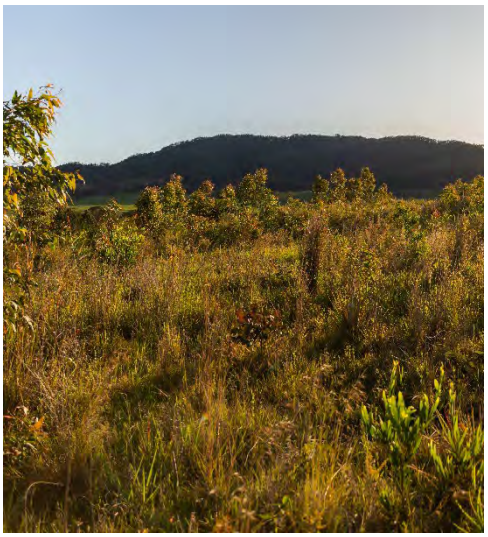


DURALIE COAL MINE
ANNUAL REVIEW 2024

Document	Version	Issue	Author	Approved
DCM_RPT_ANNUAL REVIEW 2024	1	SEP 2024	DCPL	

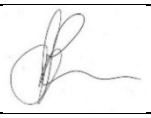
Name of operation	Duralie Coal Mine
Name of operator	Yancoal Australia Ltd
Development consent / project approval #	PA (08_0203) (Duralie Extension Project) (as modified)
Name of holder of development consent / project approval	Duralie Coal Pty Limited
Mining lease #	ML1427, ML1646
Name of holder of mining leases	CIM Duralie Pty Ltd
Water licence #	WAL 41518, 20WA202053, various monitoring bore licences.
Name of holder of water licence	CIM Duralie Pty Ltd and Duralie Coal Pty Ltd
RMP start date	1st July 2022
RMP end date	N/A
Annual Review start date	1st July 2023
Annual Review end date	30th June 2024

I, John Cullen, certify this audit report is true and accurate record of the compliance status of Stratford Coal Mine for the period of 1st July 2022 to 30th June 2023 and that I am authorised to make this statement on behalf of Yancoal.

Note.

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.

The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or $22,000, or both).

Name of authorised reporting officer	*Mr John Cullen*
Title of authorised reporting officer	*Operations Manager – Duralie Coal*
Signature of authorised reporting officer	
Date	28 September 2024

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1.0 STATEMENT OF COMPLIANCE

This Duralie Coal Mine (DCM) Annual Review has been prepared in accordance with New South Wales (NSW) Project Approval (PA) 08_0203 Schedule 5, Condition 3 for the Duralie Extension Project (DEP) for the period 1 July 2023 to 30 June 2024. This Annual Review is also prepared in accordance with the annual reporting requirements for Mining Leases ML 1427 Condition 3 and ML 1646 Condition 4.

Table 1 provides a statement of compliance against Duralie Coal Pty Ltd (DCPL) relevant approvals.

Table 1 Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	
Project Approval No. 08_0203	Yes
EPL11701	No
ML1427, ML1646	Yes

Table 2 Compliance Status Categories

Risk	Colour Code	Description
High	Non-Compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium	Non-Compliant	Non-compliance with: • potential for serious environmental consequences, but is unlikely to occur, or • potential for moderate environmental consequences, but is likely to occur
Low	Non-Compliant	Non-compliance with: • potential for moderate environmental consequences, but is unlikely to occur, or • potential for low environmental consequences, but is likely to occur
Administrative	Non-Compliant	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)

Table 3 Summary of Non-Compliances

Relevant Approval	Condition	Condition Description/ Non-Compliance	Compliance Status	Comment	Section addressed
EPL 11701	M2.3	Less than required surface water monitoring undertaken	Low Non-compliant	A monthly sample is required from Point 4 but was not sampled on four monthly monitoring occasions. Access was unachievable on the four sampling dates due to progressive backfilling being undertaken in the area and unsafe access for sampling personnel.	Section 7.3

2.0 INTRODUCTION

The DCM is located in the Gloucester Basin approximately 80km north of Newcastle in NSW, between the villages of Stroud Road and Wards River. Refer **Figure 1** (**Appendix 1**).

DCPL, a wholly owned subsidiary of Yancoal Australia Limited (YAL), is the owner and operator of the DCM.

The NSW Minister for Urban Affairs and Planning granted Development Consent for the DCM in August 1997 and coal production commenced in 2003.

Development of the DCM is approved under Mining Leases (MLs) 1427 and 1646 and NSW Project Approval (08_0203). Condition 5, Schedule 2 of PA (08_0203) authorises mining operations to be carried at the DCM until 31 December 2021.

Accordingly, DCPL has commenced the mine closure phase (i.e. following the cessation of mining operations on 31 December 2021). Prior to closure the DCM consisted of an open cut, truck, and excavator mine producing run of mine (ROM) coal, which was railed to the Stratford Mining Complex (SMC) and processed at the SMC Coal Handling and Processing Plan (CHPP). Mine closure activities are outlined in the current approved Rehabilitation Management Plan (RMP) and summarised in **Section 8.5**.

2.1 SCOPE

This Annual Review (AR) has been prepared in accordance with Schedule 5, Condition 3 of the PA 08_0203 and Mining Leases 1427 and 1646, and in accordance with the Department of Planning, Housing and Infrastructure (DPHI) *Annual Review Guidelines* (October 2015).

The AR describes the environmental protection, pollution control and rehabilitation activities at the DCM for the period 1 July 2023 to 30 June 2024. As required by the PA, comparisons of environmental monitoring results have been made against relevant statutory requirements, monitoring results of previous years and relevant predictions of Environmental Assessments (EAs). This AR also reports on any non-compliances, trends in monitoring data and any discrepancies between the predicted and actual impacts of the development. Environmental management activities planned for the next 12 months are also discussed.

2.2 MINE CONTACTS

The DCM is an owner operated mine site by DCPL site personnel responsible for mining, rehabilitation and environmental issues at the end of the reporting period are provided in **Table 4**.

Table 4 Site Contact Personnel

Position	Name	Contact	Email
Operations Manager, Stratford and Duralie Operations	Mr John Cullen	02 6538 4210	John.Cullen@yancoal.com.au
Environment and Community Superintendent	Mr Thomas Kirkwood	02 6538 4208	Thomas.Kirkwood@yancoal.com.au

3.0 APPROVALS

3.1 STATUS OF LEASES, LICENCES AND APPROVALS

The DCM operates in accordance with the approvals provided in **Table 5**.

Table 5 Duralie Coal Mine – Leases, Licences and Approvals

Description	Date of Grant	Duration of Approval	Comment
NSW Project Approvals			
Duralie Extension Project – Project Approval (08_0203)	26/11/2010 (As Modified)	The Applicant may carry out mining operations on site until the end of 2021	Granted 26/11/2010. MOD 1 (Rail Hours) 1/11/2012. MOD 2 (Open Cut variations) 5/12/2014
Mining Leases and Exploration Licences			
ML 1427	06/04/1998	35 years (06/04/2033)	Renewed 28 March 2023 by Regional NSW - Mining, Exploration and Geoscience
ML 1646	04/01/2011	21 years (04/01/2032)	Variation of Conditions dated 20/06/2018
AUTH 315	14/10/2013	18 January 2027	Renewed 21 December 2022 by Regional NSW - Mining, Exploration and Geoscience
Environment Protection Licences			
Environment Protection Licence (EPL) 11701	04/09/2002	Until the licence is surrendered, or revoked	As modified by subsequent variations (refer to EPA website)
Commonwealth Approvals			
Commonwealth Approval (EPBC 2010/5396)	22/12/2010	31/12/2025	Commencement of Action 14/01/2011
Water Licences			
Water Supply Works Approval 20WA202053	01/07/2004	1 October 2028	Coal Shaft Creek diversion and various on-site water management structures. Renewed 17/10/2018
WAL 41518 (previously 20BL168404)	22/09/2002	Perpetuity	Groundwater Licence for the Duralie Open Cut extraction. Converted to WAL41518 under *Water Management Act 2000* (WM Act) on 14/12/2017
Groundwater licences – various monitoring bores	Various	Perpetuity	Monitoring purposes only

3.1.1 ENVIRONMENTAL MANAGEMENT PLANS

Environmental Management Plans (EMPs) have been prepared and approved for the DCM in accordance with the conditions of PA 08-0203. The current versions approved by DPHI are available on the Duralie Coal website (www.duraliecoal.com.au).

- Environmental Management Strategy (revised). Approved 23 December 2021
- Air Quality and Greenhouse Gas Management Plan (revised). Approved 23 December 2021
- Biodiversity Management Plan (revised). Approved 22 February 2023
- Blast Management Plan (revised). Approved 16 December 2021
- Giant Barred Frog Management Plan (revised). Approved 5 September 2017
- Heritage Management Plan (revised). Approved 12 August 2022
- Noise Management Plan (revised). Approved 23 December 2021
- Waste Management Plan (revised). Approved 23 December 2021
- Water Management Plan (revised). Approved 24 December 2021 and 11 March 2022 (DCCEEW)
- Pollution Incident Response Management Plan (revised), November 2023
- Rehabilitation Management Plan (revised), October 2023

3.2 AMENDMENDMENTS TO APPROVALS/LICENCES DURING THE REPORTING PERIOD

A variation to EPL 11701 was granted, during the reporting period, to Condition L3.4 to allow the disposal of up to 400 end of life mining heavy plant tyres on the premises per annual return year in accordance with Condition O7 of EPL 11701.

4.0 OPERATIONS SUMMARY

A summary of operations (Production), during the preceding and current reporting period as well as a forward forecast for the next reporting period is provided below in **Table 6**.

Table 6 Production Summary

Material	Approved limit (specific source)	Previous reporting period	This reporting period	Next reporting period
Waste Rock/ Overburden (BCM) (DCM only)	N/A	0	0	0
ROM Coal (tonnes) (DCM only)	3 million tonnes per annum	0	0	0
PAF Rehandle (BCM)	N/A	1,571,861	483,915	114,139
Codisposal Reject (tonnes) (Includes Stratford Consent)	Approx. 12.3 million tonnes over life of project.	87,588	22,862	0
Saleable product (tonnes) (Includes Stratford Consent)	N/A (Process limit of 5.6 million tonnes per annum)	587,856	437,773	440,955

No ROM coal was mined at the DCM or transported via shuttle train during the reporting period. Progressive rehabilitation and Potentially Acid Forming (PAF) material rehandling works were undertaken for 3 months during the reporting period (July – September).

4.1 EXPLORATION

A SMC ML Annual Exploration Report 2023 has been prepared and lodged for the period 21/12/2022 to 20/12/2023. Furthermore, Annual Exploration Reports and Community Consultation Reports have been prepared and lodged for AUTH 315, AUTH 311 and EL 6904.

During the reporting period exploration activity included core drilling and costean sampling to gain further understanding of geological profiles within AUTH 315. Feasibility studies are ongoing to further investigate the data gathered during recent field mapping and exploration activity.

Hydrological studies (including groundwater and surface water studies) forming part of the mine closure studies are still ongoing.

4.2 ESTIMATED MINE LIFE

Condition 5, Schedule 2 of PA 08_0203 authorised mining operations to be carried at the DCM until 31 December 2021. Under this approval, DCPL is required to rehabilitate the site and carry out additional undertakings to the satisfaction of both the Secretary and the Resources Regulator. Consequently, PA 08_0203 will continue to apply in all other respects, other than the right to conduct mining operations, until the rehabilitation of the site and these additional undertakings have been carried out satisfactorily.

The removal of overburden and the extraction, processing, handling, storage and transportation of coal at the DCM was finished in December 2021. Accordingly, DCPL is now undertaking the mine closure phase (i.e. after the cessation of mining operations on 31 December 2021).

DCPL revised relevant EMPs to reflect the current stage of operations and to describe anticipated mine closure activities and describe the change to environmental impacts, mitigation measures and monitoring programs at the DCM for the mine closure phase.

A Rehabilitation Management Plan (RMP), in accordance with the requirements of the Resources Regulator's Rehabilitation Reforms was prepared for the DCM. The RMP includes the ongoing compliance requirements in accordance with PA 08_0203, ML 1427 and ML 1646 including rehabilitation obligations. A Rehabilitation Report and Forward Program for DCM has also been prepared which provides details of the scheduled surface disturbance and rehabilitation activities at the DCM from 1 July 2022 to 30 June 2025.

4.3 OPERATIONS

No mining was undertaken during the 2023 – 2024 reporting period. As DCM continued with the mine closure phase, Duralie PAF rehandle and bulk shaping, which recommenced in October 2022, continued throughout the reporting period. PAF material was rehandled from the old waste emplacement and bulk pushed into the Weismantel Pit. PAF rehandle ceased in September 2023.

Surface facilities at the mine and current mine development and rehabilitation as 30 June 2024 are indicated within **Figure 4**, provided in **Appendix 1**.

4.3.1 PRODUCT COAL TRANSPORT

No product coal was transported during the reporting period.

4.3.2 HOURS OF OPERATION

Closure operations, including the recommencement of bulk material rehandle and shaping was completed between October 2022 and September 2023. The hours of operation at the DCM involve two shifts, Monday to Thursday between 6:30am – 1:30am and one shift Friday 6:30am – 2:30pm.

4.3.3 FLEET

During closure works the mobile fleet utilised during the reporting period included the following:

- 1 x Excavator
- 3 x Haul trucks
- 1 x Dozer
- 1 x Water cart
- 1 x Grader
- 1 x Service truck
- 4 x Light vehicles

The total listed fleet is not all used concurrently.

4.4 WASTE MANAGEMENT AND RECYCLING

All waste streams generated at the DCM have historically been managed in accordance with the DCM Waste Management Plan. Key waste streams (apart from waste rock) generated at the DCM comprise:

- Recyclable and non-recyclable general wastes;
- Sewage and effluent; and
- Other wastes from mining and workshop activities (e.g. waste oils, scrap metal and used tyres).

All general domestic waste (e.g. general solid [putrescibles] waste and general solid [non-putrescible] waste as defined in Waste Classification Guidelines Part 1: Classifying Waste [EPA, 2014]) and general recyclable products will continue to be collected by an appropriately licensed contractor. DCPL will maintain a register of regulated waste collected by the licensed waste contractor.

No waste tyres were disposed of during the reporting period. Tyres at the DCM are to be disposed into the open cut voids in accordance with the Duralie Extension Project Modification Environmental Assessment (DCPL, 2014a) and the DCM Waste Management Plan.

Scrap metal is collected by a licensed waste contractor for recycling.

Sewage and wastewater from ablution facilities on-site is collected and transferred via a sewerage system to the existing on-site sewage treatment plant. Sewage is treated in the on-site sewage treatment plant (that consists of an aerobic treatment system) and is disposed of in a manner to the satisfaction of the EPA (i.e. EPL 11701) and MidCoast Council.

4.4.1 WASTE MINIMISATION AND PERFORMANCE

The waste management contractor provides monthly reporting on all waste streams disposed from the DCM. The monthly reports also provide details of recycling achieved and hazardous substances.

During the reporting period the DCM recycled 59.24% of the total waste generated. This is lower than the previous reporting period (85.5%). The main waste stream increases were non-hazardous recycled waste and mixed-solid waste, increases were seen during the reporting period due to decommissioning of coal handling and rail infrastructure.

4.5 OTHER INFRASTRUCTURE MANAGEMENT

4.5.1 PRESCRIBED DAMS – NSW DAMS SAFETY

The Main Water Dam (MWD), Auxiliary Dam 1 (AD1) and Auxiliary Dam 2 (AD2) are all declared under the *Dams Safety Act 2015*. MWD and AD2 are proposed as retained non-declared water structures in the final landform. AD1 was dewatered in February 2018 and fully decommissioned in 2020. AD2 was dewatered in September 2023 and water level maintained with dewatering of Diversion Drain Dam 1 following rainfall.

During the previous reporting period, DCPL updated the DCM Prescribed Dams Safety Emergency Plan (DSEP) and completed a Dam Safety Management System Audit with Dams Safety NSW. During the reporting period routine visual inspections and monthly monitoring of piezometers continued.

5.0 ACTIONS REQUIRED FROM THE PREVIOUS ANNUAL REVIEW

DPHI provided notification on 16 May 2024 that the DCM Annual Review 2022-2023 was generally in accordance with the PA requirements and the Department's Annual Review Guidelines with no further action required.

6.0 ENVIRONMENTAL PERFORMANCE

6.1 REVIEW OF ENVIRONMENTAL PERFORMANCE

A brief review of environmental performance in relation to EPL 11701, together with PA 08_0203 conditions, is provided below. This performance is further discussed in the sections on environmental management activities and environmental monitoring.

6.1.1 PROJECT APPROVAL CONDITIONS PA 08-0203

DCPL continues to operate in accordance with the existing PA 08_0203.

PA conditions which were met during this reporting period are described in the following sections. These include administrative and reporting conditions, environmental management and monitoring conditions, community engagement and progressive rehabilitation. Environmental monitoring data was regularly reported as required by the PA and associated EMPs.

An Independent Environmental Audit (IEA) of the DCM was conducted in December 2023 by RPS AAP Consulting, in accordance with PA 08_0203 Schedule 5, Conditions 8, 9, 9A and 9B. This includes both the IEA and the Rail Haulage Audit.

A status update of DCPL's responses to the recommendations contained in the IEA 2023 Report are included in **Appendix 8**.

A summary of compliance during the reporting period is included in **Table 3**.

6.1.2 EPA ENVIRONMENT PROTECTION LICENCE 11701

DCPL continues to operate in accordance with the conditions of EPL 11701. During the reporting period there was one identified non-compliance at the DCM. Refer to **Section 1** for further details.

- All monitoring has been carried out in accordance with licence conditions with the exception of one non-compliance against EPL 11701. Details of the non-compliance are summarised in **Table 3**.
- Records of environmental monitoring activities have been kept.
- A record of environmental and pollution complaints has been maintained.
- Dust suppression measures are in place. Dust monitoring to date (dust deposition gauges, high volume (PM10) air samplers and a TEOM monitor) shows that current dust suppression systems have been effective and dust levels were below limits set by EPA (upon exclusion of non-dust contamination of dust deposition gauges).
- Noise compliance monitoring was undertaken in August 2023 during the quarter which operations occurred. The survey determined that mine noise emissions at the time of monitoring complied with EPA noise level criteria at all monitored locations.
- A Pollution Incident Response Management Plan (PIRMP) was maintained and is available on the Duralie Coal website.
- An Annual Return for EPL 11701 was prepared.

6.2 METEOROLOGICAL MONITORING

A meteorological station (i.e. weather station) is operated at the mine site as required by the PA conditions. The location of the meteorological station and the two inversion monitoring towers is shown on **Figure 3** (**Appendix 1**).

6.2.1 RAINFALL

Table 7 summarises the rainfall record obtained from the site weather station rain gauge. Graphical representation of the historical average and monthly recorded rainfall during the reporting period is provided in **Appendix 2**.

Table 7 Duralie Mine - Monthly Rainfall Records

MONTH	YEAR				STROUD DISTRICT
	2024 (to end reporting period)		2023		AVERAGE[2]
	Monthly Total (mm)	No. of Rain Days/Month[1]	Monthly Total (mm)	No. of Rain Days/Month[1]	1889-2010
January	39.4	14	129	11	115.3
February	118	13	52.2	6	125.0
March	107	12	235	10	147.3
April	167.6	14	68.8	17	100.9
May	152	21	29.2	3	91.5
June	129.8	14	11.4	5	101.1
July			23.8	6	75.1
August			30.8	9	65.3
September			3.4	3	63.1
October			69.2	7	78.3
November			79	9	83.3
December			115.6	11	100.8
TOTAL	**713.8**	**88**	**847.4**	**97**	**1147.0**

Notes:
1. No. of Rain Days/Month - the number of days in the month on which rain fell. (When tipping bucket rain gauge data used, a "rain day" by definition requires a minimum recording of >0.25mm comprising dew, heavy fog or light rain (or a combination thereof).
2. Average based on Stroud Post Office records until mine site weather station commissioned in 2002.

The 2023 calendar year rainfall total was lower than the long-term district average and lower than the 2022 calendar year rainfall total (1386.4mm). Three of the twelve months in 2023 exceeded their respective long-term average.

The rainfall total for the reporting period (July 2023 to June 2024) was 1035.6mm which is slightly lower than the historical average.

6.2.2 EVAPORATION

Table 8 shows minimum, average and maximum evaporation rates for the reporting period. The graphical representation of the daily minimum, average and maximum evaporation rates recorded for each month during this review period is provided in **Appendix 2**.

Table 8 Monthly Minimum, Average and Maximum Evaporation Rates

MONTH	MINIMUM EVAPORATION RATE (mm/day)	AVERAGE EVAPORATION RATE (mm/day)	MAXIMUM EVAPORATION RATE (mm/day)
July 2023	0.0	0.1	0.4
August 2023	0.0	0.1	0.5
September 2023	0.0	0.2	0.8
October 2023	0.0	0.2	1.0
November 2023	0.0	0.2	0.9
December 2023	0.0	0.2	1.0

MONTH	MINIMUM EVAPORATION RATE (mm/day)	AVERAGE EVAPORATION RATE (mm/day)	MAXIMUM EVAPORATION RATE (mm/day)
January 2024	0.0	0.2	1.0
February 2024	0.0	0.2	0.8
March 2024	0.0	0.1	0.8
April 2024	0.0	0.1	0.6
May 2024	0.0	0.0	0.3
June 2024	0.0	0.1	0.4

6.2.3 WIND SPEED AND DIRECTION

Table 9 below indicates the monthly average and maximum wind speeds and dominant wind directions for the reporting period. The graphical representation of the daily average and maximum wind speeds recorded and monthly wind roses for each month during this period are provided in **Appendix 2**.

Table 9 Monthly Average and Maximum Wind Speeds and Dominant Wind Directions by Month

MONTH	AVERAGE WIND SPEED (km/hr)	MAXIMUM WIND SPEED RECORDED (km/hr)	DOMINANT WIND DIRECTIONS
July 2023	5.3	43.7	WNW
August 2023	6.1	47.4	WNW
September 2023	7.0	43.8	WNW
October 2023	10.1	48.2	WNW
November 2023	9.0	58.3	WNW
December 2023	9.2	72.1	WNW
January 2024	9.7	39.3	WNW
February 2024	8.6	36.3	WNW
March 2024	7.6	45.8	WNW
April 2024	7.0	46.3	WNW
May 2024	5.5	38.8	WNW
June 2024	7.3	56.7	SW

6.2.4 TEMPERATURE

Table 10 summarises monthly air temperatures. The graphical representation of the daily minimum, average and maximum atmospheric temperatures recorded for each month is provided in **Appendix 2**.

Table 10 Monthly Average Maximum and Minimum Air Temperature by Month

MONTH	MINIMUM AIR TEMP RECORDED (deg C)	AVERAGE AIR TEMP (deg C)	MAXIMUM AIR TEMP RECORDED (deg C)
July 2023	0.9	11.9	22.9
August 2023	3.3	13.4	26.2
September 2023	2.5	16.7	33.2
October 2023	5.6	19.3	35.8
November 2023	10.5	20.4	36.5

MONTH	MINIMUM AIR TEMP RECORDED (deg C)	AVERAGE AIR TEMP (deg C)	MAXIMUM AIR TEMP RECORDED (deg C)
December 2023	14.6	24.1	40.2
January 2024	16.4	24.1	40.7
February 2024	16.9	23.6	39.1
March 2024	13.5	21.7	37.2
April 2024	8.6	18.2	29.3
May 2024	3.4	14.1	22.9
June 2024	2.1	11.9	22.9

6.3 AIR QUALITY

6.3.1 AIR QUALITY CONTROL PROCEDURES

DCM has an approved Air Quality and Greenhouse Gas Management Plan (AQMP) that establishes a dust management strategy which:

- Identifies air quality criteria;
- Outlines proactive and responsive dust management and control measures;
- Establishes dust management protocols;
- Formulates an air quality monitoring programme;
- Establishes stakeholder consultation protocols; and
- Details reporting and review requirements.

The following dust control procedures are used during mining operations to control dust emissions from wind erosion on exposed areas and dust generated from mine closure activities.

- Progressive rehabilitation including prompt reshaping, topsoiling and revegetation;
- Watering of haul roads and other trafficked areas;
- Watering dig faces prior to and during digging;
- Real-time monitoring with alarm triggers set to enable implementation of reactive dust control management measures; and
- Modifying operations during adverse weather conditions.

6.3.2 AIR QUALITY MONITORING AND CRITERIA

DCPL monitors air quality (dust) surrounding the mine site by means of a network of nine (9) static dust fallout gauges, four (4) high volume PM10 air samplers, one real-time dust monitor (TEOM) and a meteorological monitoring station (i.e. weather station). The locations of these monitoring sites are shown on **Figure 3** (**Appendix 1**).

Monthly dust fallout levels are measured so that dust deposition rates in g/m2/month can be determined at each monitoring site. The nine (9) gauges are located around the DCM, except for gauge D7 which is located within the Village of Wards River.

The high volume air samplers (HVAS) (PM10) are located at locations representative of surrounding sensitive receivers, along Johnsons Creek Road ("Hattam" – located to the northeast of the mine, "Twin Houses" – located to the east of the mine and "High Noon" – located to the south of the mine). A HVAS unit is also located on private land along the Bucketts Way ("Edwards" – located west of the mine).

HVAS sampling occurs for a 24 hour period every 6 days in accordance with AS 2724.3. The EPA goal for air quality is an annual average limit of 30ug/m3/day and a National Environmental Protection Measure (NEPM) 24-hour average limit of 50ug/m3/day.

A Tapered Element Oscillating Microbalance (TEOM) analyser measuring PM10 and PM2.5 is used to continuously measure particulate matter. Real-time air quality monitoring data is used to identify when ambient PM10 levels in the surrounding environment are elevated and require contingency action. Real-time response triggers have been established and are designed to provide a system to warn operation personnel (via SMS) when particulate emissions are approaching a relevant criterion and to implement a hierarchy of management/control actions to mitigate potential impacts.

6.3.3 REVIEW OF AIR QUALITY MONITORING RESULTS AND PERFORMANCE

6.3.3.1 DUST DEPOSITION GAUGES

Table 11 shows the dust deposition results for nine (9) dust deposition gauges.

Table 11 Dust Deposition Gauge Results

	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
D3	1.2	0.8	0.3	1.4	0.2	0.5	1.4	1.0	2.1	0.9	5.8[I,B,V]	6.3[I,B,V]
D4	0.4	3.3	0.4	1.8	0.2	2.3	12.5[I,V]	4.8[I,V]	2.8	0.2	7.7[I,V]	3.8[V]
D5	0.7	0.7	1.1	0.7	0.4	2.1	0.6	0.6	1.3	0.3	5.7[I,B]	0.6
D7	0.5	0.5	0.5	0.8	0.4	2.9	1.1	2.1	1.8	0.7	0.6	0.5
D8	1.3	0.6	0.3	0.8	0.3	0.4	0.8	0.9	0.6	0.2	0.2	0.5
D9	1.6	0.9	0.4	0.9	0.3	0.4	6.8[I,V]	1.2	0.7	0.5	0.3	0.2
D10	0.5	0.9	0.9	0.6	0.6	0.3	1.8	0.7	0.9	0.5	0.5	0.4
D12	0.3	0.7	0.3	0.3	0.2	0.5	1.2	1.9	0.5	0.2	0.3	0.2
D13	8.3[I,B,V]	4.8[I,B]	2.2	0.3	0.2	0.3	0.9	0.2	6.3[I]	4.3[I]	2.0	0.2

Notes/excluded results, Visual Description Guide:
I=Insects: Whole insects e.g. spiders, ants, moths or outer parts of insects including wings, legs and exoskeletons.
V=Vegetation: Plant debris and algae including trichomes, decomposed organic matter and particulates showing characteristic cellular structures.
B=Bird droppings: The most common contamination.

Dust levels recorded had an average value of 0.9 g/m2/month (contaminated results not counted). Elevated values were at times affected by various degrees of contamination from insects, bird droppings and vegetation (seeds/grasses). All dust deposition gauges complied with the total dust deposition annual average criterion of 4.0 g/m2/month and the incremental annual average increase criterion of 2.0 g/m2/month.

6.3.3.2 HIGH VOLUME (PM10) AIR SAMPLERS

HVAS PM10 monitoring results show that all monitoring locations (in terms of monitored days) did not exceed the National Environmental Protection Measure (NEPM) of 50ug/m3/day, listed under Condition 19, Schedule 3 of the Project Approval, except for one monitored day (13 December 2023) where three HVAS monitors (High Noon, Twin Houses and Hattam) recorded results greater than 50ug/m3/day. A laboratory visual analysis reported high levels of dirt in the samples and investigation

revealed that the areas surrounding the HVAS sites had recently been mowed in addition to fire burn off in the areas. **Figure 3-3** (**Appendix 3**) shows the recorded PM10 24hr results across the four HVAS monitoring sites during the reporting period.

The HVAS annual rolling averages remained low and fluctuations generally reflect changes in meteorological conditions throughout the year, i.e. rainfall and wind. Annual rolling averages are presented in **Table 13**.

6.3.3.3 HIGH VOLUME (TSP) AIR CALCULATION

Concentrations of TSP are calculated, based on the results of the PM10 HVAS and the assumption that 40% of TSP is PM10, as per the relationship obtained from co-located TSP and PM10 monitors operated in the Hunter Valley (NSW Minerals Council, 2000) as per the approved AQMP.

The derived TSP annual rolling averages for the four HVAS are shown in **Appendix 3**. The TSP rolling average at the end of the reporting period for "High Noon" was 21.2, "Twin Houses" was 27.6, "Hattam" was 24.9 and "Edwards" was 20.7 ug/m3/day. Thus, annual averages for all sampling locations were well below the 90 ug/m3/day criterion.

6.3.3.4 TEOM (PM10 AND PM2.5) MONITORING

A TEOM which measures PM10 and PM2.5 on a real-time continuous basis is utilised as a management tool for operations to guide proactive and reactive mitigation measures.

24-hour average results for the reporting period and graphical representation of the running/cumulative average of PM10 results are provided in **Appendix 3**. The annual average from 1 July 2023 to 30 June 2024 is 10.4 ug/m3 for PM10. The TEOM results are generally consistent with those measured by the HVAS units.

A register was maintained recording any trigger alarms from the TEOM system and the response implemented by DCPL. All alarms during the reporting period resulted from either external events such as strong winds and regional dust storms or system calibration and maintenance.

6.3.4 ANALYSIS OF DATA TRENDS AND COMPARISON WITH EA PREDICTIONS

Table 12 presents the annual average dust deposition levels at the end of the reporting period (June 2024) along with the previous five years. The 2024 reporting period annual average dust deposition levels are within the range of results recorded in the previous five years at all sites. All 2024 annual averages are well below the performance criteria. Graphical representation of dust gauge results and annual rolling averages are provided in **Appendix 3**.

Table 12 Annual Average Dust Deposition Gauge Results

Reporting Period	Total Insoluble Solids (g/m²/month)								
	D3	D4	D5	D7	D8	D9	D10	D12	D13
Criteria	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**
2020	1.4	1.2	1.5	1.2	1.1	1.2	1.3	1.1	1.3
2021	1.6	0.6	0.9	0.7	0.5	0.6	0.6	0.4	1.5
2022	1.9	0.3	1.8	0.9	0.5	0.3	0.4	0.3	1.4
2023	1.1	0.6	1.3	1.0	0.6	1.1	0.9	0.4	1.0
2024	1.0	1.4	0.8	1.0	0.6	1.2	0.7	0.6	0.8

Results of depositional dust monitoring are in concurrence with the DCM Environmental Assessment (EA) (2010) which predicts the annual average criteria of 4 g/m2/month will not be exceeded at any

receiver and that project only incremental increases in annual average dust deposition will not exceed the applicable 2 g/m2/month EPA criterion at any receiver.

Table 13 presents the reporting period (June 2024) HVAS PM10 annual averages along with the previous five years.

Table 13 Annual Rolling Average HVAS (PM10) Results

Reporting Period	PM_{10} (µg/m3)			
	High Noon	Twin Houses	Hattam	Edwards
Criteria	**30**	**30**	**30**	**30**
2020	15.6	21.0	19.6	16.6
2021	6.2	7.2	7.1	7.0
2022	5.5	7.2	6.5	5.6
2023	4.9	6.3	7.8	5.8
2024	8.5	11.1	10.0	8.3

Annual averages for all sampling locations were below the 30 µg/m3/day criterion set under the Project Approval. Graphical representation of the annual rolling average for the four HVAS including PM10 and TSP during the reporting period is provided in **Appendix 3**. The HVAS rolling averages over the 12-month period remained consistent with levels of 2023, 2022, 2021 and the years prior to the 2020 reporting period. The elevated averages in 2020 were primarily due to the poor air quality during late 2019 resulting from the widespread bushfires.

Results of HVAS monitoring are in concurrence with the DCM EA (2010) which predicts the annual average PM10 criterion of 30 µg/m3 will not be exceeded at any receiver and that project only 24 hour PM10 concentrations will not be above the 50 µg/m3 criterion at any privately owned receiver with the exception of "Hattam" which is now mine owned and in close proximity to the mining operations.

6.3.5 GREENHOUSE GAS

Measures taken to minimise Greenhouse Gas (GHG) emissions from the DCM are described in Section 6.2 of the AQMP.

Yancoal's operations are reported under the National Greenhouse and Energy Reporting Scheme (NGERS) each financial year. DCM Scope 1 and Scope 2 emissions calculated for the 2022-2023 financial year was 3,349 tCO_2-e. **Table 14** below shows GHG emissions at the DCM over the past three financial years.

Table 14 DCM GHG Emissions

	2020-2021	2021-2022	2022-2023
Scope 1	2,222	2,302	2,401
Scope 2	711	961	948
Total GHS Emissions (t CO_2-e)	**2,933**	**3,263**	**3,349**

Scope 1 sources which are direct emissions from mining activities and the combustion of fuel and Scope 2 sources include electricity consumption of purchased electricity by the mine during the reporting period.

Scope 1 and Scope 2 emissions at the DCM are significantly below the Environmental Assessment (EA) for the DEP (2010) predictions. The EA predicted 0.14 Mt CO_2-e per annual for Scope 1 emissions and 3.48 Mt CO_2-e per annum for Scope 2 emissions.

There was approximately a 3% increase in overall emissions since the previous NGERS reporting period (2021-2022). This is attributable to an increase in the combustion of fuel for energy as PAF rehandle and rehabilitation works recommenced in the 2022-2023 NGERS reporting period.

There was a negligible difference in emissions from electricity usage (1% decrease). While coal loading at the DCM ceased in December 2021, there was an increase in the use of electric pumps with PAF rehandle and rehabilitation works and the dewatering of mine water storages post coal mining.

With the cessation of mining mid-way through the previous financial year, fugitive emissions from DCM are no longer recorded.

The main source of Scope 1 emissions at DCM during the 2022-2023 period was from diesel combusted by heavy vehicles. Mainly from haul trucks use at 43% of diesel combusted followed by excavators at 39%, dozers at 14% and graders at 4%. The heavy vehicle fleet at DCM is detailed in **Section 4.3.3.**

The 2023-2024 financial year GHG emissions reporting will be finalised within the next reporting period and a summary will be included in the 2024 – 2025 DCM Annual Review.

6.3.6 AIR QUALITY COMPLAINTS

No complaints relating to air quality were received during the reporting period.

6.4 BIODIVERSITY MANAGEMENT

In accordance with Condition 33, Schedule 3 of the Project Approval, DCM is required to implement the Offset Strategy and achieve the broad completion criteria to the satisfaction of the Secretary of the DPHI. The management of biodiversity at the DCM in both the Mining Lease areas and the Biodiversity Offset Area is undertaken in accordance with the approved Biodiversity Management Plan (BMP).

The DCM Annual Biodiversity Report 2024 (**Appendix 7**) provides a review of the effectiveness of measures in the Biodiversity Management Plan (BMP) for the annual period ending 30 June 2024 in accordance with Section 7.2 of the BMP. The scope of this report covers biodiversity management activities across both the Mining Lease areas and the Biodiversity Offset Areas.

In accordance with the BMP, the DCM Annual Biodiversity Report 2024 is included in **Appendix 7**.

6.4.1 VEGETATION CLEARANCE REPORT

Vegetation clearance is undertaken in accordance with the BMP Section 5.4 Vegetation Clearance Plan. Prior to any clearance operations a Clearing Plan is prepared, and vegetation pre-clearance surveys are undertaken.

Vegetation clearance for the DEP was finalised for operational purposes in 2017. During the 2023/2024 reporting period, no vegetation clearance was undertaken.

The area of disturbance at the end of June 2024 is shown in **Figure 4** (**Appendix 1**).

Information obtained during vegetation clearance activities (i.e. habitat features, hollows cleared and fauna observed) has been used to determine the requirements for nest box replacement in the Biodiversity Offset Areas.

6.4.2 NEST BOX PROGRAM

Nest box management is undertaken in accordance with the BMP Section 6.4. Nest boxes have been installed to provide habitat opportunities in the short to medium-term for a number of arboreal fauna species including the Squirrel Glider.

AMBS Ecology & Heritage (AMBS) was commissioned to implement the Nest Box Program as described in the BMP Section 5.4.2 and Section 6.4. A *Nest Box Program for the Duralie Offset Area, Annual Report 2023* was completed by AMBS in June 2024. Results are included in the DCM Annual Biodiversity Report 2024 which is included in **Appendix 7**.

6.4.3 WEED CONTROL AND MONITORING

The weed control program aims to manage weeds to minimise their impact on native flora and fauna.

Weed spraying activities are generally undertaken between the months of September and April each year. Physical management measures such as mechanical removal, slashing and/or back-burning can be undertaken at other times of the year as required.

A contractor is engaged at the DCM to undertake weed management activities on an ongoing basis. Follow-up weed treatment of all remnant enhancement and regrowth management VMUs (Vegetation Management Unit) recommenced in October 2023 and continued through to April 2024. During the reporting period, manual weed removal was completed in the native rehabilitation areas. Weed treatment within VMUs will recommence in spring 2024 due to ongoing weather events. The key species targeted included blackberry, lantana, privet, wild tobacco and Giant Parramatta grass.

Weeds monitoring to evaluate the effectiveness of control measures is undertaken in conjunction with the annual vegetation monitoring and is documented in the DCM Annual Biodiversity Report 2024, which is included in **Appendix 7**.

6.4.4 FERAL ANIMAL CONTROL AND MONITORING

The objective of feral animal control program is to manage feral animals to minimise their impact on native flora and fauna in the Biodiversity Offset Areas or the impact on agricultural production in other surrounding areas.

MDP Vertebrate Pest Management has been engaged by DCPL since 2016 to implement feral animal control programs across property owned by DCPL including both the Stratford and Duralie Mining Leases and the Stratford and Duralie Biodiversity Offset Areas. During the reporting period feral animal control was undertaken between August 2023 and September 2023. The program involved a combination of trapping and shooting. The program was productive with a total of 3 wild dogs, 2 foxes and 2 feral cats trapped and shot over the program duration. The next scheduled round of feral animal control programs will commence in Spring 2024 at both DCM and SMC. The next feral animal survey of the Duralie Mining Lease and Duralie Biodiversity Offset Area is scheduled to be undertaken in 2025.

Feral animal monitoring will guide the ongoing management efforts for controlling feral animals across the Duralie Mining Lease and Duralie Biodiversity Offset Area.

6.4.5 CONTROLLING ACCESS AND MANAGING GRAZING

The BMP requires works to be undertaken to exclude livestock and control access to the Biodiversity Offset Areas.

During the reporting period contractors were engaged to undertake maintenance activities on access tracks, culverts, gates and fences. The works included slashing of tracks, firebreaks and repairs to damaged gates and culverts. Additional signage was also installed on the key access points to the Biodiversity Offset Areas. In preparation for bushfire season, old logging tracks were reinstated as control lines and to protect juvenile plantings in the biodiversity areas. Fencing and gate repairs were completed following bushfires that occurred in December 2023.

The *Duralie Coal Mine Offsets Ecosystem Functional Analysis Monitoring 2024* prepared by Wedgetail (included in **Appendix 7**). Report found fencing on external boundaries was generally in good condition. There were no signs of livestock at the time of the survey.

Livestock continue to be excluded from the Biodiversity Offset areas with the exception of 'crash grazing' programs in preparation for revegetation activities following a field assessment by a qualified consultant.

6.4.6 BUSHFIRE MANAGEMENT

The objective of bushfire management in the Biodiversity Areas is to prevent impacts from unplanned bushfire and to use fire to promote biodiversity.

To assist with bushfire management, access tracks and firebreaks have been constructed and maintained as shown in the BMP Figure 9.

Monitoring of fuel loads to evaluate bushfire risk and guide bushfire hazard reduction activities is undertaken in conjunction with the annual vegetation monitoring. Bushfire risk will continue to be mitigated through the maintenance of access tracks and fire breaks.

The 2024 monitoring survey found that VMUs that have been subject to multiple disturbances such as ground preparation associated with revegetation and bushfires (i.e. 2019) have seen their LFA index score recover and exceed the 2013 baseline scores.

6.4.7 SEED COLLECTION AND PROPAGATION

Revegetation in the BMP Revegetation Areas has occurred via seed and tubestock. Local endemic species are preferentially used where a seed supply is available, however consideration will be given to the use of a high quality seed sourced further from the site as required.

Where possible, seed required for revegetation activities has been collected from within the Biodiversity Offset Area and surrounds. Specific tree and shrub species which have not been available for collection have been sourced through external third-party suppliers. Further seed collection may be undertaken if found necessary to meet the completion criteria of the BMP offset revegetation and mine site rehabilitation.

Wedgetail Project Consulting, along with several nurseries, have been engaged to assist in the propagation of native plant species with tube-stock grown under controlled nursery conditions and delivered to site as required for revegetation works.

6.4.8 REVEGETATION AND REGENERATION MANAGEMENT

The aim of revegetation is to establish a range of habitat niches including native canopy, and understorey, with the goal of achieving self-sustaining vegetation communities as well as increasing the resilience to identified risks such as fire, herbivory and future weed invasion.

Revegetation works in the Duralie Biodiversity Offset Areas has been undertaken progressively since the implementation of the BMP. Revegetation trials initially commenced in 2016. During May 2024 infill planting was completed within the Biodiversity Offsets, in total 7,632 plants were planted across the Duralie Offsets. The 2024 planting program aimed at infill planting in 10 VMUs targeting 5 vegetation communities in the Duralie Offsets, these where the *Spotted Gum – Ironbark, Cabbage Gum Woodland, Tallowwood – Brush Box – Sydney Blue Gum*, *Sydney Peppermint-Smooth-Barked Apple*, and the *Grey Box – Forest Red Gum – Grey Ironbark Open Forest*. While increased rainfall in April and May restricted access to a number of VMUs planting was completed within VMUs AC, AD, AF/AE, Y, S, T, X and V with three of the five targeted communities able to be planted.

