaldson Open Cut Coal Mine or Abel Underground Coal Mine. This data is generally consistent with past variability, however, should the upstream pH continue to decline, further investigation will be undertaken to identify the potential cause.

Electrical Conductivity

During the reporting period, the mean electrical conductivity (EC) values at all monitoring locations remained below the long-term means. EC values also remained below the pre-mining levels except at Scotch Dairy Creek Upstream which consistently recorded EC values slightly above pre-mining levels (but below the long-term mean).

Since monitoring commenced in July 2000, at the Four Mile Creek and Scotch Dairy Creek sites, with a few exceptions, the EC at the downstream sites has been consistently lower or similar to the upstream sites with no obvious trends evident (see **Figure 7.1**). No downstream samples for Weakleys Flat Creek have been able to be collected since 2015 due to dry conditions. However, previous monitoring results showed that, between 2003 and 2010, both the upstream and downstream EC levels varied to a substantially greater extent than the Four Mile and Scotch Dairy Creek sites. Since 2011, EC levels in Weakely's Creek have remained relatively consistent. Overall, the available results suggest that the mine has had a negligible impact on the EC of surface waters in the surrounding area.

Total Suspended Solids

During the reporting period, TSS values at monitoring locations were generally low and similar to the respective pre-mining levels. There were five occasions when TSS recorded above the standard criteria of 50mg/L. This included TSS in December (71mg/L) 2017, January (92mg/L) and February (345mg/L) 2018 at Scotch Diary Creek Upstream and February (90mg/L) and March (61mg/L) 2018 at Scotch Diary Creek Downstream. Given that the elevated results were principally recorded upstream and that previous monitoring records have recorded period of elevated TSS, these results suggest that the mine had a negligible impact on the TSS of surface waters in the surrounding area.

Biological Monitoring

Assessment of aquatic habitat and stream condition as well as the diversity of the macroinvertebrate population is utilised in addition to water quality monitoring to assesses steam health and potential impacts. Monitoring during the reporting period was undertaken in autumn (May 2018) and spring (November 2018) by Niche Environment and Heritage. Six sites are targeted on the three major tributaries traversing the mine site (see **Appendix 1**). **Table 7.3** summarises the results for the reporting period whilst **Figure 7.2** provides a graphical summary of the results since monitoring commenced in spring 2000. Full copies of Niche's reports are provided in **Appendices 6** and **7**.

Table 7.3
Summary of Stream Biological Monitoring - 2018

Site	Number of Taxa		SIGNAL2		RCE	
	Autumn	Spring	Autumn	Spring	Autumn	Spring
SDCU	15	12	3.57	3.75	39	40
SDCD	9	6	4.00	3.67	40	40
WFCU	10	17	3.60	4.88	41	42
WFCD	13	12	3.92	3.92	41	42
FMCU	16	16	3.69	3.38	42	41
FMCD	13	13	3.17	3.23	41	41

SIGNAL (Stream Invertebrate Grade Number Average Level) assigns a grade number to each macroinvertebrate family or taxa based on their response to a range of environmental conditions. A SIGNAL2 score of <4 indicates severe pollution, >4 & <5 indicates moderate pollution, >5 & <6 indicates mild pollution and >6 indicates healthy habitat.

As for previous years, the streams in the study area continued to show moderate diversity of fauna. The SIGNAL2 scores, indicate that all sampling sites may have a dominance of pollution tolerant macroinvertebrate taxa, however, all sites were also populated by pollutant sensitive taxa (Leptophlebiidae which has a SIGNAL grade of 8). Despite some low to moderate SIGNAL scores, the scores are consistent with previous assessments[2] and Niche conclude that the streams are in reasonable health given they exhibit characteristics, macroinvertebrate fauna and stream condition that are typical of an ephemeral stream under natural low flow stress. They also conclude that there appears to be no obvious impairment, disturbance or ecological differences resulting from the Donaldson Coal operations.

The Riparian, Channel and Environmental (RCE) inventory assessment provides a comparative measure of stream condition by assessing both the stream and its riparian environment (i.e. land adjacent the stream) in terms of habitat diversity, habitat condition and degree of human-induced disturbance. Scores are allocated against 13 categories to provide an overall score. An The maximum possible RCE score is 52 with an RCE score greater than 40 indicating a stream in good condition. RCE Scores of 20-40 indicate a stream is in moderate condition and below 20 indicates that the stream is in very poor condition.

[2] 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 (i.e. the apparent drop in SIGNAL index from 2015 is methodological not biological).