The 2025 infill planting program is currently being finalised. Infill planting in 2025 will focus on VMUs across the Duralie Offsets which monitoring has identified require infill planting and VMUs that could not previously be accessed.

6.4.9 BIODIVERSITY OFFSET MONITORING AND REPORTING

The BMP monitoring program aims to monitor and report on the effectiveness of the BMP management measures and progress against the detailed performance and completion criteria. As described in the Section 7 of the BMP an annual report reviewing DCPL's environmental performance and progress against the requirements of the BMP including monitoring and reporting is prepared annually and appended to this Duralie Coal Mine Annual Review.

The DCM Annual Biodiversity Report 2024 for the annual period ending 30 June 2024 is included in **Appendix 7** and reports on monitoring for:

- Effectiveness of revegetation in the offset area;
- Usage of the offset by fauna;
- Effectiveness of weed control;
- Effectiveness of feral animal control;
- Nest box monitoring program.

Habitat and vegetation condition monitoring is undertaken to quantitatively measure the change in habitat and vegetation condition over time. The visual monitoring and photo monitoring programs are undertaken concurrently with the vegetation monitoring to provide additional information on the change of the Biodiversity Offset Areas over time and inform maintenance requirements.

Initial vegetation surveys were undertaken in 2013 and 2014. The annual vegetation and landscape function monitoring continues to be undertaken and was repeated in February 2024. The results are provided in the DCM Offsets Ecosystem Functional Analysis Monitoring Report 2024 prepared by Wedgetail (**Appendix 7**). The next round of monitoring is scheduled for 2025.

Monitoring of fauna usage within the Biodiversity Areas is conducted every three years to document the fauna species response to improvement in vegetation and habitat in the Biodiversity Areas and assess the performance in providing habitat for a range of vertebrate fauna. The surveys include an assessment of habitat complexity, species richness and abundance.

AMBS was engaged to undertake fauna monitoring within the Biodiversity Offset areas and native mine rehabilitation areas during Summer 2021/2022. The results are provided in the DCM Fauna Surveys of the Offset and Mine Rehabilitation Areas, January 2022. A summary of the survey results is included in the Annual Biodiversity Report 2024 (**Appendix 7**). The next round of monitoring is scheduled for October 2024.

6.4.10 LONG TERM SECURITY AND CONSERVATION BOND

Long-term Security

In accordance with Condition 42, Schedule 3 of the PA, DCPL is required to make suitable arrangements for the long-term security of the DEP Biodiversity Offset Area. DCPL used the mechanisms available under section 88E(3) of the NSW *Conveyancing Act 1919*, namely:

> Registration of a Positive Covenant under section 88E(3) of the NSW *Conveyancing Act 1919*; and Registration of a Restriction on the Use of Land by a Prescribed Authority under section 88E(3) of the NSW *Conveyancing Act* 1919.

Public Positive Covenants and Restrictions on the Use of Land for the Biodiversity Offsets have been registered on title with NSW Land and Property Information (LPI) in May 2015.

Conservation Bond

In accordance with Condition 44, Schedule 3 of PA 08_0203, DCPL is required to lodge a Conservation Bond with the DPHI which covers the cost of implementing the Biodiversity Offset Strategy detailed in the BMP.

A conservation bond is in place for the Biodiversity Offset areas. The amount was calculated by Greening Australia, verified by Rider Levett Bucknell in December 2013 and approved by DPE on 12 December 2013.

A revision of the Duralie Offset Conservation bond has commenced within the reporting period. The revised conservation bond will be prepared and lodged with DPHI in the next reporting period.

6.4.11 BIODIVERSITY COMPLAINTS

No complaints related to the management of biodiversity were received during the reporting period.

6.5 GIANT BARRED FROG MANAGEMENT

Management and monitoring of the Giant Barred Frog population is conducted in accordance with the approved DCM Giant Barred Frog Management Plan (GBFMP). The GBF monitoring program has been undertaken to establish baseline data of the local frog population and monitor whether a greater than negligible impact on the Giant Barred Frog population has occurred as a result of rainfall runoff from the mine's irrigation areas. Monitoring results are used to assess the DCM against performance measures detailed in the GBFMP.

Annual monitoring and reporting on the implementation of the Giant Barred Frog Management Plan was undertaken between 2011 and 2016.

As stated in Section 7 of the GBFMP the timing and frequency of GBF monitoring will be triggered upon commencement of irrigation within the DEP Additional Irrigation Areas. DCM does not propose to undertake the irrigation activities associated with the DEP and as such, the Project has not presented a potential impact on the Giant Barred Frog population. All irrigation activities at the DCM ceased in 2018 and all irrigation equipment has been removed.

No further monitoring of the Giant Barred Frog has been required since 2016 in accordance with the GBFMP.

In accordance with Condition 31A, Schedule 3 of the PA and the GBFMP, DCPL is required to prepare a long-term study on the life-cycle and population of the GBF.

DCPL did not commence irrigation of the Additional Irrigation Areas approved under the DEP, therefore the requirement for preparation of the Long-term GBF Study was not triggered. Notwithstanding, Dr Arthur White has prepared a GBF Review Report capturing all the monitoring and baseline data collected between 2011 and 2016 by DCPL; the results of which will be submitted to the DPHI and Department of Climate Change, Energy, the Environment and Water (DCCEEW) in support of DCPL's proposal seeking redundancy of the GBFMP within the next reporting period.

6.6 BLASTING

6.6.1 BLAST CRITERIA AND CONTROL PROCEDURES

Blasting at the DCM was conducted in accordance with Conditions 8-15, Schedule 3 of the PA and respective EPL conditions and the approved Blast Management Plan (BLMP). Blasting criteria, blasting hours, blasting frequency, property inspection requirements and operating conditions are provided in Conditions 8 to 12, Schedule 3 of the PA.

6.6.2 REVIEW OF BLAST MONITORING RESULTS AND PERFORMANCE

As mining ceased at the DCM in December 2021, no vibration or blast monitoring is currently required. There are no proposed closure and rehabilitation activities planned at this stage that have the potential to cause vibration impacts. Should blasting be determined to be necessary in the future for closure execution activities, the Annual Review would be updated to include monitoring requirements.

Blast monitors were removed from service at the DCM following the final blast on 9 September 2021.

No blasting was undertaken at DCM during the reporting period.

6.6.3 PROPERTY INSPECTIONS AND INVESTIGATIONS

Building condition surveys of several privately owned dwellings located in the vicinity (within 2kms) of the mine have previously been undertaken by an independent structural engineer. In addition, surveys may be commissioned following a request by a landowner concerned about dwelling damage which they consider may be related to blasting activity at the DCM (Condition 11, Schedule 3).

During the reporting period, no building inspections of private residences were undertaken. No requests were received from any landowners to undertake a building inspection or to update a previous inspection report.

The Former Weismantel's Inn is a heritage listed building owned by DCPL. An inspection of the Former Weismantels Inn was undertaken in May 2022 and reported there is no evidence that the former Weismantel Inn building has been affected by blast-induced ground vibrations.

6.6.4 BLASTING COMPLAINTS

No blast related complaints were received during the reporting period.

6.7 NOISE

6.7.1 NOISE CRITERIA AND CONTROL PROCEDURES

DCM has an approved Noise Management Plan (NMP) that establishes a noise management strategy which:

- Identifies noise criteria;
- Outlines proactive and responsive noise management and control measures;
- Formulates a noise monitoring program;
- Establishes data assessment protocols; and
- Details reporting and review requirements.

Noise emissions from the DCM are managed in accordance with the criteria and procedures described in the NMP. The noise criteria are specified in PA 08_0203 and EPL 11701.

DCPL implements measures to ensure noise from the DCM is managed to approved levels, through a combination of the following:

- Ensuring best management practices are implemented and reviewed;
- Implementing noise controls to reduce noise from the source and attenuate noise transmission; and
- If necessary, implementing measures to control noise at receivers following a review of monitoring data.

The noise monitoring program has included both attended noise surveys and real-time noise monitoring. The results of compliance attended monitoring are used to assess compliance with relevant noise impact assessment criteria in the NMP. Real-time noise monitoring results are used for ongoing performance assessment and will assist in the implementation of pre-emptive management actions to avoid potential non-compliances. In addition, rail noise monitoring, meteorological monitoring and sound power testing is also required under the NMP.

The NMP was revised and updated during the 2021-22 reporting period to reflect the reduction in noise-generating activities as the DCM transitions to mine closure. The noise monitoring program components will continue to cease in a staged manner, as follows:

- Real time noise monitoring ceased following suspension of PAF rehandle in September 2023
- Rail noise monitoring ceased following the completion of ROM coal rail movements in December 2021; and
- Attended noise monitoring and Sound Power Level monitoring would only be undertaken during periods when bulk rehabilitation earthworks are undertaken.

The locations of noise monitoring sites are shown on **Figure 3 (Appendix 1)**.

6.7.2 REVIEW OF ATTENDED NOISE MONITORING RESULTS AND PERFORMANCE

DCPL undertakes quarterly attended noise monitoring surveys in accordance with the NMP in order to determine the status of compliance with noise limits. Attended noise monitoring is only undertaken during periods when mining activities or bulk rehabilitation earthworks are occurring in accordance with the NMP. PAF rehandle works recommenced at the DCM in October 2022 triggering the resumption of quarterly attended noise monitoring. Attended noise surveys were conducted during Q3 2023. No further noise surveys where required during the reporting period.

All noise performance assessments of daytime and night-time operational noise emissions found DCM to be compliant with the relevant criteria, contained within the DCM PA 08_0203 and EPL 11701, at all attended monitoring locations.

The summary results of the attended noise surveys undertaken during the reporting period are provided in **Appendix 5**. Noise monitoring locations are shown on **Figure 3** (**Appendix 1**). The full Noise Survey Reports are available at the Duralie Coal website (www.duraliecoal.com.au).

6.7.3 ANALYSIS OF DATA TRENDS AND COMPARISON WITH EA PREDICTIONS

The 2010 EA and 2014 EA provide predictions on mine contributed noise emissions for various operational years. Year 5 (2015) was predicted as the maximum operational noise levels for the Modification Project with reduced operational noise from 2016 to 2019. In terms of the four monitoring locations ("Woodley", "Fisher-Webster", "Moylan" and "Oleksiuk & Carmody") predicted mine contributed noise emissions were consistent with measured values for all locations, factoring in the current reduced fleet and reduced operating hours at the DCM.

Results of quarterly noise monitoring during 2016 to 2023 has shown mine contribution to be generally inaudible. During the 2022/23 reporting period the mobile plant fleet and the DCM was significantly reduced leading to a reduction in the total site sound power level and noise emissions. This is reflected in the attended noise monitoring results.

6.7.4 REAL TIME NOISE MONITORING SYSTEM

A real-time noise (RTN) monitoring response protocol is described in the NMP Section 7.3.5. Real-time monitoring was used as a management tool to assist DCPL to take proactive management actions and implement additional noise mitigation measures to avoid potential non-compliances. Noise investigation triggers were in place which would send alarms when noise emissions were approaching levels which may exceed the noise criteria at privately-owned receivers. The real-time noise monitor recorded noise levels during the evening and night-time periods, on days when operations are occurring at the DCM. Noise investigation trigger thresholds were set at 42 dBA between the hours of 7.00 pm and 7.00 am.

Details of any RTN alarms and the operational responses implemented by DCPL are recorded in the RTN Response Register. No alarms were attributed to mining or rehabilitation activities during the reporting period

6.7.5 MOBILE PLANT NOISE MONITORING

The DCM fleet of mobile plant including haul trucks, excavators, dozers, graders and other items are required to be assessed annually for sound power levels (SWL) in accordance with the NMP. SWL's are compared to the target SWL's referred to in the 2010 EA and 2014 EA and are also compared to historical results to track performance over time. Availability of mobile plant for noise testing is subject to production requirements and servicing/maintenance/breakdowns.

The operational fleet during the reporting period is outlined in **Section 4.3.3**.

Mobile plant sound power monitoring was undertaken in February 2023, with additional monitoring in June 2023, by SLR. The monitoring concluded that all mobile fleet complies with noise targets.

6.7.6 NOISE COMPLAINTS

No noise related complaints were received during the reporting period. The complaints list is included in **Appendix 6** (when applicable).

6.8 LANDSCAPE AND VISUAL SCREENING

The overall visual impacts of the DCM are described in the EA 2014 are generally considered low. However, some local impacts will occur and undertakings such as the following have been, and will continue to be, adopted to lessen these impacts:

- Minimising (where possible) disturbance to native vegetation, especially where such vegetation is providing visual screening;
- Retention specifically of ridge Open Forest and regrowth forest (where possible);
- Retention of all riparian vegetation along Mammy Johnsons River and those out of pit sections of Coal Shaft Creek;
- Ensuring out of pit emplacement design produces a landform which integrates with the adjoining natural landform;
- Painting of substantial fabricated infrastructure with a colour ("Rivergum") that assists it to blend in with the adjoining landscape;
- Maintenance of infrastructure to retain the ability of such infrastructure to blend into the surrounding landscape over the life of the project; and
- Placement, configuration and direction of lighting to reduce offsite nuisance effects of stray light;
- Prioritising rehabilitation of exposed and outer batters of waste emplacements;

Vegetation would be established around the perimeter of the open pit voids to provide visual screening.

In accordance with Condition 51, Schedule 3 of the PA, a visual screen has been constructed and maintained along a section of The Bucketts Way to the north-west of the mine in consultation with DPHI, Roads and Maritime Services (RMS) (now Service NSW), Great Lakes Council (now MidCoast Council) and DCM Community Consultative Committee (CCC). As predicted some additional vantage points of the mine have been exposed through the clearing of the northern extent of the Weismantel Pit and landscaping works and progressive rehabilitation will continue to reduce the visual impact. The addition of new screen trees during the previous reporting period will help reduce impacts to visual amenity for road users of The Bucketts Way, Duralie Road and Martins Crossing Road. Once the tree screen is matured and established, DCM would remove the existing visual screen originally installed as part of the PA.

No visual amenity related complaints were received during the reporting period. The complaints list is included in **Appendix 6** (when applicable).

6.9 CULTURAL AND NATURAL HERITAGE CONSERVATION

Cultural and natural heritage at the DCM are managed in accordance with the approved Heritage Management Plan (HMP).

In accordance with the HMP, topsoil disturbance during earthworks, construction and operation of the mine has been monitored utilising officers of the Karuah Local Aboriginal Land Council (KLALC). During the reporting period no topsoil disturbance was undertaken. No further topsoil stripping is proposed at the DCM.

In accordance with the HMP, monitoring of the Aboriginal heritage sites at the DCM has been undertaken. There was no change to the status of the known heritage sites during the reporting period.

Table 15 Aboriginal Heritage Sites within EA Study Area

Site Code (refer EA documentation)	Site Type	Status
DM2	Isolated Artefact	Salvaged by KLALC
DM3	Scarred Tree	Existing, no disturbance
DM4	Scarred Tree	Existing, no disturbance
DM5	Scarred Tree	Salvaged by KLALC
DM6	Isolated Artefact	Existing, not located by KLALC
DM9	Open Artefact Scatter	Existing, no disturbance
DM10	Scarred Tree	Existing, no disturbance
DM11	Isolated Artefact	Disturbed, not located by KLALC
38-1-0033	Scarred Tree – Honey Tree	Existing, no disturbance

The former Weismantels Inn is a heritage listed building owned by DCPL. A building inspection of the Weismantels Inn is conducted every two years while blasting activities occur.

An inspection of the Former Weismantels Inn was undertaken in May 2022 and reported there is no evidence that the former Weismantel Inn building has been affected by blast-induced ground vibrations.

6.10 PAF MATERIAL MANAGEMENT AND SPONTANEOUS COMBUSTION

An assessment of the geochemical characteristics of the waste rock material associated with the development of the DEP is provided in the Geochemistry Assessment (EA 2010) prepared by EGi (2009). A further Geochemistry Assessment (EGi, 2012) concluded that the waste rock materials generated from Weismantel and Clareval open cut mining areas would be expected to be include PAF material, with some potentially acid forming – low capacity (PAF-LC) and non-acid forming (NAF) materials also expected to be present.

PAF material is managed in accordance with Section 7.2 of the DCM Surface Water Management Plan. PAF waste rock material is segregated and selectively handled and then placed in either in-pit (below the predicted final water table recovery level) or out-of-pit engineered PAF waste cells. PAF waste rock material would be encapsulated within constructed containment cells and capped with a low permeability layer when placed in out-of-pit waste rock emplacements.

During operations, agricultural lime is placed on the open pit floor and interim waste rock in-pit and out-of-pit waste rock emplacement lifts/faces where PAF material is present, to minimise the generation of acid rock drainage.

DCPL monitors the water quality of contained water storages (i.e. pH and solute concentrations) as part of the existing surface water monitoring program. If in the event acid rock drainage is identified

through the surface water monitoring program, specific acid rock drainage controls will be implemented. Refer to the surface water monitoring results in **Section 7.3.2** of this report.

During the reporting period PAF materials have been appropriately managed to minimise the potential for any short-term or long-term effects of acid rock drainage.

Any incidences of spontaneous combustion at the DCM are managed in accordance with an internal Spontaneous Combustion Principal Mining Hazard Management Plan. This plan provides a comprehensive overview of processes implemented at the DCM to manage identified hazards associated with spontaneous combustion. Management and mitigation practices generally involve reducing the interaction of potentially reactive materials with water and oxygen by appropriate dumping practices, profiling and capping any materials likely to heat and reducing the time coal faces are exposed prior to mining.

During the reporting period no events of spontaneous combustion were identified at the DCM.

DCPL had previously identified areas of self-heating on the PAF waste emplacements and continue to undertake remedial works to these areas. PAF rehandle activities are ongoing to place all identified PAF material in pit below the predicted post-mining groundwater table level.

7.0 WATER MANAGEMENT

Water management is undertaken in accordance with the approved Water Management Plan (WMP) and sub-components of the plan including surface water, groundwater and site water balance required under Condition 29, Schedule 3 the PA. The local and regional hydrological setting along with the baseline data is provided in the WMP.

The main objectives of the water management system on-site are:

- Protect the integrity of local and regional water resources;
- Operate such that there is no uncontrolled overflow of contained water storages;
- Maintain separation between runoff from areas undisturbed by mining and water generated within active mining areas; and
- Provide a reliable source of water to meet the requirements of the DCM.

The main principles of the water management system on-site are to:

- Minimise the generation of mine related water and divert clean water around disturbed areas;
- Minimise storage requirements by maximising re-use of mine related water;
- Remove potential impacts on downstream water resources by provision of secure containment on site and disposal by irrigation re-use;
- Implement a fail-safe system, whereby under extreme events in excess of design capacity, mine related waters would spill to the mine pit and not to the clean water catchments; and
- Not allow sediment laden water having an elevated suspended solids concentration to be discharged off site.

Decommissioning of other redundant water management structures has also commenced. Consistent with the approved DCM final landform design, Auxiliary Dam 1 has been dewatered, decommissioned and rehabilitated. AD2 has been dewatered and is in the process of being decommissioned.

7.1 WATER SUPPLY AND DEMAND

The DCM water management system has operated under a surplus water balance, with a trend for increasing water storage on-site over time. The main water supply storage on-site for use in dust suppression is the Main Water Dam (MWD) (monitoring point SW3) located to the northwest of the Infrastructure Area. The MWD is the principal permanent mine water storage on-site alongside the Clareval and Weismantel Pits. Water witihin these storages comprises of pit produced water (runoff to/rainfall/seepage to), water from specific sediment dams and surface water runoff from the infrastructure area.

The principal water losses in the water system are:

- Water used for dust suppression
- Evaporation from the Main Water Dam (MWD) and the void water storages.

The Main Water Dam's current storage capacity is approximately 1405 ML whilst Auxiliary Dam 2 was dewatered during the reporting period.

At the completion of the reporting period the MWD contained 591 ML (45.7%). No mine water was disposed of to watercourses during the reporting period.

Clareval void is now available as a water storage and pit water is no longer transferred to the mine water storage dams. MWD and AD2 are currently being dewatered to the Clareval void in preparation for decommissioning.

Surface Water Licencing

The DCM is located within the mapped extent of the Karuah River Water Source under the Water Sharing Plan for the Lower North Coast Unregulated and Alluvial Water Sources 2009. DCM is a water surplus site and no extraction of surface water from any unregulated stream is proposed for the DCM.

Groundwater Licencing

The groundwater systems within which the DCM lies, specifically relate to:

- Gloucester Basin Water Source (i.e. porous rock aquifer) under the Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016.
- Karuah River Water Source (i.e. alluvial aquifers) under the Water Sharing Plan for the Lower North Coast Unregulated and Alluvial Water Sources 2009.

DCPL currently hold WAL41518 in the Gloucester Basin Groundwater Source, for a total of 300 share components under the Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016, to account for direct and indirect take of groundwater from the porous rock aquifer.

Groundwater Licencing

DCPL holds Water Access Licence WAL41518 granted under the North Coast Fractured and Porous Rock Water Sharing Plan, that allows for up to 300 ML of groundwater to be extracted from "works" in any 12-month period. WAL41518 was formerly 20BL168404 before being renewed in 2017 and converted under the *Water Management Act 2000*.

Table 16 Water Take

Water Licence #	Water sharing plan, source and management zone (as applicable)	Entitlement	Estimated Take Previous Period – 2022 (ML)Total	Estimated Take Current Period - 2023 (ML)Total
WAL41518 - Duralie Pit (Weismantel and Clareval)	Gloucester Basin Groundwater Source - North Coast Fractured and Porous Rock Groundwater Source 2016	300ML extraction	123ML	38ML

7.2 SITE WATER BALANCE REVIEW

A water balance model of the DEP (EA 2010 and EA 2014) mine operations was developed by HEC based on an operational model of the DCM water management system. The site water balance model of the DCM water management system has been developed to simulate the behaviour of the water management system to the end of the approved mine life.

A site water balance review is undertaken annually and captures all inflows and outflows from the water management system. The water which accumulates in the open pits through rainfall or groundwater seepage is measured at the point of dewatering. An independent Annual Water Balance Review (ATC Williams, 2024) for the DCM was conducted for the 2023 calendar year and a summary is provided below.

Open Cut Pits

A mine pit water balance analysis was undertaken for the open cut pits using data recorded during 2023. The volume of 'groundwater' (inflow other than rainfall runoff and pumped inflow) reporting to the pits in 2023 is estimated to total 38 ML. Discharge from the Weismantel waste rock emplacement pore water is estimated to total 511 ML.

Table 17 Summary Water Balance – Open Cut Pits - 2023

Component	Weismantel Pit (ML)	Clareval Pit (ML)
Start of Year Stored Water Volume*	377	9,371
End of Year Stored Water Volume*	57	11,738
Change in Stored Water Volume	-320	2,367
Inflows		
Rainfall Runoff	191	438
Delayed Rainfall Runoff	511	0
Groundwater (Estimated Aquifer Interception)	38	0
Pumped Inflow (Estimated)	0	0
Pumped Inflow	99[#]	2,310
TOTAL[†]	839	2,748
Outflows		
Evaporation	22	269
Pumped Outflow	1,124	99

Component	Weismantel Pit (ML)	Clareval Pit (ML)
TOTAL	1,146	367
Inflows minus Outflows	-307	2,381

* Modelled volume.

† Calculated using estimated groundwater inflow.

Not pumped directly to Weismantel pit, used for PAF waste management.

Contained Water Storages

A water balance analysis review of the MWD and AD2 water balance 2023 (ATC Williams, 2024) is as follows: Figures are based on DCM Balance Review for the 2023 calendar year.

Table 18 Summary Water Balance – MWD and AD2 2023

Component	ML
Start of Year Total Storage Volume	1,927
End of Year Total Storage Volume	908
Change in Storage	-1,019
Inflows	
Rainfall Runoff	575
Pumped from RS6 (incl VC1 and LPCD)	47
MWD Diversion Seepage	41
First Flush Capture	9
TOTAL	**672**
Outflows	
Evaporation	289
Pumped to Open Cut Pits	1,185
TOTAL	**1,475**
INFLOW - OUTFLOW	**-803**

The above indicates a significant decrease in stored water volume in these storages during 2023.

7.3 SURFACE WATER

7.3.1 SURFACE WATER MANAGEMENT

Surface water management is managed in accordance with WMP: Appendix 2 Surface Water Management Plan (SWMP) under Condition 29, Schedule 3 of the DEP Approval and is divided into the management of clean water and mine related water as outlined below. Mine related water comprises both mine water and sediment laden/turbid water.

7.3.1.1 EROSION AND SEDIMENT CONTROL

DCM had the following dedicated erosion and sediment control structures in use during the reporting period:

- Two (2) rail siding sediment dams – designated as RS1 and RS6
- One (1) waste emplacement (rehabilitation) sediment dam – designated as VC1

Sediment dams are inspected following receipt of sufficient rain whereby such dams have the potential to spill. Diversion structures and drains are also maintained to ensure integrity of the structures and capacity for flow.

During the reporting period there were no spills from sediment dams at the DCM.

Inspection of diversion structures and sediment control dams occurred during and following heavy rainfall events. The site contained all mine water on site within its water management system and control structures remained effective.

A photographic surveillance record of key structures along the existing Coal Shaft Creek diversion is undertaken annually or following large rainfall events and was conducted in January, March, April, May and June 2024. Regular inspections of the CSC diversion are also undertaken and in general the diversion is stable and no signs of erosion or sedimentation have been identified. Maintenance activities including weed spraying and vegetation control was undertaken on the clean water diversion drains and around the prescribed dams during the reporting period.

7.3.1.2 CLEAN WATER MANAGEMENT

The main objective of clean water management is the segregation of clean water from mine related water by the construction of diversion drains around disturbed areas, thereby minimising the quantity of water that is impacted by the operation.

Surface water controls aim to prevent clean runoff water from entering the open mining pit and overburden dumping areas where practical. The main structures are:

- Diversion of Coal Shaft Creek. The diversion channel (built in stages) is required until the creek can be re-established at the conclusion of mining;
- Main Water Dam (MWD) diversion drain. This drain intercepts runoff from the catchment above the MWD and delivers that water to Coal Shaft Creek;
- Auxiliary Dam 1 (AD1) and Auxiliary Dam 2 (AD2) diversion drains;
- Clareval western diversion drain;
- Flood control embankments to prevent inundation of voids;
- A culvert under the Main Coal Haul Road which allows Coal Shaft Creek to flow through the site; and
- Various runoff control drains/bunds about disturbed areas, designed to divert clean water runoff around those areas.

The main elements of the clean water diversion system are shown in **Figure 3** (**Appendix 1**).

Inspections of diversion structures were undertaken during and after rainfall. Remedial and maintenance works were completed as required within the diversion drains and dams during the reporting period.

7.3.1.3 MINE RELATED WATER MANAGEMENT

Mine related water management refers to the control, collection and re-use of water which may have become contaminated by mining operations and associated activities. This water comprises mine water and sediment laden/turbid water. Mine water is water that has come into contact with mining activities. Sediment laden/turbid water has come into contact with disturbed areas but predominantly not core mining areas. Mine waters are typically characterised by higher salinity and on occasion lower pH. Sediment laden waters are characterised by elevated suspended solids and elevated turbidity.

During the reporting period all mine water was contained on site and no spills occurred from mine water storage dams.

The mine related water storages on site are:

- Main Water Dam (MWD)
- Auxiliary Dam 2 (AD2) (dewatered)
- Sediment Dam VC1 (rehabilitated waste dump)
- Sediment Dams RS1 and RS6 (rail siding dams)

The locations of mine and sediment laden water storage areas are shown in **Figure 3** (**Appendix 1**).

7.3.2 SURFACE WATER MONITORING AND PERFORMANCE

DCPL monitors surface water quality on and surrounding the mine site by sampling from a series of selected locations. These locations comprise both streams and water storage structures. A meteorological monitoring station (i.e. weather station) provides site rainfall data. The locations of these monitoring sites are shown on **Figure 3** (**Appendix 1**).

Surface water monitoring is conducted in accordance with the approved SWMP and EPL 11701.

Surface water is sampled and analysed on a monthly and event basis or following a sediment dam spill.

Water sampling is not undertaken in no-flow conditions. Collected waters are analysed for a suite of physical and chemical parameters. Results are compared with water quality triggers for the DCM developed in accordance with the methodology in ANZECC/ARMCANZ (2000). "*Gilberts & Associates 2011 – Development of Water Quality Trigger Levels for the Duralie Extension Project*" and EPA requirements (DCM SWMP Appendix B).

7.3.2.1 REVIEW OF LOCAL STREAMS MONITORING RESULTS

Reference should be made to accompanying data tables provided in **Appendix 4**. The routine surface water monitoring sites at the DCM are:

- SW2 – Coal Shaft Creek (CSC)
- SW2 Rail Culvert – Coal Shaft Creek Downstream
- SW6 – Former RS3/4 Culvert
- SW9 – Un-named Tributary (UNT)
- SW10 – Coal Shaft Creek Upstream
- GB1 – Mammy Johnsons River (MJR)
- Highnoon – Mammy Johnsons River (MJR)
- Site 9 – Karuah River (KR)
- Site 11 – Mammy Johnsons River (MJR)
- Site 12 – Mammy Johnsons River (MJR)
- Site 15 – Mammy Johnsons River (MJR)
- Site 19 – Karuah River (KR)
- North Drain
- South Drain

Assessment of Performance Indicators

The surface water monitoring results are used to assess the DCM against the performance indicators and performance measures as detailed in Table 7 of the SWMP. If data analysis indicates a performance indicator has been exceeded or is likely to be exceeded, an assessment will be made against the performance measure. If a performance measure is considered to have been exceeded, the Contingency Plan will be implemented (WMP Section 10). If data analysis indicates that the performance measure has not been exceeded, DCPL will continue to undertake monitoring.

Table 19 and **20** provide a summary of the surface water analysis of the monitoring data during the reporting period. The summarised data is used to assess against the surface water performance indicators and measures outlined in Table 7 of the SWMP.

Table 19 Summary of Surface Water Monitoring Results and Trigger Levels – pH, EC and TSS

Site	**pH**			**EC**		**TSS**	
MJR	20th%ile	80th%ile	Trigger	80th%ile	Trigger	80th%ile	Trigger
Site 11	7.2	7.6	**7.1-7.6**	506	**370**	11	**15**
GB1	7.2	7.4		430		12	
Site 12	7.2	7.4		401		7	
CSC							
SW2 (RC)	7.1	7.9	**7.1-7.9**	440	**544**	20	**80**
SW10	6.7	7.2		69		27	
UT							
SW9	6.8	7.5	**6.4-7.1**	152	**461**	48	**57**
SW10	6.7	7.2		69		27	

Table 20 Summary of Surface Water Monitoring Results and Trigger Levels – Copper, Turbidity, Zinc and Aluminium

Site	**Copper**		**Turbidity**		**Zinc**		**Aluminium**	
MJR	80th%ile	Trigger	80th%ile	Trigger	80th%ile	Trigger	80th%ile	Trigger
Site 11	0.001	**0.002**	28	**24**	0.005	**0.011**	0.89	**1.24**
GB1	0.001		29		0.005		0.57	
Site 12	0.001		22		0.005		0.61	
CSC								
SW2 (RC)	0.002	**0.003**	70	**119**	0.048	**0.064**	4.88	**3.02**
SW10	0.004		115		0.009		4.53	
UT								
SW9	0.002	**0.004**	60	**94**	0.018	**0.024**	2.26	**2.96**
SW10	0.004		115		0.009		4.53	

Assessment of the Performance Indicators and Performance outcomes are presented in **Table 21.**

Table 21 Surface Water Monitoring Performance Outcomes – 2023-24 Reporting Period

Performance Measure	Monitoring of Environmental Consequences			Data Analysis to Assess against Performance Indicators	Performance Indicators	Assessment of Performance Indicators	Assessment of Performance Measure	Relevant Management and Contingency Measures
	Sites	Parameters	Frequency					
No more than a negligible impact on water quality in Mammy Johnsons River as a result of the Duralie Extension Project	Site 11 GB1 Site 12	EC, pH, turbidity, Copper (total), Zinc (total), Aluminium (total). Hardness, TSS, BOD and DO.	Monthly/ Event	The 80th percentile concentration calculations for EC, pH, total copper, turbidity, total zinc, total aluminium, and TSS in addition to The 20th percentile value of pH at Site 11, GB1 and Site 12 are presented in **Tables 19 and 20**	Water quality at Site 11 is not worse than the pre-irrigation water quality at Site 11 whilst water quality is better at GB1 and Site 12 compared to the pre-irrigation water quality at these sites.	Data analysis indicates Site 11 exceeded the performance indicator for EC and Turbidity. Analysis of the monitoring data shows similar trends observed upstream and downstream for EC and Turbidity. Whilst EC and Turbidity at Site 11 was outside the 80th%ile triggers it was found not to be significantly different to the average EC and Turbidity at the upstream sites GB1 and Site 12. The lower performance indicator for DO was exceeded on seven occasions at Site 11. DO was also below the low trigger upstream at Site 12 and GB1 on these occasions.	No further requirement for assessment of Performance Measure.	Continue monitoring.

Table 20 (Continued) Surface Water Monitoring Performance Outcomes – 2023-24 Reporting Period

Performance Measure	Monitoring of Environmental Consequences			Data Analysis to Assess against Performance Indicators	Performance Indicators	Assessment of Performance Indicators	Assessment of Performance Measure	Relevant Management and Contingency Measures
	Sites	Parameters	Frequency					
No more than a negligible impact on water quality in Coal Shaft Creek as a result of the Duralie Extension Project	SW2 (RC) SW10	EC, pH, turbidity, Copper (total), Zinc (total), Aluminium (total). Hardness, TSS, BOD and DO.	Monthly/ Event	The 80th percentile concentration calculations for EC, pH, total copper, turbidity, total zinc, total aluminium, and TSS in addition to the 20th percentile value of pH at SW2 (RC) and SW10 are presented in **Tables 19** and **20**	Water quality at Site SW2 (RC) is not worse than the pre-irrigation water quality at Site SW2 (RC) whilst water quality is better at SW10 compared to the pre-irrigation water quality at that site.	Data analysis indicates Site SW2 (RC) exceeded the performance indicator for Aluminium. Upstream site SW10 also exceeded the 80th%ile trigger for Aluminium, Copper, Turbidity and the 20th%ile for pH. The lower performance indicator for DO was exceeded on one occasion. The upstream site SW10 was dry on this sampling event.	No further requirement for assessment of Performance Measure.	Continue monitoring.

Table 20 (Continued) Surface Water Monitoring Performance Outcomes – 2023-24 Reporting Period

Performance Measure	Monitoring of Environmental Consequences			Data Analysis to Assess against Performance Indicators	Performance Indicators	Assessment of Performance Indicators	Assessment of Performance Measure	Relevant Management and Contingency Measures
	Sites	Parameters	Frequency					
No more than a negligible impact on water quality in Unnamed Tributary as a result of the Duralie Extension Project	SW9 SW10	EC, pH, turbidity, Copper (total), Zinc (total), Aluminium (total). Hardness, TSS, BOD and DO.	Monthly/ Event	The 80th percentile concentration calculations for EC, pH, total copper, turbidity, total zinc, total aluminium, and TSS in addition to the 20th percentile value of pH at SW9 and SW10 are presented in **Tables 19 and 20**	Water quality at Site SW9 is not worse than the pre-irrigation water quality at SW9 whilst water quality is better at SW10 compared to the pre-irrigation water quality at that site.	Data analysis indicates SW9 exceeded the 80th%ile performance indicator for pH. Analysis of the monitoring data shows similar trends observed upstream for pH. Upstream site SW10 also exceeded the 80th%ile trigger for pH, Turbidity and Aluminium. The lower performance indicator for DO was exceeded on one occasion during the reporting period. The upstream site SW10 was not sampled on this occasion due to no flow conditions.	No further requirement for assessment of Performance Measure.	Continue monitoring.

7.3.2.2 REVIEW OF MINE WATER MONITORING RESULTS

The management of mine related water is described in **Section 7.3.1.3** of this report. Mine water comprises water that is generated within the mine workings, waste rock emplacements (prior to reshaping and topsoiling), storage areas for such water and runoff from areas where coal is/was handled. Mine water is generally characterised by elevated EC, elevated sulphate concentrations and low turbidity/TSS.

The two principal mine water storage areas are the Main Water Dam (sampling location SW3 major), and Auxiliary Dam 2 (AD2). Monitoring of mine water quality is also conducted within the Weismantel pit (sampling location SW4).

A non-compliance related to EPL 11701 Condition M2.3 occurred during 2023. Sampling of SW4 was unable to be undertaken on four of the monthly monitoring events (31 July, 28 August, 30 October 2023 and 28 February 2024) during the AR period. Access to SW4 (Weismantel Open Cut Pit) was not achievable on these dates due to progressive backfilling within the pit footprint and safe access for sampling personnel.

No overflows or discharges of mine water occurred during the 2023/24 reporting period.

Monitoring for SW3 (major) during the reporting period indicated, on average, a moderate EC (2217 uS/cm), slightly alkaline pH (7.8) and low miscellaneous metals concentration. Reference should be made to **Table 22** and the water monitoring results in **Appendix 4**.

Table 22 Summary of Mine Water Monitoring Results – pH, EC and TSS

	pH		EC (µS/cm)		TSS (mg/L)	
Site	**Range**	**Average**	**Range**	**Average**	**Range**	**Average**
MWD (SW3)	6.7-8.6	7.8	1974-2556	2217	<5-36	9.4
AD2	4.1-7.9	6.3	1841-4330	3135	*	*
Clareval	6.1-7.9	7.4	2968-3940	3670	5-30	9.6
Weismantel (SW4)	3.7-7.6	6.1	1311-7800	3835	<5-87	31

Notes * = TSS monitoring is not required for AD2, refer to Section 8.2 of SWMP

7.3.3 ANALYSIS DATA TRENDS AND COMPARISON WITH EA PREDICTIONS

7.3.3.1 LOCAL STREAMS MONITORING

Surface water results (**Table 19, Table 20 and Table 22**) were consistent with previous year's monitoring and the predictions made in the EA 2010. The EA 2010 indicated that water quality in Mammy Johnsons River was variable, but was generally good. It was also found that the salinity of the stream was higher during periods of low flow and generally showed a relative reduction in EC during higher flow periods (Gilbert, 2010). The current monitoring results are consistent with these observations.

Table 19, **Table 20** and **Table 22** indicates some occurrences of exceedances of the performance indicators. If data analysis indicates a performance indicator has been exceeded or is likely to be exceeded, an assessment will be made against the performance measure. The data analysis shows monitoring data also shows similar trends observed upstream and downstream, i.e. exceedances were not due to DCM. Accordingly, no further assessment of the performance measure is required.

Historical monitoring data presented in the DCM EA, Surface Water Assessment (Gilbert, 2010) show that Coal Shaft Creek is generally more saline than Mammy Johnsons River and the Karuah River.

Results during the reporting period generally concur with these observations. It is considered that Coal Shaft Creek is generally more saline due to its ephemeral nature and the outcropping/sub-cropping of coal seams within the catchment.

7.3.3.2 MINE WATER MONITORING

The simulated water quality for the Main Water Dam was prepared for the EA 2010 including a salinity balance and an assessment of the suitability for irrigation water (Gilberts, 2010). Mine water pH has remained generally near neutral or slightly alkaline for the life of the project. The Main Water Dam EC trend has been generally consistent with the simulated EC showing a slightly increasing trend up to 2015 and then staying relatively stable through to 2023. The average EC (2217 uS/cm) in 2024 is similar to the predicted EC of 2140 uS/cm.

7.4 GROUNDWATER

7.4.1 GROUNDWATER MANAGEMENT

A Groundwater Management Plan (GWMP) (WMP Appendix 3) has been prepared to control potential impacts on local and regional groundwater resources and includes a monitoring program to validate and review the groundwater model predictions.

The groundwater systems within which the DCM lies, specifically relate to:

- Gloucester Basin Water Source (i.e. porous rock aquifer) under the Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016.
- Karuah River Water Source (i.e. alluvial aquifers) under the Water Sharing Plan for the Lower North Coast Unregulated and Alluvial Water Sources 2009.

Groundwater characteristics of the DCM have been studied prior to and over the life of the DCM and most recently for the EA 2014. A hydrogeological characterisation of the Gloucester Basin is included in the GWMP.

7.4.2 GROUNDWATER MONITORING RESULTS AND PERFORMANCE

Groundwater monitoring is conducted in accordance with the DCM Water Management Plan (WMP) Appendix 3 Groundwater Management Plan (GWMP).

DCM monitors groundwater quality on and surrounding the mine site by sampling from a series of selected monitoring bore locations. The location of these bores is shown in **Figure 3** (**Appendix 1**).

Collected waters are analysed for a suite of physical and chemical parameters. Results are evaluated for observable trending and compared to the predicted results from the EA 2010.

A summary of groundwater monitoring results for the reporting period can be found in **Table 23** and **Appendix 4**.

Comments on analysed parameters for monitoring conducted during the reporting period are as follows:

- Depth to groundwater was comparable with results from the previous reporting period and recent historical data for most monitored wells. Minimal variance in depth was seen at most bores. Exceptions included a slight variance in measured depth at DB8W where depth increased slightly each monitoring round during the reporting period. Depth at WR2 increased to levels similar to those recorded in late 2021 to early 2022. Depth to groundwater was consistent with predicted levels.

- pH is comparable with historical data with minor fluctuations apparent. During the reporting period pH varied from a slightly acidic 5.3 (DB10W in May 2024) to a neutral 7.2 (DB7W in Feb 2024);
- Electrical conductivity generally showed a high degree of variability across many of the wells which is consistent with results from the previous reporting period and historical data. This would appear to reflect the cycle of dry and wet conditions. Shallow wells intercept generally low conductivity alluvial aquifers, whilst deep wells associated with coal measures generally have higher conductivity;
- Calcium and magnesium concentrations across all wells tended to fluctuate within reasonably tight ranges which has historically been the case. Similar results were observed last reporting period. Sulphate concentrations showed a similar trend
- Aluminium concentrations are quite low in all the deeper wells but comparatively higher in the shallower wells. The highest concentration recorded was 45.5 mg/l (BH4BW in Nov 2023). This is consistent with results from last year and historical data;
- Iron concentrations showed no common trend, as has historically been the case, with rises and falls across wells generally. Concentrations showed a wide range from a low of <0.05 mg/l (DB4W in Nov 2023) to a high of 57.2 mg/l (BH4BW in November 2023);
- Manganese concentrations across all wells were low and similar to results from the previous reporting period with the highest result being 3.48 mg/l within WR2 in May 2024; and
- Zinc concentrations were essentially low and consistent with available historical data.