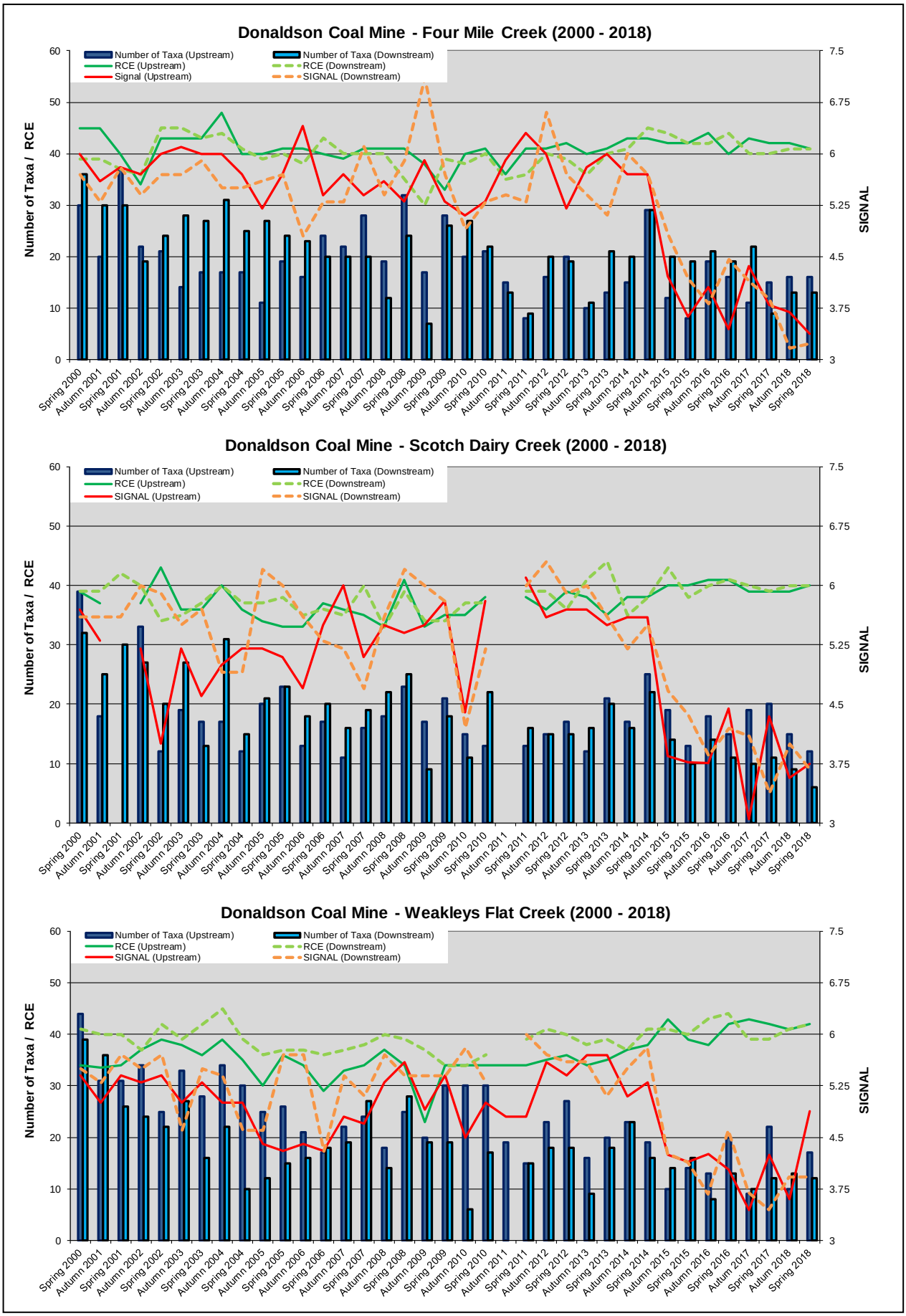


Figure 7.2 Biological Monitoring 2000 – 2018

The RCE scores during the reporting period are similar to previous results and ranged between 39 and 42 indicating all sites were in good or near good condition. However, Lantana and Crofton Weed were observed to be abundant at Weakley's Flat Creek Downstream with weed control recommended as part of the autumn survey. Subsequently, a half day spraying program was completed during the third quarter of 2018.

Reportable Incidents and Further Improvements

No reportable incidents were recorded during the 2017/18 reporting period and no future improvements to surface water management are currently planned.

7.3 GROUNDWATER

The Water Management Plan (Perrens, 2000) details the measures employed by Donaldson to ensure protection of groundwater on and around the mine site.

Groundwater monitoring has been ongoing since June 2000. The groundwater monitoring locations at the mine were reviewed by the (then) DEC (EPA) as part of the EPL license review. There are currently seven (7) current monitoring sites, the locations of which are provided in **Appendix 1**.

Environmental Management

The groundwater piezometers are monitored to determine impacts on both Standing Water Levels (SWL) and groundwater quality. A regional site, REG DPZ1, is also included in the monitoring program and is located in Avalon Estate approximately 1.2km north of the mine.

Samples collected from the seven (7) bores are analysed for Electrical Conductivity (EC), pH, Total Dissolved Solids (TDS), Total Suspended Solids (TSS) and Sulfates (SO_4), on a monthly basis. A full suite analysis is also carried out on a quarterly basis and includes analysis for Electrical Conductivity (EC), pH, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Sulfates (SO_4), Calcium (Ca), Magnesium (Mg), Sodium (Na), Potassium (K), Chloride (Cl), Fluoride (Fl), Arsenic (As), Aluminium (Al), Barium (Ba), Cadmium (Cd), Cobalt (Co), Copper (Cu), Chromium (Cr), Iron (Fe), Manganese (Mn), Lead (Pb), Zinc (Zn), Total Alkalinity as $CaCO_3$ and Turbidity.

The standing water level of each of the monitoring wells is measured each month, as metres below ground level.

Environmental Performance

There were no groundwater-related complaints received by Donaldson during the reporting period. In addition, monthly water monitoring results were routinely reviewed to determine whether there were any changes as a result of activities at the mine.

A summary of the three key parameters required by the EPL (Standing Water Level, pH and EC) for the 2017/18 reporting period, along with the pre-mining baseline, is included in **Table 7.4**. Monitoring results since commencement of monitoring are also presented graphically in **Figure 7.3**.

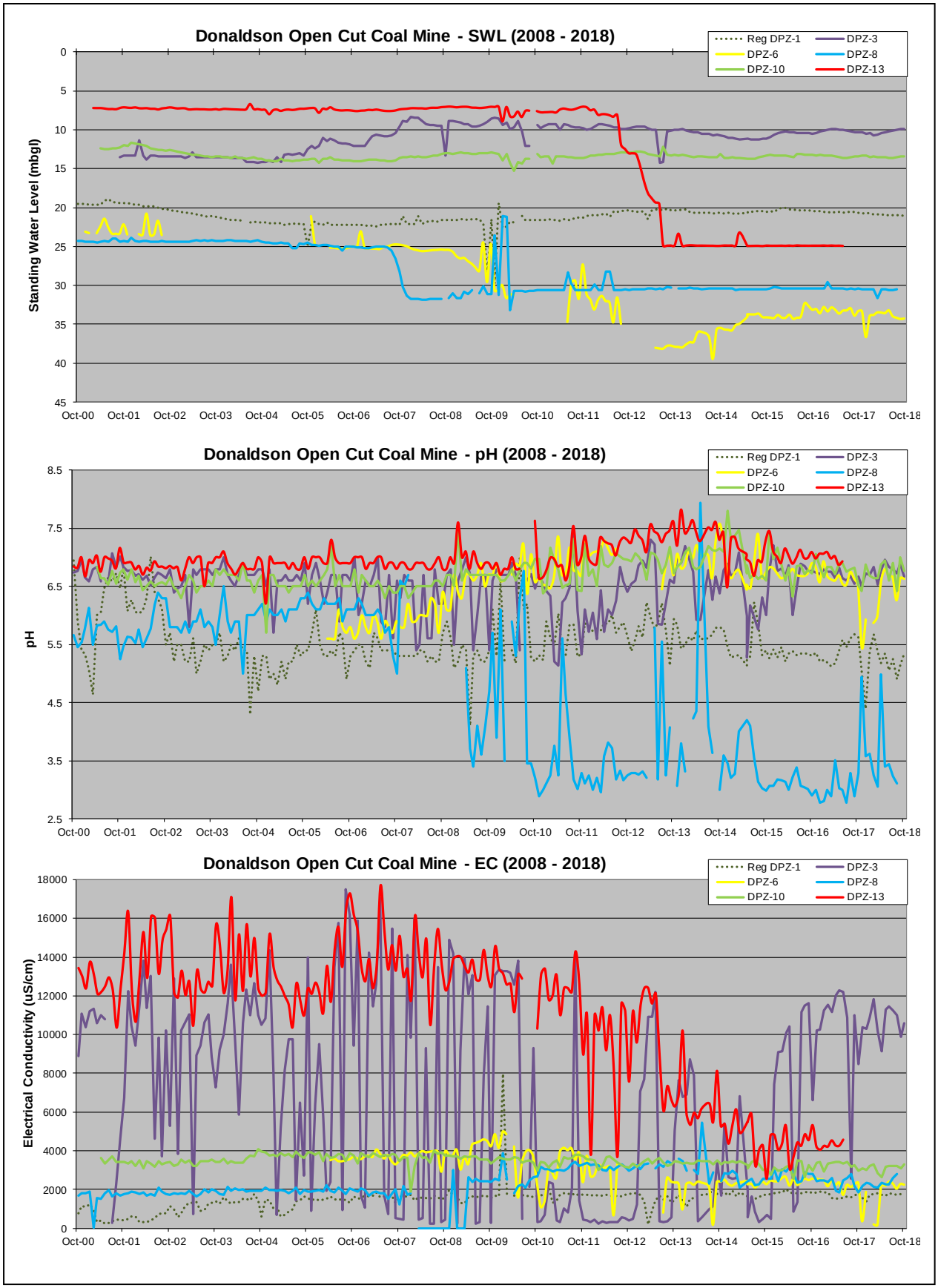


Figure 7.3 Groundwater Monitoring – 2000 to 2018

Table 7.4
Summary of Groundwater Monitoring Results – 2017/2018

Sample Site	Pre-mining	Site Average[1]	2017		2018									
			Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Standing Water Level (m below natural ground surface)														
REG DPZ-1	*N/A*	*30.13*	20.73	20.68	20.77	20.84	20.89	20.9	20.97	20.96	20.95	20.98	21.02	21.05
DPZ3	*12.05 - 11.51*	*11.0*	10.6	10.45	10.26	10.17	10.06	9.96	9.89	9.86	9.85	9.87	9.9	9.87
DPZ6	*N/A*	*30.0*	33.37	36.69	33.97	33.84	33.5	33.52	33.59	33.24	33.99	34.19	34.35	34.29
DPZ8	*24.35*	*28.08*	30.49	30.44	30.48	30.51	30.54	30.54	31.6	30.54	30.51	30.56	30.61	30.53
DPZ10	*12.40*	*13.36*	13.48	13.49	13.57	13.63	13.67	13.52	13.46	13.45	13.42	13.45	13.47	13.47
DPZ13	*7.01 - 7.25*	*24.9*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH														
REG DPZ-1	*N/A*	*5.5*	5.04	4.39	5.37	5.67	5.37	5.18	5.35	5.05	5.25	4.9	5.14	5.34
DPZ3	*5.99 - 6.96*	*6.5*	6.53	6.76	6.96	6.84	6.8	6.73	6.89	6.67	6.71	6.21	6.89	6.58
DPZ6	*N/A*	*6.5*	5.44	5.93	Dry	5.87	5.98	6.59	6.8	6.67	6.66	6.26	6.64	6.63
DPZ8	*5.46 - 5.66*	*4.7*	2.88	3.29	4.94	3.58	3.62	3.24	3.05	4.99	3.39	3.44	3.23	3.1
DPZ10	*6.48 - 6.97*	*6.72*	6.64	6.87	6.95	6.6	6.91	6.42	7	6.77	6.71	6.22	6.64	6.73
DPZ13	*6.67 - 7.22*	*7.1*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Electrical Conductivity (µS/cm)														
REG DPZ-1	*N/A*	*1 478.5*	1 538	1 372	1 713	1 756	1 794	1 719	1 686	1 798	1 761	1 721	1 768	1 775
DPZ3	*10200 - 11350*	*7 083.8*	10 160	9 120	11 300	11 470	11 270	11 000	9 900	10 580	9 790	10 010	10 850	10 600
DPZ6	*N/A*	*2 916.5*	363	1 875	Dry	202.8	170.6	2 220	2 180	2 400	2 310	2 036	2 280	2 240
DPZ8	*1690 - 1820*	*2 355.3*	2 180	1 833	2 170	2 360	2 290	2 120	2 100	2 330	2 250	2 260	2 610	2 790
DPZ10	*3670*	*3 450*	2 860	2 620	3 170	3 210	3 230	3 200	3 070	3 300	3 220	3 170	3 280	3 230
DPZ13	*12200 - 13750*	*4 811.30*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

1. Since monitoring commenced at that site. N/A = Not Accessible

Standing Water Levels

REGDPZ-1: Regional control bore located in strata well below the Donaldson Seams. Shows gentle change in SWL in response to long-term rainfall pattern, declining gradually from 2000 to 2005 (a period of below average rainfall), and rising gradually from 2007 to 2013 (a period of slightly above average rainfall). Since 2013 the SWL has been relatively stable.