Table 23 Summary of Groundwater Monitoring Results – Average depth, pH and EC

Site	Depth (m)	pH	EC (µS/cm)
DB1W	15.8	6.0	3880
DB2W	13.9	6.4	1480
DB3W	3.5	6.5	124
DB4W	6.6	6.8	3613
DB5W	**	**	**
DB6W	20.2	6.7	5652
DB7W	10.7	7.0	2677
DB8W	9.8	*	*
DB9W	17.8	6.8	4845
DB10W	11.8	5.4	4365
DB11W	10.1	6.9	3635
BH4BW	5.0	6.2	452
SI1W	10.9	7.2	2232
SI2W	26.2	7.3	1735
SI3W	28.2	7.0	7420
WR1	13.5	6.5	3023
WR2	22.5	7.0	7505

Note * = Depth only monitored at DB8W
** = No access to DB5W during reporting period due to wet ground conditions

Results for the reporting period are provided in **Appendix 4**. In summary, hydrographic plots (Graph 1, Graph 2 and Graph 3), indicate that groundwater monitoring results for the period are generally consistent with predicted outcomes as assessed in the EA (2010). Further review occurred in line with the GWMP where inflows to pits and water levels within bores were consistent with modelled predictions and indicators as per the GWMP. No trigger levels or exceedance of performance measures were identified during the reporting period. No complaints related to groundwater were received during the reporting period.

Assessment of Performance Indicators

Groundwater monitoring results are assessed against Performance Indicators and Measures as described Section 7.1 and Table 6 of the GWMP. Monitoring data for the reporting period was in accordance with the performance measures which indicate:

- No more than a negligible impact on stream baseflow as a result of the Duralie Project;
- No more than a negligible impact on water levels in groundwater production bores on private land.

Refer to **Table 24** below.

Table 24 Groundwater Monitoring Performance Outcomes – 2023-24 Reporting Period

Performance Measure	Performance Indicators	Assessment of Performance Indicators	Assessment of Performance Measure
No more than negligible impact on stream baseflow and/or natural river leakage of Mammy Johnsons River to the deeper groundwater system as a result of the Duralie Extension Project (incorporating the Open Pit Modification).	Groundwater inflows to open pits are consistent with Duralie Open Pit Modification Environmental Assessment (EA) predictions.	Data analysis indicates groundwater inflows to open pits have been less than the Duralie Open Pit Modification Environmental Assessment (EA) predictions. Refer to the site water balance review for 2023 (ATC Williams, 2024).	No further requirement for assessment of Performance Measure.
	Groundwater levels in alluvium bores are consistent with Duralie Open Pit Modification EA predictions (accounting for temporal changes in rainfall recharge).	Data analysis of daily alluvium bore pressure sensors indicates groundwater levels in alluvium bores are consistent with Duralie Open Pit Modification EA predictions (accounting for temporal changes in rainfall recharge). Refer to groundwater monitoring data.	No further requirement for assessment of Performance Measure.
No more than negligible impact on water levels in groundwater production bores on privately-owned land as a result of the Duralie Extension Project (incorporating the Open Pit Modification).	No groundwater related complaints received	No groundwater related complaints were received during the reporting period.	No further requirement for assessment of Performance Measure.

7.4.3 ANALYSIS DATA TRENDS AND COMPARISON WITH EA PREDICTIONS

Depth to water information from piezometer monitoring indicates that bore water levels are generally consistent between bores and are generally consistent with EA (2010) predictions.

The four bores to the west of the open cut pit (SI1W, SI2W, SI3W and DB6W) are all above or close to maximum predicted levels.

No depressurisation has been observed to date at bore DB11W, located north of operations.

Groundwater quality results for the reporting period indicate results consistent with EA predictions and historical groundwater data trends. For this reporting period, the groundwater pH range for bores likely to be influenced by the coal measures was between 5.3 and 7.2. Similarly, the electrical conductivity range for the bores was 88 to 6950 uS/cm. These results are generally similar to and within the range noted in the EA (pH – 6.0 to 8.0 EC – 100 to 7600 uS/cm).

Irrigation bores (SI Series) indicate no obvious signs of deep drainage generated from irrigation activities. Irrigation activities ceased during 2018 and no impacts from deep drainage would be expected.

No indication of an increase in connectivity between alluvial bores (DB3W and BH4BW) and the deeper groundwater system has been observed based on monitoring results for water quality and groundwater table level.

The waste emplacements bores (WR Series) indicate signs of recharging of the backfilled void, particularly at WR1. This is consistent with the numerical modelling of the post-mining groundwater levels (EA 2010) which shows slow but complete recovery of the groundwater system over many decades and that the Clareval void, once filled with water, would act as a sink, while the Weismantel void lake would act as a flow-through lake system. Additional detail is available within the EA for the DEP Modification 2 approved in December 2014.

Monitoring results showed a drop in the depth to standing water level at DB8W during the previous reporting period. Depth reading on 15 November 2022 was 13.58m and depth on 8 February 2023 was 7.18m. The decrease in depth was consistent with the latest reading on 3 May 2023 showing a depth of 7.52m. Monitoring during the reporting period showed an increase in depth during each monitoring round with a depth of 11.2m recorded in May 2024.

7.4.4 GROUNDWATER INFLOWS TO OPEN CUT MINING OPERATIONS

Groundwater seepage inflows to mining voids is directed and collected in pit sumps along with rainfall and surface water runoff and seepage through backfilled pit areas. Water level and water quality analysis of the pit sumps is undertaken on a monthly basis. The volumes of water extracted from the pit sumps is recorded where practicable.

The water quality monitoring results for the open cut pits during the reporting period is included in **Section 7.3.2.2** of this report.

A site water balance review is undertaken on an annual basis to monitor the status of inflows (including groundwater inflows to open pits), storage and consumption. A summary of the 2023 site water balance review (ATC Williams, 2024) is included in **Section 7.2** of this report.

No dewatering from the open cut pits was undertaken during the reporting period. Mining activities have currently ceased in both Weismantel and Clareval Pits. Data analysis indicates groundwater inflows to open pits have been less than the EA 2014 predictions.

7.5 IRRIGATION

All irrigation activities have ceased and the DCM's irrigation system has been decommissioned and removed.

8.0 REHABILITATION

Rehabilitation at the DCM is undertaken in accordance with the Rehabilitation Management Plan (RMP) and Forward Program (FWP) developed to meet the requirements of the ML and PA conditions.

DCPL is in the process of refining and optimising the final landform as a critical component to achieving a safe, stable and non-polluting landform for future lease relinquishment and sustainable post-mining beneficial land use. Completion of Yancoal's closure planning studies will inform closure execution works and the rehabilitation schedule and will be included in revised Final Landform and Rehabilitation Plan.

Accordingly, DCPL has continued detailed planning for the commencement of the mine closure phase. DCPL has revised relevant EMPs to reflect the current stage of operations and to describe anticipated mine closure activities and describe the change to environmental impacts, mitigation measures and monitoring programs at the DCM for the mine closure phase. A summary of the rehabilitation objectives, performance indicators and completion criteria relevant to the DCM rehabilitation domains is provided in the RMP. Plan 1 in the RMP shows the conceptual final landform, relevant primary domains and secondary rehabilitation domains.

8.1 REHABILITATION OF DISTURBED LAND

Rehabilitation of disturbed areas is undertaken progressively. Rehabilitation planning, management and implementation is described in the RMP. The overburden emplacement is rehabilitated in progressive increments to the final landform so the area of disturbed land is minimised and disturbed water catchment areas are reduced. Stage plans for the Duralie disturbance and rehabilitation areas are provided in the RMP and Forward Program.

The DCM rehabilitation progress is generally in accordance with the planned activities described in Plan 2A Mining and Rehabilitation – Year 1 (July 2024) of the 2023 DCM Forward Program. The 2023 forward Program forecast 0ha of waste emplacement to be prepared for rehabilitation in 2024.

The current (June 2024) total mine footprint area (disturbance) is 404 hectares. The completed rehabilitation area is 180.3 hectares.

Table 25 presents a summary of the rehabilitation undertaken at the Duralie mine site up to the current reporting period. The current mining areas and rehabilitation as of 30 June 2023 are shown in **Figure 4**, provided in **Appendix 1**.

Table 25 Rehabilitation status

Mine Area Type	Previous RP (actual hectares) 2022/2023	Current RP (actual hectares) 2023/2024	Next RP (forecast hectares) 2024/2025
Total Mining Lease	942.8	942.8	942.8
Total mine footprint	404	404	404
Total active disturbance	223.7	223.7	211.1
Land being prepared for rehab (Landform Establishment)	0	0	12.6
Land under active rehabilitation (Growth Medium Development)	180	180	180
Completed rehabilitation (Ecosystem Establishment and Sustainability)	0	0	0

*2024/2025 reporting period forecast hectares subject to change following completion of Yancoal's mine closure studies and refinement and optimisation of the final landform.

8.1.1 REHABILITATION RESOURCES

Topsoil resources are managed in accordance with the RMP Section 6.2.4. No vegetation clearance or topsoil stripping was undertaken during the reporting period. Further disturbance may be required for closure purposes at the DCM. There are currently sufficient topsoil resources available to complete rehabilitation of the DCM.

The DCM's topsoil balance will be augmented to incorporate estimates of other materials required to complete rehabilitation of the DCM, including inert capping material (i.e. NAF material) and clay for the Coal Shaft Creek Reconstruction. Estimates of clay volumes required for Coal Shaft Creek Reconstruction will be determined once the detailed design works for the revised Coal Shaft Creek Reconstruction Plan have been completed.

The requirement for a life-of-mine (LOM) rehabilitation materials register, including topsoil stocktake, is included in the RMP.

8.1.2 REHABILITATION MAINTENANCE

Recommendations for maintenance activities on rehabilitated land have been included in the rehabilitation monitoring reports, refer to **Section 8.3**.

During the reporting period maintenance activities focussed on the improvement of pasture rehabilitation at the DCM. Maintenance works included slashing, clearing of access tracks and weeds spraying. Manual weed control works have been undertaken across the native rehabilitation areas targeting lantana, blackberry, wild tobacco and Giant Parramatta grass.

During the next reporting period maintenance work will focus on weed control, bushfire mitigations, drainage, surface water flow improvements and improving biodiversity and stem density in the native vegetation rehabilitation areas.

8.2 REHABILITATION MONITORING

Monitoring of the DCM rehabilitation areas is described in Section 8 of the RMP. Rehabilitation is monitored on a regular basis to ensure vegetation is establishing in the rehabilitation areas and to determine the need for any maintenance and/or contingency measures (e.g. supplementary plantings, weed or erosion control). The monitoring also aims to demonstrate the effectiveness of the rehabilitation techniques and track the progression towards achieving the performance and completion criteria.

The annual rehabilitation monitoring program includes the areas designated for agricultural (grazing) and native ecosystem final land uses.

Visual Monitoring

Rehabilitation monitoring includes a visual assessment:

- Monitoring of soil erosion status and the effectiveness of erosion control methods;
- Observing drains to determine whether substantial silting of inverts and/or any localised failure of the drain embankment has occurred;
- Assessing germination success and vegetation establishment (diversity and abundance);
- Usage of habitat enhancement features;
- Evaluating the behaviour of placed topsoil;
- Evaluating threats posed to rehabilitated areas posed by weed infestation and feral animals; and
- Opportunistic fauna observations.

The visual monitoring provides an early identification of areas requiring remedial planting or other maintenance works to maintain rehabilitation progress. The rehabilitation reports provide a list of maintenance recommendations predominantly relating to erosion control, weeds control and vegetation management and enhancement.

Ecosystem Function Analysis

The assessment of rehabilitation quality and ecosystem value is conducted via the use of Ecosystem Function Analysis (EFA). EFA aims to measure the progression of rehabilitation towards self-sustaining ecosystems. EFA has been incorporated into the overall DCM rehabilitation monitoring program to provide an assessment of landscape functionality.

EFA Analogue Transects have been established in proximal areas to represent the varying landscapes (i.e. slopes and aspects) and target communities planned for each rehabilitation area. Monitoring of agricultural rehabilitation areas, including areas proposed as pasture for agricultural grazing, will also involve monitoring of LFA indices, including stability, infiltration and nutrient cycling.

Rehabilitation transects were assessed in June 2024 as part of the ninth annual round of monitoring in accordance with Section 8.12 of the RMP. A summary of the findings from the 2024 DCM Rehabilitation Ecosystem Functional Analysis Monitoring Report (Wedgetail Project Consulting, 2024) can be found in the Duralie Annual Biodiversity Report (**Appendix 7)**. DCPL will continue to undertake annual EFA monitoring of rehabilitated areas.

Fauna Monitoring

Fauna usage of the native ecosystem rehabilitation areas is monitored and documented over time. Fauna monitoring is conducted every three years to assess the success of the rehabilitation and

revegetation activities in providing habitat for a range of vertebrate fauna. The surveys include an assessment of habitat complexity, species richness and abundance.

The most recent fauna survey was conducted by AMBS Ecology during November 2021 to January 2022. A summary of the findings from the *Duralie Coal Mine: Fauna Surveys of the Offset and Mine Rehabilitation Areas* (January, 2022) can be found in the *Duralie Annual Biodiversity Report 2023* (available on the Duralie Coal website). The previous fauna monitoring within the Biodiversity Offset Areas and native Mine Rehabilitation Areas was undertaken in February 2018.

Surveys conducted over DCM rehabilitation areas and Biodiversity Offset Areas indicate that these areas provide habitat for a range of native vertebrate fauna, including birds, mammals, reptiles and frogs.

Habitat Enhancement and Nest Box Program

A nest box program for the DEP, is being implemented by AMBS Ecology & Heritage for the DCM, in accordance with the BMP. The nest boxes provide nesting habitat for birds, arboreal mammals and bats.

Installation of nest boxes has occurred over six periods with the most recent installation in March 2021. No further nest box installations were required resulting from vegetation clearance activities and the recent installations in the rehabilitation areas is to provide additional habitat enhancement.

The nest boxes are monitored annually by AMBS to observe fauna usage. The most recent annual monitoring report was completed by AMBS with works completed between September and December 2023. Overall, a total of 252 of 273 nest boxes, approximately 92%, have been occupied or have shown signs of occupancy since their installation. A summary of the findings from the *Nest Box Programme for the Duralie Offset Area 2022* can be found in the *Duralie Annual Biodiversity Report* (**Appendix 7**).

8.2.1 THREATS TO REHABILITATION COMPLETION

During the reporting period the 2024 rehabilitation monitoring program identified a list of recommendations regarding the existing rehabilitation and future rehabilitation works (**Section 8.3**). The recommendations mostly related to increasing native tree and shrub structure and biodiversity in the native rehabilitation areas, and secondly continuing to manage weeds in both the native and pasture rehabilitation areas. The recommendations included a combination of weed control measures, assisted biomass reduction to stimulate regeneration and additional seeding with mid-story and shrub species in targeted areas.

Any emerging threats to rehabilitation success will be identified through the ongoing monitoring programs described in Section 9 of the RMP. The recommendations in the rehabilitation monitoring report (**Section 8.3**) provide recommended maintenance and management measures to address these specific issues.

8.2.2 STATUS OF REHABILITATION RECOMMENDATIONS

A status of the implementation of the recommendations on rehabilitation and maintenance activities made in the *Duralie Coal Mine Rehabilitation EFA Monitoring Report* (Wedgetail Project Consulting, 2023) is provided below.

During the reporting period maintenance activities focussed on the improvement of pasture rehabilitation at the DCM. Maintenance works included slashing, aerating and fertiliser application. Maintenance activities also included slashing and clearing of access tracks and weeds spraying. Weed

control has been undertaken across the rehabilitation areas targeting lantana, blackberry, wild tobacco and Giant Parramatta grass in the areas identified in the rehabilitation monitoring report.

During the next reporting period maintenance work will focus on addressing the recommendations to improving biodiversity and stem density in the native vegetation rehabilitation areas. This will include consideration of techniques for biomass reduction to stimulate regeneration of the seed bank.

8.3 REHABILITATION TRIALS AND RESEARCH

DCPL has extensive experience in both native woodland/forest revegetation and agricultural pasture rehabilitation, with successful rehabilitation areas completed over the past 20 years at both the Duralie and Stratford mine sites. Learnings from the rehabilitation works undertaken onsite to date along with industry best practice guidelines are employed in the methodology for new rehabilitation areas.

Revegetation trials continue to be implemented in the biodiversity offset area in accordance with the BMP. The program has trialled several methods for ground preparation, seeding and planting to determine the most suitable and cost-effective methods for completing the remaining offset revegetation and mine site rehabilitation. Refer the *Duralie Coal Mine Annual Biodiversity Report 2024* for a summary of works undertaken during the reporting period.

8.4 REHABILITATION TARGETS

Rehabilitation targets are outlined in the RMP and FWP.

The rehabilitation targets and proposed rehabilitation schedule over the life of the DCM are described in Section 6.1 of the RMP. The rehabilitation target is a cumulative total of 404ha.

8.5 MINE CLOSURE PLANNING

Condition 5, Schedule 2 of PA 08_0203 authorised mining operations to be carried at the DCM until 31 December 2021. Accordingly, DCPL planned for the commencement of the mine closure phase (i.e. after the cessation of mining operations on 31 December 2021).

As stated above, DCPL is in the process of refining and optimising the final landform as a critical component to achieving a safe, stable and non-polluting landform for future lease relinquishment and sustainable post-mining beneficial land use. Completion of Yancoal's closure planning studies will inform closure execution works and the rehabilitation schedule and will be included in revised Final Landform and Rehabilitation Plan.

The mine closure planning program developed for the DCM includes a schedule of all technical and/or environmental assessments that are required to undertake final rehabilitation now that open-cut mining at the DCM has ceased. The technical assessments identified in the Mine Closure Planning Program have been informed by the key risks and risk reduction strategies associated with rehabilitation and mine closure of the DCM.

The Mine Closure Planning Program components and completion status/schedule for each component is provided in Appendix 1 of the RMP.

A summary of the key mine closure planning items continued and commenced for the DCM during the reporting period included:

- Development of Rehabilitation Completion Criteria
- Mine Closure Stakeholder Strategy

- Socio-economic Impact Assessment
- Document and Records Control Management System
- Monitoring and Maintenance Program
- Review Environmental Management Plans (EMPs) for closure phase
- Approvals/Licences Relinquishment Strategy
- Public Safety Risk Assessment (RA)
- Develop Mine Closure Risk Register
- Decommissioning and Demolition Plan
- Water Management Infrastructure Retention Strategy.
- Closure Waste Management Plan
- Contaminated Sites Assessment
- Review Historical Potentially Acid Forming (PAF) material
- LOM Rehab Materials Register and Mass Balance
- Rehabilitation Methods Standard Operating Procedures (SOPs)
- Final Voids Strategy
- Final Void water balance
- Review erosion modelling
- Development of a Quality Assurance/ Quality Control (QA/QC) process for landform design
- Document control and records
- Surface Water Infrastructure Design Review
- Potentially Acid Forming/Non Acid Forming Placement Model
- Coal Shaft Creek diversion design
- Geographic Information Systems (GIS) data/records of rehabilitation implementation
- Management of Heritage Sites
- Detailed final landform design

DCPL has revised relevant EMPs to reflect the current stage of operations and to describe anticipated mine closure activities and describe the change to environmental impacts, mitigation measures and monitoring programs at the DCM for the mine closure phase.

9.0 COMMUNITY RELATIONS

DCPL is committed to a policy of regular liaison with the local community and strives to maintain positive relationships with stakeholders. DCPL's community objectives aim to:

- Ensure employees and contractors are informed about DCPL's policies and are made aware of their environmental and community responsibilities in relation to DCPL's activities;
- Inform the community of DCPL's activities and consult with the community in an open and honest fashion in relation to DCPL's projects; and
- Address complaints/conflicts and consult to achieve mutually acceptable outcomes.

Dissemination of information to the local community and relevant agencies regarding DCPL, its progress and environmental management performance will be achieved via the following communication and reporting mechanisms.

- Community Consultative Committee
- Duralie Coal Website
- Duralie Coal Mine Annual Review
- Community Information and Complaints Line

9.1 COMMUNITY ENGAGEMENT ACTIVITIES

YAL is committed to making a positive contribution in the areas in which it operates. To help facilitate this commitment Stratford Coal Pty Ltd (SCPL) have established the Community Support Program (CSP) to provide assistance to local initiatives within the local area in which they operate. The aim of the Community Support Program is to help benefit a diverse range of community needs such as education, environment, health, infrastructure projects, arts, leisure and cultural heritage.

The Stratford Coal Community Support Program has granted over $1,019,457 since commencing in 2010 and during 2024 a total of $85,662.48. The community groups to receive grants in 2024 are listed in **Table 26**.

Table 26 Community Support Program 2024

Community Support Program 2024 Recipients	Project Description
Taree Universities Campus	Taree Universities Campus - Creating a Gloucester Community Study Hub.
Gloucester Tri Challenge	Adventure Race.
Gloucester Magpies Junior Rugby League Inc.	Junior Jerseys.
Gloucester Worimi First Peoples Aboriginal Corporation	Gathong (Language) Lessons.
Stroud Show Association	Stroud Show Major Sponsor Upgrade of kitchen facilities in the pavillion.
Stroud and District Tennis Club	Car Park Reclaim - 4th court.
NSW Rural Fire Service - Wards River	Purchase of backpack blower for firefighting.

Community Support Program 2024 Recipients	Project Description
Gloucester Soccer Club Inc	Equipment Storage Area.
Gloucester Country Club Ltd	Super Sevens Golf Competition.
Stroud and District Men's Shed Inc	Men's Shed Equipment Upgrade.
Stroud Road Community Hall and Progress Assoc. Inc.	Stroud Road Spring 'Bash 'n Bang'.
Stroud and District Historical Society	Collection Management System.
Booral Rural Fire Service	New Tools and Equipment.
RYSTEM Engagement MidCoast Inc	RYSTEM Engagement 2024.
Gloucester Rural Fire Brigade	Gloucester RFS Capacity Building. Additional Resources For Growing Volunteer Base
Gloucester Gymnastics Club Inc	Expansion of Gloucester Gymnastics Lessons.
Gloucester and District Country Music Club Inc	Better Communication Possible Through Purchase of Wireless Microphones.
Stroud Public School P&C Association	Walks that Talk.
Gloucester Hockey Club Inc.	Upgrade Canteen Facilities.
Gloucester District Athletics Centre Inc	Marquee Purchasing.
Stratford Public School P&C Association	Small Shed and BBQ.
Gloucester Thunderbolts Swimming Club Inc.	Sun Safe Swimmers.
Barrington Public School P&C Association	Automated External Defibrillator (AED).
Stroud Rodeo Association	Stroud Rodeo and Campdraft 2024 Event, Arena Improvements.
Stratford Public School	Defibrillator for School and Intensive Swim Scheme 2024.

Stratford Coal Pty Ltd have also continued their commitment to education and training in the Gloucester region through Stratford Coal's Education Support Program, providing much needed funding for the next generation of young students. The Education Support Program is managed by an independent committee and the funds distributed by MidCoast Council. In 2023, $34,000 has been allocated in funding to help support local students and businesses in university degrees, TAFE courses and apprenticeships.

Since the commencement of mining in 1995, Stratford Coal has contributed more than $890,000 to locally based community and training initiatives via the Education Support Program. During that time, the funding has support over 240 tertiary students, 145 apprentices and 60 businesses.

YAL and SCPL have continued their partnerships with:

- The Clontarf Foundation -Chatham Academy
- QLD University of Technology
- Westpac Rescue Helicopter.

9.2 COMMUNITY CONSULTATIVE COMMITTEE

The Duralie Community Consultative Committee (CCC) was established in 2003 and operates under the guidance of the DPHI. Meetings are held 6-monthly and provide a forum for open discussion between the community, Council, the Company and other stakeholders on issues relating to the mine's operations, environmental performance and community engagement.

The CCC for the DCM is currently comprised of:

- An independent Chairperson;
- Six (6) local community representatives;
- Two (2) local government representatives (MidCoast Council); and
- Two (2) DCPL representatives.

The CCC was formed in accordance with Schedule 5, Condition 5 of the PA for the DEP. The Committee operates in such a manner as to generally satisfy the *Community Consultative Committees Guidelines - State Significant Projects* (Department of Planning and Environment, 2023) and to the satisfaction of the Secretary of DPE.

During the 2023 – 2024 reporting period CCC meetings were held biannually in line with the completion of mining operations. Two CCC meetings were held during the reporting period in August 2023 and February 2024. A site tour was undertaken prior to the August 2023 CCC meeting.

Items raised and/or discussed during the CCC meetings held during the reporting period include but are not limited to:

- Mine closure planning and final land use
- Environment and community activities including monitoring and community programs
- Yancoal CSP

The CCC meeting agendas, presentations and minutes are available on the Duralie Coal website (www.duraliecoal.com.au).

An Annual Report for the Duralie Coal CCC was prepared by the Chair and submitted to DPHI on 18 January 2024 (**Appendix 6**).

9.3 ENVIRONMENTAL COMPLAINTS

DCPL manages complaints received at the DCM in accordance with the protocol established in the Environmental Management Strategy (EMS). DCPL aims to address all complaints/conflicts and consult to achieve mutually acceptable outcomes.

Complaints may be received in any form. DCPL operates a dedicated community information and complaints hotline (1300 658 239) 24 hours per day. The number is advertised within the Sensis White Pages Directory (Newcastle), a local telephone directory (Pink Pages) and in the local newspapers (Gloucester Advocate) on a six-monthly basis.

Complaints (by category) received by DCPL over the last 5 reporting years are shown in **Table 27**.

Table 27 Community Complaints Summary

Complaint Category	2019/20	2020/21	2021/22	2022/23	2023/24
Noise	0	0	0	0	0
Blasting	0	0	0	0	0
Air Quality	0	0	0	0	0
Water	0	0	0	0	0
Lighting	0	0	0	0	0
Visual	0	0	0	0	0
Train	0	0	0	0	0
Other	0	0	1	0	0
Total Complaints	**0**	**0**	**1**	**0**	**0**

There were no complaints received during the 2023/24 reporting period relating to the DCM operations.

9.4 EMPLOYMENT STATUS AND DEMOGRAPHY

At the end of the reporting period (i.e. June 2024), the total number of FTE's employed at the DCM was 10. During the reporting period three Environment and Community representatives were employed and shared with the nearby SMC.

On the basis of a review of employees' living location, 50% of mine employees resided within the greater local area (defined as being bounded by Stroud, Gloucester and Dungog).

10.0 INDEPENDENT ENVIRONMENTAL AUDIT

An IEA of the DCM was conducted in December 2023 by RPS AAP Consulting, in accordance with PA 08_0203 Schedule 5, Conditions 8, 9, 9A and 9B. This includes both the IEA and the Rail Haulage Audit. The purpose of the audit was to review compliance over the audit period, 2 December 2020 to 13 December 2023, with the conditions and obligations of the DCM environmental licences, approvals and management plans.

The IEA was conducted generally consistent with 'ISO 19011 - *Guidelines for Auditing Management Systems' and the 'Independent Audit Post Approval Requirements May 2020'* (Audit Guidelines) (DPE, 2020).

The IEA 2023 presents a summary of compliance with the DCM statutory requirements. Non-compliances identified during the site inspection, interviews and document reviews are recorded in detail in the Compliance Tables in the IEA 2023 Appendix C and are summarised in Table 3. Recommendations have been made by the lead auditor to address all identified non-compliances. The IEA 2023 identified a total of 10 non-compliances and associated recommendations (1 Administrative, 5 Low, 4 Moderate).

The key findings/recommendations in the IEA related to the following matters:

- EPL variation;
- AD2 removal from declared dams register;
- Management Plan revisions.

DCPL received correspondence from DPHI dated 21 June 2024 confirming DPHI has reviewed the IEA and considers that more information is required to satisfy the requirements of Schedule 5 condition 8 of PA 08_0203. A revised report was required to be submitted by 31 July 2024.

DCPL's responses to the recommendations contained in the IEA 2023 Report are included in **Appendix 8** of this report. A status update on DCPL's progress against these recommendations will be included in the next AR.

11.0 INCIDENTS AND NON-COMPLIANCES

Activities at the DCM continue to be carried out in accordance with the conditions of PA 08_0203, ML 1427, ML 1646 and EPL 11701.

During the reporting period, there were zero non-compliances with the PA 08_0203. There was one minor non-compliance with EPL 11701 during the reporting period. The non-compliance was with regard to EPL 11701 – M2.3, less than required water monitoring undertaken at Point 4 and is discussed in **Section 7.3**.

A protocol for managing incidents and non-compliances is included in the DCM EMS. A statement of compliance is included in **Section 1** of this report. The severity of the incident will determine the level of investigation required. The reporting of incidents to regulators is conducted in accordance with the EMS, Condition 6, Schedule 5 of PA 08_0203 and the *Protection of the Environment Operations Act 1997* (POEO Act) and PIRMP where applicable.

Compliance recommendations identified in the IEA 2023 are referred to separately in **Section 10** and **Appendix 8** of this report.

12.0 ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD

DCPL will continue rehabilitation and mine closure activities in accordance with PA 08_0203 and the relevant Environmental Management Plans for DCM.

Condition 5, Schedule 2 of PA 08_0203 authorised mining operations to be carried at the DCM until 31 December 2021. Under this approval, DCPL is required to rehabilitate the site and carry out additional undertakings to the satisfaction of both the Secretary and the Resources Regulator. Consequently, PA 08_0203 will continue to apply in all other respects, other than the right to conduct mining operations, until the rehabilitation of the site and these additional undertakings have been carried out satisfactorily.

The following key activities at the DCM are proposed within in the next 12 months:

- Completion of the DCM Detailed Mine Closure Plan
- Further Infrastructure decommissioning and demolition
- Continued shaping and rehabilitation earthworks (which may include blasting activities)
- Rehabilitation maintenance activities
- Growth medium establishment activities including topsoil spreading
- Revegetation of the final landform in accordance with the DCM RMP
- Further review and refinement of monitoring programs and environmental management plans.

13.0 REFERENCES

ATC Williams (2024). Duralie Coal Mine 2023 Annual Water Balance Review.

Department of Planning and Infrastructure (DoPI) (2011). Land and Environment Court of NSW Order for Duralie Extension Project Approval, Duralie Coal Pty Ltd 10 November 2011.

Department of Planning and Environment (DPE) (2023). Community Consultative Committee Guidelines - State Significant Developments, June 2023.

Department of Planning and Environment (DPE) (2020) ISO 19011 - Guidelines for Auditing Management Systems and the Independent Audit Post Approval Requirements May 2020 (Audit Guidelines)

DCPL (2017). Duralie Coal Mine Giant Barred Frog Management Plan

DCPL (2021). Duralie Coal Mine Air Quality and Greenhouse Gas Management Plan

DCPL (2021). Duralie Coal Mine Blast Management Plan

DCPL (2021). Duralie Coal Mine Noise Management Plan

DCPL (2021). Duralie Coal Mine Water Management Plan

DCPL (2022). Duralie Coal Mine Annual Biodiversity Report 2022

DCPL (2022). Duralie Coal Mine Heritage Management Plan

DCPL (2023). Duralie Coal Mine Mining Rehabilitation Management Plan

DCPL (2023). Duralie Coal Mine Biodiversity Management Plan

Freudenberger (2013). Baseline Monitoring of Landscape Function and Vegetation Structure for the Duralie Biodiversity Offset.

GCL (2010). “Duralie Extension Project Environmental Assessment”. Prepared for Gloucester Coal Ltd by Resource Strategies Pty Ltd, January.

Gilbert and Associates Pty Ltd (2010). Duralie Extension Project, Surface Water Assessment

Horizon Environmental Soil Survey and Evaluation (2019). Duralie Coal Mine Irrigation Area Monitoring Report 2019

Wedgetail Project Consulting (2024). Duralie Coal Mine Rehabilitation EFA Monitoring 2024.

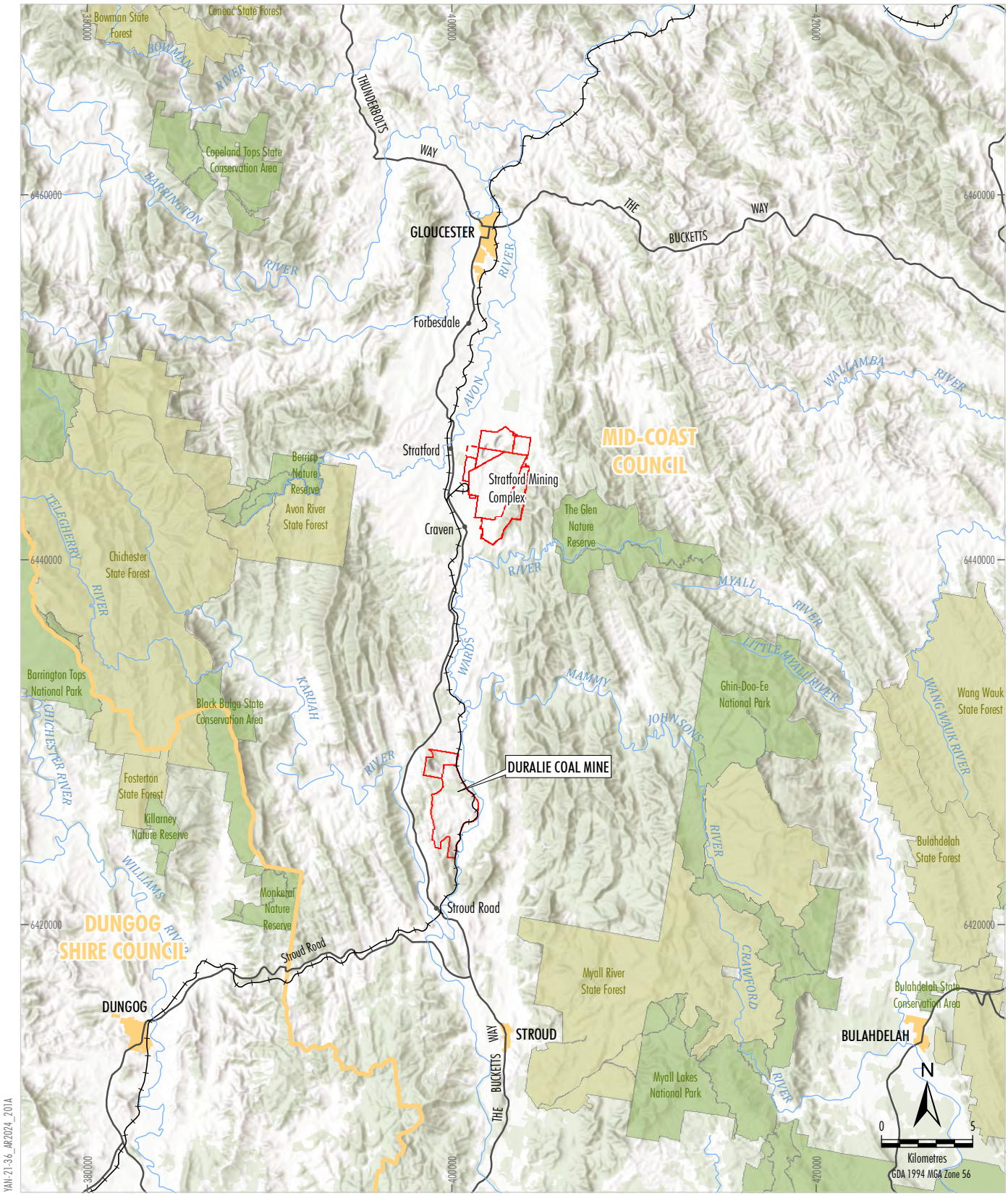
NSW Trade and Investment, Resources and Energy (2013) Guidelines to the Mining, Rehabilitation and Environmental Management Process.

NSW Government (2015) Annual Review Guideline.

RPS (2024). Duralie Coal Mine 2023 Independent Environmental Audit.

APPENDIX 1

Figures



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LEGEND

- Mining Lease Boundary
- NSW State Forest
- National Park, Nature Reserve or State Conservation Area
- Local Government Area Boundary

Source: Geoscience Australia (2006); NSW Department of Planning & Environment (2017)

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Regional Location

Figure 1

YAN-21-36_AR2024_202A

LEGEND

- Mining Lease Boundary
- Approximate Extent of Existing/Approved Surface Development
- Existing/Approved First Flush Protocol Pump Back System
- Existing/Approved Up-catchment Diversion System

Source: © NSW Spatial Services (2019)
Orthophoto: Google Earth CENS/Airbus (2020)

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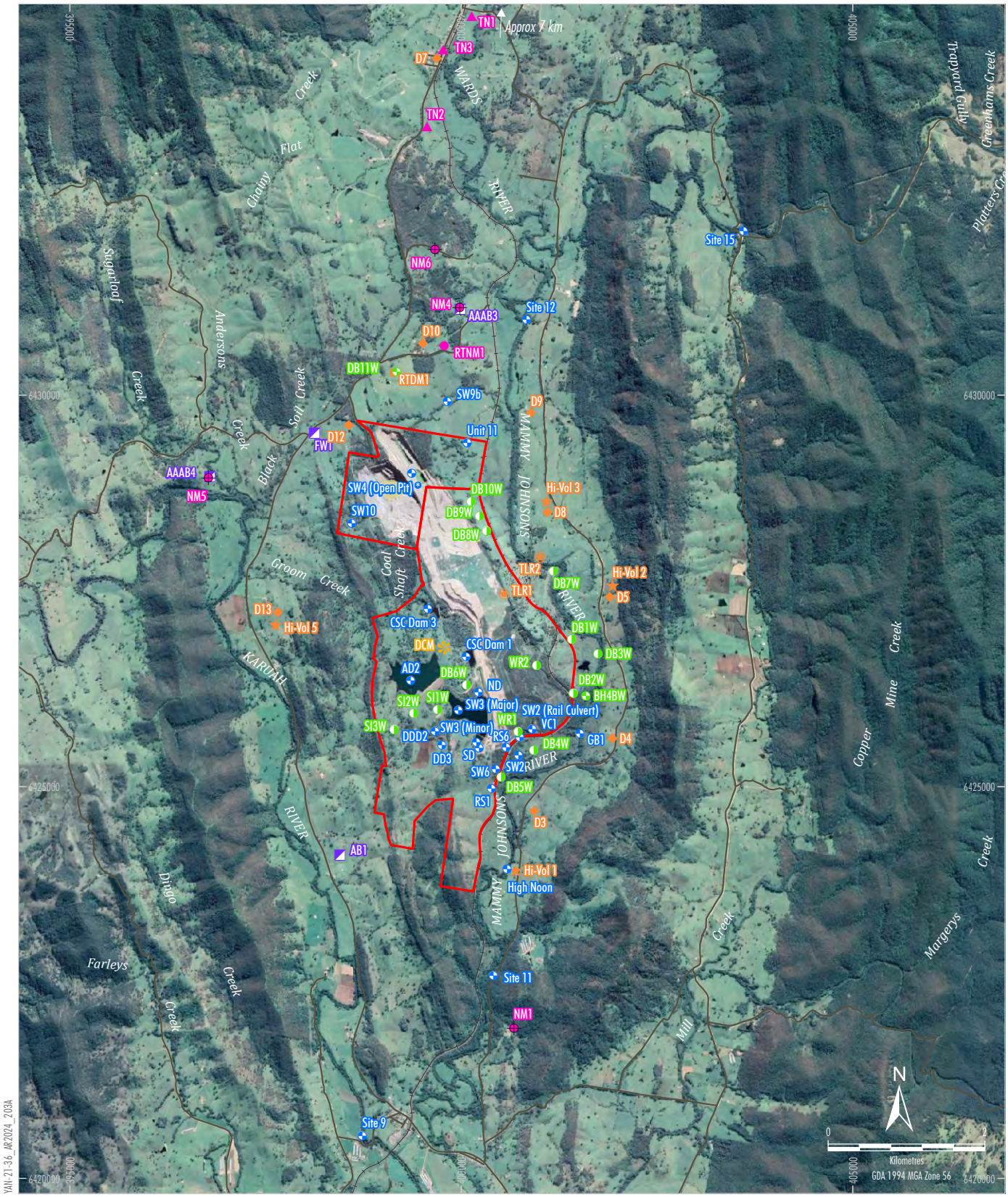
DCM General Arrangement

Figure 2



YAN-21-36_AR2024_203A

LEGEND

- Mining Lease Boundary
- Meterological Station

Dust Monitoring

- Dust Gauge
- High Volume Sampler
- Real-time Dust Monitor (PM 10)
- Temperature Lapse Rate Monitoring Site

Blast Monitoring

- Blast Monitoring Site

Noise Monitoring

- Noise Monitoring Site
- Train Noise Monitoring
- Real-time Noise Monitoring Site

Surface Water Monitoring

- Surface Water Monitoring Site

Groundwater Monitoring

- Groundwater Monitoring (Quarterly Water Level Monitoring)
- Groundwater Monitoring (Daily Water Level Monitoring)

Source: © NSW Spatial Services (2020)
Orthophoto Google Earth, (2020)

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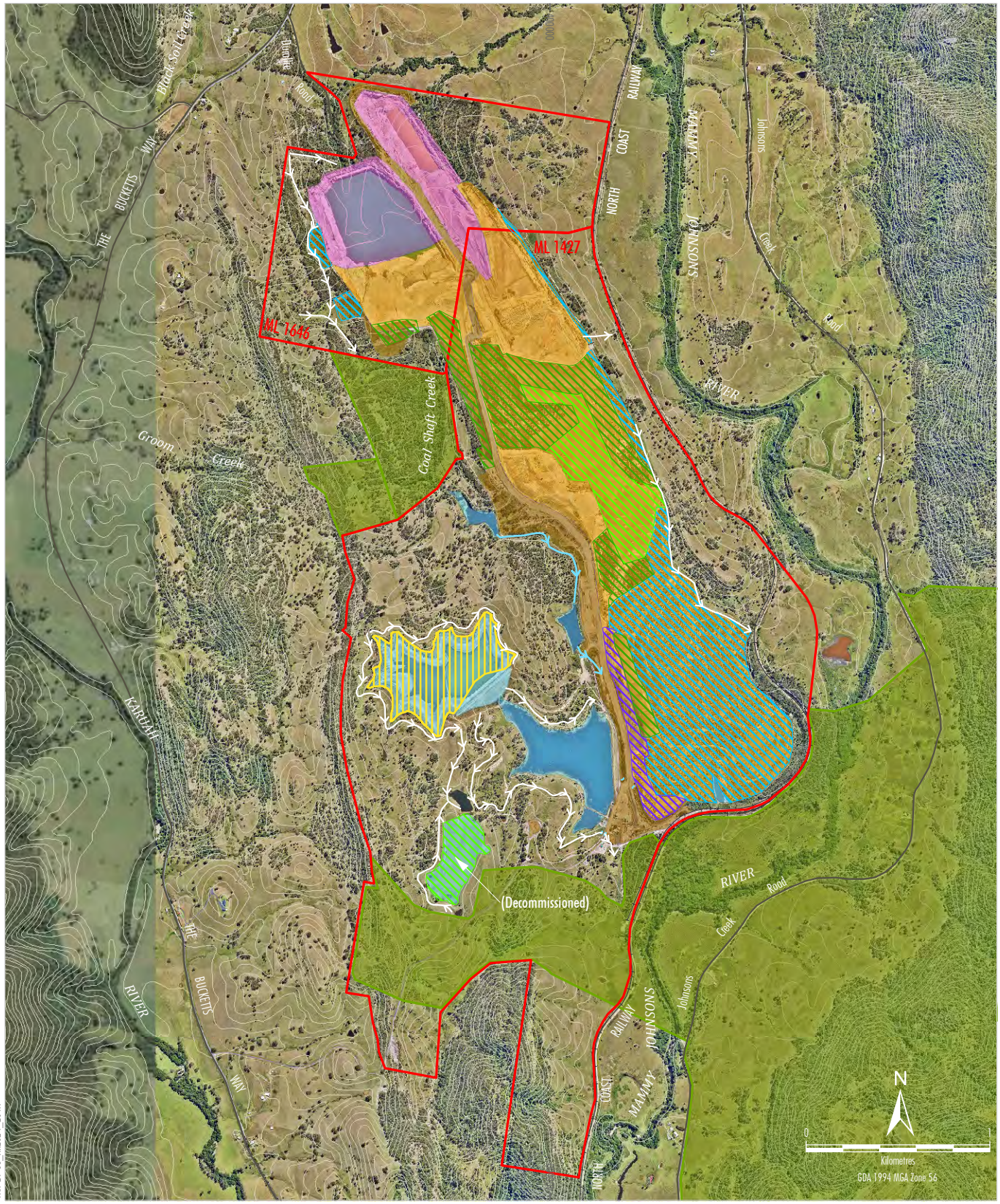
DURALIE COAL MINE 2024 ANNUAL REVIEW

Environmental Monitoring Sites

Note: Environment monitoring sites will be progressively refined following the cessation of mining operations and ROM coal rail transport on 31 December 2021 and throughout the mine closure phase as impacts from mining operations and site activities either reduce in scale or cease all together.