DPZ3: Located in the open cut area and screened in coal measures below Donaldson Seam. An unexplained rise in water level was recorded from 2004 to 2010 followed by a decline which was a response to mining from the Donaldson Open Cut. Over the past 12 months SWL has remained relatively stable and slightly higher than pre-mining levels.

DPZ6: Showed drawdown during latter stages of the Donaldson Open Cut and then more pronounced drawdown once development of the Abel Underground South Mains started in April 2008. A partial recovery was subsequently evident during 2013 to 2016, probably due to recovery within in the completed Donaldson Open Cut with levels remaining relatively stable during the reporting period.

DPZ8: Screened in Donaldson and Big Ben Seams. Responded to mining in the Donaldson Open Cut in 2007 and then slight post-mining recovery. The water level has remained steady since 2014.

DPZ10: Screened in the Beresfield Seam. and shows modest open cut mining effect from 2001 to 2006, then modest recovery, and more recent response to Abel Underground mining from 2011. SWL remained stable throughout the 2017-18 reporting period.

DPZ13: Screened in Donaldson Seam overburden, and showed no response to open cut mining, but clear response to Abel Underground mining from early 2012. Groundwater level has remained consistent since 2013. Access has not been available to DPZ13 since April 2017 due to restricted access to the landholding.

Water Quality

Salinity varies over a wide range from bore to bore, but within each bore, salinity generally is quite stable over time. Some of the monitored bores have reported occasional outliers of significantly lower salinity (EC and TDS) which are likely due to ingress of rainwater temporarily lowering the salinity in the bore. This is particularly apparent at bores DPZ3 and DPZ6. This is evident at DPZ6 during February and March 2018 during which substantial rainfall events occurred (see **Table 6.2**).

A downward trend in EC is observed at bores DPZ6 and DPZ13, starting in 2010 or 2011, which could be due to enhanced recharge following drawdowns in the coal measures as a result of open cut mining. The downward trend has levelled out from the start of 2015.

Conversely, a rise in EC was observed at DPZ8, starting in 2008 or 2009, which is almost certainly related to open cut mining. However, the EC in DPZ8 has not continued rising, having stabilised at about 500µS/cm to 1 000µS/cm higher than pre-2008.

Apart from the EC rise in DPZ8 in 2008, the monitoring has not indicated any rising trend in salinity in any bore, apart from the regional control bore REGDPZ1, which is unrelated to any mining activity, and is probably a result of increased urbanisation.

Likewise, although there are some pH variations from bore to bore, the monitoring has generally reported consistent pH values at individual bores over the past 3 to 4 years. In the past, both DPZ3 and DPZ8 show changes in pH that are probably related to mining or associated activities.

The pH values reported from DPZ3 were generally in the range 6.5 to 7.0 until around 2006, when the pH started to be more erratic, and more frequent lower pH values than previously, possibly indicating slightly more acidic conditions. Since around May 2006, pH values at DPZ3 have been generally in the range 5.2 to 7.2. During the reporting period, pH levels within DPZ3 remained relatively stable between 6.21 and 6.96.

The pH values reported from DPZ8 were generally in the range 5.0 to 6.5 until late 2007, when the pH started to be more erratic, and generally much lower than previously, indicating more acidic conditions. Water levels in DPZ8 dropped sharply in September 2007, at the same time that EC noticeably increased and pH started to be erratic and eventually fell to a much lower level. Since February 2009, pH values at DPZ8 have been generally in the range 3.0 to 4.5 albeit with a number of higher outlier values, but significantly lower than the pre-mining levels. This is most likely due to the open cut exposing sulphides or other acid-forming minerals present in the coal seams or interburden strata to oxidation, leading to the reduction in pH at the time that mining reached the vicinity of this bore. This is an expected outcome given the nature of the geology, of which some strata are known to be net acid producing, and the predicted drawdown resulting from mining operations.

Reportable Incidents and Further Improvements

No reportable incidents were recorded during the 2017/18 reporting period and no future improvements to groundwater management are currently planned.

8. REHABILITATION

8.1 REHABILITATION PERFORMANCE DURING THE REPORTING PERIOD

Assorted infrastructure had been removed from site as part of the final rehabilitation project during the 2013/14 reporting period. This included the removal of fuel storage tanks, traffic control boom gates and a number of bitumen and dirt roads. No additional infrastructure was removed during the reporting period. As at the end of the reporting, the mine-related infrastructure remaining within ML1461 included the following.

- Administration office.
- Workshop.
- Core shed.
- Selected access roads.

As outlined within the current MOP, these infrastructure are not proposed to be removed during the MOP term and may be retained for future land uses as discussed below.

Other rehabilitation works previously completed, as outlined in the Mine Closure Plan for Donaldson Open Cut, include the following.

- Excavation of waste rock and contaminated material to the west pit.
- Reshaping of the land surface to as near as possible to natural topography.
- Spreading of topsoil on reshaped surfaces.
- Spreading of a seed mix of local tree and shrub species, as well as fast growing, sterile groundcovers which grow rapidly to provide erosion control, of the remaining 27.7 ha of rehabilitated area.

The post rehabilitation land uses for Donaldson include conservation area, open spaces and light industrial area. The rehabilitated open cut area is completely vegetated with native shrubs and trees. These areas will be conserved and managed similar to the adjacent Bushland Conservation Area. Subject to future approval, the areas around the former open cut maintenance workshop and administration building may be used as a light industrial area.

The West Pit and Square Pit have been made safe and left for use by the Abel Underground Mine who will be responsible for its ongoing management.

No further areas remain to be rehabilitated as part of the Donaldson Coal Mine operation and no additional rehabilitation works were undertaken during the 2017/2018 reporting period.

Figure 8.1 shows the final landform and current revegetation status. A summary of the total area of rehabilitation is provided in **Table 8.1.**