Figure 3



LEGEND

- Mining Lease Boundary
- Up-catchment Diversion
- Culvert
- Indicative Coal Shaft Creek Diversion

Mining Domains

- Infrastructure (1)
- Water Management Area (2)
- Waste Emplacement Area (3)
- Final Void/Open Pit (4)
- Offset Area (5)

Rehabilitation Phase - Final Land Use Domain

- Decommissioning - Agricultural Grazing
- Landform Establishment - Native Ecosystem
- Ecosystem and Land Use Establishment - Agricultural Grazing
- Ecosystem and Land Use Establishment - Native Ecosystem
- Ecosystem and Land Use Development - Native Ecosystem

Source: © NSW Spatial Services (2019)
Orthophoto: Google Imagery (April 2020)

DURALIE COAL MINE 2024 ANNUAL REVIEW

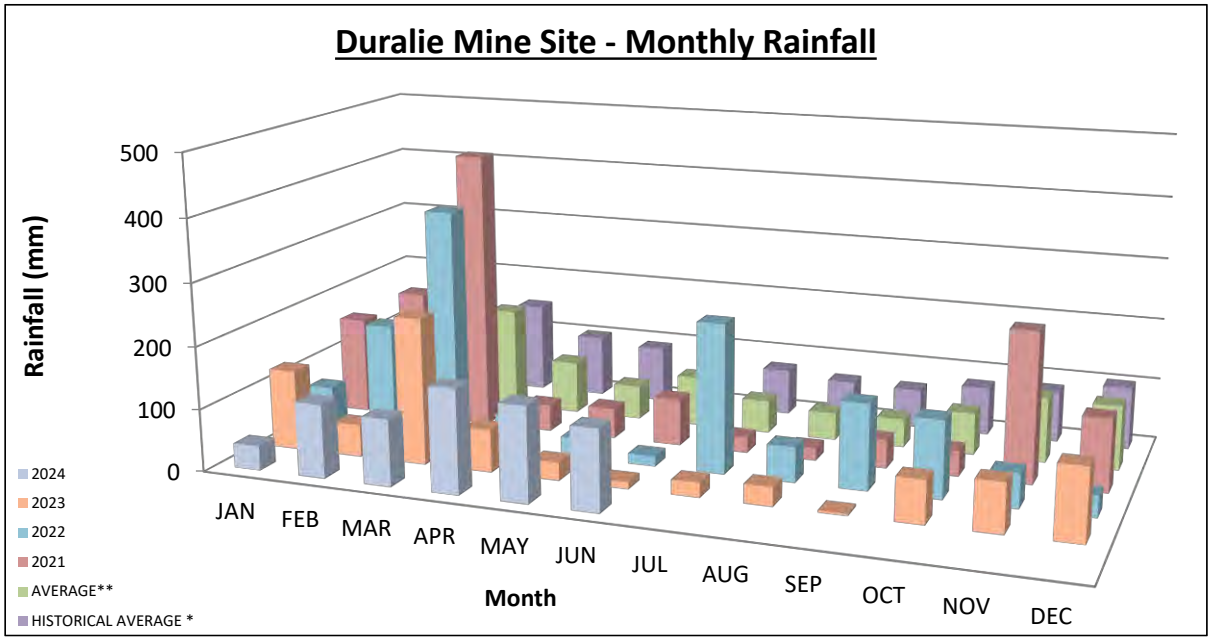
Mining and Rehabilitation Areas

YAN-21-36_AR2024_204A

Figure 4

APPENDIX 2

Meteorological Monitoring



*Stroud + Duralie 1889 to 2010 (inclusive)
**Duralie Mine 2002 – 2024 (inclusive)

Figure 2-1: Monthly Rainfall for 2021 to 2024 and Historical Averages

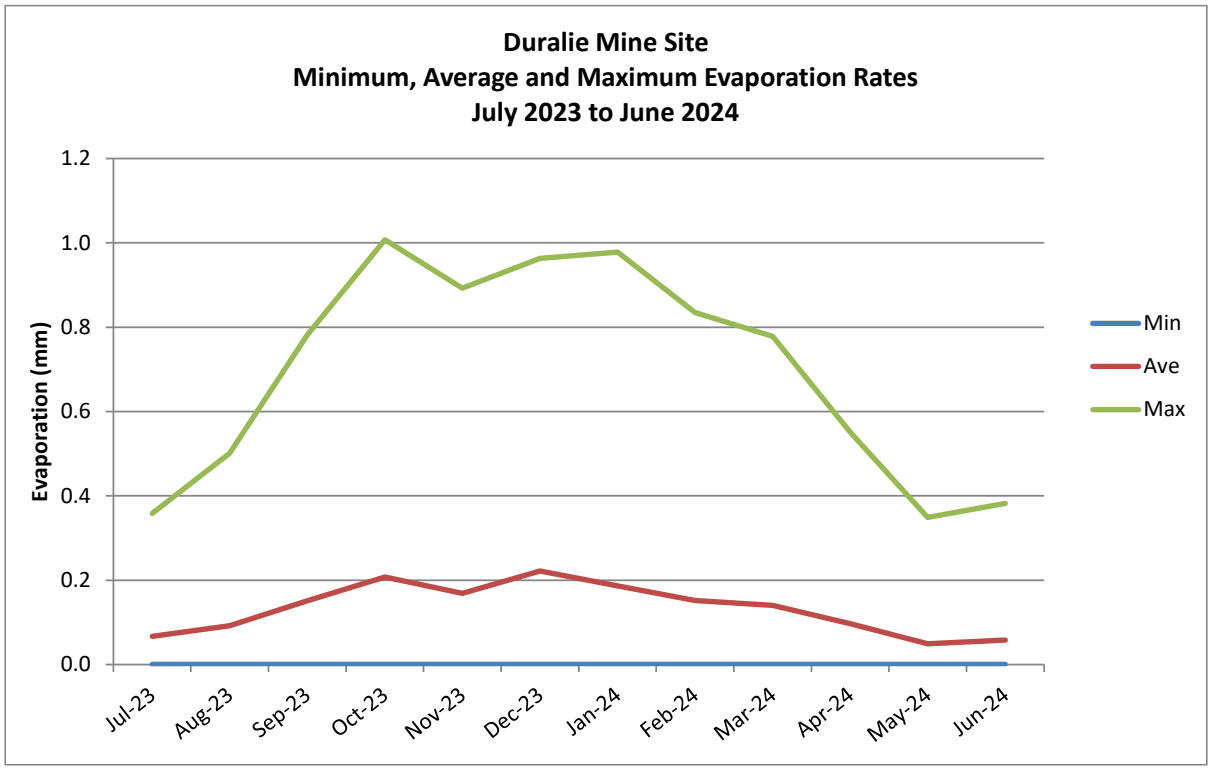


Figure 2-2: Minimum, Maximum and Average Evaporation Rates During the Reporting Period

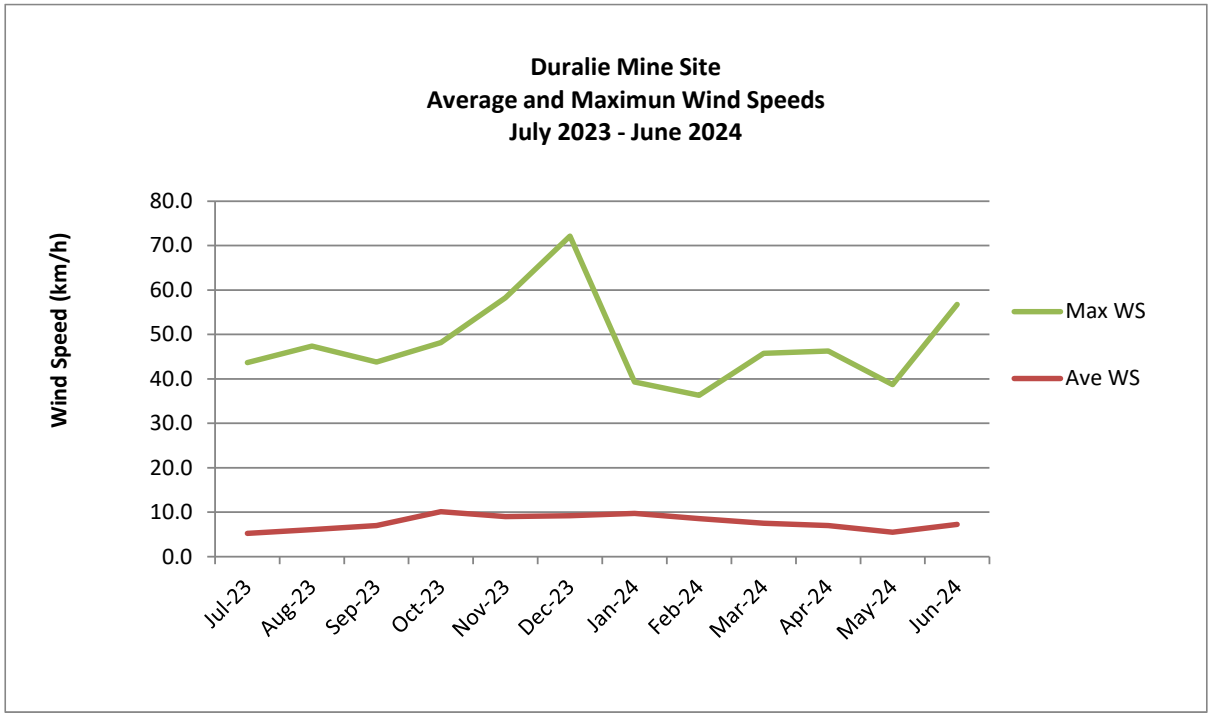


Figure 2-3: Maximum and Average Wind Speeds During the Reporting Period

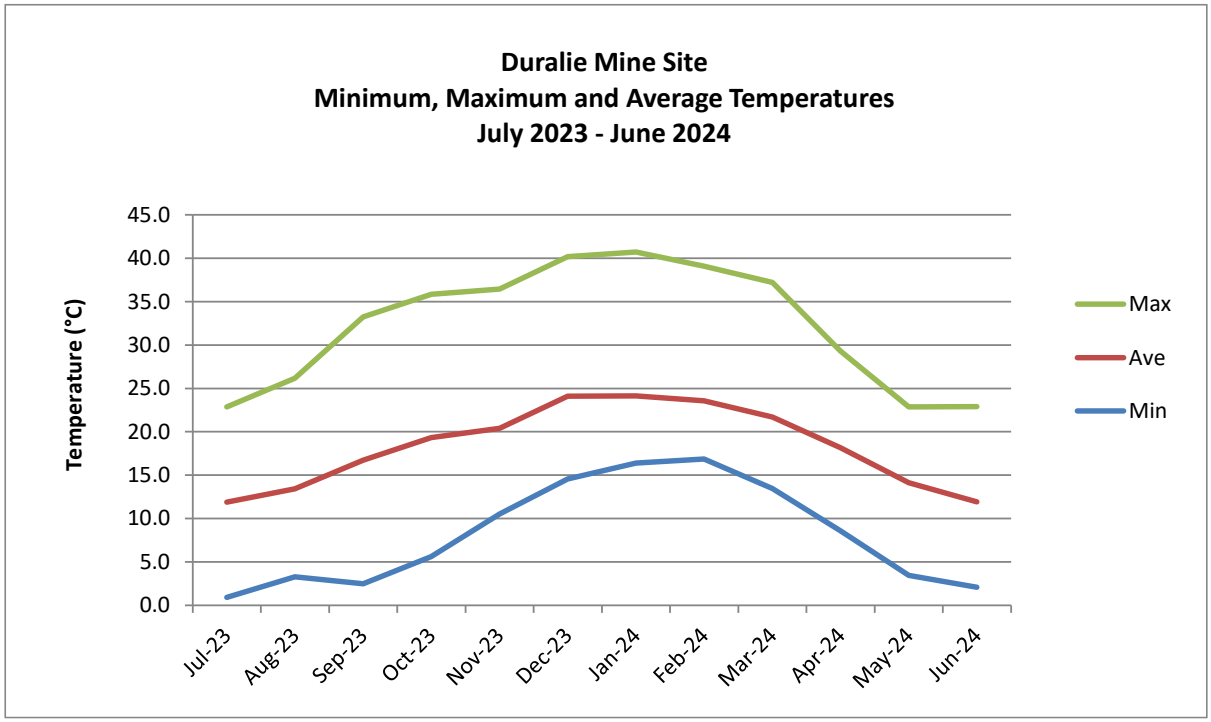


Figure 2-4: Minimum, Maximum and Average Temperatures During the Reporting Period

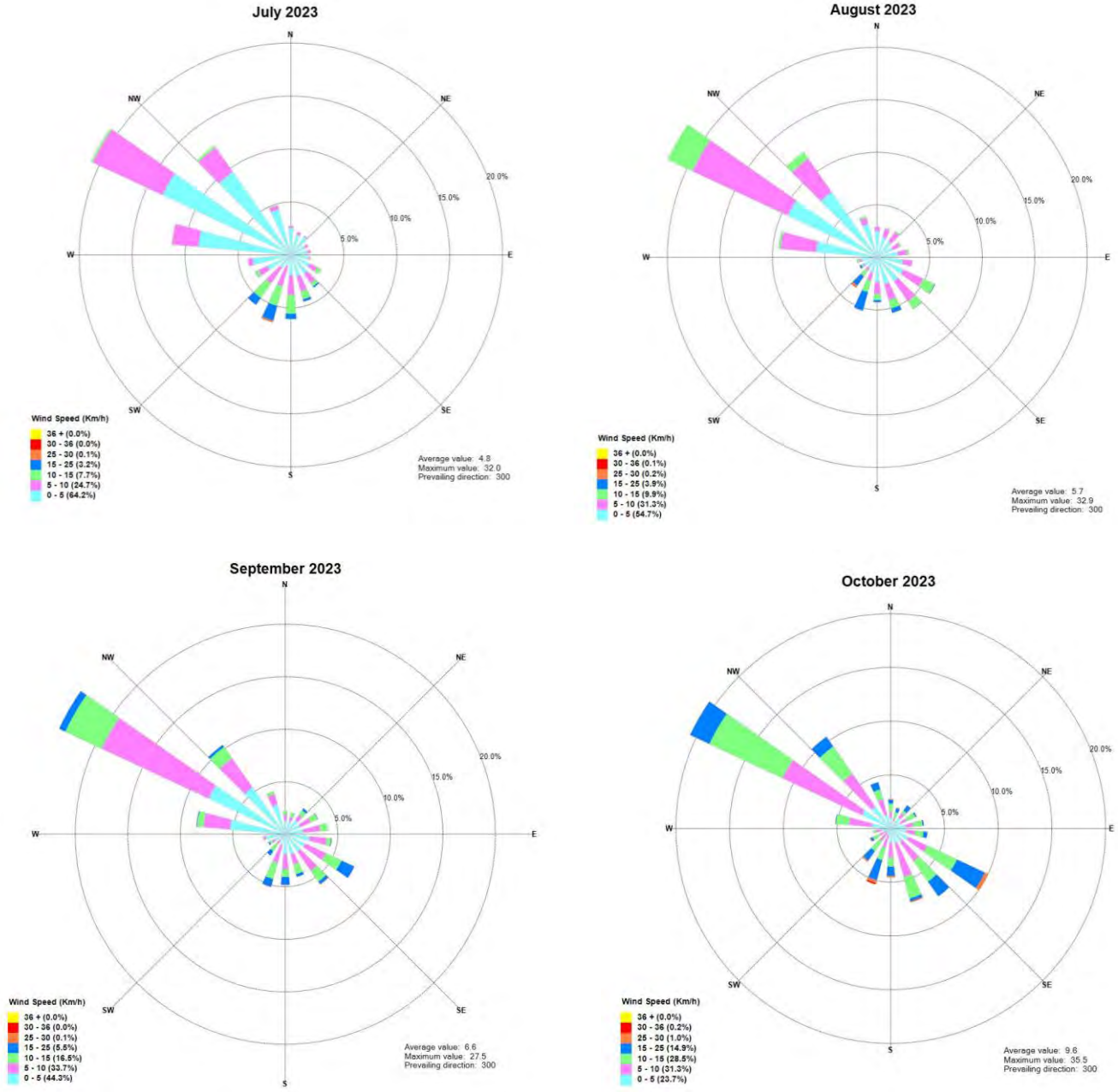


Figure 2-5: Monthly Windroses showing wind direction, speed and frequencies

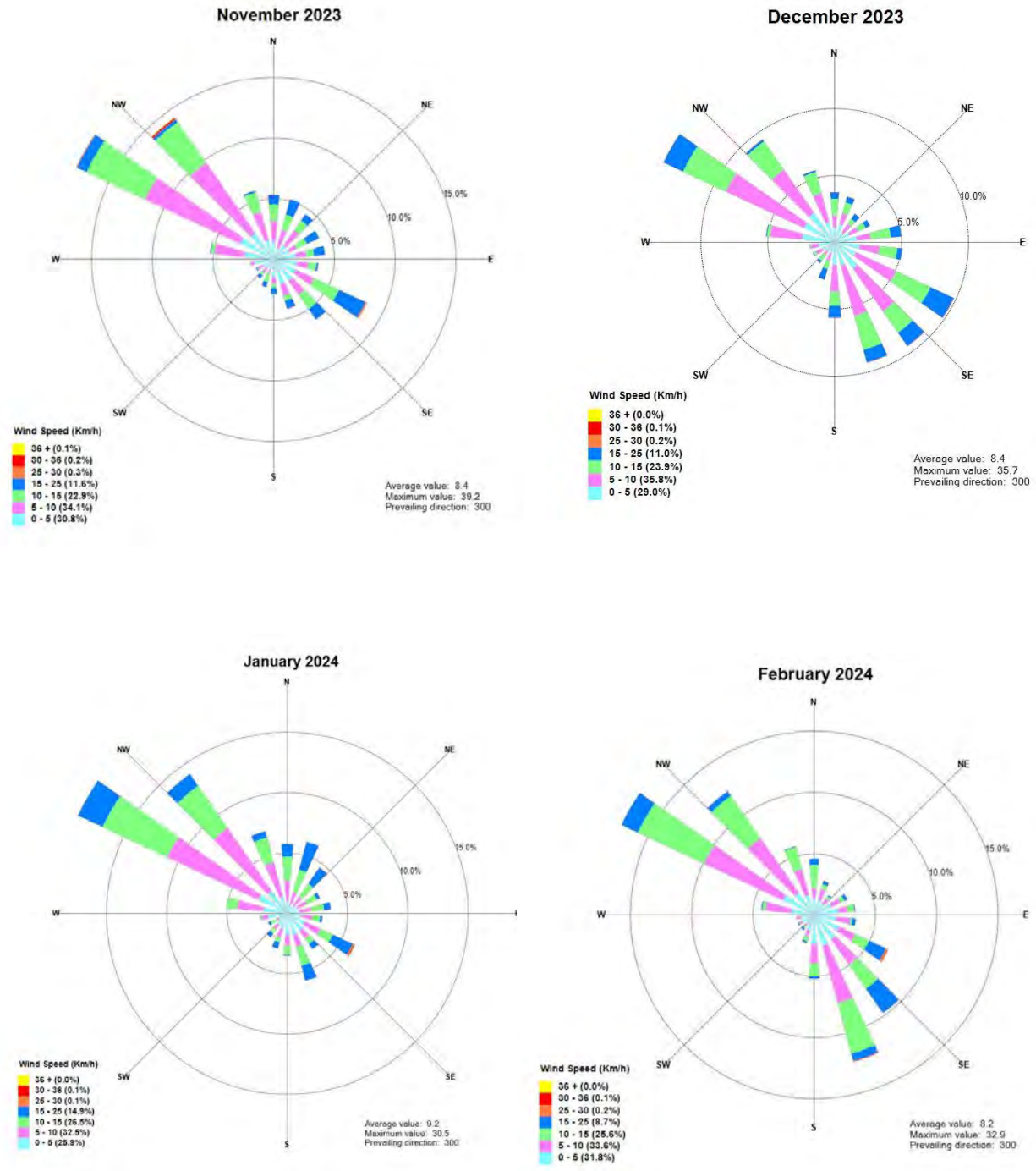


Figure 2-5 (continued): Monthly Windroses showing wind direction, speed and frequencies

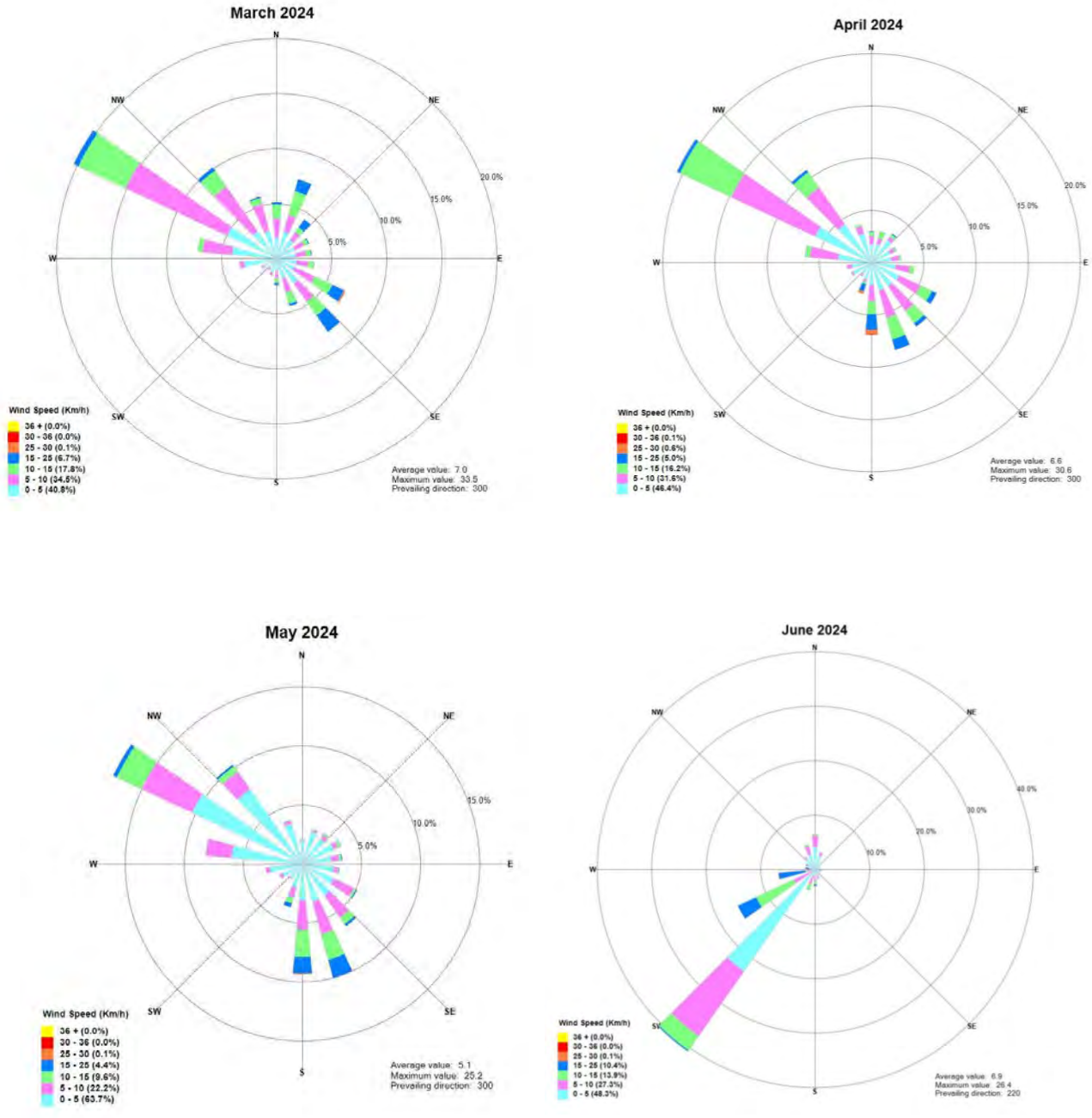


Figure 2-5 (continued): Monthly Windroses showing wind direction, speed and frequencies

APPENDIX 3

Air Quality Monitoring

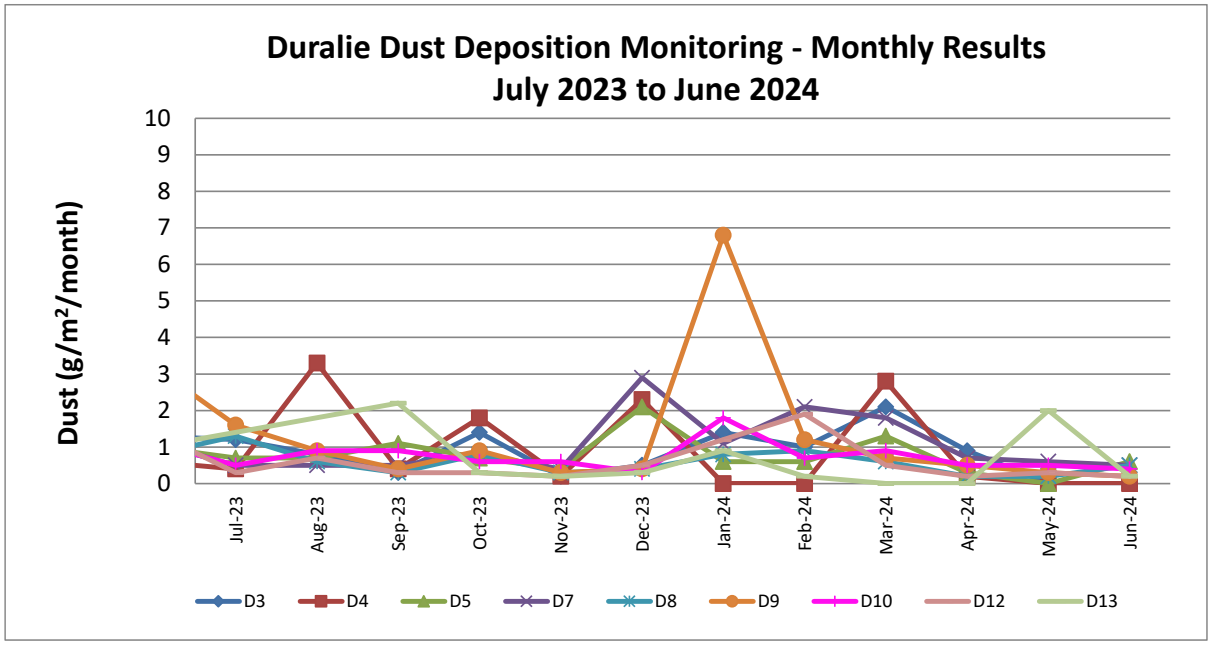


Figure 3-1: Monthly Depositional Dust Monitoring Results (minus contaminated results) during the Reporting Period

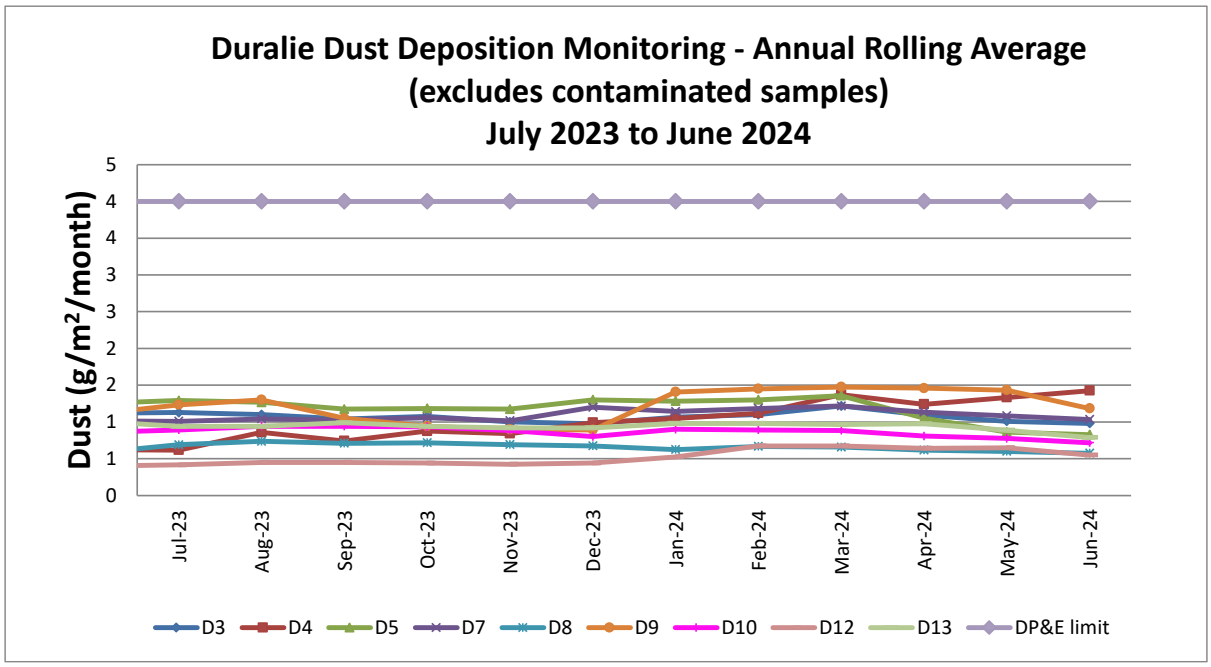


Figure 3-2: Rolling Annual Average Depositional Dust Monitoring Results (minus contaminated results) during the Reporting Period

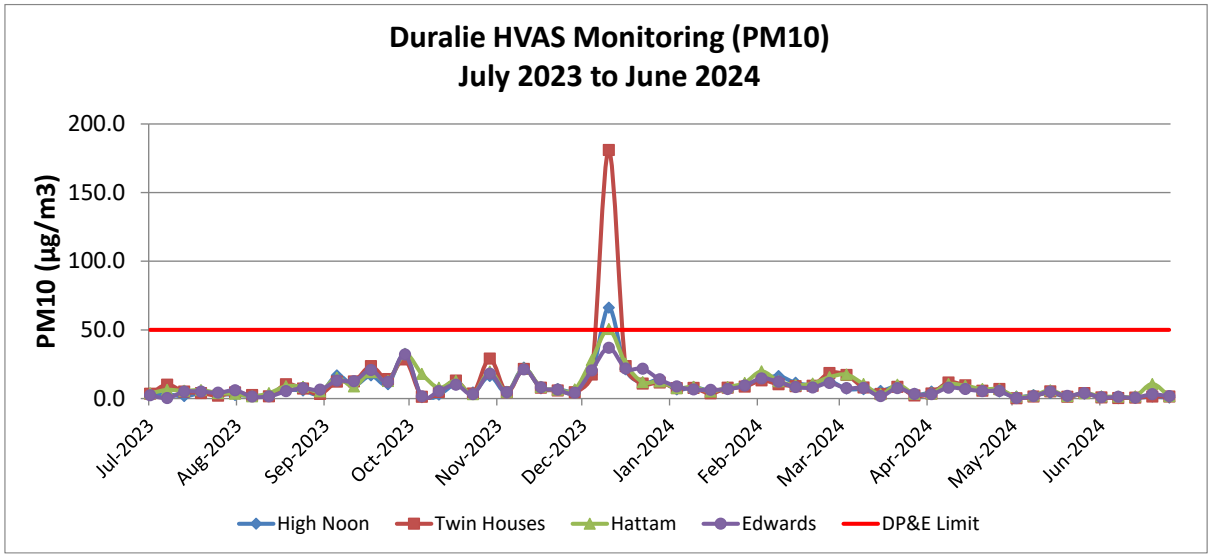


Figure 3-3: High Volume Air Sampling (PM_{10}) Results during the Reporting Period

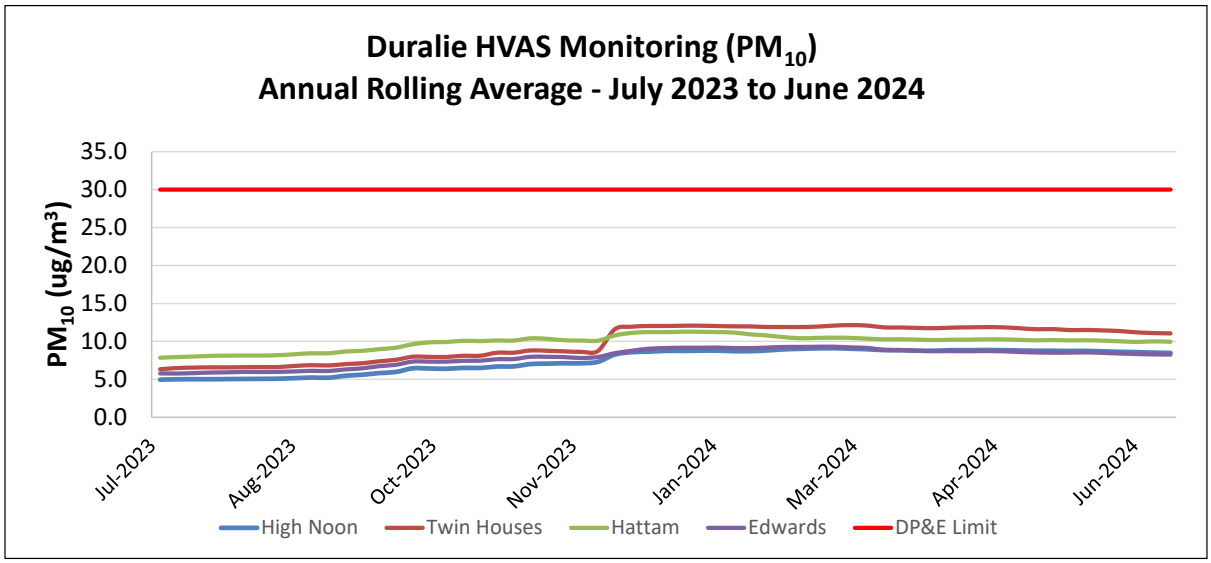


Figure 3-4: Rolling Annual Average HVAS (PM_{10}) Results during the Reporting Period

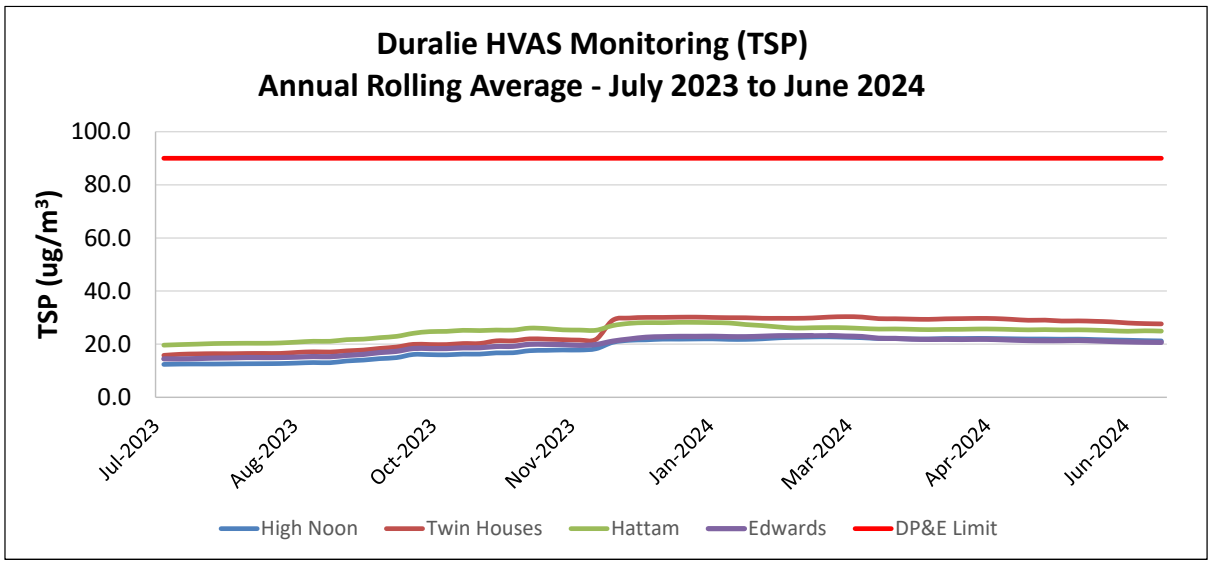


Figure 3-5: Rolling Annual Average HVAS (TSP) Results during the Reporting Period

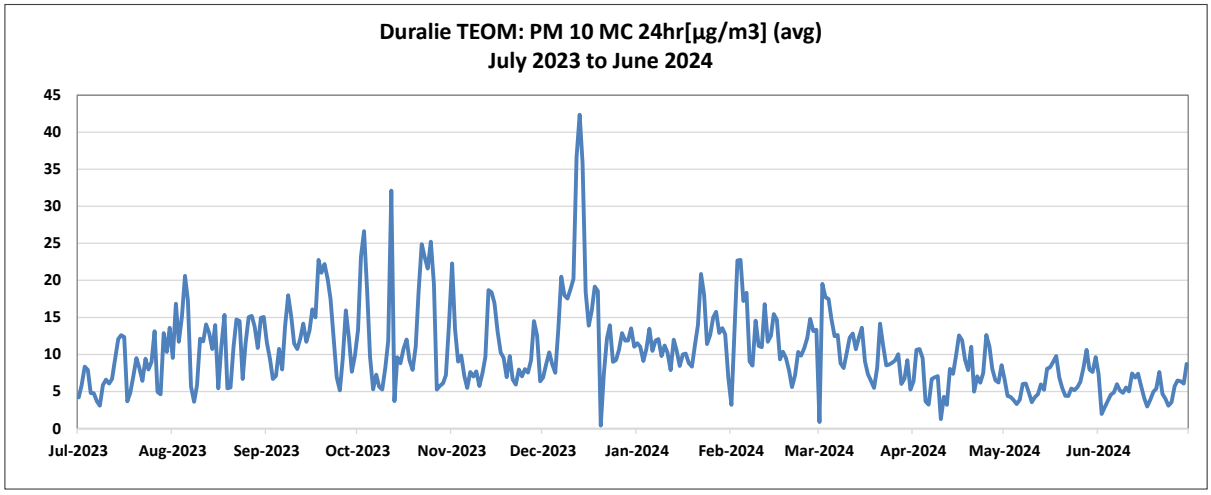


Figure 3-6: Real Time Dust Monitoring (TEOM PM_{10}) Results during the Reporting Period

APPENDIX 4

Surface Water & Groundwater Monitoring Results

Surface Water

SW2 - Coal Shaft Creek **EPL 11701 Point 30**

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	DO %	TSS mg/l	CO3 (as CaCO3) mg/l	Bicarb (as CaCO3) mg/l	Alkalinity (as $CaCO_3$) mg/l	Acidity (as $CaCO_3$) mg/l	SO4 mg/l	Cl mg/l	Ca mg/l	Mg mg/l	Al mg/l	Cu mg/l	Mn mg/l	Zn mg/l	Fe mg/l
31-Jul-23	Monthly	No flow																		
28-Aug-23	Monthly	No flow																		
26-Sep-23	Monthly	No flow																		
30-Oct-23	Monthly	No flow																		
30-Nov-23	Monthly	No flow																		
13-Dec-23	Monthly	Dry																		
24-Jan-24	Monthly	Dry																		
28-Feb-24	Monthly	No flow																		
19-Mar-24	Rain Event	Trickle, slightly turbid and brown	7.2	380	77	**66**	21	<1	16	16	7	117	46	16	12	0.86	0.002	0.309	0.038	1.79
5-Apr-24	Rain Event	Steady, slightly turbid and light brown	**6.7**	436	47	**72**	17	<1	35	35	12	74	48	16	12	0.36	<0.001	0.365	0.025	2.29
1-May-24	Rain Event	Steady - slightly turbid and brown	7.8	178	67	97	8	<1	38	38	4	25	18	7	5	**3.09**	0.002	0.021	0.033	3.15
21-May-24	Discharge	Steady, clear and brown in colour.	7.6	297	45	**28**	11	<1	50	50	4	35	31	12	8	1.44	0.001	0.040	0.02	1.56
1-Jun-24	Overflow	Fast, turbid and brown in colour.	7.5	503	81	96	44	<1	36	36	3	28	14	10	6	**3.15**	<0.001	0.105	0.05	3.38
21-Jun-24	Discharge	Slow, slightly turbid and light brown in colour.	**7.1**	220	17	**42**	7	<1	54	54	3	29	28	11	8	0.62	<0.001	0.127	0.009	2.18
*Water Quality Trigger			7.1 - 7.9	544	119	85 - 110%	80									3.02	0.003		0.064	

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000). *"Gilberts & Asscocistes 2011* - Development of Water Quality Trigger Levels for the Duralie Extension Project".**

SW2 RC - Coal Shaft Creek at Rail Siding Culvert (Entrance)

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	DO %	TDS mg/l	TSS mg/l	CO3 ($CaCO_3$) mg/l	Bicarb (as $CaCO_3$) mg/l	Alkalinity ($CaCO_3$) mg/l	Acidity ($CaCO_3$) mg/l	SO4 mg/l	Cl mg/l	Ca mg/l	Mg mg/l	Na mg/l	Hardness mg/l
31-Jul-23	Monthly	No flow																
28-Aug-23	Monthly	Dry																
26-Sep-23	Monthly	Dry																
30-Oct-23	Monthly	No flow																
30-Nov-23	Monthly	Dry																
13-Dec-23	Monthly	Dry																
24-Jan-24	Monthly	Dry																
28-Feb-24	Monthly	low - track needs whipper snipping																
19-Mar-24	Rain Event	Slow	**7.0**	484.1	45.8	96.7	310	18	<1	29	29	6	130	50	20	15	54	112
5-Apr-24	Rain Event	ow, slightly turbid and light brov	**7.0**	470.5	45.9	90.05	301	12	<1	34	34	3	122	39	19	13	47	101
1-May-24	Rain Event	teady - clear and brown in colo	7.9	213.2	66.9	98	136	10	<1	40	40	2	26	17	8	6	19	45
21-May-24	discharge	Slow, clear and colourless	7.7	318.7	16.06	**33.3**	204	5	<1	62	62	3	54	25	15	12	29	87
1-Jun-24	Overflow	Fast, turbid and brown in colour	7.8	154.2	**133**	98.5	99	40	<1	27	27	3	19	11	8	4	14	36
21-Jun-24	Discharge	ow, slightly turbid and light brov	**8.0**	221.1	19.35	98.9	142	20	<1	51	51	2	29	20	11	8	22	60
*Water Quality Trigger			7.1 - 7.9	544	119	85 - 110%		80										

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

SW2 RC - Coal Shaft Creek at Rail Siding Culvert (Entrance)

Date	Al mg/l	As mg/l	Ba mg/l	Cd mg/l	Cr mg/l	Cu mg/l	Pb mg/l	Mn mg/l	Mo mg/l	Ni mg/l	Se mg/l	Ag mg/l	U mg/l	Zn mg/l	B mg/l	Fe mg/l	Hg mg/l	F mg/l	NH3 (as N) mg/l	NO2 (as N) mg/l	NO3 (as N) mg/l	N mg/l	P mg/l	BOD mg/l
31-Jul-23																								
28-Aug-23																								
26-Sep-23																								
30-Oct-23																								
30-Nov-23																								
13-Dec-23																								
24-Jan-24																								
28-Feb-24																								
19-Mar-24	1.3	<0.001	0.034	<0.0001	<0.001	0.001	<0.001	0.014	<0.001	<0.001	<0.01	<0.001	<0.001	0.049	<0.05	1.06	<0.0001	<0.1	0.02	<0.01	0.07	0.5	0.04	10
5-Apr-24	0.38	<0.001	0.027	<0.0001	<0.001	0.001	<0.001	0.014	<0.001	0.001	<0.01	<0.001	<0.001	0.053	<0.05	0.65	<0.0001	<0.1	0.01	<0.01	0.22	0.7	0.03	2
1-May-24	**4.84**	<0.001	0.014	<0.0001	<0.001	0.002	<0.001	0.034	<0.001	0.002	<0.01	<0.001	<0.001	0.03	<0.05	4.91	<0.0001	<0.1	<0.01	<0.01	0.06	0.7	0.06	3
21-May-24	1.27	<0.001	0.017	<0.0001	<0.001	0.001	<0.001	0.015	<0.001	0.002	<0.01	<0.001	<0.001	0.018	<0.05	1.23	<0.0001	0.2	0.02	<0.01	0.07	0.8	0.02	<2
1-Jun-24	**4.89**	<0.001	0.017	<0.0001	0.003	0.001	<0.001	0.064	<0.001	0.003	<0.01	<0.001	<0.001	0.043	<0.05	4.84	<0.0001	<0.1	<0.01	<0.01	0.1	**1.7**	**0.12**	<2
21-Jun-24	0.48	<0.001	0.014	<0.0001	<0.001	0.002	<0.001	0.025	<0.001	0.002	<0.01	<0.001	<0.001	0.022	<0.05	1.08	<0.0001	<0.1	<0.01	<0.01	0.04	0.9	0.05	2
*Water Qua	3.02					0.003								0.064					0.05			1.2	0.08	

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

SW6

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	DO %	TSS mg/l	CO3 (as $CaCO_3$)	Bicarb (as $CaCO_3$)	Alkalinity (as $CaCO_3$) mg/l	Acidity (as $CaCO_3$) mg/l	SO4 mg/l	Cl mg/l	Ca mg/l	Mg mg/l	Al mg/l	Cu mg/l	Mn mg/l	Zn mg/l	Fe mg/l
31-Jul-23	Monthly	Dry																		
28-Aug-23	Monthly	Dry																		
26-Sep-23	Monthly	Dry																		
30-Oct-23	Monthly	Dry																		
30-Nov-23	Monthly	Dry																		
13-Dec-23	Monthly	Dry																		
24-Jan-24	Monthly	Dry																		
28-Feb-24	Monthly	No flow																		
19-Mar-24	Rain Event	Trickle, slightly turbid, colourless	**6.8**	465	40	96	6	<1	37	37	4	155	22	<1	<1	1.6	<0.001	0.02	<0.005	1.08
5-Apr-24	Rain Event	Steady, turbid and brown	**5.7**	365	**170**	98	76	<1	28	28	3	96	17	19	14	1.05	0.002	0.023	<0.005	0.98
1-May-24	Rain Event	Steady - clear and brown in colour	7.5	**635**	29	100	13	<1	70	70	2	142	60	28	23	0.51	<0.001	0.029	0.01	0.88
21-May-24	Discharge	ady, slightly turbid and brown in co	7.6	293	87	**33**	25	<1	48	48	4	54	30	15	12	2.62	0.002	0.034	0.006	2.97
1-Jun-24	Overflow	Steady, turbid and brown in colour.	7.4	497	**144**	102	**156**	<1	40	40	3	30	16	12	6	**5.78**	<0.001	0.121	0.008	5.57
21-Jun-24	Discharge	Trickle, clear and colourless.	7.5	327	18	102	<5	<1	58	58	2	57	32	16	13	0.45	<0.001	0.012	<0.005	0.96
*Water Quality Trigger			7.1 - 7.9	544	119	85 - 110%	80									3.02	0.003		0.064	

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

SW9 - Un-named Tributary (Fisher-Webster)

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	DO %	TDS mg/l	TSS mg/l	CO3 (as $CaCO_3$) mg/l	Bicarb (as $CaCO_3$) mg/l	Alkalinity (as $CaCO_3$) mg/l	Acidity (as CaC	SO4 mg/l	Cl mg/l	Ca mg/l	Mg mg/l	Na mg/l	Hardness mg/l
31-Jul-23	Monthly	Dry																
28-Aug-23	Monthly	Dry																
26-Sep-23	Monthly	Dry																
30-Oct-23	Monthly	Dry																
30-Nov-23	Monthly	Dry																
13-Dec-23	Monthly	Dry																
24-Jan-24	Monthly	Dry																
28-Feb-24	Monthly	No flow																
19-Feb-24	Rain Event	Dry - no flow																
5-Apr-24	Rain Event	No flow																
1-May-24	Rain Event	w- slightly turbid & light bro	7.0	150.6	42	96	27	21	<1	26	26	4	8	23	4	3	17	22
21-May-24	Discharge	slightly turbid and brown in	6.6	110.6	46.5	**18.7**	30	21	<1	13	13	6	2	23	4	3	15	22
1-Jun-24	Overflow	slightly turbid and brown in	**7.7**	93.8	80.6	97.2	52	**88**	<1	11	11	4	<10	15	3	2	11	16
21-Jun-24	Discharge	No flow																
*Water Quality Trigger			6.4 - 7.1	461	94	85 - 110%		57										

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

SW9 - Un-named Tributary (Fisher-Webster)

Date	Al mg/l	As mg/l	Ba mg/l	Cd mg/l	Cr mg/l	Cu mg/l	Pb mg/l	Mn mg/l	Mo mg/l	Ni mg/l	Se mg/l	Ag mg/l	U mg/l	Zn mg/l	B mg/l	Fe mg/l	Hg mg/l	F mg/l	NH3 (as N) mg/l	NO2 (as N) mg/l	NO3 (as N) mg/l	N mg/l	P mg/l	BOD mg/l
31-Jul-23																								
28-Aug-23																								
26-Sep-23																								
30-Oct-23																								
30-Nov-23																								
13-Dec-23																								
24-Jan-24																								
28-Feb-24																								
19-Mar-24																								
5-Apr-24																								
1-May-24	1	0	0.034	<0.0001	<0.001	0.002	<0.001	0.048	<0.001	0.004	<0.01	<0.001	<0.001	0.016	<0.05	1.52	<0.0001	<0.1	**0.33**	<0.01	0.13	**2.8**	0.54	2
21-May-24	1.64	0	0.037	<0.0001	<0.001	0.003	0.001	0.049	<0.001	0.003	<0.01	<0.001	<0.001	0.02	<0.05	2.35	<0.0001	0.1	**0.17**	<0.01	0.1	**3.3**	0.4	4
1-Jun-24	**3.14**	0	0.044	<0.0001	0.002	<0.001	0.001	0.073	<0.001	0.002	<0.01	<0.001	<0.001	0.012	<0.05	3.25	<0.0001	<0.1	**0.24**	<0.01	0.08	2.6	0.41	<2
21-Jun-24																								
*Water Qual	2.96				0.002	0.004								0.024					0.13			2.6	0.68	

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

SW10 - Coal Shaft Creek (Holmes Upstream)

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	DO %	TDS mg/l	TSS mg/l	CO3 (as $CaCO_3$)	Bicarb (as $CaCO_3$)	Alkalinity (as $CaCO_3$)	Acidity (as $CaCO_3$)	SO4 mg/l	Cl mg/l	Ca mg/l	Mg mg/l	Na mg/l	Hardness mg/l
31-Jul-23	Monthly	Dry																
28-Aug-23	Monthly	Dry																
26-Sep-23	Monthly	Dry																
30-Oct-23	Monthly	Dry																
30-Nov-23	Monthly	Dry																
13-Dec-23	Monthly	Dry																
24-Jan-24	Monthly	Dry																
28-Feb-24	Monthly	No flow																
19-Mar-24	Rain Event	No flow																
5-Apr-24	Rain Event	No flow																
1-May-24	Rain Event	Trickle - slightly turbid & brown	7.3	77	101	**81**	49	17	<1	12	12	4	<10	12	4	2	9	18
1-Jun-24	Overflow	Steady, turbid and brown in colour.	**6.5**	39	118	97	25	30	<1	12	12	4	<10	6	5	2	5	21
21-Jun-24	Discharge	No flow																
*Water Quality Trigger			7.1 - 7.9	544	119	85 - 110%		80										

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

SW10 - Coal Shaft Creek (Holmes Upstream)

Date	Al mg/l	As mg/l	Ba mg/l	Cd mg/l	Cr mg/l	Cu mg/l	Pb mg/l	Mn mg/l	Mo mg/l	Ni mg/l	Se mg/l	Ag mg/l	U mg/l	Zn mg/l	B mg/l	Fe mg/l	Hg mg/l	F mg/l	NH3 (as N) mg/l	NO2 (as N) mg/l	NO3 (as N) mg/l	N mg/l	P mg/l	BOD mg/l
31-Jul-23																								
28-Aug-23																								
26-Sep-23																								
30-Oct-23																								
30-Nov-23																								
13-Dec-23																								
24-Jan-24																								
28-Feb-24																								
19-Mar-24																								
5-Apr-24																								
1-May-24	1.58	<0.001	0.02	<0.0001	0.001	**0.004**	<0.001	0.02	<0.001	0.002	<0.01	<0.001	<0.001	0.007	<0.05	1.44	<0.0001	<0.1	0.01	<0.01	0.01	**2**	**0.2**	4
1-Jun-24	**5.27**	<0.001	0.01	<0.0001	0.003	0.003	<0.001	0.034	<0.001	0.002	<0.01	<0.001	<0.001	0.009	<0.05	4.74	<0.0001	<0.1	<0.01	<0.01	0.04	**1.6**	**0.12**	5
21-Jun-24																								
*Water Quality Trigger	3.02					0.003								0.064					0.05			1.2	0.08	

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

GB1 - Mammy Johnsons River EPL 11701 Point 31

Date	Category	Comment	ph	EC	Turbidity	DO	TDS	TSS	CO3	Bicarb	Alkalinity	Acidity	SO4	Cl	Ca	Mg	Na	Hardness
				uS/cm	NTU	%	mg/l	mg/l	(as $CaCO_3$) mg/l	(as $CaCO_3$) mg/l	(as $CaCO_3$) mg/l	(as $CaCO_3$) mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
31-Jul-23	Monthly	Slow	7.42	38	7	**78**	24	8	<1	74	3	74	10	88	17	13	45	96
28-Aug-23	Monthly	Slow	7.46	**417**	6	**76**	267	7	<1	90	5	90	10	92	21	12	51	102
26-Sep-23	Monthly	Trickle	7.16	**458**	4	**64**	293	7	<1	95	5	95	10	91	23	13	54	111
30-Oct-23	Monthly	Trickle	7.49	**391**	2	**51**	250	<5	<1	90	6	90	7	75	20	13	51	103
30-Nov-23	Monthly	Trickle	7.38	**500**	2	**37**	320	<5	<1	119	5	119	4	82	18	12	58	94
13-Dec-23	Monthly	Trickle, clear, light brown	7.43	**443**	3	**46**	283	6	<1	125	7	125	<1	90	23	13	52	111
24-Jan-24	Monthly	Trickle - clear & light brown	7.32	**427**	3	**41**	273	8	<1	97	97	7	3	74	21	12	48	102
28-Feb-24	Monthly	Steady	7.15	204	3	**51**	130	<5	<1	31	31	6	9	46	10	5	28	46
19-Mar-24	Rain Event	Trickle	7.23	239	2	**73**	153	<5	<1	42	42	4	6	49	11	6	27	52
5-Apr-24	Rain Event	Slow	7.2	297	4	**56**	190	<5	<1	59	59	5	1	55	12	7	30	59
1-May-24	Rain Event	Steady - slightly turbid & light brown	7.35	273	**29**	85	175	**26**	<1	41	41	3	14	54	11	7	32	56
21-May-24	Discharge	Fast, clear and brown in colour.	7.46	164	**41**	**24**	105	15	<1	28	28	3	7	31	7	4	20	34
1-Jun-24	Overflow	Fast, clear and brown in colour	7.14	140	**85**	97	89	**107**	<1	20	20	4	3	27	6	3	18	27
21-Jun-24	Discharge	teady, clear and light brown in colou	7.22	214	12	98	137	<5	<1	39	39	2	10	39	9	5	28	43
*Water Quality Trigger			7.1 - 7.6	370	24	85 - 110%		15										

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

GB1 - Mammy Johnsons River

Date	Al	As	Ba	Cd	Cr	Cu	Pb	Mn	Mo	Ni	Se	Ag	U	Zn	B	Fe	Hg	F	NH3	NO2	NO3	N	P	BOD
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	(as N) mg/l	(as N) mg/l	(as N) mg/l	mg/l	mg/l	mg/l
31-Jul-23	0.22	<0.001	0.05	<0.0001	<0.001	<0.001	<0.001	0.050	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.83	<0.0001	<0.1	0.02	<0.01	0.06	0.3	0.04	<2
28-Aug-23	0.12	<0.001	0.05	<0.0001	<0.001	<0.001	<0.001	0.075	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.66	<0.0001	<0.1	0.02	<0.01	0.05	0.4	0.02	2
26-Sep-23	0.11	<0.001	0.06	<0.0001	<0.001	0.002	<0.001	0.174	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.60	<0.0001	<0.1	0.02	<0.01	0.01	0.2	0.02	<2
30-Oct-23	0.05	<0.001	0.06	<0.0001	<0.001	<0.001	<0.001	0.190	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.45	<0.0001	<0.1	<0.01	<0.01	<0.01	0.3	0.03	<2
30-Nov-23	0.02	0.001	0.08	<0.0001	<0.001	<0.001	<0.001	0.842	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.75	<0.0001	<0.1	0.01	<0.01	0.07	0.5	0.04	2
13-Dec-23	0.02	0.002	0.14	<0.0001	<0.001	<0.001	<0.001	3.67	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.54	<0.0001	<0.1	<0.01	<0.01	0.13	0.6	0.10	<2
24-Jan-24	<0.01	0.002	0.10	<0.0001	<0.001	<0.001	<0.001	2.540	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.80	<0.0001	<0.1	**0.22**	<0.01	<0.01	0.8	0.12	<2
28-Feb-24	0.12	0.001	0.03	<0.0001	0.001	<0.001	<0.001	0.066	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.09	<0.0001	<0.1	0.03	<0.01	0.04	0.5	0.05	<2
19-Mar-24	0.03	0.001	0.03	<0.0001	<0.001	<0.001	<0.001	0.236	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.23	<0.0001	<0.1	**0.08**	<0.01	0.04	0.5	0.07	10
5-Apr-24	0.03	0.001	0.04	<0.0001	<0.001	<0.001	<0.001	0.238	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.38	<0.0001	<0.1	0.05	<0.01	0.10	0.6	0.10	<2
1-May-24	1.03	0.001	0.05	<0.0001	<0.001	0.002	<0.001	0.097	<0.001	0.001	<0.01	<0.001	<0.001	0.007	<0.05	1.92	<0.0001	<0.1	0.04	0.02	0.08	**1.1**	**0.17**	3
21-May-24	1.01	<0.001	0.03	<0.0001	<0.001	<0.001	<0.001	0.028	<0.001	0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.23	<0.0001	<0.1	0.04	<0.01	0.07	**1.1**	0.08	<2
1-Jun-24	**2.80**	0.001	0.05	<0.0001	0.001	<0.001	0.001	0.145	<0.001	0.001	<0.01	<0.001	<0.001	**0.023**	<0.05	3.15	<0.0001	<0.1	0.05	<0.01	0.09	**1.4**	**0.19**	2
21-Jun-24	0.2	<0.001	0.031	<0.0001	<0.001	<0.001	<0.001	0.019	<0.001	0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.95	<0.0001	<0.1	0.02	<0.01	0.06	0.4	0.04	<2
*Water Qua	1.24				0.001	0.0020								0.011					0.06			0.8	0.15	

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

Highnoon - Mammy Johnsons River EPL 11701 Point 35

Date	Category	Comment	ph	EC	Turbidity	DO	TDS	TSS	CO3 (as $CaCO_3$)	Bicarb (as $CaCO_3$)	Alkalinity (as $CaCO_3$)	Acidity (as $CaCO_3$)	SO4	Cl	Ca	Mg	Na	Hardness
				uS/cm	NTU	%	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
31-Jul-23	Monthly	Slow	7.47	38	6	**75**	24	8	<1	73	4	73	11	88	17	13	47	96
28-Aug-23	Monthly	Slow	7.54	**456**	4	**79**	292	<5	<1	95	5	95	14	101	21	14	55	110
26-Sep-23	Monthly	Trickle	**7.06**	**518**	2	90	331	<5	<1	104	5	104	12	106	22	14	59	112
30-Oct-23	Monthly	Slow	7.29	**490**	3	**69**	314	<5	<1	111	5	111	9	76	18	13	68	98
30-Nov-23	Monthly	Slow	**7.64**	**607**	3	**67**	388	<5	<1	122	4	122	10	135	25	17	68	132
13-Dec-23	Monthly	Trickle	**7.73**	**601**	3	**77**	384	6	<1	124	5	124	7	112	25	17	69	132
24-Jan-24	Monthly	Slow - clear & light brown	7.33	**464**	4	**80**	297	9	<1	114	114	6	4	108	24	15	58	122
28-Feb-24	Monthly	Steady	7.28	226	3	**53**	144	5	<1	33	33	6	11	50	11	6	30	52
19-Mar-24	Rain Event	Slow	7.48	281	12	**68**	180	8	<1	46	46	4	11	52	11	7	30	56
5-Apr-24	Rain Event	Slow - slightly turbid & light brown	7.24	289	**28**	**62**	185	6	<1	58	58	6	10	46	10	7	31	54
1-May-24	Rain Event	Steady - slightly turbid & light brown	7.6	269	**28**	90	172	**24**	<1	42	42	3	16	51	11	7	32	56
21-May-24	discharge	Fast, clear and brown in colour	7.32	158	**32**	**18**	101	7	<1	28	28	3	8	33	6	4	22	31
1-Jun-24	Overflow	Steady, clear and brown in colour	7.27	174	**67**	94	112	**36**	<1	30	30	3	7	29	8	4	22	36
21-Jun-24	Discharge	Steady, slightly turbid and colourless	7.53	205	14	94	131	5	<1	38	38	2	11	38	9	5	27	43
*Water Quality Trigger			7.1 - 7.6	370	24	85 - 110%		15										

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

Highnoon - Mammy Johnsons River

Date	Al	As	Ba	Cd	Cr	Cu	Pb	Mn	Mo	Ni	Se	Ag	U	Zn	B	Fe	Hg	F	NH3 (as N)	NO2 (as N)	NO3 (as N)	N	P	BOD
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
31-Jul-23	0.14	<0.001	0.05	<0.0001	<0.001	<0.001	<0.001	0.069	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.74	<0.0001	<0.1	0.03	<0.01	0.05	0.4	0.04	<2
28-Aug-23	0.11	<0.001	0.05	<0.0001	<0.001	<0.001	<0.001	0.087	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.64	<0.0001	<0.1	0.03	<0.01	<0.01	0.7	0.04	<2
26-Sep-23	0.05	<0.001	0.06	<0.0001	<0.001	<0.001	<0.001	0.152	<0.001	<0.001	<0.01	<0.001	<0.001	0.007	<0.05	0.40	<0.0001	<0.1	<0.01	<0.01	<0.01	0.2	0.02	<2
30-Oct-23	0.04	<0.001	0.06	<0.0001	<0.001	<0.001	<0.001	0.280	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.44	<0.0001	<0.1	<0.01	<0.01	<0.01	0.3	0.01	<2
30-Nov-23	0.02	<0.001	0.07	<0.0001	<0.001	<0.001	<0.001	0.251	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.31	<0.0001	<0.1	<0.01	<0.01	0.06	0.5	0.03	2
13-Dec-23	0.01	<0.001	0.07	<0.0001	<0.001	<0.001	<0.001	0.169	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.21	<0.0001	<0.1	<0.01	<0.01	<0.01	0.4	0.04	<2
24-Jan-24	0.02	0.001	0.08	<0.0001	<0.001	<0.001	<0.001	0.483	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.88	<0.0001	<0.1	0.04	<0.01	<0.01	0.6	0.06	<2
28-Feb-24	0.10	0.001	0.04	<0.0001	<0.001	0.006	<0.001	0.131	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.27	<0.0001	<0.1	**0.07**	<0.01	0.03	0.6	0.06	<2
19-Mar-24	0.47	0.001	0.04	<0.0001	<0.001	<0.001	<0.001	0.276	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.73	<0.0001	<0.1	**0.07**	<0.01	0.04	**0.6**	0.08	3
5-Apr-24	0.43	0.001	0.03	<0.0001	<0.001	<0.001	<0.001	0.199	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.27	<0.0001	<0.1	0.06	<0.01	0.35	1.2	0.10	<2
1-May-24	0.54	<0.001	0.05	<0.0001	<0.001	<0.001	<0.001	0.071	<0.001	<0.001	<0.01	<0.001	<0.001	0.008	<0.05	1.22	<0.0001	<0.1	0.05	<0.01	0.24	1.1	0.10	3
21-May-24	0.65	<0.001	0.03	<0.0001	<0.001	0.002	<0.001	0.028	<0.001	0.001	<0.01	<0.001	<0.001	0.005	<0.05	0.93	<0.0001	<0.1	0.02	<0.01	0.05	0.8	0.08	<2
1-Jun-24	**2.70**	<0.001	0.04	<0.0001	0.001	<0.001	<0.001	0.068	<0.001	<0.001	<0.01	<0.001	<0.001	**0.027**	<0.05	2.68	<0.0001	<0.1	<0.01	0.01	0.05	1	0.07	3
21-Jun-24	0.90	<0.001	0.04	<0.0001	<0.001	<0.001	<0.001	0.038	<0.001	0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.46	<0.0001	<0.1	0.01	<0.01	0.06	0.5	0.04	<2
*Water Quality Trigger	1.24				0.001	0.0020								0.011					0.06			0.8	0.15	

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

Site 9 - Karuah River (Near Stroud Road Village)

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	DO %	TDS mg/l	TSS mg/l	CO3 (as $CaCO_3$)	Bicarb (as $CaCO_3$)	Alkalinity (as $CaCO_3$) mg/l	Acidity (as $CaCO_3$)	SO4 mg/l	Cl mg/l	Ca mg/l	Mg mg/l	Na mg/l	Hardness mg/l
31-Jul-23	Monthly	Steady	7.1	227	4	96	145	8	<1	59	2	59	5	38	13	8	65	65
28-Aug-23	Monthly	Slow	8.1	250	3	101	160	<5	<1	65	2	65	6	41	14	9	72	72
26-Sep-23	Monthly	Slow	7.4	282	5	87	180	<5	<1	79	2	79	6	52	16	10	81	81
30-Oct-23	Monthly	Steady	7.7	199	3	86	127	<5	<1	47	3	47	5	40	12	7	59	59
30-Nov-23	Monthly	Trickle	7.7	685	2	56	438	10	<1	56	3	56	2	36	10	6	50	50
13-Dec-23	Monthly	Trickle , clear, light brown	6.8	208	2	50	133	<5	<1	57	4	57	2	35	11	6	52	52
24-Jan-24	Monthly	Slow	6.6	163	2	68	104	<5	<1	39	39	3	4	21	8	4	36	36
28-Feb-24	Monthly	Steady	8.1	134	2	89	86	<5	<1	32	32	3	4	24	7	3	30	30
19-Mar-24	Rain Event	Slow	7.4	141	13	97	90.4	12	<1	36	36	2	3	20	7	4	34	34
5-Apr-24	Rain Event	Fast	7.5	147	7	89	94.1	5	<1	42	42	3	3	20	6	4	31	31
1-May-24	Rain Event	Fast - slightly turbid & light brown	7.5	163	92	96	104	78	<1	38	38	3	1	27	7	5	38	38
21-May-24	discharge	Steady, clear and brown in colour	7.4	110	16	20	70.1	<5	<1	33	33	3	3	20	6	4	31	31
1-Jun-24	Overflow	Fast, clear and brown in colour	7.4	115	121	100	73.5	114	<1	31	31	4	<10	17	7	4	34	34
21-Jun-24	Discharge	Steady, clear and colourless.	7.3	120	5	100	77.1	<5	<1	31	31	2	5	23	6	4	31	31
*Water Quality Trigger			N/A	N/A	N/A													

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Site 9 - Karuah River (Near Stroud Road Village)

Date	Al mg/l	As mg/l	Ba mg/l	Cd mg/l	Cr mg/l	Cu mg/l	Pb mg/l	Mn mg/l	Mo mg/l	Ni mg/l	Se mg/l	Ag mg/l	U mg/l	Zn mg/l	B mg/l	Fe mg/l	Hg mg/l	F mg/l	NH3 (as N) mg/l	NO2 (as N) mg/l	NO3 (as N) mg/l	N mg/l	P mg/l	BOD mg/l
31-Jul-23	0.06	<0.001	0.02	<0.0001	<0.001	<0.001	<0.001	0.010	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.32	<0.0001	<0.1	0.02	<0.01	0.09	0.3	0	<2
28-Aug-23	0.08	<0.001	0.021	<0.0001	<0.001	<0.001	<0.001	0.020	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.25	<0.0001	<0.1	<0.01	<0.01	0.03	0.3	0.1	<2
26-Sep-23	0.05	<0.001	0.028	<0.0001	<0.001	<0.001	<0.001	0.040	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.21	<0.0001	<0.1	0.01	<0.01	<0.01	0.5	0	4
30-Oct-23	0.09	<0.001	0.022	<0.0001	<0.001	<0.001	<0.001	0.018	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.37	<0.0001	<0.1	<0.01	<0.01	<0.01	0.4	0	3
30-Nov-23	0.33	<0.001	0.023	<0.0001	<0.001	<0.001	<0.001	0.028	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.60	<0.0001	<0.1	<0.01	<0.01	<0.01	0.5	0.1	2
13-Dec-23	0.02	0.001	0.024	<0.0001	<0.001	<0.001	<0.001	0.209	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.47	<0.0001	<0.1	0.11	<0.01	0.05	0.6	0.1	<2
24-Jan-24	0.07	<0.001	0.016	<0.0001	<0.001	<0.001	<0.001	0.040	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.41	<0.0001	<0.1	0.05	<0.01	0.04	0.4	0.1	<2
28-Feb-24	0.10	<0.001	0.013	<0.0001	<0.001	<0.001	<0.001	0.023	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.42	<0.0001	<0.1	0.04	<0.01	0.06	0.4	0	<2
19-Mar-24	0.55	<0.001	0.015	<0.0001	<0.001	<0.001	<0.001	0.024	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.85	<0.0001	<0.1	0.02	<0.01	0.11	0.5	0.1	3
5-Apr-24	0.27	<0.001	0.014	<0.0001	<0.001	<0.001	<0.001	0.025	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.57	<0.0001	<0.1	0.02	<0.01	0.16	0.6	0.1	<2
1-May-24	0.60	<0.001	0.032	<0.0001	<0.001	0.001	<0.001	0.102	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.16	<0.0001	<0.1	0.02	<0.01	0.15	1.6	0.2	3
21-May-24	1.19	<0.001	0.017	<0.0001	<0.001	<0.001	<0.001	0.019	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.11	<0.0001	<0.1	0.05	<0.01	0.08	0.8	0.1	3
1-Jun-24	6.28	<0.001	0.039	<0.0001	0.005	0.002	0.001	0.174	<0.001	0.003	<0.01	<0.001	<0.001	0.019	<0.05	5.92	<0.0001	<0.1	0.08	<0.01	0.10	1.4	0.2	2
21-Jun-24	0.18	<0.001	0.014	<0.0001	0.002	<0.001	<0.001	0.008	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.38	<0.0001	<0.1	<0.01	<0.01	0.06	0.3	0	<2

Site 11 - Mammy Johnsons - Downstream of High Noon

Date	Category	Comment	ph	EC	Turbidity	DO	TDS	TSS	CO3 ($CaCO_3$)	Bicarb (as $CaCO_3$)	Alkalinity ($CaCO_3$)	Acidity ($CaCO_3$)	SO4	Cl	Ca	Mg	Na	Hardness
				uS/cm	NTU	%	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
31-Jul-23	Monthly	Slow	**7.02**	**392**	5	89	251	9	<1	76	3	76	11	89	18	14	49	102
28-Aug-23	Monthly	Slow	**8.3**	**501**	4	85	320	<5	<1	94	4	94	13	99	22	14	55	112
26-Sep-23	Monthly	Trickle	7.32	**556**	2	91	356	<5	<1	109	3	109	12	112	24	16	63	126
30-Oct-23	Monthly	Trickle	7.25	**693**	3	**66**	443	<5	<1	129	5	129	10	141	28	21	85	156
30-Nov-23	Monthly	Trickle, slightly turbid, brown	7.58	224	12	90	143	<5	<1	131	5	131	13	156	34	22	83	175
13-Dec-23	Monthly	No flow																
24-Jan-24	Monthly	Trickle - clear and light brown	**7.01**	**514**	3	**37**	329	10	<1	119	119	8	<1	124	25	16	63	128
28-Feb-24	Monthly	Steady	7.52	216	2	**59**	138	<5	<1	34	34	5	11	53	11	6	31	52
19-Mar-24	Rain Event	Steady	**7.65**	255	18	**80**	163	6	<1	40	40	4	10	49	10	6	29	50
05-Apr-24	Rain Event	ady, slightly turbid and light bro	**6.87**	332	**27**	**67**	212	9	<1	60	60	5	11	49	12	8	32	63
01-May-24	Rain Event	eady - slightly turbid & light brov	**7.72**	323	**27**	**84**	207	**18**	<1	47	47	3	18	54	12	8	34	63
21-May-24	Discharge	teady, clear and brown in colou	7.29	159	**32**	**27**	102	9	<1	28	28	3	7	32	7	4	22	34
01-Jun-24	Overflow	Fast, clear and brown in colour	7.26	201	**65**	94	129	**40**	<1	32	32	357	7	33	8	4	23	36
21-Jun-24	Discharge	Steady, clear and colourless	7.56	211	13	94	135	<5	<1	40	40	2	10	40	9	6	27	47
*Water Quality Trigger			7.1 - 7.6	370	24	85 - 110%		15										

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

Site 11 - Mammy Johnsons - Downstream of High Noon

Date	Al	As	Ba	Cd	Cr	Cu	Pb	Mn	Mo	Ni	Se	Ag	U	Zn	B	Fe	Hg	F	NH3 (as N)	NO2 (as N)	NO3 (as N)	N	P	BOD
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
31-Jul-23	0.13	<0.001	0.049	<0.0001	<0.001	<0.001	<0.001	0.058	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.77	<0.0001	<0.1	0.03	<0.01	0.05	0.2	0.03	<2
28-Aug-23	0.07	<0.001	0.052	<0.0001	<0.001	<0.001	<0.001	0.069	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.55	<0.0001	<0.1	<0.01	<0.01	<0.01	0.4	0.04	3
26-Sep-23	0.05	<0.001	0.064	<0.0001	<0.001	<0.001	<0.001	0.126	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.45	<0.0001	<0.1	0.02	<0.01	<0.01	0.3	0.02	<2
30-Oct-23	0.08	<0.001	0.076	<0.0001	<0.001	<0.001	<0.001	0.149	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.68	<0.0001	<0.1	<0.01	<0.01	<0.01	0.4	0.02	<2
30-Nov-23	0.02	<0.001	0.068	<0.0001	<0.001	<0.001	<0.001	0.232	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.69	<0.0001	<0.1	0.02	<0.01	0.04	0.4	0.03	2
13-Dec-23																								
24-Jan-24	<0.01	0.002	0.107	<0.0001	<0.001	<0.001	<0.001	3.410	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	2.18	<0.0001	<0.1	**0.18**	<0.01	<0.01	0.6	0.04	<2
28-Feb-24	0.1	0.001	0.034	<0.0001	<0.001	<0.001	<0.001	0.102	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.15	<0.0001	<0.1	**0.09**	<0.01	0.14	0.7	0.05	<2
19-Mar-24	0.71	<0.001	0.033	<0.0001	<0.001	<0.001	<0.001	0.116	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.59	<0.0001	<0.1	0.03	<0.01	0.11	0.8	0.1	8
5-Apr-24	0.32	0.001	0.038	<0.0001	<0.001	<0.001	<0.001	0.194	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.52	<0.0001	<0.1	0.06	<0.01	0.31	**1.2**	0.16	<2
1-May-24	0.43	<0.001	0.044	<0.0001	<0.001	<0.001	<0.001	0.091	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.22	<0.0001	<0.1	0.02	<0.01	0.14	**1**	0.09	
21-May-24	**1.84**	<0.001	0.031	<0.0001	<0.001	0.002	<0.001	0.028	<0.001	<0.001	<0.01	<0.001	<0.001	0.006	<0.05	1.69	<0.0001	<0.1	0.04	<0.01	0.05	0.8	0.12	<2
01-Jun-24	**2.87**	<0.001	0.037	<0.0001	0.001	<0.001	<0.001	0.082	<0.001	0.001	<0.01	<0.001	<0.001	0.009	<0.05	2.81	<0.0001	<0.1	0.04	<0.01	0.08	**1.1**	0.09	<2
21-Jun-24	0.27	<0.001	0.031	<0.0001	<0.001	<0.001	<0.001	0.027	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.08	<0.0001	<0.1	0.03	<0.01	1.44	**1.44**	**2**	0
*Water Quality Trigge	1.24				0.001	0.0020								0.011					0.06			0.8	0.15	

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

Site 12 - Mammy Johnsons - Relton Property

Date	Category	Comment	ph	EC	Turbidity	DO	TDS	TSS	CO3 (as $CaCO_3$)	Bicarb (as $CaCO_3$)	Alkalinity (as $CaCO_3$)	Acidity (as $CaCO_3$)	SO4	Cl	Ca	Mg	Na	Hardness
				uS/cm	NTU	%	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
31-Jul-23	Monthly	Slow	7.86	369.5	3.5	88	236	6	<1	77	3	77	10	78	18	13	46	98
28-Aug-23	Monthly	Slow	7.62	358.9	1.9	85	230	<5	<1	86	4	86	8	82	20	11	43	95
26-Sep-23	Monthly	Trickle	**7.03**	**402.6**	2.5	**72**	258	<5	<1	92	6	92	8	72	18	11	44	90
30-Oct-23	Monthly	Trickle	7.31	357.4	2.1	**46**	229	5	<1	90	7	90	10	67	14	9	45	72
30-Nov-23	Monthly	Trickle, slightly turbid, brown	7.7	**408.8**	2.3	**51**	262	<5	<1	105	4	105	5	69	17	11	45	88
13-Dec-23	Monthly	Trickle	7.08	**420.4**	1.7	**48**	269	<5	<1	118	7	118	3	74	19	12	47	97
24-Jan-24	Monthly	Trickle - clear & light brown	7.15	**400.6**	2.1	**47**	256	6	<1	75	75	7	3	80	21	12	45	102
28-Feb-24	Monthly	Steady	7.18	191.6	2.6	**60**	123	<5	<1	28	28	5	10	46	9	5	27	43
19-Mar-24	Rain Event	Trickle	7.25	240.7	1.2	**71**	154	<5	<1	38	38	4	6	51	10	6	26	50
5-Apr-24	Rain Event	Slow	7.22	269.5	1.9	**62**	172	<5	<1	49	49	5	3	49	11	6	26	52
1-May-24	Rain Event	eady - slightly turbid & light brov	7.39	223.3	**30.3**	94	143	**20**	<1	39	39	3	10	42	10	6	25	50
21-May-24	Discharge	Fast, clear and brown in colour	7.19	153.3	22.1	**23**	98.1	6	<1	28	28	3	7	35	7	4	23	34
1-Jun-24	Overflow	Fast, clear and brown in colour	7.22	176.7	**96.5**	99	113	**108**	<1	31	31	4	6	30	8	4	24	36
21-Jun-24	Discharge	Steady, clear and colourless.	7.33	212.9	11.8	103	136	<5	<1	38	38	2	10	37	9	5	27	43
*Water Quality Trigger			7.1 - 7.6	370	24	85 - 110%		15										

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

Site 12 - Mammy Johnsons - Relton Property

Date	Al	As	Ba	Cd	Cr	Cu	Pb	Mn	Mo	Ni	Se	Ag	U	Zn	B	Fe	Hg	F	NH3 (as N)	NO2 (as N)	NO3 (as N)	N	P	BOD
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
31-Jul-23	0.07	<0.001	0.048	<0.0001	<0.001	<0.001	<0.001	0.031	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.80	<0.0001	<0.1	0.02	<0.01	0.05	0.2	0.02	<2
28-Aug-23	0.04	<0.001	0.049	<0.0001	<0.001	<0.001	<0.001	0.04	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.59	<0.0001	<0.1	0.02	<0.01	0.21	0.5	0.07	2
26-Sep-23	0.08	<0.001	0.051	<0.0001	<0.001	<0.001	<0.001	0.111	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.42	<0.0001	<0.1	0.02	0.01	<0.01	0.3	0.02	<2
30-Oct-23	0.07	<0.001	0.064	<0.0001	<0.001	<0.001	<0.001	0.642	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.66	<0.0001	<0.1	0.02	<0.01	<0.01	0.4	0.03	2
30-Nov-23	0.03	<0.001	0.069	<0.0001	<0.001	<0.001	<0.001	0.358	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.63	<0.0001	<0.1	<0.01	<0.01	0.03	0.4	0.03	<2
13-Dec-23	**<0.01**	0.001	0.090	<0.0001	<0.001	<0.001	<0.001	1.42	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.31	<0.0001	<0.1	0.04	<0.01	<0.01	**1.1**	0.06	<2
24-Jan-24	0.01	0.001	0.084	<0.0001	<0.001	<0.001	<0.001	1.38	<0.001	<0.001	<0.01	<0.001	<0.001	0.005	<0.05	1.08	<0.0001	<0.1	**0.12**	<0.01	<0.01	0.6	0.07	<2
28-Feb-24	0.14	<0.001	0.032	<0.0001	<0.001	<0.001	<0.001	0.044	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.88	<0.0001	<0.1	0.03	<0.01	0.06	0.6	0.04	<2
19-Mar-24	0.03	0.001	0.038	<0.0001	<0.001	<0.001	<0.001	0.322	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.02	<0.0001	<0.1	0.09	<0.01	0.03	0.6	0.05	4
5-Apr-24	0.03	0.001	0.036	<0.0001	<0.001	<0.001	<0.001	0.162	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.22	<0.0001	<0.1	0.09	<0.01	0.18	0.8	0.08	<2
1-May-24	0.49	<0.001	0.041	<0.0001	0.002	0.001	<0.001	0.068	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.14	<0.0001	<0.1	0.05	<0.01	0.07	**1.2**	0.14	<2
21-May-24	**1.30**	<0.001	0.034	<0.0001	<0.001	<0.001	<0.001	0.03	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.27	<0.0001	<0.1	0.02	<0.01	0.03	0.8	0.12	<2
1-Jun-24	**3.29**	0.001	0.065	<0.0001	0.001	<0.001	0.002	0.238	<0.001	0.001	<0.01	<0.001	<0.001	0.008	<0.05	3.83	<0.0001	<0.1	0.05	0.01	0.08	1.5	**0.22**	5
21-Jun-24	0.53	<0.001	0.034	<0.0001	<0.001	<0.001	<0.001	0.023	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.18	<0.0001	<0.1	<0.01	<0.01	0.08	0.5	0.05	<2
*Water Quality	1.24				0.001	0.0020								0.011					0.06			0.8	0.15	

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

Site 15 - Mammy Johnsons - Tereel

Date	Category	Comment	ph	EC	Turbidity	DO	TDS	TSS	CO3 (as $CaCO_3$)	Bicarb (as $CaCO_3$)	Alkalinity (as $CaCO_3$)	Acidity (as $CaCO_3$)	SO4	Cl	Ca	Mg	Na	Hardness
				uS/cm	NTU	%	mg/l	mg/l	mg/l		mg/l		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
31-Jul-23	Monthly	Slow	**8.2**	244	2	98	156	8	<1	32	2	32	7	57	11	8	30	60
28-Aug-23	Monthly	Slow	**7.7**	268	2	94	171	<5	<1	34	3	34	7	73	12	8	31	63
26-Sep-23	Monthly	Trickle	7.1	332	3	**78**	212	<5	<1	42	3	42	7	77	16	9	35	77
30-Oct-23	Monthly	No flow																
30-Nov-23	Monthly	Trickle	7.6	339	1	**51**	217	<5	<1	46	4	46	6	68	13	8	35	65
13-Dec-23	Monthly	No flow																
24-Jan-24	Monthly	Slow - clear & light brown	7.3	237	2	**58**	152	<5	<1	34	34	4	9	47	11	7	28	56
28-Feb-24	Monthly	Steady	7.2	202	3	94	130	<5	<1	21	21	3	10	52	10	5	28	46
19-Mar-24	Rain Event	Slow	7.2	234	1	**60**	150	<5	<1	31	31	3	8	55	9	6	28	47
5-Apr-24	Rain Event	Slow - slight turbid & light brown	7.1	245	20	**71**	157	12	<1	30	30	4	6	51	9	6	25	47
1-May-24	Rain Event	eady - slightlly turbied & light bro	7.6	196	18	100	125	12	<1	28	28	2	8	42	8	5	23	40
21-May-24	Discharge	Fast, clear and brown in colour	7.5	136	18	**20**	87.3	<5	<1	17	17	3	6	32	5	4	20	29
1-Jun-24	Overflow	Fast, clear and brown in colour.	7.3	151	**35**	102	96.8	**24**	<1	19	19	3	5	31	6	3	19	27
21-Jun-24	Discharge	Steady, clear and colourless.	**7.7**	149	11	104	95.2	<5	<1	21	21	2	8	34	6	4	22	31
*Water Quality Trigger			7.1 - 7.6	370	24	85 - 110%		15										

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project.