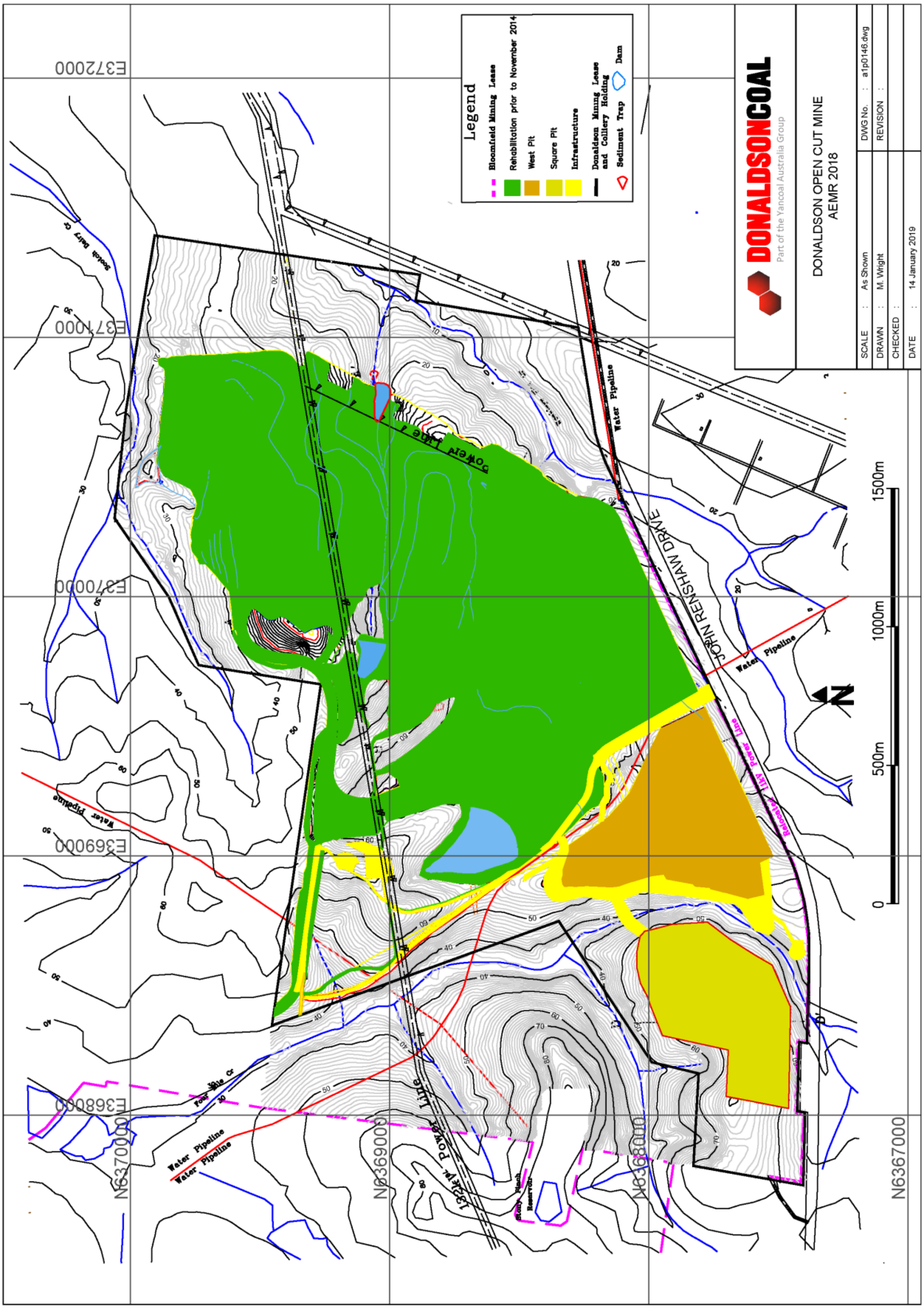


Figure 8.1 Status of Rehabilitation - 2018

Table 8.1
Rehabilitation Summary (Cumulative)

Mine Area Type	Previous Reporting Period (Actual)	This Reporting Period (Actual)	Next Reporting Period (Forecast)
	Year 16 (ha)	Year 17 (ha)	Year 18 (ha)
Total mine footprint	307.3	307.3	307.3
Total active disturbance	77.3[1]	77.3[1]	77.3[1]
Land being prepared for rehabilitation	0	0	0
Land under active rehabilitation	230	230	230
Completed rehabilitation	0	0	0

Notes:
1. Includes 60.2ha for the Square Pit and West Pit and 17.1ha for other retained infrastructure. These areas are not being actively mined, however, final rehabilitation is not planned until future land use options are finalised.

The areas shown in **Table 8.1** are consistent with the approved MOP which states:

- the total 'active disturbance' would total ~78ha at both the beginning and end of the MOP term (comprising retained infrastructure areas, the Square Pit and West Pit); and
- 'land under active rehabilitation' would total ~230ha at both the beginning and end of the MOP term (comprising 220ha of revegetated land and 10ha of water management).

As outlined in within the approved MOP and noted in **Table 8.1**, the 'active disturbance' area for the Donaldson Coal Mine includes the Square Pit and West Pit. The areas encompassing these pits are planned to be transferred to the Abel mining lease during the MOP term and will be utilised for ongoing mining uses, including stockpiling and receipt of washery rejects from the Bloomfield Colliery. These uses were detailed in the 2013 modification (MOD3) of Project Approval 05_0136 for the Abel mine. Until this transfer is undertaken the rehabilitation security for these areas will continue to be held against Mining Lease 1461 issued for the Donaldson Coal Mine.

8.2 REHABILITATION MONITORING

Assessment of rehabilitation performance (fauna and habitat) was conducted by Kleinfelder in December 2017 (see **Appendix 8**). Rehabilitation performance (flora) was previously undertaken by Global Soil Systems in July 2017 (prior to this reporting period) and is scheduled on a 2-yearly basis. For completeness, a summary of the results of the previous Global Soil Systems flora monitoring is provided below together with the Kleinfelder fauna monitoring.

The monitoring undertaken by Global Soil Systems included one control plot in the remnant bushland (Plot 1) and six monitoring plots in the rehabilitated areas of the mine (Plots 2 to 7). The plots have been established for between 9 and 13 years. The monitoring techniques employed in the rehabilitation assessment were:

- General assessment of vegetation;
- 2m x 2m quadrat survey of plant numbers, vegetation cover and groundcover;
- 20m x 10m quadrat survey of tree/shrub numbers, canopy cover measurement, tree health and new plant species;

- Analysis of soil samples for pH, EC, nitrogen, potassium, phosphorus, sulphur, major cations, major anions, cation exchange capacity, exchangeable sodium percentage and total organic carbon;
- 50m erosion transect; and
- Photographic record of plots.

The monitoring undertaken by Kleinfelder aims to assess the level of successful recolonization by native terrestrial and arboreal species and includes a total of four monitoring plots, including one control plot, and four nesting box plots. Monitoring commenced in 2008.