Site 15 - Mammy Johnsons - Tereel

Date	Al	As	Ba	Cd	Cr	Cu	Pb	Mn	Mo	Ni	Se	Ag	U	Zn	B	Fe	Hg	F	NH3 (as N)	NO2 (as N)	NO3 (as N)	N	P	BOD
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
31-Jul-23	0.05	<0.001	0.038	<0.0001	<0.001	<0.001	<0.001	0.014	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.74	<0.0001	<0.1	0.07	<0.01	<0.01	0.2	0.02	<2
28-Aug-23	0.05	<0.001	0.039	<0.0001	<0.001	<0.001	<0.001	0.016	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.53	<0.0001	<0.1	<0.01	<0.01	0.02	0.3	0.01	<2
26-Sep-23	0.07	<0.001	0.048	<0.0001	<0.001	0.003	<0.001	0.078	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.67	<0.0001	<0.1	0.01	<0.01	<0.01	0.2	0.02	<2
30-Oct-23																								
30-Nov-23	0.03	<0.001	0.052	<0.0001	<0.001	<0.001	<0.001	0.082	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.61	<0.0001	<0.1	<0.01	<0.01	0.04	0.3	0.02	<2
13-Dec-23																								
24-Jan-24	0.05	<0.001	0.037	<0.0001	<0.001	<0.001	<0.001	0.181	<0.001	<0.001	<0.01	<0.001	<0.001	0.008	<0.05	1.01	<0.0001	<0.1	0.01	<0.01	<0.01	0.5	0.04	<2
28-Feb-24	0.15	<0.001	0.034	<0.0001	<0.001	<0.001	<0.001	0.022	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.88	<0.0001	<0.1	0.02	<0.01	0.03	0.4	0.02	<2
19-Mar-24	0.04	<0.001	0.035	<0.0001	<0.001	<0.001	<0.001	0.086	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.70	<0.0001	<0.1	0.04	<0.01	0.01	0.3	0.02	9
5-Apr-24	0.15	<0.001	0.034	<0.0001	<0.001	<0.001	<0.001	0.056	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.65	<0.0001	<0.1	0.03	<0.01	0.27	**0.9**	0.04	<2
1-May-24	0.81	<0.001	0.037	<0.0001	<0.001	<0.001	<0.001	0.035	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.27	<0.0001	<0.1	0.01	<0.01	0.1	0.6	0.03	2
21-May-24	**1.62**	<0.001	0.030	<0.0001	0.002	<0.001	<0.001	0.015	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.06	<0.0001	<0.1	0.01	<0.01	0.03	0.5	0.11	<2
1-Jun-24	**1.6**	<0.001	0.036	<0.0001	<0.001	<0.001	<0.001	0.051	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.62	<0.0001	<0.1	<0.01	<0.01	0.09	0.7	0.03	<2
21-Jun-24	1	<0.001	0.027	<0.0001	<0.001	<0.001	<0.001	0.014	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.94	<0.0001	<0.1	0.02	<0.01	0.02	0.2	0.04	<2
*Water Quali	1.24				0.001	0.0020								0.011					0.06			0.8	0.15	

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project.

Site 19 - Karuah River (Washpool Turnoff)

Date	Category	Comment	ph	EC	Turbidity	DO	TDS	TSS	CO3 (as $CaCO_3$)	Bicarb (as $CaCO_3$)	Alkalinity (as $CaCO_3$)	Acidity (as $CaCO_3$)	SO4	Cl	Ca	Mg	Na	Hardness
				uS/cm	NTU	%	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
31-Jul-23	Monthly	Steady	**6.87**	271	4	98	174	9	<1	60	2	60	6	55	14	8	30	68
28-Aug-23	Monthly	Steady	**7.8**	314	2	105	201	<5	<1	88	3	88	8	50	18	12	38	94
26-Sep-23	Monthly	Slow	7.5	**401**	3	89	257	7	<1	85	2	85	7	58	16	10	36	81
30-Oct-23	Monthly	Steady	**8.15**	286	3	90	183	<5	<1	73	2	73	5	47	16	10	32	81
30-Nov-23	Monthly	Slow , slightly turbid, brown	**7.62**	265	2	89	170	<5	<1	66	2	66	5	43	12	7	27	59
13-Dec-23	Monthly	Slow , clear, light brown	**6.7**	242	4	**82**	155	<5	<1	64	3	64	4	42	12	8	29	63
24-Jan-24	Monthly	Slow - clear and light brown	**6.71**	169	2	**75**	108	<5	<1	43	43	2	4	24	9	4	17	39
28-Feb-24	Monthly	Steady	**7.8**	131	2	87	84	<5	<1	34	34	2	6	27	8	4	23	36
19-Mar-24	Rain Event	Fast	7.51	179	4	91	115	5	<1	41	41	2	4	29	9	5	20	43
5-Apr-24	Rain Event	Fast	7.58	145	6	89	93	6	<1	42	42	2	3	20	7	4	14	34
1-May-24	Rain Event	Fast - slightly turbid & light brown	7.46	271	**59**	94	173	**50**	<1	45	45	3	14	46	12	8	28	63
21-May-24	Discharge	steady, clear and brown in colour	7.18	150	**52**	**21**	96	**29**	<1	27	27	4	<1	33	7	5	22	38
1-Jun-24	Overflow	Fast, clear and brown in colour	**7.06**	113	**176**	98	73	**224**	<1	18	18	5	<10	22	5	3	17	25
21-Jun-24	Discharge	Steady, clear and colourless	7.6	249	8	98	159	<5	<1	37	37	2	8	31	8	5	21	40
*Water Quality Trigger			7.1 - 7.6	370	24	85 - 110%		15										

"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

Site 19 - Karuah River (Washpool Turnoff)

Date	Al	As	Ba	Cd	Cr	Cu	Pb	Mn	Mo	Ni	Se	Ag	U	Zn	B	Fe	Hg	F	NH3 (as N)	NO2 (as N)	NO3 (as N)	N	P	BOD
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
31-Jul-23	0.08	<0.001	0.025	<0.0001	<0.001	<0.001	<0.001	0.018	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.40	<0.0001	<0.1	0.02	<0.01	0.03	0.2	0.04	<2
28-Aug-23	0.05	<0.001	0.027	<0.0001	<0.001	<0.001	<0.001	0.031	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.21	<0.0001	0.1	<0.01	<0.01	<0.01	0.3	0.02	<2
26-Sep-23	0.08	<0.001	0.032	<0.0001	<0.001	<0.001	<0.001	0.060	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.27	<0.0001	<0.1	0.01	<0.01	<0.01	0.3	0.02	<2
30-Oct-23	0.08	<0.001	0.026	<0.0001	<0.001	<0.001	<0.001	0.027	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.28	<0.0001	0.1	<0.01	<0.01	<0.01	0.4	0.03	2
30-Nov-23	0.07	<0.001	0.025	<0.0001	<0.001	<0.001	<0.001	0.041	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.44	<0.0001	0.1	<0.01	<0.01	<0.01	0.5	0.04	<2
13-Dec-23	0.07	0.001	0.023	<0.0001	<0.001	<0.001	<0.001	0.112	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.42	<0.0001	0.1	0.05	<0.01	0.01	0.4	0.05	<2
24-Jan-24	0.07	<0.001	0.016	<0.0001	<0.001	<0.001	<0.001	0.046	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.43	<0.0001	0.2	0.05	<0.01	0.04	0.4	0.05	<2
28-Feb-24	0.10	<0.001	0.018	<0.0001	<0.001	0.008	<0.001	0.045	<0.001	<0.001	<0.01	<0.001	<0.001	0.006	<0.05	0.53	<0.0001	0.2	0.03	0.02	0.03	0.4	0.14	<2
19-Mar-24	0.20	<0.001	0.020	<0.0001	<0.001	<0.001	<0.001	0.060	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.81	<0.0001	<0.1	0.05	<0.01	0.12	0.5	0.05	8
05-Apr-24	0.16	<0.001	0.015	<0.0001	<0.001	<0.001	<0.001	0.041	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.52	<0.0001	<0.1	0.03	<0.01	0.18	0.5	0.06	<2
01-May-24	0.73	<0.001	0.032	<0.0001	<0.001	0.001	<0.001	0.082	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.25	<0.0001	0.1	0.04	<0.01	0.11	**1.6**	**0.20**	2
21-May-24	**2.17**	<0.001	0.031	<0.0001	0.002	0.002	<0.001	0.046	<0.001	0.001	<0.01	<0.001	<0.001	<0.005	<0.05	1.85	<0.0001	<0.1	0.03	<0.01	0.03	**1.6**	**0.19**	2
01-Jun-24	**5.76**	0.002	0.056	<0.0001	0.004	0.002	0.004	0.188	<0.001	0.003	<0.01	<0.001	<0.001	**0.014**	<0.05	5.87	<0.0001	<0.1	0.04	<0.01	0.07	**2**	**0.29**	<2
21-Jun-24	0.36	<0.001	0.020	<0.0001	<0.001	<0.001	<0.001	0.012	<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.05	0.71	<0.0001	<0.1	0.02	<0.01	0.07	0.5	0.06	<2
*Water Qua	1.24				0.001	0.0020								0.011					0.06			0.8	0.15	

"Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".

SW3 - Main Water Dam (Major) EPL11701 Point 3

Date	Category	Storage RL	pH	EC uS/cm	Turbidity NTU	TDS mg/l	TSS mg/l	CO3 (as $CaCO_3$) mg/l	Bicarb (as $CaCO_3$) mg/l	Alkalinity (as $CaCO_3$)	Acidity (as $CaCO_3$)	SO4 mg/l	Cl mg/l	Ca mg/l	Mg mg/l	Na mg/l	Hardness mg/l
31-Jul-23	Monthly	RL70.543	7.8	1993	5.4	1275.5	23	<1	150	3	150	972	217	164	102	250	830
28-Aug-23	Monthly	RL71.241	8.4	2228	2.1	1425.9	5	<1	152	3	152	818	216	165	98	247	816
26-Sep-23	Monthly	RL70.670	8.4	2172	2.5	1390.1	6	<1	126	<1	126	828	234	163	102	252	827
30-Oct-23	Monthly	RL70.59	8.1	2043	27.5	1307.5	36	<1	117	1	117	831	189	162	108	263	849
30-Nov-23	Monthly		7.7	2343	1.5	1499.5	<5	<1	107	<1	107	873	245	148	103	259	794
13-Dec-23	Monthly		8.1	2280	2.3	1459.2	<5	<1	98	6	98	833	214	142	107	266	795
24-Jan-24	Monthly	RL 67.848	8.6	2197	4.8	1406.1	8	<1	77	77	1	917	234	145	114	282	832
28-Feb-24	Monthly	ocked, unable to ol	7.2	2277	1.4	1457.3	<5	<1	105	105	3	898	234	170	106	280	861
19-Mar-24	Rain Event	RL 67.902	7.4	224.6	21.0	143.74	5	<1	102	102	5	839	265	154	104	247	813
5-Apr-24	Rain Event		6.7	2556	2.0	1635.8	<5	<1	114	114	4	809	228	156	109	261	838
1-May-24	Rain Event	No RL recorded	7.7	2295	1.7	1468.8	<5	<1	117	117	3	811	203	164	106	242	846
1-Jun-24	Overflow	RL 68.4	7.7	1974	3.0	1263.4	5	<1	105	105	4	882	162	192	78	188	801
*Water Quality Trigger			N/A	N/A	N/A	N/A	N/A										

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**
Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project.

SW3 - Main Water Dam (Major)

Date	Al mg/l	As mg/l	Ba mg/l	Cd mg/l	Cr mg/l	Cu mg/l	Pb mg/l	Mn mg/l	Mo mg/l	Ni mg/l	Se mg/l	Ag mg/l	U mg/l	Zn mg/l	B mg/l	Fe mg/l	Hg mg/l	F mg/l	NH3 (as N) mg/l	NO2 (as N) mg/l	NO3 (as N) mg/l	N mg/l	P mg/l	BOD mg/l
31-Jul-23	0.04	<0.001	0.04	<0.0001	<0.001	<0.001	<0.001	0.21	0.001	0.007	<0.01	<0.001	<0.001	<0.005	<0.05	0.17	<0.0001	0.2	0.39	0.05	0.17	1.4	0.07	7
28-Aug-23	<0.01	<0.001	0.036	<0.0001	<0.001	0.003	<0.001	0.27	0.002	0.005	<0.01	<0.001	<0.001	<0.005	<0.05	<0.05	<0.0001	0.2	0.08	0.02	0.17	0.9	0.02	3
26-Sep-23	<0.01	<0.001	0.029	<0.0001	<0.001	<0.001	<0.001	0.09	0.002	0.005	<0.01	<0.001	<0.001	<0.005	<0.05	<0.05	<0.0001	0.2	0.01	<0.01	<0.01	0.5	0.02	<2
30-Oct-23	0.28	<0.001	0.035	<0.0001	<0.001	<0.001	<0.001	0.52	0.002	0.013	<0.01	<0.001	<0.001	0.02	<0.05	0.50	<0.0001	0.2	<0.01	<0.01	<0.01	0.8	0.02	3
30-Nov-23	<0.01	<0.001	0.032	<0.0001	<0.001	<0.001	<0.001	0.06	0.002	0.003	<0.01	<0.001	<0.001	<0.005	<0.05	<0.05	<0.0001	0.2	<0.01	<0.01	<0.01	0.5	0.02	<2
13-Dec-23	0.01	<0.001	0.034	<0.0001	<0.001	<0.001	<0.001	0.12	0.002	0.003	<0.01	<0.001	<0.001	<0.005	<0.05	<0.05	<0.0001	0.2	0.05	<0.01	<0.01	0.4	0.02	<2
24-Jan-24	0.04	<0.001	0.046	<0.0001	<0.001	<0.001	<0.001	0.12	0.002	0.006	<0.01	<0.001	<0.001	<0.005	<0.05	0.08	<0.0001	0.3	0.07	<0.01	<0.01	0.6	0.04	<2
28-Feb-24	<0.01	<0.001	0.05	<0.0001	<0.001	<0.001	<0.001	0.13	0.002	0.006	<0.01	<0.001	<0.001	<0.005	<0.05	0.06	<0.0001	0.3	0.07	<0.01	<0.01	0.6	0.02	<2
19-Mar-24	0.23	<0.001	0.044	<0.0001	<0.001	<0.001	<0.001	0.43	0.002	0.007	<0.01	<0.001	<0.001	0.01	<0.05	0.60	<0.0001	0.3	0.12	<0.01	0.04	0.8	0.03	3
5-Apr-24	<0.01	<0.001	0.04	<0.0001	<0.001	<0.001	<0.001	0.23	0.002	0.004	<0.01	<0.001	<0.001	<0.005	<0.05	<0.05	<0.0001	0.2	0.14	<0.01	0.18	0.8	0.02	<2
1-May-24	0.04	<0.001	0.037	<0.0001	<0.001	<0.001	<0.001	0.84	0.002	0.006	<0.01	<0.001	<0.001	0.01	<0.05	0.10	<0.0001	0.3	0.28	0.02	0.17	1	0.02	<2
1-Jun-24	0.06	<0.001	0.028	<0.0001	<0.001	<0.001	<0.001	0.73	0.001	0.007	<0.01	<0.001	<0.001	0.01	<0.05	0.10	<0.0001	0.2	0.26	<0.01	0.74	1.6	0.01	4

SW3 - Mine Water Dam (Minor)

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU
31-Jul-23	Monthly	60%	8.2	1351	6.67
28-Aug-23	Monthly	60%	8.4	1359	5.98
26-Sep-23	Monthly	70%	8.6	1390	2.21
30-Oct-23	Monthly	20%	8.2	1431	1.44
30-Nov-23	Monthly	70%	6.9	1716	3.21
13-Dec-23	Monthly	70%	7.8	1663	1.67
24-Jan-24	Monthly	70%	8.0	1773	4.48
28-Feb-24	Monthly	70%	7.1	1656	1.74
19-Mar-24	Rain Event	80%	7.0	1576	16.67
5-Apr-24	Rain Event	90%	7.1	1671	8.08
1-May-24	Rain Event	70%	7.7	1466	4.36
1-Jun-24	Overflow	80%	8.0	1188	14.71
*Water Quality Trigger			N/A	N/A	N/A

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000). "Gilberts & Asscocistes 2011 - Development of Water Quality Trigger Levels for the Duralie Extension Project".**

SW4 - Strips 8-12 EPL 11701 Point 4

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	TSS mg/l	CO3 CaCO3) r	Bicarb CaCO3) r	Alkalinity (as $CaCO_3$)	Acidity (as $CaCO_3$) mg/l	SO4 mg/l	Cl mg/l	Ca mg/l	Mg mg/l	Al mg/l	Cu mg/l	Mn mg/l	Zn mg/l	Fe mg/l
31-Jul-23	Monthly	No safe access per OCE																	
28-Aug-23	Monthly	No safe access																	
26-Sep-23	Monthly	Sampled from Strip 16	3.9	7800	40	30			105	<1	4930	581	572	448	11	0.013	31.3	1.22	2.26
30-Oct-23	Monthly	No safe access																	
30-Nov-23	Monthly		3.7	5840	8	10			106	<1	3360	342	623	274	8.33	0.008	18.4	0.688	4.83
13-Dec-23	Monthly	Sampled from Strip 16	7.6	3810	107	87			10	140	2160	264	483	162	0.59	<0.001	3.65	0.01	1.15
24-Jan-24	Monthly	Sampled from Strip 16	7.6	4100	27	12	<1	132	132	6	2260	200	571	161	0.13	<0.001	5.7	0.028	1.33
28-Feb-24	Monthly	No escort with gas monitor available to attend site																	
19-Mar-24	Rain Event		7.4	2510	15	<5	<1	48	48	7	1620	114	454	86	0.22	<0.001	4.2	0.133	0.57
5-Apr-24	Rain Event	Slightly turbid and green	4.7	2118	48	29	<1	2	2	8	1200	28	373	68	1.36	0.003	4.38	0.283	0.83
1-May-24	Rain Event		7.3	3190	14	15	<1	58	58	6	1760	106	442	109	0.34	<0.001	3.6	0.08	0.53
1-Jun-24	Overflow	Pit, slightly turbid and light brown in colour.	7.0	1311	87	56	<1	7	7	3	820	14	236	41	1.12	<0.001	2	0.099	2.04

Site - Southern Arm of MWD Diversion Drain

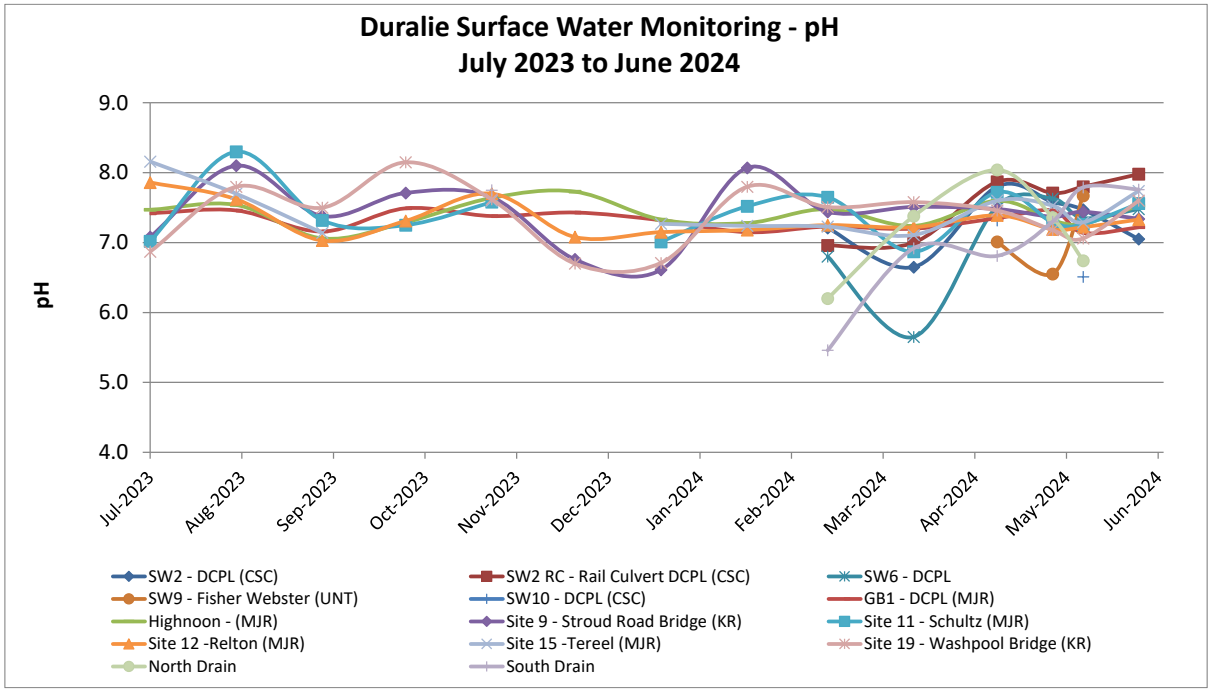
Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	TSS mg/l
31-Jul-23	Monthly	Dry				
28-Aug-23	Monthly	No flow				
26-Sep-23	Monthly	Dry				
30-Oct-23	Monthly	Dry				
30-Nov-23	Monthly	No flow	7.8	**1450**	4.13	6
13-Dec-23	Monthly	Dry				
24-Jan-24	Monthly	Dry				
28-Feb-24	Monthly	No flow				
19-Mar-24	Rain Event	Trickle	**5.5**	**878.9**	23	6
5-Apr-24	Rain Event	Steady - turbid & brown	**6.9**	138.3	**193**	27
1-May-24	Rain Event	Steady - slightly turbid & light brown	**6.8**	**671.9**	19.3	<5
21-May-24	Discharge	Slow, slightly turbid and brown in colour	7.3	312.9	66.1	6
1-Jun-24	Overflow	Fast, turbid and brown in colour.	7.8	301.6	87.9	24
21-Jun-24	Discharge	Trickle, slightly turbid and light brown in colour.	7.8	328.1	18.1	<5
*Water Quality Trigger			7.1 - 7.9	544	119	80

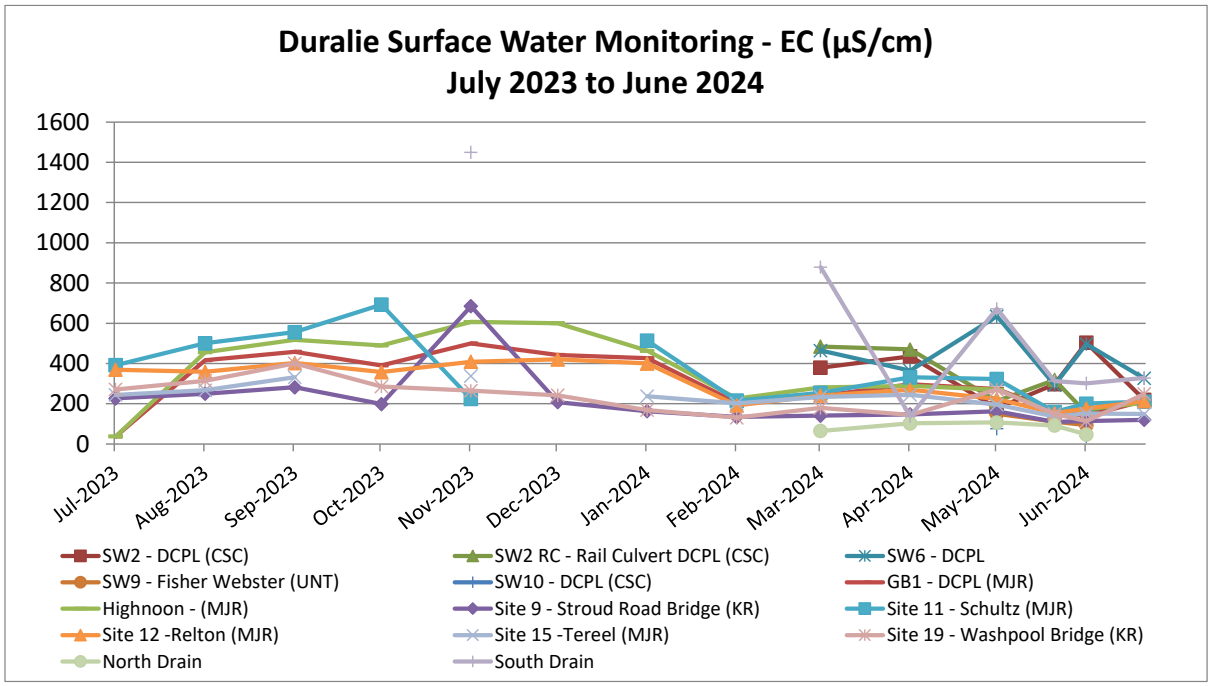
***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**

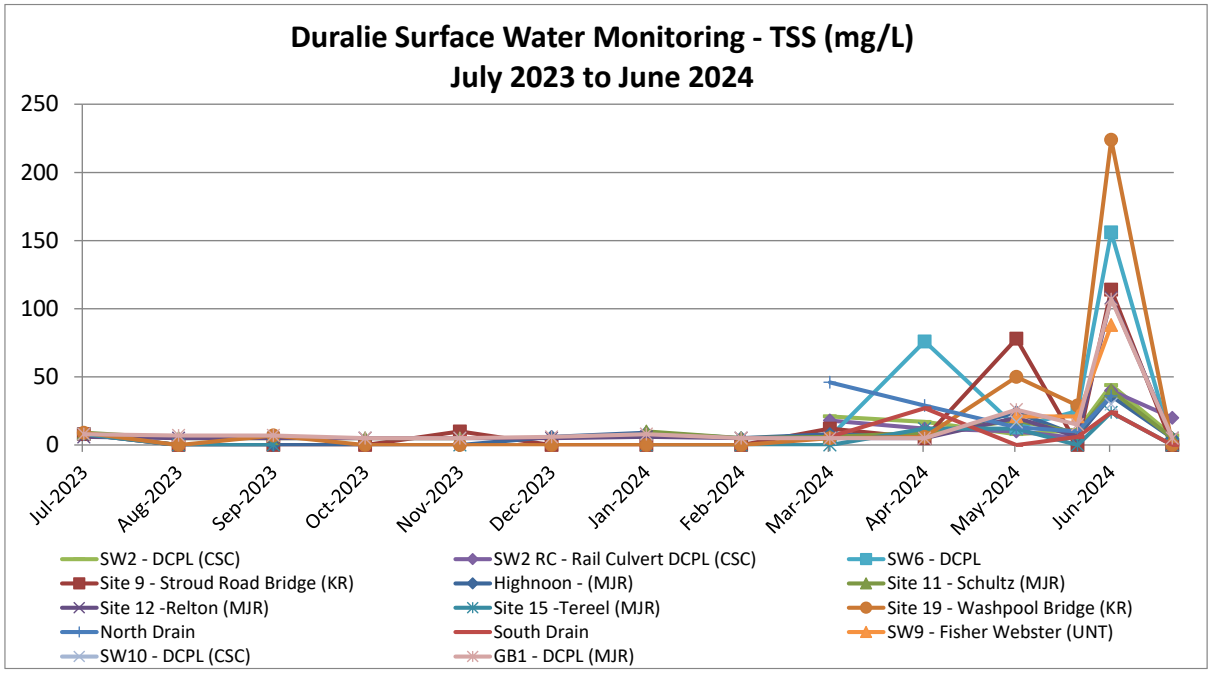
Site - Northern Arm of MWD Diversion Drain

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	TSS mg/l
31-Jul-23	Monthly	Dry				
28-Aug-23	Monthly	Dry				
26-Sep-23	Monthly	Dry				
30-Oct-23	Monthly	Dry				
30-Nov-23	Monthly	Dry				
13-Dec-23	Monthly	Dry				
24-Jan-24	Monthly	Dry				
28-Feb-24	Monthly	No flow				
19-Mar-24	Rain Event	Slow - slightly turbid & brown	6.2	64.9	182	46
5-Apr-24	Rain Event	Steady - slightly turbid & brown	7.4	102.6	93	29
1-May-24	Rain Event	Steady - sligthly turbid & brown	8.0	107	90.1	13
21-May-24	Discharge	Steady, slightly turbid and brown in colour	7.4	92	123	10
1-Jun-24	Overflow	Slow, turbid and brown in colour	6.7	47.5	186	36
21-Jun-24	Discharge	No flow				
*Water Quality Trigger			7.1 - 7.9	544	119	80

***Water quality triggers for the Duralie Coal Mine developed in accordance with the methodology in ANZECC/ARMCANZ (2000).**


Duralie Surface Water Monitoring - pH
July 2023 to June 2024
pH
9.0
8.0
7.0
6.0
5.0
4.0
Jul-2023
Aug-2023
Sep-2023
Oct-2023
Nov-2023
Dec-2023
Jan-2024
Feb-2024
Mar-2024
Apr-2024
May-2024
Jun-2024
SW2 - DCPL (CSC)
SW2 RC - Rail Culvert DCPL (CSC)
SW6 - DCPL
SW9 - Fisher Webster (UNT)
SW10 - DCPL (CSC)
GB1 - DCPL (MJR)
Highnoon - (MJR)
Site 9 - Stroud Road Bridge (KR)
Site 11 - Schultz (MJR)
Site 12 -Relton (MJR)
Site 15 -Tereel (MJR)
Site 19 - Washpool Bridge (KR)
North Drain
South Drain


Duralie Surface Water Monitoring - EC (µS/cm)
July 2023 to June 2024
1600
1400
1200
1000
800
600
400
200
0
Jul-2023
Aug-2023
Sep-2023
Oct-2023
Nov-2023
Dec-2023
Jan-2024
Feb-2024
Mar-2024
Apr-2024
May-2024
Jun-2024
SW2 - DCPL (CSC)
SW2 RC - Rail Culvert DCPL (CSC)
SW6 - DCPL
SW9 - Fisher Webster (UNT)
SW10 - DCPL (CSC)
GB1 - DCPL (MJR)
Highnoon - (MJR)
Site 9 - Stroud Road Bridge (KR)
Site 11 - Schultz (MJR)
Site 12 -Relton (MJR)
Site 15 -Tereel (MJR)
Site 19 - Washpool Bridge (KR)
North Drain
South Drain


Duralie Surface Water Monitoring - TSS (mg/L)
July 2023 to June 2024
250
200
150
100
50
0
Jul-2023
Aug-2023
Sep-2023
Oct-2023
Nov-2023
Dec-2023
Jan-2024
Feb-2024
Mar-2024
Apr-2024
May-2024
Jun-2024
SW2 - DCPL (CSC)
SW2 RC - Rail Culvert DCPL (CSC)
SW6 - DCPL
Site 9 - Stroud Road Bridge (KR)
Highnoon - (MJR)
Site 11 - Schultz (MJR)
Site 12 -Relton (MJR)
Site 15 -Tereel (MJR)
Site 19 - Washpool Bridge (KR)
North Drain
South Drain
SW9 - Fisher Webster (UNT)
SW10 - DCPL (CSC)
GB1 - DCPL (MJR)

Groundwater

DB1W

Parameter	Units	10-Aug-23	8-Nov-23	14-Feb-24	31-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	15.78	15.91	15.83	15.60	15.6	15.78	15.91	0.02	0.13
pH		5.85	5.96	6.12	5.95	5.85	5.97	6.12	0.01	0.11
Conductivity @ 25^{0}C	(µS/cm)	4130	3890	3960	3540	3540	3880	4130	61533	248
ORP	(mV)	93	34	13	122	13	66	122	2566	51
Dissolved Oxygen	(%)	33.5	25.8	25.0	21.6	21.60	26.48	33.50	25.25	5.02
TDS	(mg/L)	2760	3000	3300	2520	2520	2895	3300	111300	334
Alkalinity as CaCO3	(mg/L)	100	107	109	94	94	103	109	47	7
Acidity as CaCO3	(mg/L)	90	135	137	85	85	112	137	789	28
Sulphate	(mg/L)	364	392	854	325	325	484	854	61682	248
Chloride	(mg/L)	1080	1020	1200	961	961	1065	1200	10430	102
Calcium	(mg/L)	226	138	266	207	138	209	266	2861	53
Magnesium	(mg/L)	61	67	65	50	50	61	67	58	8
Sodium	(mg/L)	488	269	504	422	269	421	504	11494	107
Aluminium	(mg/L)	0.92	0.48	0.81	0.65	0.48	0.72	0.92	0.04	0.19
Manganese	(mg/L)	0.833	0.833	0.964	0.74	0.74	0.84	0.96	0.01	0.09
Zinc	(mg/L)	0.074	0.054	0.064	0.104	0.05	0.07	0.10	0.00	0.02
Iron	(mg/L)	25.3	29.3	32.8	25.4	25.30	28.20	32.80	12.87	3.59

DB2W

Parameter	Units	10-Aug-23	8-Nov-23	14-Feb-24	30-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	13.64	13.87	14.09	13.81	13.6	13.85	14.09	0.03	0.19
pH		6.46	6.24	6.50	6.42	6.24	6.41	6.50	0.01	0.11
Conductivity @ 25^{0}C	(µS/cm)	1807	1492	1568	1052	1052	1480	1807	99334	315
ORP	(mV)	-22	28	-1	23	-22	7	28	534	23
Dissolved Oxygen	(%)	30.2	29.5	23.9	40.0	23.90	30.90	40.00	44.75	6.69
TDS	(mg/L)	1080	1030	1150	693	693	988	1150	41166	203
Alkalinity as CaCO3	(mg/L)	164	168	175	157	157	166	175	57	8
Acidity as CaCO3	(mg/L)	56	83	94	24	24	64	94	975	31
Sulphate	(mg/L)	212	203	176	87	87	170	212	3259	57
Chloride	(mg/L)	331	310	319	208	208	292	331	3210	57
Calcium	(mg/L)	112	101	106	73	73	98	112	298	17
Magnesium	(mg/L)	28	25	27	18	18	25	28	20	5
Sodium	(mg/L)	173	166	178	112	112	157	178	934	31
Aluminium	(mg/L)	<0.01	<0.01	0.12	0.23	0.12	0.18	0.23	0.01	0.08
Manganese	(mg/L)	0.778	0.776	0.809	0.589	0.59	0.74	0.81	0.01	0.10
Zinc	(mg/L)	0.006	0.008	0.023	0.02	0.01	0.01	0.02	0.00	0.01
Iron	(mg/L)	11.2	13.2	13.6	1.32	1.32	9.83	13.60	33.29	5.77

DB3W

Parameter	Units	10-Aug-23	8-Nov-23	14-Feb-24	30-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	3.19	3.44	3.71	3.71	3.2	3.51	3.71	0.06	0.25
pH		6.53	6.41	7.01	6.05	6.05	6.50	7.01	0.16	0.40
Conductivity @ 25^{0}C	(µS/cm)	144	88	138	128	88	124	144	639	25
ORP	(mV)	27	48	23	110	23	52	110	1615	40
Dissolved Oxygen	(%)	87.0	55.5	75.9	62.5	55.50	70.23	87.00	196.70	14.03
TDS	(mg/L)	226	162	183	194	162	191	226	713	27
Alkalinity as CaCO3	(mg/L)	36	33	37	35	33	35	37	3	2
Acidity as CaCO3	(mg/L)	10	15	22	12	10	15	22	28	5
Sulphate	(mg/L)	5	5	32	3	3	11	32	192	14
Chloride	(mg/L)	15	12	13	20	12	15	20	13	4
Calcium	(mg/L)	3	1	2	2	1	2	3	1	1
Magnesium	(mg/L)	2	1	2	2	1	2	2	0	1
Sodium	(mg/L)	20	18	20	20	18	20	20	1	1
Aluminium	(mg/L)	21.3	0.72	8.43	0.48	0.48	7.73	21.30	95.45	9.77
Manganese	(mg/L)	0.148	0.02	0.09	0.03	0.02	0.07	0.15	0.00	0.06
Zinc	(mg/L)	0.104	0.005	0.07	0.056	0.01	0.06	0.10	0.00	0.04
Iron	(mg/L)	30.3	1.53	14.1	1.3	1.30	11.81	30.30	187.75	13.70

DB4W

Parameter	Units	10-Aug-23	8-Nov-23	14-Feb-24	31-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	6.40	6.66	6.81	6.51	6.4	6.60	6.81	0.03	0.18
pH		6.99	6.88	7.02	6.40	6.40	6.82	7.02	0.08	0.29
Conductivity @ 25^{0}C	(µS/cm)	4010	3450	3490	3500	3450	3613	4010	70692	266
ORP	(mV)	-183	-262	-231	-144	-262	-205	-144	2710	52
Dissolved Oxygen	(%)	27.2	14.6	10.2	6.2	6.20	14.55	27.20	82.89	9.10
TDS	(mg/L)	2240	2220	2430	2400	2220	2323	2430	11625	108
Alkalinity as CaCO3	(mg/L)	329	332	330	308	308	325	332	126	11
Acidity as CaCO3	(mg/L)	16	33	33	19	16	25	33	82	9
Sulphate	(mg/L)	62	51	57	95	51	66	95	388	20
Chloride	(mg/L)	1010	909	1020	968	909	977	1020	2548	50
Calcium	(mg/L)	148	136	137	155	136	144	155	83	9
Magnesium	(mg/L)	58	52	53	63	52	57	63	26	5
Sodium	(mg/L)	531	492	502	493	492	505	531	332	18
Aluminium	(mg/L)	<0.01	<0.01	0.01	0.03	0.01	0.02	0.03	0.00	0.01
Manganese	(mg/L)	1.09	1.05	1.04	1.2	1.04	1.10	1.20	0.01	0.07
Zinc	(mg/L)	0.012	<0.005	<0.005	<0.005	0.01	0.01	0.01		
Iron	(mg/L)	0.06	<0.05	0.08	0.24	0.06	0.13	0.24	0.01	0.10

DB5W

Parameter	Units	10-Aug-23	8-Nov-23	14-Feb-24	8-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)									
pH										
Conductivity @ 25^{0}C	(µS/cm)									
ORP	(mV)									
Dissolved Oxygen	(%)	N	N	N	N					
TDS	(mg/L)	o	o	o	o					
Alkalinity as CaCO3	(mg/L)									
Acidity as CaCO3	(mg/L)	a	a	a	a					
Sulphate	(mg/L)	c	c	c	c					
Chloride	(mg/L)	c	c	c	c					
Calcium	(mg/L)	e	e	e	e					
Magnesium	(mg/L)	s	s	s	s					
Sodium	(mg/L)	s	s	s	s					
Aluminium	(mg/L)									
Manganese	(mg/L)									
Zinc	(mg/L)									
Iron	(mg/L)									

DB6W

Parameter	Units	9-Aug-23	7-Nov-23	5-Feb-24	8-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	20.25	20.22	20.17	20.31	20.2	20.24	20.31	0.00	0.06
pH		6.60	6.58	6.94	6.62	6.58	6.69	6.94	0.03	0.17
Conductivity @ 25^{0}C	(µS/cm)	5268	5850	5820	5670	5268	5652	5850	71736	268
ORP	(mV)	-19	-36	-42	-27	-42	-31	-19	102	10
Dissolved Oxygen	(%)	24.9	24.1	24.0	25.4	24.00	24.60	25.40	0.45	0.67
TDS	(mg/L)	4070	3690	3840	4540	3690	4035	4540	137767	371
Alkalinity as CaCO3	(mg/L)	638	634	672	605	605	637	672	753	27
Acidity as CaCO3	(mg/L)	66	109	122	282	66	145	282	8945	95
Sulphate	(mg/L)	84	92	84	74	74	84	92	54	7
Chloride	(mg/L)	1640	1530	1540	1620	1530	1583	1640	3092	56
Calcium	(mg/L)	302	290	270	308	270	293	308	281	17
Magnesium	(mg/L)	206	192	197	175	175	193	206	170	13
Sodium	(mg/L)	648	612	622	618	612	625	648	252	16
Aluminium	(mg/L)	0.1	0.04	0.05	0.02	0.02	0.05	0.10	0.00	0.03
Manganese	(mg/L)	0.325	0.298	0.312	0.304	0.30	0.31	0.33	0.00	0.01
Zinc	(mg/L)	0.015	0.017	0.016	0.02	0.02	0.02	0.02	0.00	0.00
Iron	(mg/L)	3.92	3.87	4.03	3.84	3.84	3.92	4.03	0.01	0.08

DB7W

Parameter	Units	10-Aug-23	8-Nov-23	14-Feb-24	30-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	10.57	10.84	10.98	10.49	10.5	10.72	10.98	0.05	0.23
pH		6.96	7.01	7.22	6.96	6.96	7.04	7.22	0.02	0.12
Conductivity @ 25^{0}C	(µS/cm)	2700	2549	2830	2630	2549	2677	2830	14177	119
ORP	(mV)	-132	-178	-208	-34	-208	-138	-34	5784	76
Dissolved Oxygen	(%)	41.3	44.6	30.4	33.2	30.40	37.38	44.60	44.56	6.68
TDS	(mg/L)	1640	1600	1780	1640	1600	1665	1780	6233	79
Alkalinity as CaCO3	(mg/L)	437	412	418	409	409	419	437	158	13
Acidity as CaCO3	(mg/L)	21	35	35	19	19	28	35	76	9
Sulphate	(mg/L)	62	57	67	49	49	59	67	59	8
Chloride	(mg/L)	704	647	659	624	624	659	704	1131	34
Calcium	(mg/L)	137	130	134	140	130	135	140	18	4
Magnesium	(mg/L)	56	51	52	51	51	53	56	6	2
Sodium	(mg/L)	378	348	356	347	347	357	378	208	14
Aluminium	(mg/L)	0.23	0.34	0.48	0.22	0.22	0.32	0.48	0.01	0.12
Manganese	(mg/L)	0.639	0.614	0.666	0.612	0.61	0.63	0.67	0.00	0.03
Zinc	(mg/L)	0.008	0.012	0.023	<0.005	0.01	0.01	0.02	0.00	0.01
Iron	(mg/L)	0.28	0.52	0.98	0.44	0.28	0.56	0.98	0.09	0.30

DB8W

Parameter	Units	9-Aug-23	7-Nov-23	5-Feb-24	30-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	8.38	9.44	10.32	11.20	8.4	9.84	11.20	1.46	1.21

DB9W

Parameter	Units	9-Aug-23	7-Nov-23	5-Feb-24	30-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	17.38	17.72	17.93	17.95	17.4	17.75	17.95	0.07	0.26
pH		6.71	6.92	6.86	6.70	6.70	6.80	6.92	0.01	0.11
Conductivity @ 25^{0}C	(µS/cm)	6950	5080	4170	3180	3180	4845	6950	2571367	1604
ORP	(mV)	-23	-1	47	71	-23	24	71	1857	43
Dissolved Oxygen	(%)	34.9	33.3	34.5	47.6	33.30	37.58	47.60	45.13	6.72
TDS	(mg/L)	5220	3400	2670	2040	2040	3333	5220	1892225	1376
Alkalinity as CaCO3	(mg/L)	274	215	162	67	67	180	274	7718	88
Acidity as CaCO3	(mg/L)	23	19	13	4	4	15	23	68	8
Sulphate	(mg/L)	620	666	366	270	270	481	666	37097	193
Chloride	(mg/L)	2200	1250	1040	826	826	1329	2200	367137	606
Calcium	(mg/L)	421	252	212	139	139	256	421	14289	120
Magnesium	(mg/L)	161	100	47	17	17	81	161	4004	63
Sodium	(mg/L)	1030	736	639	495	495	725	1030	51147	226
Aluminium	(mg/L)	0.01	0.02	0.01	0.14	0.01	0.05	0.14	0.00	0.06
Manganese	(mg/L)	1.26	0.658	0.368	0.107	0.11	0.60	1.26	0.25	0.50
Zinc	(mg/L)	0.038	0.029	0.013	0.009	0.01	0.02	0.04	0.00	0.01
Iron	(mg/L)	2.46	1.15	0.72	0.32	0.32	1.16	2.46	0.86	0.93

DB10W

Parameter	Units	9-Aug-23	7-Nov-23	5-Feb-24	30-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	11.56	11.79	11.89	11.94	11.6	11.80	11.94	0.03	0.17
pH		5.38	5.29	5.55	5.27	5.27	5.37	5.55	0.02	0.13
Conductivity @ 25^{0}C	(µS/cm)	4340	4470	4340	4310	4310	4365	4470	5100	71
ORP	(mV)	123	66	18	66	18	68	123	1844	43
Dissolved Oxygen	(%)	30.8	32.3	34.8	24.1	24.10	30.50	34.80	20.93	4.57
TDS	(mg/L)	2880	2790	2820	2800	2790	2823	2880	1625	40
Alkalinity as CaCO3	(mg/L)	32	12	15	28	12	22	32	95	10
Acidity as CaCO3	(mg/L)	74	94	111	55	55	84	111	590	24
Sulphate	(mg/L)	424	479	413	433	413	437	479	842	29
Chloride	(mg/L)	1260	1160	1180	1200	1160	1200	1260	1867	43
Calcium	(mg/L)	87	76	88	80	76	83	88	33	6
Magnesium	(mg/L)	100	96	100	95	95	98	100	7	3
Sodium	(mg/L)	736	696	740	688	688	715	740	719	27
Aluminium	(mg/L)	5.17	0.16	0.78	0.26	0.16	1.59	5.17	5.76	2.40
Manganese	(mg/L)	0.974	0.893	0.873	0.836	0.84	0.89	0.97	0.00	0.06
Zinc	(mg/L)	0.175	0.261	0.139	0.094	0.09	0.17	0.26	0.01	0.07
Iron	(mg/L)	15.7	13.9	13.2	14	13.20	14.20	15.70	1.13	1.06

DB11W

Parameter	Units	10-Aug-23	8-Nov-23	14-Feb-24	16-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	9.83	10.14	10.30	10.22	9.8	10.12	10.30	0.04	0.21
pH		7.04	6.79	7.16	6.78	6.78	6.94	7.16	0.04	0.19
Conductivity @ 25^{0}C	(µS/cm)	3080	3030	3020	5410	3020	3635	5410	1400967	1184
ORP	(mV)	-60	-28	-45	-33	-60	-42	-28	203	14
Dissolved Oxygen	(%)	30.0	39.4	25.3	19.6	19.60	28.58	39.40	70.16	8.38
TDS	(mg/L)	1850	2250	2350	1890	1850	2085	2350	63567	252
Alkalinity as CaCO3	(mg/L)	286	269	279	253	253	272	286	205	14
Acidity as CaCO3	(mg/L)	12	28	29	13	12	21	29	86	9
Sulphate	(mg/L)	176	203	259	168	168	202	259	1694	41
Chloride	(mg/L)	753	783	818	785	753	785	818	706	27
Calcium	(mg/L)	190	206	208	219	190	206	219	143	12
Magnesium	(mg/L)	32	40	39	39	32	38	40	14	4
Sodium	(mg/L)	381	382	393	414	381	393	414	235	15
Aluminium	(mg/L)	0.06	0.09	0.04	0.03	0.03	0.06	0.09	0.00	0.03
Manganese	(mg/L)	0.723	0.92	0.885	0.83	0.72	0.84	0.92	0.01	0.09
Zinc	(mg/L)	0.01	<0.005	0.006	0.008	0.01	0.01	0.01	0.00	0.00
Iron	(mg/L)	2.85	4.56	4.28	4.09	2.85	3.95	4.56	0.57	0.76

BH4BW

Parameter	Units	10-Aug-23	8-Nov-23	14-Feb-24	30-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	4.80	5.02	5.14	4.97	4.8	4.98	5.14	0.02	0.14
pH		6.07	6.27	6.53	6.02	6.02	6.22	6.53	0.05	0.23
Conductivity @ 25^{0}C	(µS/cm)	557	531	376	344	344	452	557	11568	108
ORP	(mV)	-19	-58	-76	17	-76	-34	17	1722	41
Dissolved Oxygen	(%)	39.2	52.1	28.5	42.2	28.50	40.50	52.10	94.38	9.71
TDS	(mg/L)	294	310	238	190	190	258	310	3008	55
Alkalinity as CaCO3	(mg/L)	101	96	87	85	85	92	101	57	8
Acidity as CaCO3	(mg/L)	75	58	59	30	30	56	75	350	19
Sulphate	(mg/L)	4	6	8	<1	4	6	8	4	2
Chloride	(mg/L)	100	96	46	46	46	72	100	904	30
Calcium	(mg/L)	23	18	16	16	16	18	23	11	3
Magnesium	(mg/L)	15	12	12	9	9	12	15	6	2
Sodium	(mg/L)	39	39	30	26	26	34	39	43	7
Aluminium	(mg/L)	35.1	45.5	10.9	7.62	7.62	24.78	45.50	340.98	18.47
Manganese	(mg/L)	2.56	2.18	1	1.02	1.00	1.69	2.56	0.64	0.80
Zinc	(mg/L)	0.225	0.303	0.127	0.213	0.13	0.22	0.30	0.01	0.07
Iron	(mg/L)	47.9	57.2	24.3	25.7	24.30	38.78	57.20	267.74	16.36

SI1W

Parameter	Units	9-Aug-23	7-Nov-23	5-Feb-24	8-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	10.63	10.98	11.23	10.75	10.6	10.90	11.23	0.07	0.27
pH		7.07	7.02	7.55	7.17	7.02	7.20	7.55	0.06	0.24
Conductivity @ 25^{0}C	(µS/cm)	2690	2152	2180	1904	1904	2232	2690	108817	330
ORP	(mV)	156	138	94	45	45	108	156	2456	50
Dissolved Oxygen	(%)	38.3	42.8	29.2	38.7	29.20	37.25	42.80	32.94	5.74
TDS	(mg/L)	1970	1540	1480	1300	1300	1573	1970	80625	284
Alkalinity as CaCO3	(mg/L)	304	482	485	445	304	429	485	7275	85
Acidity as CaCO3	(mg/L)	10	29	37	11	10	22	37	180	13
Sulphate	(mg/L)	760	465	389	356	356	493	760	33886	184
Chloride	(mg/L)	275	257	224	218	218	244	275	735	27
Calcium	(mg/L)	137	121	101	106	101	116	137	264	16
Magnesium	(mg/L)	129	106	99	81	81	104	129	394	20
Sodium	(mg/L)	328	224	216	206	206	244	328	3228	57
Aluminium	(mg/L)	0.14	0.06	0.16	0.27	0.06	0.16	0.27	0.01	0.09
Manganese	(mg/L)	0.06	0.003	0.01	0.024	0.00	0.02	0.06	0.00	0.03
Zinc	(mg/L)	0.021	<0.005	0.007	0.006	0.01	0.01	0.02	0.00	0.01
Iron	(mg/L)	0.53	0.1	0.35	0.89	0.10	0.47	0.89	0.11	0.33

SI2W

Parameter	Units	9-Aug-23	7-Nov-23	5-Feb-24	8-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	25.81	26.49	26.73	25.78	25.8	26.20	26.73	0.23	0.48
pH		7.28	7.18	7.59	7.33	7.18	7.35	7.59	0.03	0.17
Conductivity @ 25^{0}C	(µS/cm)	2642	264	2590	1443	264	1735	2642	1267593	1126
ORP	(mV)	82	-23	-66	-20	-66	-7	82	3942	63
Dissolved Oxygen	(%)	32.9	27.8	28.4	19.3	19.30	27.10	32.90	32.22	5.68
TDS	(mg/L)	1740	1910	2000	1030	1030	1670	2000	193667	440
Alkalinity as CaCO3	(mg/L)	499	298	304	243	243	336	499	12562	112
Acidity as CaCO3	(mg/L)	20	15	18	1	1	14	20	74	9
Sulphate	(mg/L)	510	896	734	430	430	643	896	45116	212
Chloride	(mg/L)	309	252	251	139	139	238	309	5069	71
Calcium	(mg/L)	150	127	132	69	69	120	150	1231	35
Magnesium	(mg/L)	136	111	114	51	51	103	136	1326	36
Sodium	(mg/L)	266	304	312	200	200	271	312	2612	51
Aluminium	(mg/L)	0.11	0.14	0.01	0.62	0.01	0.22	0.62	0.07	0.27
Manganese	(mg/L)	0.012	0.068	0.069	0.087	0.01	0.06	0.09	0.00	0.03
Zinc	(mg/L)	0.017	0.009	<0.005	0.009	0.01	0.01	0.02	0.00	0.00
Iron	(mg/L)	0.34	0.67	0.31	1.18	0.31	0.63	1.18	0.16	0.40

SI3W

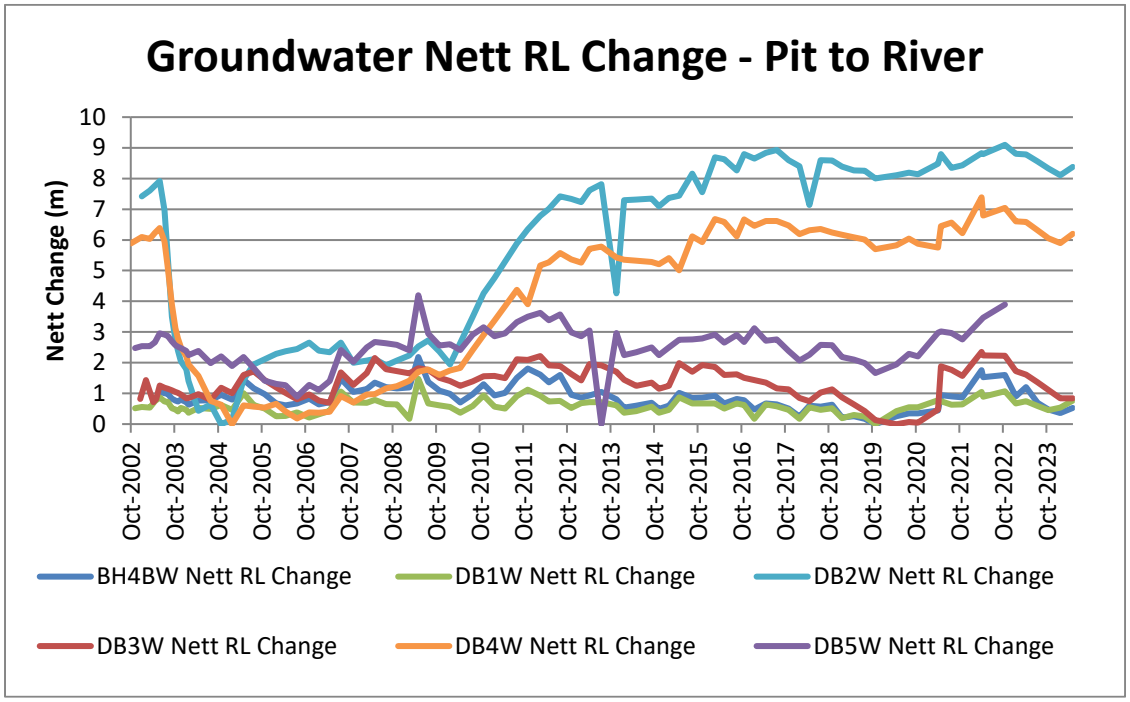
Parameter	Units	9-Aug-23	7-Nov-23	5-Feb-24	8-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	28.16	28.22	28.29	28.28	28.2	28.24	28.29	0.00	0.06
pH		7.04	6.90			6.90	6.97	7.04	0.01	0.10
Conductivity @ 25^{0}C	(µS/cm)	7590	7250			7250	7420	7590	57800	240
ORP	(mV)	38	81			38	60	81	925	30
Dissolved Oxygen	(%)	83.3	76.1			76.10	79.70	83.30	25.92	5.09
TDS	(mg/L)	5760	5390			5390	5575	5760	68450	262
Alkalinity as CaCO3	(mg/L)	303	300			300	302	303	5	2
Acidity as CaCO3	(mg/L)	22	27			22	25	27	13	4
Sulphate	(mg/L)	828	857			828	843	857	421	21
Chloride	(mg/L)	2480	2000			2000	2240	2480	115200	339
Calcium	(mg/L)	680	575			575	628	680	5513	74
Magnesium	(mg/L)	206	177			177	192	206	421	21
Sodium	(mg/L)	896	794			794	845	896	5202	72
Aluminium	(mg/L)	1.94	1.14			1.14	1.54	1.94	0.32	0.57
Manganese	(mg/L)	0.699	0.412			0.41	0.56	0.70	0.04	0.20
Zinc	(mg/L)	0.094	0.075			0.08	0.08	0.09	0.00	0.01
Iron	(mg/L)	2.4	1.99			1.99	2.20	2.40	0.08	0.29

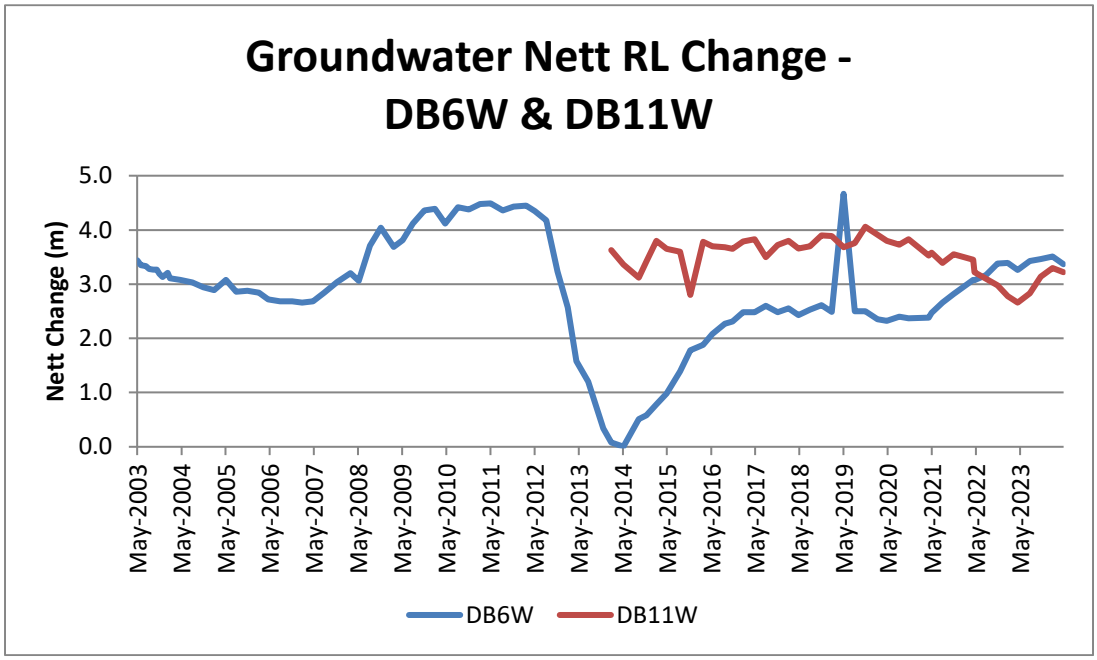
WR1

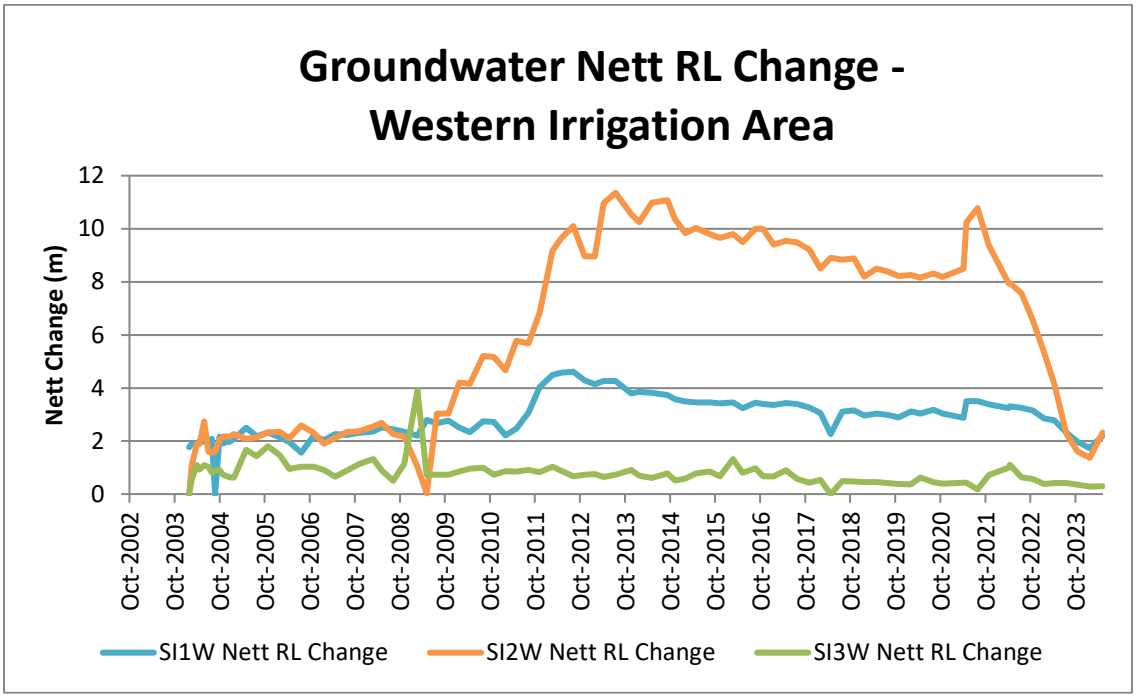
Parameter	Units	9-Aug-23	7-Nov-23	5-Feb-24	8-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	13.62	13.63	13.62	13.14	13.1	13.50	13.63	0.06	0.24
pH		6.37	6.27	6.75	6.42	6.27	6.45	6.75	0.04	0.21
Conductivity @ 25^{0}C	(µS/cm)	3110	3030	2980	2970	2970	3023	3110	4092	64
ORP	(mV)	113	85	51	55	51	76	113	839	29
Dissolved Oxygen	(%)	56.6	44.9	44.0	65.3	44.00	52.70	65.30	103.50	10.17
TDS	(mg/L)	1910	2090	2180	2170	1910	2088	2180	15625	125
Alkalinity as CaCO3	(mg/L)	270	268	285	278	268	275	285	61	8
Acidity as CaCO3	(mg/L)	76	79	109	26	26	73	109	1183	34
Sulphate	(mg/L)	471	614	553	624	471	566	624	4954	70
Chloride	(mg/L)	594	619	593	543	543	587	619	1015	32
Calcium	(mg/L)	226	250	259	259	226	249	259	243	16
Magnesium	(mg/L)	57	60	63	53	53	58	63	18	4
Sodium	(mg/L)	343	341	350	351	341	346	351	25	5
Aluminium	(mg/L)	5.61	1.11	1.47	2.2	1.11	2.60	5.61	4.24	2.06
Manganese	(mg/L)	0.984	1.07	1.18	1.18	0.98	1.10	1.18	0.01	0.10
Zinc	(mg/L)	0.035	0.036	0.013	0.01	0.01	0.02	0.04	0.00	0.01
Iron	(mg/L)	4.45	2.97	3	3.88	2.97	3.58	4.45	0.52	0.72

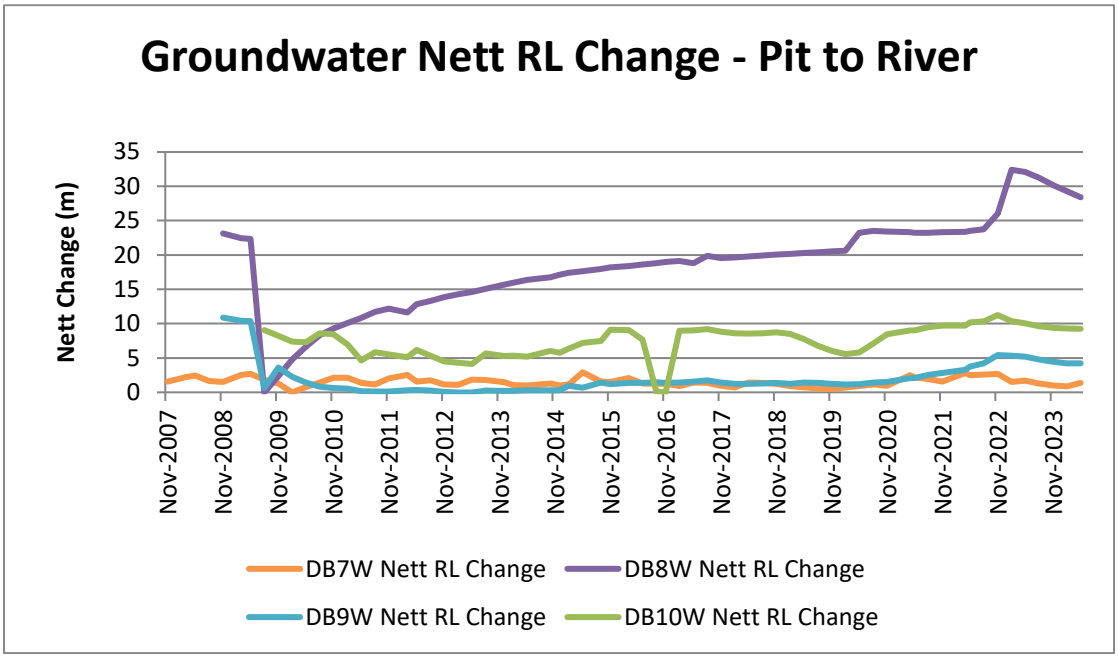
WR2

Parameter	Units	9-Aug-23	7-Nov-23	5-Feb-24	8-May-24	Min	Avg	Max	Variance	Std Dev
Depth to standing WL	(m)	20.97	21.39	21.54	26.03	21.0	22.48	26.03	5.65	2.38
pH		6.87	6.97	7.26	7.03	6.87	7.03	7.26	0.03	0.17
Conductivity @ 25^{0}C	(µS/cm)	7660	7570	7620	7170	7170	7505	7660	51233	226
ORP	(mV)	-20	22	-39	58	-39	5	58	1886	43
Dissolved Oxygen	(%)	74.1	29.8	26.7	29.1	26.70	39.93	74.10	520.84	22.82
TDS	(mg/L)	5460	5520	5880	6120	5460	5745	6120	96900	311
Alkalinity as CaCO3	(mg/L)	294	264	311	285	264	289	311	383	20
Acidity as CaCO3	(mg/L)	30	30	48	155	30	66	155	3612	60
Sulphate	(mg/L)	479	538	476	535	476	507	538	1163	34
Chloride	(mg/L)	2520	2180	2140	2140	2140	2245	2520	33967	184
Calcium	(mg/L)	962	851	966	978	851	939	978	3508	59
Magnesium	(mg/L)	163	184	151	137	137	159	184	396	20
Sodium	(mg/L)	454	450	437	434	434	444	454	95	10
Aluminium	(mg/L)	0.12	0.03	0.04	0.1	0.03	0.07	0.12	0.00	0.04
Manganese	(mg/L)	3.1	2.7	3.12	3.48	2.70	3.10	3.48	0.10	0.32
Zinc	(mg/L)	0.09	0.042	0.027	0.048	0.03	0.05	0.09	0.00	0.03
Iron	(mg/L)	4.69	1.94	3.73	1.91	1.91	3.07	4.69	1.89	1.38


Groundwater Nett RL Change - Pit to River
Nett Change (m)
10
9
8
7
6
5
4
3
2
1
0
Oct-2002
Oct-2003
Oct-2004
Oct-2005
Oct-2006
Oct-2007
Oct-2008
Oct-2009
Oct-2010
Oct-2011
Oct-2012
Oct-2013
Oct-2014
Oct-2015
Oct-2016
Oct-2017
Oct-2018
Oct-2019
Oct-2020
Oct-2021
Oct-2022
Oct-2023
BH4BW Nett RL Change
DB1W Nett RL Change
DB2W Nett RL Change
DB3W Nett RL Change
DB4W Nett RL Change
DB5W Nett RL Change


Groundwater Nett RL Change -
DB6W & DB11W
Nett Change (m)
5.0
4.0
3.0
2.0
1.0
0.0
May-2003
May-2004
May-2005
May-2006
May-2007
May-2008
May-2009
May-2010
May-2011
May-2012
May-2013
May-2014
May-2015
May-2016
May-2017
May-2018
May-2019
May-2020
May-2021
May-2022
May-2023
DB6W
DB11W


Groundwater Nett RL Change - Western Irrigation Area
Nett Change (m)
12
10
8
6
4
2
0
Oct-2002
Oct-2003
Oct-2004
Oct-2005
Oct-2006
Oct-2007
Oct-2008
Oct-2009
Oct-2010
Oct-2011
Oct-2012
Oct-2013
Oct-2014
Oct-2015
Oct-2016
Oct-2017
Oct-2018
Oct-2019
Oct-2020
Oct-2021
Oct-2022
Oct-2023
SI1W Nett RL Change
SI2W Nett RL Change
SI3W Nett RL Change


Groundwater Nett RL Change - Pit to River
Nett Change (m)
35
30
25
20
15
10
5
0
Nov-2007
Nov-2008
Nov-2009
Nov-2010
Nov-2011
Nov-2012
Nov-2013
Nov-2014
Nov-2015
Nov-2016
Nov-2017
Nov-2018
Nov-2019
Nov-2020
Nov-2021
Nov-2022
Nov-2023
DB7W Nett RL Change
DB8W Nett RL Change
DB9W Nett RL Change
DB10W Nett RL Change

APPENDIX 5

Noise Monitoring Results

Table 1: Noise Performance Assessment – Operations – 29, 30 & 31 August 2023 Survey

Location	Estimated DCM LAeq(15minute) Noise Level dBA			Noise Criteria LAeq(15minute) dBA			Compliance		
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
NM1	I/A[1]	I/A[1]	I/A[1]	35	35	35	Yes	Yes	Yes
NM4	I/A[1]	I/A[1]	I/A[1]	35	35	37	Yes	Yes	Yes
NM5	I/A[1]	I/A[1]	27	35	35	35	Yes	Yes	Yes
NM6	I/A[1]	I/A[1]	23	35	35	39	Yes	Yes	Yes

1. I/A = Inaudible

APPENDIX 6

Complaints and CCC Annual Report

Duralie Complaint Summary

Period: 12 Months to June 2024

Total No. of Complaints: 0 (0 noise, 0 blasting, 0 air quality (inc. odour), 0 other)

Total No. of Complainants: 0

Date/Time of Complaint	Complainant Location	Method of Complaint	Nature of Complaint	Investigation/Outcome

Duralie Community Consultative Committee (CCC) – 2023 Annual Report

CCC project name:	**Duralie Coal Mine**	Reporting period:	**January 1 to December 31 2023**
Independent chairperson:	**Margaret MacDonald-Hill**	Proponent contact:	**Tom Kirkwood, Environment and Community Superintendent**

1. Executive summary / introduction

The Duralie Community Consultative Committee was established in 2003 with the approval of the Duralie Coal Mine Consent. The mine is located on The Bucketts Way between the villages of Wards River and Stroud Road within the MidCoast Local Government Area.

The Committee is comprised of:

- Six local community representatives;
- Two MidCoast representatives; one elected councillor and one staff member with a designated councillor alternate;
- Two Stratford Coal representatives with attendance from other personnel as required;
- One independent Chairperson.

2. CCC activities over last 12 months:

- As mining has now ceased at Duralie and mine closure planning is underway, this has been the main focus of the committee for the last two years and the reduced meeting cycle.
- The committee held two meetings for the reporting period, in February and August. A Socio-Economic Impact Assessment was carried out for Duralie and its sister mine at Stratford, a summary of which was presented at the February meeting by the consultant, who also is conducting broader community engagement sessions with key stakeholders. Committee members are keen to investigate potential land use options and opportunities for the area to remain sustainable. Concern has been raised that as the mines close, the need for the current population and workforce to stay in the area so the local services and businesses remain buoyant. What form this may take varies amongst the committee and will be an ongoing investigation and discussion as their interest determines and closure plans are developed. One option of interest to the committee proposed by Yancoal is the potential to transition to a renewable energy hub, currently under a feasibility study.
- Committee presentations still include general environmental management and monitoring, operational activities including decommissioning, land management and rehabilitation activities, potential use of voids and final land use options, complaints, company reports and community sponsorship and revised DPE CCC guidelines and requirements.
- Meetings are held on site and a tour of the Weisemantel and Clareval Pits, Pasture and Nature rehabilitation areas visits was undertaken as part of the August meeting.

- The meetings are well attended and with the addition of recent members with new interests, the committee meets the requirements of the revised Departmental Guidelines. All members have completed the Code of Conduct and Declarations of Interest and agreed on the Terms of Reference.

3. Key issues

Issue	Actions taken	Next steps
Mine Closure Planning	**Consultation with CCC on Socio-economic Impact Assessment – presentation of findings.** **Dedicated webpage created for mine closure.** **Appointment of specialist staff to assist with ongoing community liaison.**	**Information will support preparation of detailed mine closure planning and guide future consultation with all key stakeholders including CCC – ongoing.** **Mine Closure Specialist and Community Liaison Advisor to attend February 2024 meeting.**
MidCoast Council Annual Financial Report on Community Enhancement Funding	**Comprehensive Report provided by Council to CCC.**	**Ongoing annual action.**

4. Focus for next 12 months:

- Engage with Yancoal and the broader community and other specialists as required on post mining planning and options in accordance with regulatory requirements.
- Address any emerging issues of the committee.

Name of chairperson:	**Margaret MacDonald-Hill**
Date:	January 18 2024.

APPENDIX 7

Annual Biodiversity Report 2024

Duralie Coal Mine Annual Biodiversity Report 2024

FOR THE 12 MONTHS ENDING 30 JUNE 2024

CONTENTS

LIST OF APPENDICES

1 INTRODUCTION

The Duralie Coal Mine (**DCM**), located in the Southern part of the Gloucester Basin NSW, is approximately 30 kilometres (km) south of Gloucester and is owned and operated by Duralie Coal Pty Ltd (**DCPL**), a fully owned subsidiary of Yancoal Australia Limited (**YAL**). This Annual Biodiversity Report has been prepared in accordance with the DCM Biodiversity Management Plan (BMP).

1.1 Scope

In accordance with the Duralie Extension Project, Project Approval 08_0203 (as modified December 2014), the proponent (DCPL) is required in accordance with Schedule 3, condition 43 to prepare and implement a BMP. This Plan must include:

> *"a program to monitor and report on the effectiveness of the measures in the Biodiversity Management Plan and conditions 33-43 of this approval, and the performance of the Offset Strategy, with summary reporting to be carried out annually and comprehensive reporting every three years following the independent environmental audit".*

This DCM Annual Biodiversity Report provides a review of the effectiveness of measures in the BMP for the annual year ending 30 June 2024 in accordance with Section 7.2 of the BMP. The scope of the review includes the Mining Lease area ML1427 and ML1646 and Biodiversity Offset areas as indicated on Plan A.

This report (and associated Appendices) is included as an Appendix of the DCM Annual Review which is available on the Duralie Coal website www.duraliecoal.com.au.

A revised BMP was submitted to the NSW Department of Planning and Environment (DP&E) and approved on 22 February 2023 (**Appendix A**) the revised BMP was prepared to reflect the current status of DCM and current mine closure planning. The key changes to the BMP include relevant updates to the performance and completion criteria tables with consideration to the works which have been completed to date.

2 STATUS OF BMP PERFORMANCE CRITERIA

Performance criteria as prescribed in the BMP is presented in Tables 1 to 10. The performance criteria have been developed to meet the specific objectives for the areas described in Section 2 of the BMP. All performance criteria are linked to the management specifications listed in the BMP Section 5 and Section 6, and monitoring/reporting specifications in the BMP Section 7. The status of BMP performance criteria is provided in the subsequent sections of this report.

LEGEND

- Mining Lease Boundary
- Approximate Extent of Existing/Approved Surface Development
- Existing/Approved First Flush Protocol Pump Back System
- Existing/Approved Up-catchment Diversion System

Source: © NSW Spatial Services (2019)
Orthophoto: Google Earth CENS/Airbus (2020)

DURALIECOAL
Part of the Yancoal Australia Group

DURALIE COAL MINE 2024

DCM General Arrangement

PLAN A

3 VEGETATION CLEARANCE PROTOCOL

3.1 Vegetation Clearance Report

Vegetation clearance is undertaken in accordance with the BMP Section 5.4 Vegetation Clearance Plan. Prior to any clearance operations a Clearing Plan is prepared, and vegetation pre-clearance surveys are undertaken.

Vegetation clearance for the Duralie Extension Project was finalised in 2017. During the 2023/2024 reporting period, no vegetation clearance was undertaken.

The area of disturbance at the end of June 2023 is shown in the DCM Annual Review 2023 Figure 4 (**Appendix B**).

Information obtained during vegetation clearance activities (i.e. habitat features, hollows cleared and fauna observed) has been used to determine the requirements for nest box replacement in the biodiversity offset areas (refer Section 4).

3.2 Salvaged and Reused Material for Habitat Enhancement

Section 5.8 of the BMP requires salvaged material from vegetation clearance activities to be used for habitat enhancement within the revegetation or rehabilitation areas. Habitat features such as trunks, logs, large rocks, branches, stumps and roots are salvaged and relocated where practicable.

As there was no vegetation clearance undertaken during the reporting period, no further habitat materials were salvaged.

During previous reporting periods cleared vegetation was managed as follows:

- Suitable trees and stumps salvaged and stockpiled for reuse; and
- Mulched vegetation stored in stockpiles and used on the rehabilitation and incorporated into topsoil.

4 NEST BOX PROGRAM

Nest box management is undertaken in accordance with the BMP Section 6.4. Nest boxes will be installed to provide habitat opportunities in the short to medium-term for a number of arboreal fauna species including the Squirrel Glider (*Petaurus norfolcensis*).

Table 1: Nest Box Program Performance Criteria (PC) and Completion Criteria (CC)

Management Action	Completed Activities to June 2018	Annually from June 2018 onwards PC Maintenance Phase	Completion Criteria
Nest box strategy including target species, habitat trees/feature, nest box designs maintenance and monitoring	Nest box plan developed following habitat assessment and pre-clearance surveys (Section 5.4).		
Nest box installation Includes installation of 18 Squirrel Glider boxes, however may be expanded as required.	Hollow bearing habitat features (nest boxes) installed (Section 6.4).		Nest boxes installed.
Maintenance and monitoring of installed nest boxes. Including monitoring for European bee invasion and repair/replacement	Monitoring in autumn and spring completed. Maintenance undertaken where required (Sections 6.4 and 7.1).	Annual nest box monitoring and maintenance (Sections 6.4 and 7.1).	Nest boxes monitored and maintained, being replaced where required.

Legend	Not commenced	In progress	Completed

AMBS Ecology & Heritage (AMBS) was commissioned to implement the Nest Box Program. The installation of nest boxes has occurred over six periods with the most recent installation in March 2021. No further nest box installations were required resulting from vegetation clearance activities and the recent installations in the rehabilitation areas is to provide additional habitat enhancement. The next round of monitoring is scheduled for Spring 2024.

The current program involves monitoring:

- 18 nest boxes targeting the Squirrel Glider (*Petaurus norfolcensis*), installed during February 2013;
- 106 nest boxes targeting a variety of hollow-dependent species, installed during August 2013;
- 45 nest boxes targeting a variety of hollow-dependent species, installed during September 2014;
- 41 nest boxes targeting a variety of hollow-dependent species, installed during September 2016*;*
- 26 nest boxes targeting a variety of hollow-dependent species that were installed in the Rehabilitation Area during October 2019;
- 9 nest boxes targeting the Feathertail Glider (*Acrobates pygmaeus*) that were installed during September and October 2019; and
- 24 nest boxes targeting a variety of hollow-dependent species that were installed in the Rehabilitation Area during May 2021.

A *Next Box Programme for the Duralie Offset Area, Annual Report 2023* was completed by AMBS with works commencing in **September 2023** and completed in **December 2023** (**Appendix C**). A summary of the results from the report is provided below.

- A total of 12 species were recorded within nest boxes or showed signs of previous occupation with one of the species recorded listed as vulnerable under the *Biodiversity Conservation Act 2016* (BC Act), the Brush-tailed Phascogale (*Phascogale tapoatafa*)
- Six nest boxes contained hives of the European Honey Bee (*Apis mellifera*) and two nest boxes contained native honeybees
- A total of 252 out of 273 next boxes, or approximately 92% have been occupied or shown signs of occupancy since their installation
- Occupancy of nest boxes has generally increased over time; however, the previous few years have experienced some noticeable fluctuations, possibly due to the climatic swings that have occurred over the previous several years, first with drought condition and more recently the La Niña conditions which persisted between 2020 and 2023 bringing high levels of rainfall
- A total of 27 vertebrate species have now been recorded within nest boxes during the Nest Box Programme. This includes 16 species of mammal, 7 species of bird, 1 species of frog, and 3 species of reptile.

Plate 1 – Common Brushtail Possum (*Trichosurus vulpecula*)

Plate 2 – Brush-tailed Phascogales (*Phascogale tapoatafa*)

5 WEED CONTROL AND MONITORING

Weed control is undertaken in accordance with the BMP Section 5.9 and Section 6.5. The weed control program aims to manage weeds to minimise their impact on native flora and fauna.

Table 2: Weed Control Performance Criteria (PC) and Completion Criteria (CC)

Management Action	Completed Activities to June 2018	Annually from June 2018 onwards PC Maintenance Phase	Completion Criteria
Weed Control/treatment program in remnant enhancement and regrowth management VMUs (vegetation management units)	Primary woody weed control (Sections 5.9 and 6.5). Primary control of priority target weeds described in Sections 5.9 and 6.5 commenced. Follow-up woody and priority weed control undertaken as per Sections 5.9 and 6.5.	Follow-up woody and priority weed control undertaken as per Sections 5.9 and 6.5.	Target/priority weed coverage within offset VMUs reduced by 90%.
Weed control/ management in Installation (revegetation) VMUs	Pre-cultivation spraying in all installation VMUs undertaken including control of exotic Sporobolus and fireweed (Figure 7 and Section 6.11). Second cultivation spray in all installation VMUs undertaken including control of exotic Sporobolus and fireweed where necessary (Section 6.11). Additional pre-planting weed treatment in all installation VMUs undertaken if required (Section 6.11). Control of competitive plants within revegetation areas as detailed in Section 6.11.	Additional pre-planting weed treatment in all installation VMUs undertaken if required (Section 6.11). Control of competitive plants within revegetation areas as detailed in Section 6.11.	Control of competitive plants within revegetation areas until maintenance phase (detailed in Section 6.11) is complete i.e. 90% of canopy and shrub species have survived 12 months after planting including replanting of lost species.
Monitoring and reporting	Monitoring and documentation of weed species, occurrence and densities a per Section 7.1.	Monitoring and documentation of weed species, occurrence and densities as per Section 7.1.	Monitoring and reporting undertaken.