The results of these assessments have been compared with the completion criteria adopted by Donaldson. These criteria cover soil quality, vegetation, growth rates, species diversity and stem densities. The assessment found that several of the rehabilitated areas have already met the completion criteria and that all rehabilitated areas assessed are on track to meet the required completion criteria. A summary of the results and outcomes of the surveys compared to the completion criteria are provided in **Table 8.2**.

Table 8.2
Status of Monitoring Against Completion Criteria – 2017/18

Page 1 of 2

Feature	Completion Criteria	Current Status
General	Stable landform.	All monitoring plots were observed to be 'stable' with no signs of significant erosion.
	Effective drainage.	The rehabilitated areas are effectively drainage without pooling water.
	Resilience to drought episodes in rehabilitated area.	No signs of drought stress have been noted with trees considered healthy.
Flora	Re-establishment of a dense and diverse mixture of local native understory and overstorey vegetation species, specifically four overstorey and four understorey species in each monitoring plot.	Plot 1 = 11 understory & 6 overstorey species. Plots 2 to 7 = 6 to 14 understorey and 5 to 10 overstorey species.
	Limited presence of weeds.	Generally, no to minimal weeds were observed in each plot.
	Tree/shrub densities of 3000 stems/ha after 5 years and 1000 stems/ha after 15 years.	Plot 1 = 5,950. Plots 2 to 7 range from 2,800 to 14,700.
	Evidence of natural regeneration in at least four species.	Natural recruitment was observed in most plots and evidence of flowering and seed production in some eucalypts and acacias.
Fauna	Reinvasion of rehabilitated area by native fauna.	The similarity of fauna diversity between the rehabilitation quadrats and the analogue site has increased from 20% similarity in 2011 to greater than 40% in 2016. Whilst some variability was recorded in 2017, these results show that the rehabilitation areas are moving towards the remnant forest.
Soil Loss	Minimal erosion and soil movement, specifically soil loss from less than 40t/ha/year	Plot 1 = -10t/ha, Plot 2 = -20t/ha, Plot 3 = +30t/ha, Plot 4 = +10t/ha, Plot 5 = +30t/ha, Plot 6 = +20t/ha, Plot 7 = +20t/ha.

Table 8.2 (Cont'd)
Status of Monitoring Against Completion Criteria – 2017/18

Feature	Completion Criteria	Current Status
Soil Quality	Soil pH to be no lower than 10% of analogue plot pH after 5 years.	Plot 1 (analogue) – pH 4.8 Plots 2 to 7 – pH 4.7 to 5.4
	Conductivity of replaced soil to be below 900uS/cm after 5 years	EC for all plots ranged from 28 to 63uS/cm.
	Surface layer to be free of any hazardous material to a depth of at least 1m.	There has been no evidence of hazardous material following deep ripping.
	Runoff water conductivity to be less than 1 000uS/cm after 5 years.	Internal monitoring of the retained on-site sediment dams confirms ECs generally ranging between 100 and 200uS/cm.
	Soil nitrogen and phosphorous levels to be within 20% of levels in analogue site after 5 years.	The phosphorous levels within all plots were similar to the analogue site. All plots recorded higher levels of phosphorous than the previous year. All plots had nitrogen levels above the criteria.
Pollution	Soil should not be a source of pollutants. Quality of water leaving the site to be in accordance with EPL requirements.	No non-compliance with EPL 11080 surface water quality requirements have been recorded and internal due diligence monitoring within the on-site sediment dams confirms that all measured ECs and the majority of pH and total suspended solid results during the reporting period would be compliant with discharge criteria.
Source: GSS (2017), Kleinfelder (2018), Donaldson Coal.		

Natural recruitment was also evident in most plots and particularly older plots where canopy thinning, as a result of Acacia die back and the 2015 April severe storm, has resulted in more light reaching the forest floor. While some of these species appear to have originated from sown species other plants appear to have originated from re-spread topsoil and from introduction through natural vectors such as birds, wind etc. In all sites there was evidence of flowering and seed production in some eucalypt species as well as Acacias although there is currently only minimal evidence of second generation eucalypts. The need to conduct thinning in areas of the rehabilitation has been reviewed with a decision made not to conduct thinning as natural thinning due to Acacia die back continues.

8.3 ACTIONS FOR THE NEXT REPORTING PERIOD

8.3.1 Rehabilitation

The primary activity planned to occur in the next reporting period is the monitoring and maintenance of the final rehabilitation areas, as outlined in the current Mining Operations Plan for the Donaldson Open Cut Mine. The West Pit and Square Pit will continue to be made safe and left for use by the Abel Underground Mine who will be responsible for its ongoing management.

8.3.2 Monitoring

Rehabilitation monitoring required to be undertaken at Donaldson Coal Mine under the development consent and other regulatory documents will continue to be carried out in the 2018/19 reporting period.

9. COMMUNITY

No complaints were received and no matters of concern or environmental queries were raised with the Company during the 2017/2018 reporting period.

In accordance with the conditions of the mine's development consent, the Company established a community consultative committee for the mine. The last committee meeting was held on 7 August 2013. No meetings were held during the reporting period and further meetings are currently deemed unnecessary.

No other specific community engagement activities relating to the mine were undertaken during the reporting period.

Given that coal mining activities ceased in April 2013 and rehabilitation was completed by March 2014, there has been negligible social impact to the community throughout the reporting period. As a result, during the reporting period Donaldson did not:

- provide community donations;
- need to conduct mitigation works to address any community impacts; or
- undertake any mine-related property acquisitions.

However, continued community benefits have occurred as a result of the utilisation of locally based employees for completion of maintenance activities within the rehabilitated areas. Additionally, contractors who are engaged to conduct routine and non-routine land management works are also sourced locally.

10. INDEPENDENT AUDIT

The and final last independent environmental audit of the mine was undertaken in March 2015 following the completion of mining in 2013 and rehabilitation in 2014. The audit found a high degree of compliance and identified the conditions of the development consent which were considered to remain active following the completion of mining. These remaining conditions have been treated as 'recommendations' and the status of these conditions outlined within the 2014/2015 AEMR and further updated in **Table 10.1**.

Table 10.1
2015 Independent Audit Recommendations & Status Update

Page 1 of 2

Cond No.	Development Consent Condition	Comment	Update
63(xiv)	**Biological Monitoring** The Applicant shall prepare and implement a detailed monitoring program for groundwater and surface water (xiv) monitoring of macro-invertebrates and vegetation in accordance with protocols developed for the Hunter SIGNAL biological assessment criteria, with an assessment of inflows to the wetlands.	The biological monitoring will continue in accordance with Development Consent condition 63(xiv) "for a period of at least five years after the completion of mining, or other such period as determined by the Director- General."	Monitoring to be undertaken for period of at least 5 years from completion of mining (i.e. until April 2018). The Flora and Fauna Management Plan is currently being reviewed. This will include a proposed rationalisation of monitoring.
69	**Tetratheca juncea Management Plan** The Plan shall be consistent with the Flora and Fauna Management Plan and include measures for fire management.	The ongoing control measures employed at the Donaldson Coal Mine site ensure a high level of conservation for the *Tetratheca juncea*.	The *Tetratheca juncea* area is contained within the Bushland Conservation Area (BCA). Refer to comment below.
72(ii) & (iii)	**Bushland Conservation Area Management** (ii) retain management and ownership of the land for a minimum of 36 years from the commencement of construction, unless other arrangements are agreed in accordance with Condition 73; and (iii) prepare and implement a Management Plan for that area in consultation with OEH and to the satisfaction of the Director-General, during the period in which the Applicant is responsible for management.	Donaldson Coal Pty Ltd will retain management and ownership of the land for a minimum of 36 years from the commencement of construction, unless other arrangements are agreed in accordance with Development Consent condition 73.	The BCA is currently being managed in accordance with the BCA Management plan and will be maintained for the period as per Condition 73 (i.e. until January 2037 or as agreed).

Table 10.1 (Cont'd)
2015 Independent Audit Recommendations & Status Update

Cond No.	Development Consent Condition	Comment	Update
78	**Rehabilitation** The Flora and Fauna Management Plan shall also include a Rehabilitation Plan that details the measures to be undertaken to progressively rehabilitate disturbed areas of the mine to replicate the original vegetation cover that existed before mining occurred. The Applicant shall be responsible for the management and monitoring of the rehabilitated mine site until such time as the Director-General agrees that restoration has been successful.	The Rehabilitation Plan is included in the Mining Operations Plans (MOP) and amendments for the Donaldson Coal Mine. The current MOP is for May 2014 to May 2021. Recommendation: As the reporting on the Mining Operations Plan is required under the Mining Lease, the rehabilitation progress and monitoring will be reported to the DRE and it is recommended that approval be sought from DPE to submit this MOP report to DPE to satisfy this condition.	Currently the Annual Reviews are provided to both DRE and DPE and will continue to be provided.
114	**ANNUAL ENVIRONMENTAL MANAGEMENT REPORT** The Applicant shall prepare and submit an Annual Environmental Management Report (AEMR) throughout the life of the mine to the satisfaction of the Director-General. The AEMR shall review the performance of the mine against the Environmental Management Strategy and the Conditions of this Consent, and other licences and approvals relating to the mine.	The preparation of the Annual Environmental Management Report for the Donaldson Coal Mine will be required unless an exemption is obtained from the Director-General/Secretary of DPE. *Recommendation:* It should be considered that reporting on the rehabilitation progress, the biological monitoring and bushland conservation area could be achieved by submitting the expert consultant reports and placing the reports on the Donaldson Coal website.	The Company is continuing to prepare the full Annual Review, however, this recommendation will be further considered in future reporting periods.

Email correspondence from the Department of Planning dated 31 October 2018 confirms that, given the completion of mining in 2013 and the previous independent audit in 2015, no further independent audits are required unless otherwise directed by the Secretary.

11. INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD

During the reporting period there were no:

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

12. ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD

No specific measures are currently deemed necessary to improve environmental or community performance. However, as outlined in Section 4.3, a range of monitoring, including surface water, groundwater, flora and fauna and rehabilitation monitoring are planned during the next reporting period. This monitoring represents a continuation of standard monitoring practices as has been undertaken throughout the life of the mine. Given that active mining activities ceased more than 5 years ago (April 2013), during the next reporting period Donaldson will consult with relevant Government Departments to review current monitoring requirements and update relevant management plans to reduce the monitoring frequencies and/or parameters. Where applicable, management plans will be integrated with the Abel Mine.

This page has intentionally been left blank