The general procedure for controlling weed involves:

- Monitoring to identify locations and densities of priority weed;
- Identification of suitable control measures;
- Implementation of the selected control measure by a suitable qualified person; and
- Follow-up inspections to evaluate effective of weed control.

Weed spraying activities are generally undertaken between the months of September and April each year. Physical management measures such as mechanical removal, slashing and/or back-burning can be undertaken at other times of the year as required.

Greening Australia were contracted to undertake an initial weed assessment of the offset area in August 2013. The aim of the weed assessment was to assist in setting priorities and developing on-ground actions for weed control and is presented in the form of a mapping survey. The mapping survey provides reference to individual weed infestations within each Vegetation Management Unit (**VMU**) for the biodiversity offset area. Each weed occurrence was allocated a priority ranking based on the species status i.e. priority (noxious) or agricultural, and the size and density of the infestation. The survey information contributed to the development of a strategic approach to the control of priority weeds and allow contractors to locate infestations using the mapping files. Additionally, it will continue to assist in tracking weeds to gauge the effectiveness of control measures and the potential spread and future distribution.

A contractor is engaged at the DCM to undertake weed management activities on an ongoing basis. Follow-up weed treatment of all remnant enhancement and regrowth management VMUs continued from September 2023 through to April 2024 when weather permitted. Weed control will recommence in Spring 2024. The key species targeted included blackberry, lantana, privet, wild tobacco and giant parramatta grass.

Weeds monitoring to evaluate the effectiveness of control measures is undertaken in conjunction with the annual vegetation monitoring and is documented in the *Duralie Coal Mine Offsets Ecosystem Functional Analysis Monitoring 2024* (**Appendix E**).

The 2024 monitoring report indicates that the above average rainfall over the 2020 – 2023 period has benefitted weed species. The walkover survey recorded primarily woody weed species including blackberry, lantana, small leaved privet, wild tobacco, while to a lesser extent, 'softer' weeds such as moth vine were also observed. The largest thickets of blackberries were observed in VMUs AH and U. Lantana densities were highest in VMU P which is located in the heavily wooded Buckleys Range which can act as a source of weeds. A recommendation to expand weed control efforts was made, recognising that weed control will always be a requirement until the Offsets are surrendered.

6 FERAL ANIMAL CONTROL AND MONITORING

Feral animal control is undertaken in accordance with the BMP Section 5.10 and Section 6.5. The objective of feral animal control program is to manage feral animals to minimise their impact on native flora and fauna in the Biodiversity Offset Areas or the impact on agricultural production in other surrounding areas.

Table 3: Feral Animal Management Performance Criteria (PC) and Completion Criteria (CC)

Management Action	Completed Activities to June 2018	Annually from June 2018 onwards PC Maintenance Phase	Completion Criteria
Feral animal control program	Initial study undertaken.	Feral animal control as required.	Feral animal numbers within offset areas minimised as

Management Action	Completed Activities to June 2018	Annually from June 2018 onwards PC Maintenance Phase	Completion Criteria
			evidenced through monitoring data.
Monitoring and reporting	Monitoring and documentation of feral animal species undertaken.	Monitoring undertaken.	-

AMBS was commissioned to undertake the initial invasive animal survey, in accordance with Section 5.10 of the BMP in 2013. The objective of the study was to determine the range of invasive animals that occur or are likely to occur within the DCM and offset areas and provide recommendations for invasive animal control.

MDP Vertebrate Pest Management has been engaged by DCPL since 2016 to implement feral animal control programs across property owned by DCPL including both the Stratford and Duralie Mining Leases and the Stratford and Duralie Biodiversity Offset Areas. During the reporting period no feral animal control programs were implemented at Duralie. Wild dog and fox control was last undertaken between **October 2021** to **November 2021**. The program involved a combination of trapping and shooting. The programs were productive with a total of 6 wild dogs, 1 feral cat and 3 foxes trapped and shot over the control programs.

During the control programs no non-target species were trapped. Soft jaw wild dog traps were used to trap targeted pest animals. MDP Trap dog and trail camera monitoring was used to find and locate wild dog and fox signs in the program area for trap placement. The wild dog and fox numbers were moderate in the previous controlled areas of the Stratford/Duralie Mining Lease and Biodiversity Areas which demonstrates the control programs are being successful in having an impact and lowering the numbers and presence of wild dogs and foxes within that area. The program is showing positive results of reducing the impacts of wild dogs and foxes within the area to the native animals and reducing the impact of livestock attacks to the surrounding agricultural properties.

Plate 3 – Wild Dog

Plate 4 – Wild Dog

In accordance with the BMP a feral animal monitoring survey was undertaken by AMBS Ecology & Heritage between August and September 2023 to monitor the success of control programs and determine priorities for ongoing control measures. The feral animal survey covered the Duralie Mining Lease and Duralie Biodiversity Offset Area.

An extracted summary of the survey results from the *Feral Animal Study of the Duralie Coal Mining Lease and Offset Areas, Gloucester Valley 2023* is provided below. The full report is provided in **Appendix D**.

A total of 16 feral species have been recorded in the study area in the past or during recent surveys or are considered to have the potential to occur. Twelve of these species were either not recorder or were recorded in very low numbers during the current surveys and are of little concern at the current time.

In summary:

- *Foxes and Feral Cats may represent a threat to biodiversity within the study area, and both the Fox and Feral Cat are considered Priority Pest Animals under the Hunter Regional Strategic Pest Animal Management Plan 2018- 2022 (HRSPAMP);*
- *Wild Dogs are present in the study area, and while they may or may not be a threat to biodiversity, are currently considered a Priority Pest animal in the HRSPAMP. Wild dog control in the study area should only focus on reducing negative impacts to stock and landholders, to ensure a balance is struck between the control of Wild Dogs and conservation of Dingoes;*
- *The European Rabbit is present at low densities, but its abundance can increase rapidly, particularly if Dog, Fox and Cat numbers decrease, and it is also considered a Priority Pest Animal in the HRSPAMP; and*
- *The abundances of Foxes, Feral Cats, Wild Dog and the European Rabbit within the study area are likely to be inter-related.*

A feral animal survey of the Duralie Mining Lease and Duralie Biodiversity Offset Area is scheduled to be undertaken in September 2025. Feral animal monitoring will guide the ongoing management efforts for controlling feral animals.

7 CONTROLLING ACCESS AND MANAGING GRAZING

Controlling access and managing grazing is undertaken in accordance with the BMP Section 5.11, 6.6 and 6.7.

Table 4: Managing Grazing and Agriculture Performance Criteria (PC) and Completion Criteria (CC)

Management Action	Completed Activities to June 2018	Annually from June 2018 onwards PC Maintenance Phase	Completion Criteria
Managing grazing and agriculture	Livestock excluded from the Offset through installation of gates and fencing illustrated in Figure 9 (Section 6.7).		Livestock excluded from the offset.
Monitoring and maintenance of fencing and gate infrastructure	Monitoring of gates and fencing to exclude livestock. Where required, maintenance undertaken and documented (Section 7.1).	Monitoring of gates and fencing to exclude livestock. Where required, maintenance undertaken and documented (Section 7.1).	Gates and fencing monitored and maintained.

Table 5: Controlling Access Performance Criteria (PC) and Completion Criteria (CC)

Management Action	Completed Activities to June 2018	Annually from June 2018 onwards PC Maintenance Phase	CC
Operational Review to facilitate site access for offset management activities including installation, inspection and bushfire management	Operational Review developed. Review includes road, fire trail and culvert construction and requirements for fencing and revegetation cultivation/site preparation[2]. Maintenance activities, particularly track maintenance and slashing have been considered (Section 6.7, plus related Sections 6.9 and 6.5).		Operational Review undertaken and outcomes implemented.

Management Action	Completed Activities to June 2018	Annually from June 2018 onwards PC Maintenance Phase	CC
Community and stakeholder engagement	Assessment of surrounding landholders and the local community to evaluate opportunities for participation in implementation of this Biodiversity Management Plan undertaken. Local council consultation has commenced regarding placement of signage on the Johnson's Creek Road bisect area of the Offset (see Figure 9 for location) (Section 6.7). Signage has been installed on the Johnson's Creek Road bisect area of the Offset to alert drivers of potential fauna on the roads.		Opportunities for landholder and community participation in the BMP identified. Local council consulting regarding signage. Signage installed on Johnsons Creek Road.
Infrastructure including access tracks, fencing, fire trails and culverts	Access tracks, fire trails, firebreaks, fencing and culverts have been completed as per Figure 9 and the Operational Review[2] (Section 6.7).		Access related infrastructure identified in the Operational Review and completed.
Monitoring and maintenance of infrastructure including tracks, fire trails, signs, culverts and fences.	Monitoring and maintenance of all access tracks and fire trails has been undertaken[2] (Sections 6.7, 6.9 and 7.1).	Monitoring and maintenance of all access tracks, fire trails and warning signs has been undertaken[2] (Sections 6.7, 6.9 and 7.1).	Regular monitoring and maintenance program for roads, tracks, fire trails, signs, fences and culverts.

The implementation of the BMP management measures commenced in 2013. The BMP requires works to be undertaken to exclude livestock and control access to the Biodiversity Offset Areas.

Installation works to control access and manage grazing in the offset areas was completed in 2014. During the reporting period contractors were engaged to undertake maintenance activities on access tracks, culverts, gates and fences. The works included slashing of tracks, firebreaks and repairs to damaged gates and culverts. Additional signage was also installed on the key access points to the Biodiversity Offset Areas. Fencing repairs were completed following March 2022 flood events.

The *Duralie Coal Mine Offsets Ecosystem Functional Analysis Monitoring 2024* (**Appendix E**) found fencing on external boundaries was in good condition. There were no signs of livestock at the time of the survey.
Livestock continue to be excluded from the Biodiversity Offset areas with the exception of 'crash grazing' programs in preparation for revegetation activities following a field assessment by a qualified consultant.

Roadside Flora and Fauna signage has been installed in accordance with advice from Mid Coast Council (MCC) (previously Great Lakes Council (GLC)) and with regard to Australian Standard AS1742.2. Further correspondence was held with GLC Ecologist in 2015 regarding future requirements for traffic controls within the offset areas.

Plate 5 – Biodiversity Offset fencing and signage

8 BUSHFIRE MANAGEMENT

Bushfire management is undertaken in accordance with the BMP Section 5.12 and Section 6.9. The objective of bushfire management in the Biodiversity Areas is to prevent impacts from unplanned bushfire and to use fire to promote biodiversity.

Table 6: Bushfire Management Performance Criteria (PC) and Completion Criteria (CC)

Management Action	Completed Activities to June 2018	Annually from June 2018 onwards PC Maintenance Phase	Completion Criteria
Operational Review to facilitate site access for offset management activities including installation, inspection and bushfire management.	Operational Review completed[2]. Areas addressed within the review include road, fire trail and culvert construction along with maintenance activities, particularly track slashing (Sections 5.12 and 6.7).		
Fire excluded from the offset for initial 3 years.	Fire excluded from offset prior to 2015 (Section 6.9).		Fire excluded from offset prior to 2015.
Bushfire management activities through hazard reduction actions installation and maintenance of relevant access infrastructure.	Access tracks, fire trails, firebreaks, fencing and culverts have been completed as per Figure 9 and the Operational Review 2 (Sections 6.7 and 6.9Fire management activities have been undertaken as required, including yearly access trail inspection, maintenance and repair of inaccessible tracks within one month of identification2, hazard reduction burning (Sections 5.12, 6.7 and 6.9).	Fire management activities have been undertaken as required, including yearly access trail inspection, maintenance and repair of inaccessible tracks within one month of identification2, hazard reduction burning (Sections 5.12, 6.7 and 6.9).	Regular bushfire management measures in place.
Monitoring and maintenance	Fuel loads monitored and documented (Sections 6.9 and 7.1). Identified issues incorporated into future management planning	Fuel loads monitored and documented (Sections 6.9 and 7.1). Identified issues incorporated into future management planning.	Fuel loads monitored and maintained. Risks identified and managed as part of part of hazard reduction actions.

Where possible, fire was excluded from the Biodiversity Offset area during the first three years (up to 2015) to assist with native regeneration. To assist with bushfire management, access tracks and firebreaks have been constructed and maintained as shown in the BMP Figure 9.

Hazard reduction burning has been undertaken in consultation with the NSW Rural Fire Service (RFS). Continued discussions have been held with the RFS to conduct fire management activities and any such activities will be assessed and implemented to ensure the most appropriate period for ecological burn activities whilst also giving due consideration to personnel and asset safety. Following the revegetation works, the aim is to exclude fire from the offset areas for at least five years to allow for tubestock and seedlings to establish.

Monitoring of fuel loads to evaluate bushfire risk and guide bushfire hazard reduction activities is undertaken in conjunction with the annual vegetation monitoring. Further detail is included in Section 10 and Appendix E. Bushfire risk will continue to be mitigated through the maintenance of access tracks and fire breaks.

The 2024 report noted that VMUs that have been subjected to multiple disturbances such as ground preparation associated with revegetation and/or bushfire (Buckleys Range Fire) have LFA scores equivalent to, or exceeding their 2013 baseline score, indicating these VMUs have recovered from the past disturbance.

9 REVEGETATION MANAGEMENT

9.1 Seed Collection and Propagation

Seed collection and propagation is undertaken in accordance with the BMP Section 5.7 and 6.10.

Table 7: Seed Collection and Tubestock Supply Performance Criteria (PC) and Completion Criteria (CC)

Management Action	Completed Activities to June 2018	Annually from June 2018 onwards PC Maintenance Phase	CC
Collecting and propagating seed	Seed collection (of required species as specified in Section 6.10 and Appendix D) has commenced during vegetation clearance or an alternate seed source has been obtained. (Sections 5.7 and 6.10). Seed collection from cleared vegetation finalised (Section 5.7). Seed collection to obtain required quantities and species for future revegetation continued (Section 6.10, Appendix D).		Seed collection necessary to obtain required quantities and species for future revegetation completed.
Plant propagation/ tubestock supply	Propagation of species required for revegetation work in Offsets commenced. Species and quantity as per guidelines in Section 5.7, 6.10 and Appendix D or adjusted based on additional literature/field trial results.	Propagation of species required for revegetation/supplementary infill planting work in Offsets undertaken as per guidelines in Sections 5.7 and 6.10 and Appendix D.	Plant propagation necessary to obtain quantities and species required for revegetation completed.

Revegetation in the BMP Revegetation Areas has occurred via seed and tubestock. Local endemic species are preferentially used where a seed supply is available, however consideration will be given to the use of a high quality seed sourced further from the site as required.

Where possible, seed required for revegetation activities has been collected from within the Biodiversity Offset Area and surrounds. Specific tree and shrub species which have not been available for collection have been sourced through external third-party suppliers. Further seed collection may be undertaken if found necessary to meet the completion criteria of the BMP offset revegetation and mine site rehabilitation.

Wedgetail Project Consulting, along with several nurseries have been engaged to assist in the propagation of native plant species with tube-stock grown under controlled nursery conditions and delivered to site as required for revegetation works.

9.2 Revegetation and Regeneration

Revegetation management is undertaken in accordance with the BMP Section 6.11 and 6.12. The aim of revegetation is to establish a range of habitat niches including native canopy, and understorey, with the goal of achieving self-sustaining vegetation communities as well as increasing the resilience to identified risks such as fire, herbivory and future weed invasion. The Revegetation VMUs in the Biodiversity Areas will be revegetated to substantially increase the area of native vegetation and maximise habitat diversity and a range of successional stages.

Table 8: Revegetation Performance Criteria (PC) and Completion Criteria (CC)

Management Action	Completed Activities to June 2018	Annually from June 2018 onwards PC Maintenance Phase	Completion Criteria
Operational Review	Operational review including access, tracks and cultivation requirements for implementing revegetation completed (Section 6.7).		Operational Review completed and implemented.
Implementing Revegetation - Weed management and maintenance	Pre-cultivation spraying in all installation VMUs including control of exotic Sporobolus and fireweed undertaken (Sections 6.5 and 6.11). Pre-plant weed treatment in all installation VMUs as per Figure 7 undertaken as required (Sections 6.5 and 6.11). Control of competitive plants within revegetation areas as detailed in Section 6.11. Maintenance including watering and herbivory controls, undertaken as required (Section 6.11).	Pre-plant weed treatment in all installation VMUs as per Figure 7 undertaken as required (Sections 6.5 and 6.11). Control of competitive plants within revegetation areas as detailed in Section 6.11. Maintenance including watering and herbivory controls, undertaken as required (Section 6.11).	Pre-planting weed control undertaken, including control of threatening weeds Sporobolus and Fireweed. Competitive plants controlled during revegetation establishment.
Implementing revegetation	Initial cultivation of all proposed trial installation VMUs commenced (Vegetation Management Units I, S, U and AB.) according to guidelines in Section 6.11. Trial revegetation for VMUs I, S, U and AB completed. Plant palettes adjusted where field trails or research demonstrate alternative species/density (Section 6.10). Propagation of species required for revegetation work in Offsets commenced. Species and quantity as per guidelines in Sections 5.7 and 6.10 and Appendix D.	Revegetation planting finalised. All plants prescribed in Appendix D have been installed. (Section 6.11). Based on learnings from the revegetation trials, planting of tubestock/direct seeding in installation VMUs according to species palette and quantity guidelines in Appendix D and Section 6.1 has been completed	Species type and quantities planted according to threshold guidelines in the species palette or as guided by on site trials. 90% survival of canopy and shrub-layer plants 12 months after installation, including replacement of lost plants to above threshold levels. Revegetation areas have met Assessment Criteria and Completion criteria described in Table 24, Section 8 (e.g. 90% of all initial canopy species rates are present within VMUs).
Monitoring and reporting	Monitoring and reporting of trial revegetation results, changes to plant palette, plant health, establishment success and maintenance activities. (Section 7.1).	Monitoring and reporting of trial revegetation results, changes to plant palette, plant health, establishment success and maintenance activities. (Section 7.1).	Annual Monitoring and reporting completed.

Revegetation Planning, Trials and Schedule

Pre-cultivation weed spraying was undertaken in Summer to Autumn 2016 in preparation for the trial revegetation works. Initial revegetation works for VMUs I, S and U commenced in Autumn of 2016. Preparation works were completed including seed collection, inoculation, growing of tube-stock and ground preparations including weed spraying. The trial revegetation program included methods involving both tube-stocking, and direct seeding. Ground preparation was site specific and included weed spraying, crash grazing and back burning as required.

Revegetation works in VMUs AF, AE, AA and Z were undertaken during **December 2016** and included ground preparation and direct seeding of approximately 80 hectares. Due to the inability to undertake controlled burning, slashing was undertaken as an alternative option prior to direct and broadcast seeding.

Plate 6 - Loading seed for revegetation works.

Plate 7 - Spreading native tree and shrub seed.

Revegetation Implementation

Tubestock was propagated during Summer 2016/2017 in preparation for Autumn planting in 2017. VMUs Y, AD and S, (approximately 40 hectares), located on alluvial flats near Mammy Johnsons River were prepared for planting by slashing, spraying for weeds and ripping. This was followed by the planting of approximately 7,200 tube-stock in April 2017. The results of the 2017 re-vegetation activities are reported in the DCM Biodiversity Offsets Revegetation Program Report Spring 2016 - Autumn 2017.

Following the hazard reduction burning in August 2017, revegetation works in VMUs Z, AB and AC were undertaken. In September 2017, direct seeding of approximately 52 hectares was completed, followed by harrowing.

Tube-stock planting of VMUs F, V, W and X was proposed for Autumn 2018 including approximately 16,000 plants over 61 hectares. The native tree seed was propagated over the Summer of 2017/2018 by Cumberland Plain Seeds. However, due to the slower than expected establishment of the tubestock, planting was postponed during winter and completed in **September 2018**. The results of the 2018 re-vegetation activities are reported in the *DCM Biodiversity Offsets Results of Spring 2018 Planting Report*.

Plate 8: Tube-stock being prepared for the biodiversity offset

Plate 9: Planted tube-stock

Plate 10: *Tubestock planted in September 2018*

Plate 11: *Tubestock planted in September 2018*

During Spring 2019 tubestock was propagated in preparation for further revegetation works in Autumn 2020 to reach the required woodland density and species diversity in VMUs F, V, W, X, AA and AH. The results of the 2020 re-vegetation activities are reported in the *DCM Biodiversity Offsets Planting Program Report Autumn 2020*.

During Spring 2020 tubestock was propagated in preparation for further revegetation works in Autumn 2021 to reach the required woodland density and species diversity in VMUs AB, AC, AE, AF, Z, U and S.

The 2021 Duralie Offsets Planting Program revegetated, or in-fill planted into seven VMUs. The 2021 planting campaign successfully installed 24, 718 plants over 112 ha of the Offsets areas. This included the large sections of Grey Box – Forest Red Gum – Grey Ironbark Open Forest in VMUs AB, AE, AF and Z, 89 ha of the total. These areas had been unsuccessfully seeded previously, potentially due to drought conditions. The installation of the tubestock and hikos ensures that revegetation of the three strata has begun.

The 2022 Duralie offset refill planting areas proposed in VMU Y and AD did not go ahead due to high rainfall totals throughout the year.

The 2024 Duralie Offsets Planting Program aimed at infill planting into ten VMUs across 5 different vegetation communities. While increased rainfall in April and May restricted access into a number of VMUs, the program was successful with 7,632 plants being planted into eight VMUs across 3 vegetation communities.

The 2025 infill planting program is being finalised and will focus on areas across the Duralie Offsets which require further infill planting or that could not be previously accessed.

Monitoring

Following the initial re-vegetation works in 2015, annual vegetation monitoring (including LFA and vegetation dynamics) was undertaken in **January 2017** and continues to be undertaken annually. Vegetation monitoring was undertaken again in **February 2024**. The results from the biodiversity offset monitoring are shown in Section 10. Results from the annual monitoring will be used to measure revegetation against the performance criteria and completion criteria and to determine future works requirements and maintenance activities.

10 BIODIVERSITY OFFSET MONITORING AND REPORTING

The Biodiversity Offset monitoring and reporting program is prescribed in the BMP Section 7. The program aims to monitor and report on the effectiveness of the BMP management measures and progress against the detailed performance and completion criteria.

Table 9: Monitoring and Reporting Performance Criteria (PC) and Completion Criteria (CC)

Management Action	Completed Activities to June 2018	Annually from June 2018 onwards PC Maintenance Phase	CC
Monitoring and reporting	Monitoring and reporting has been undertaken[3] as per requirements in Sections 7.1 and 7.2. Independent Environmental Audit has been supplied to the NSW Secretary of the DP&E for review.	Monitoring and reporting has been undertaken[3] as per requirements in Sections 7.1 and 7.2.	Monitoring requirements completed when all completion criteria are achieved in accordance with Section 8 (e.g. 357.5 ha of revegetated woodland/open woodland habitat areas and 36 ha of revegetated forest habitat areas are a self-sustaining ecosystem).

As described in the Section 7 of the BMP an annual report reviewing DCPL's environmental performance and progress against the requirements of the BMP including monitoring and reporting is prepared annually and appended to the *Duralie Coal Mine Annual Review*. The Annual Biodiversity Report, reports on monitoring for:

- Effectiveness of revegetation in the offset area;
- Usage of the offset areas by fauna;
- Effectiveness of weed control;
- Effectiveness of feral animal control; and
- Nest box monitoring program.

10.1 Habitat and Vegetation Condition Monitoring

Habitat and vegetation condition monitoring is undertaken to quantitatively measure the change in habitat and vegetation condition over time. The visual monitoring and photo monitoring programs are undertaken concurrently with the

vegetation monitoring to provide additional information on the change of the Biodiversity Offset Areas over time and inform maintenance requirements.

To monitor the effectiveness of revegetation in the Biodiversity Offset Areas, Greening Australia was commissioned to undertake the baseline monitoring of LFA and vegetation structure within the Biodiversity Offset areas in **February 2013**. The baseline monitoring provides information to track the progression towards meeting the completion criteria of the BMP.

The annual vegetation and landscape function monitoring continues to be undertaken and was repeated in **February 2024.** The results are provided in the *Duralie Coal Mine Offsets Ecosystem Functional Analysis Monitoring Report 2024* prepared by Wedgetail Project Consulting (**Appendix E**). An extracted summary is reproduced below. The next round of monitoring is scheduled for 2025.

> *In accordance with Section 7 of the Duralie Coal Mine – Biodiversity Management Plan (2022), monitoring and assessment of the effectiveness of the Offset Area revegetation is required. This assessment was conducted using the stipulated methodologies which both components of Ecosystem Functional Analysis (EFA) which includes Landscape Functional Analysis (LFA) and Vegetation Dynamics to measure the progression of the rehabilitation towards a self-sustaining ecosystem, floristic surveys and walkover surveys to assess the effectiveness of the revegetation efforts and weed control.*
> *The LFA used data from the 2013 baseline monitoring event conducted by Greening Australia for comparison and tracking changes over time. The 2024 monitoring undertaken over four days (26th to 29th of February 2024) and represents the third Offset Area survey undertaken by Wedgetail Project Consulting, but the sixth by Dr Nigel Fisher (formerly employed by Kleinfelder Australia).*
>
> *Overall, the revegetation of the Duralie Coal Mine offsets areas is progressing well with pleasing results in both the LFA and revegetation components of the program.*
>
> - *This years' monitoring of the biophysical processes measured by the LFA indices showed that the VMUs have fully recovered from previous multiple disturbances that have occurred during revegetation works (ground preparation and the Buckleys Range Fire) and that VMUs with no further disturbances planned will continue to accumulate resources subject o seasonal variations, while VMUs where further planting is expected should show some effects leading to modest deceases in Infiltration and Nutrient Cycling Indices.*
> - *The older areas of revegetation have begun to show signs of self-sustaining development with second generation canopy species seedlings and flowers and fruit on multiple species in different strata.*
> - *Target densities have been achieved in six of the installation VMUs, with another less than 5% under.*

10.2 Fauna Monitoring

Monitoring of fauna usage within the Biodiversity Areas is conducted every three years to document the fauna species response to improvement in vegetation and habitat in the Biodiversity Areas and assess the performance in providing habitat for a range of vertebrate fauna. The surveys include an assessment of habitat complexity, species richness and abundance.

AMBS was engaged to undertake fauna monitoring within the Biodiversity Offset Areas and native mine rehabilitation areas during Summer 2022. The results are provided in the *DCM Fauna Surveys of the Offset and Mine Rehabilitation Areas, January 2022* (**Appendix F**). The previous fauna monitoring within the Biodiversity Offset Areas and native mine rehabilitation areas was undertaken in February 2018. An extracted summary of the 2022 report is provided below.

> *"Targeted fauna surveys were undertaken at five sites within the Duralie Offset Area and two sites in the Duralie Mine Rehabilitation Area between November 2021 and January 2022. At most sites survey techniques included pitfall traps, funnel traps, Elliott A traps, harp traps, ultrasonic call recording, spotlighting, diurnal bird surveys and reptile*

searches. Opportunistic observations of signs of fauna were noted throughout the field survey period, including during transit between surveys sites".
"A total of 151 species of vertebrate were recorded, comprising 11 frogs, 8 reptiles, 95 birds and 37 mammals…, most of which were native. A similar number of frog, reptile, mammal and bird species were recorded at Mine Rehabilitation Area sites compared with Offset Area sites. Four introduced species were recorded during the surveys, including the House Mouse (Mus musculus), Brown Hare (Lepus capensis), Black Rat (Rattus rattus) and Red Fox (Vulpes vulpes)".

"Eighteen of the species detected are listed as threatened or migratory on the schedules of the Biodiversity Conservation Act 2016 (NSW) and/or the Environment Protection Biodiversity Conservation Act 1999 (Cth). Two of the eighteen species have been recorded for the first time during dedicated fauna surveys for the DCM, the Eastern Chestnut Mouse (Pseudomys gracilicaudatus) and Red-backed Button-Quail (Turnix maculosus).

Plate 12: Koala (*Phascolarctos cinereus*)

Plate 13: Eastern Chestnut Mouse (*Pseudomys gracilicaudatus)*

11 MAMMY JOHNSONS RIVER STABILISATION

In accordance with Section 6.8 of the BMP a detailed design for the in-stream rehabilitation of a severely eroded section of Mammy Johnsons River (MJR) has been prepared by Alluvium (2013) (**Appendix G**). In 2023 Hydrobiology Consultants were engaged to provide a detailed review of the streambank stabilisation advice prepared by Alluvium in 2013 to inform further planning.

No works on the MJR bank stabilisation have commenced during the reporting period.

Table 10: MJR Bank Stabilisation Performance Criteria (PC) and Completion Criteria (CC)

Management Action	Completed Activities to June 2018	Annually from June 2018 onwards PC Maintenance Phase	Completion Criteria
River bank stabilisation design	Design for the in-stream rehabilitation of a severely eroded section of Mammy Johnsons River has been prepared. Office of Water engaged regarding plan approval[1] (Section 6.8).		Design of stabilisation plan completed and approved by the Office of Water
River bank in-stream rehabilitation		In-stream rehabilitation works undertaken[1] (Section 6.8).	Rehabilitation of severely eroded section of Mammy Johnsons River completed.

12 LONG TERM SECURITY AND CONSERVATION BOND

12.1 Long Term Security

In accordance with Condition 42, Schedule 3 of Project Approval 08_0203, DCPL is required to make suitable arrangements for the long-term security of the Duralie Extension Project Biodiversity Offset Area. DCPL used the mechanisms available under section 88E(3) of the NSW *Conveyancing Act 1919*, namely:

- Registration of a Positive Covenant under section 88E(3) of the NSW *Conveyancing Act 1919*; and
- Registration of a Restriction on the Use of Land by a Prescribed Authority under section 88E(3) of the NSW *Conveyancing Act 1919*.

Public Positive Covenants and Restrictions on the Use of Land for the Biodiversity Offsets have been registered on title with NSW Land and Property Information (LPI) in **May 2015**.

12.2 Conservation Bond

In accordance with Condition 44, Schedule 3 of Project Approval 08_0203, DCPL is required to lodge a Conservation Bond with the DP&E which covers the cost of implementing the Biodiversity Offset Strategy detailed in the BMP.

The conservation bond for the Biodiversity Offset areas was calculated by Greening Australia and verified by Rider Levett Bucknell in December 2013. The terms of the conservation bond in the form of a Bank Guarantee were approved by NSW Department of Planning & Environment (DP&E) on 12 December 2013. The Bank Guarantee has been subsequently provided to DP&E.

In December 2023, an Independent Environmental Audit of the DCM was undertaken in accordance with PA 08_0203. A revision of the BMP was approved in February 2023 in accordance with PA 08_0203 Schedule 5 Condition 4. Following this, a revision of the conservation bond will be prepared and lodged with DP&E in accordance with Schedule 3 Condition 45.

A revision of the Duralie Offset Conservation bond has commenced within the reporting period. The revised conservation bond will be lodged with DPIE in the next reporting period.

13 COMMONWEALTH EPBC APPROVAL COMPLIANCE REPORTS

In accordance with Condition 20 of the Commonwealth Approval [EPBC 2010/5396], during the reporting period DCPL submitted to the Department of Agriculture, Water and Environment (DAWE) the following compliance report:

- *Duralie Coal Extension Project Annual Compliance Report 2024,* submitted on **12 April 2024** (Condition 20) (**Appendix H**).

Additionally, the following reports were submitted annually for the first five years following the commencement of the operation:

- *DCM Implementation of the Giant Barred Frog Management Plan Annual Reports (Condition 10);*
- *DCM Implementation of the Biodiversity Management Plan Annual Reports (Condition 14(i)).*

These reports are now required to be submitted every **fifth** (5) year before the anniversary of the commencement of the operations.

APPENDICES

Appendix A: DP&E approval of the BMP

Appendix B: DCM Annual Review 2023 – Figure 4 Mining & Rehabilitation Areas

Appendix C: AMBS Ecology & Heritage - Nest Box Programme for the Duralie Offset Area, Annual Report for 2023

Appendix D: AMBS Ecology & Heritage - Feral Animal Study, Duralie Coal Mining Lease and Offset Areas 2023

Appendix E: Wedgetail Project Consulting - Duralie Coal Mine Offsets Ecosystem Functional Analysis Monitoring 2024

Appendix F: AMBS Ecology & Heritage - DCM Fauna Surveys of the Offset and Mine Rehabilitation Areas 2022

Appendix G: Alluvium - Mammy Johnson's River – Bank Stabilisation Detailed Design 2013

Appendix H: Duralie Coal Extension Project Annual Compliance Report 2024

(Appendices available on request)

APPENDIX 8

DCM Independent Environmental Audit 2023 Responses to Recommendations

Duralie Coal Mine - Independent Environmental Audit 2023
Response to Recommendations

Table 1: IEA 2023 Audit Findings - Non Compliances					
Condition Number (ID)	**Compliance Requirement**	**Independent Audit Finding**	**Independent Audit Recommendation**	**Stratford Coal Proposed Action/Action Taken/Response**	**Proposed Action Due Date**
Project Approval 08_0203					
Schedule 2, Condition 8	**The Proponent shall: (a) only dispatch shuttle trains from the site between 6am and 10pm; (b) only receive shuttle trains on site between 6am and midnight; and c) only operate shuttle trains on the North Coast railway between midnight and 1am in exceptional circumstances**	**A shuttle train was dispatched from Duralie at 5:55 am on Wednesday 27 October 2021 which is outside the approved hours (between 6am and 10pm). Reported to the EPA and DPE on 29 October 2021. No further actions are required.**	No further action required	Reported in accordance with PA08_0203 and PIRMP. No further action required	
Schedule 3, Condition 7	**(c) include a noise monitoring program that: •uses a combination of real-time and supplementary attended monitoring measures to evaluate the performance of the project; •includes a program to evaluate the effectiveness of the noise mitigation measures referred to in 7(b) above; •includes a protocol for determining exceedances of the relevant conditions of this approval; and •includes a program to monitor the actual sound power levels of the plant on site, compare it with the benchmark levels used in the EA, and evaluate the effectiveness of any attenuation.**	**Annual mobile plant sound power monitoring was not undertaken at Duralie during the 2021 reporting period. This was due to the reduced fleet, reduced operating periods and no evening or night-time operations. No adverse effects were anticipated resulting from the noncompliance and no noise complaints were received. Sound power monitoring was conducted in September 2021. The NMP has been revised to reflect monitoring requirements during periods of reduced operations. The NMP was revised in October 2021. No further actions are required.**	No further action required	DCPL notes that the sound power testing did not occur through the 2021 EPL annual return period but was completed within the 2021 Calander year. Sound Power level testing successfully occurred in the 2022 and 2023 EPL annual return periods. Action: Ensure sound power level testing occurs annually within the EPL annual return period.	Annually reoccurring.
Schedule 3, Condition 19	**The Proponent shall ensure that particulate matter emissions generated by the project do not exceed the criteria listed in Tables 5, 6 or 7 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.**	**Cracked sample bottle at EPL Point 32 causing failure to monitor (Depositional Dust Gauge 8) which resulted in less than required depositional dust monitoring. Table 6.5 in the AR shows a "no result" reading for gauge D8 in April 2022. Dust monitor has been effective after this date. No further actions are required.**	No further action required	Cracked sample bottle due to wind damage or similar impact insitu. DCPL notes that there has been no further missed samples from Depositional Dust Gauge during the reporting period. No further action required	
Schedule 3, Condition 25	**The Proponent shall ensure that: (a) mine water or runoff from the irrigation area is not discharged directly into Mammy Johnsons River; and (b) all surface water discharges from the site comply with section 120 of the POEO Act or, if an EPL has been issued regulating water discharges from the site, the discharge limits (both volume and quality) set for the project in the EPL.**	**Uncontrolled discharge of mine related water (rehabilitated area runoff) on 21 March 2021 from sediment dam VC1 south of established rehab area (EPL Monitoring Point 27) reporting to Coal Shaft Creek as a result of significant rainfall event exceeding design capacity. Reported to the EPA on 26 March 2024 .1 Pumping of sediment dam was undertaken and water samples were collected from monitoring sites upstream, downstream and at point of discharge and sent for analysis. It was concluded that no material harm resulted from the discharge.**	No further action required	Reported in accordance with PA08_0203 and PIRMP. No further action required	
Schedule 3, Condition 25		**Two pH results outside of the 100 percentile concentration limit at point 36 on 28 February 2021 and point 27 on 21 March 2021. Marginal exceedance with downstream monitoring point 35 within 100 percentile concentration limits on all dates the results are outside the 100 percentile. No further actions are required.**	No further action required	Reported in accordance with PA08_0203 and WMP. No further action required	

Schedule 3, Condition 25		**Uncontrolled discharge of mine related water (rehabilitated area runoff) from sediment dam RS1 (EPL Point 15) near rail sighting on 4 March 2022.** **Reported to DPE and EPA on 4 March 2022.** **Pumping of sediment dam was undertaken and water samples were collected from monitoring sites upstream, downstream and at point of discharge and sent for analysis. It was concluded that no material harm resulted from the discharge.**	No further action required	Reported in accordance with PA08_0203 and PIRMP. No further action required	
Schedule 3, Condition 25		**Two pH results (Point 36 - North Drain) during the audit period were marginally outside the pH criteria. Recorded pH value of 6.05 (below the range of 6.5 - 8.5).** **This is negligible in the context of the monitoring undertaken and was not determined to be related to operational impacts. No further directives were received from regulators.** **No further actions are required.**	No further action required	Reported in accordance with PA08_0203 and PIRMP. No further action required	
Schedule 3, Condition 45	**After each Independent Environment Audit (see Condition 8 of Schedule 5), the Proponent shall review and adjust the sum of the bond to the satisfaction of the Secretary.**	**The bond is required to be reviewed after each Independent Environmental Audit. The review of the bond has commenced but has not been completed in the audit period.** **At the time of the site inspection, a third revision was being undertaken. Provide evidence for 2nd and third revisions and status please – or confirm wrapped in with Stratford.** **Recommend bond provided to DPE asap for approval and ensure undertaken in next audit**	Recommend bond provided to DPE asap for approval and ensure undertaken in next audit period.	Biodiversity Offset Conservation bond is currently under review and is expected to be submitted H1 2024. Bond total security is expected to be reduced by 60%. Action: Complete Biodiversity Conservation Bond Review for DCM and submit to DPHI	31-Aug-24
EPL 11701					
M2.3	**Water and/ or Land Monitoring Requirements**	**Less than required monitoring undertaken as per EPL 11701 - M2.3 Water and or Land Monitoring Requirements – Point 4.** **A sample is required once a month (min. of 4 weeks) and was not sampled on 31 January 2023, 27 April 2023, 31 May 2023, 29 June 2023, 31 July 2023 and 28 August 2023. Access to Point 4 (Weismantel Open Cut Pit) on these dates was not achieved due to progressive backfilling within the pit footprint. As water is contained in the pit no adverse effects resulted from the non-compliance.** **DCM investigated alternative methods to complete monitoring at unsafe locations. WMP to be updated to include finalised methods.**	WMP to be updated to include finalised methods.	SCPL notes that no safe access was available to complete pit water samples at Weismantel Open Cut Pit due to backfilling within the pit footprint. SCPL investigated alternate methods for sampling including drone and pit pump line sampling however were not deemed viable at the time of investigation. DCM WMP does not currently require the suggested update. Following completion of backfilling works access to this Weismantel Pit has been reinstated to allow pit water sampling. Action: DCPL to review if water monitoring within the Weismantle Pit is likely to be impacted, alternate sampling methods must be updated within the DCM WMP	31-Aug-24
Mining Lease 1646					

Condition 3	**a) Mining operations must not be carried out otherwise than in accordance with a Mining Operations Plan (MOP) which has been approved by the Director-General.** **(b) The MOP must:** **(i) identify areas that will be disturbed by mining operations;** **(ii) detail the staging of specific mining operations;** **(iii) identify how the mine will be managed to allow mine closure;** **(iv) identify how mining operations will be carried out in order to prevent and or minimise harm to the environment;** **(v) reflect the conditions of approval under:** **•the Environmental Planning and Assessment Act 1979** **•the Protection of the Environment Operations Act 1997** **•and any other approvals relevant to the development including the conditions of this lease; and** **•have regard to any relevant guidelines adopted by the Director-General.** **The lease holder may apply to the Minister to amend an approved MOP at any time. It is not a breach of this condition if: the operations constituting the breach were necessary to comply with a lawful order or direction given under the Environmental Planning and Assessment Act 1979, the Protection of the Environment Operations Act 1997, the Work Health and Safety (Mines and Petroleum Sites) Act 2013 and Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 or the Work Health and Safety Act 2011; and Work Health and Safety Regulation 2011 (ii) the Director General had been notified in writing of the terms of the order or direction prior to the operations constituting the breach being carried out.** **c) A MOP ceases to have effect 7 years after date of approval or other**	**Alleged failures to conduct mining operations in compliance with the DCM Mining Operations Plan (MOP). Specifically, the commitments set out in Table 13 in Section 8 of the MOP were not completed in the required timeframe.** **Official Caution Notice issued by Resources Regulator on 20 August 2021 and Section 240 notice issued on 31 August 2021. Section 240 requests were completed.**	No further action required	An Official Caution Notice was issued by Resources Regulator on 20 August 2021 regarding alleged failures to conduct mining operations at the Duralie Coal Mine (DCM) in compliance with the DCM Mining Operations Plan (MOP). Specifically, the commitments set out in Table 13 in Section 8 of the MOP were not completed in the required timeframe. Following on from this a Section 240 Notice was issued by the Resources Regulator on 31 August 2021. The Mining Act Section 240 Notice gives directives for mine closure planning and also relates to the recent Landform Establishment TAP. Mine closure planning directives were established for the audit period and were complied with by DCPL. No further action required	

Table 2: IEA 2023 Audit Findings - Recommendations

Condition Number (ID)	Compliance Requirement	Independent Audit Finding	Independent Audit Recommendation	Stratford Coal Proposed Action/Action Taken/Response	Proposed Action Due Date
Project Approval 08_0203					
Schedule 3, Condition 7	**The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Secretary. This plan must:** **(a) be prepared in consultation with EPA, and submitted to the Secretary for approval within 3 months of the date of this approval, unless otherwise agreed by the Secretary;**	**Consider whether variation to EPL is required for revised noise monitoring requirements.**	**Consider whether variation to EPL is required for revised noise monitoring requirements.**	DCPL accepts this recommendation Action: Consider whether variation to EPL is required for revised noise monitoring requirements.	31 June 2024
Schedule 3, Condition 29	**The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Secretary. This plan must be prepared in consultation with EPA and NOW by suitably qualified and experienced persons whose appointment has been approved by the Secretary, and submitted to the Secretary within 3 months of the date of this approval.** **In addition to the standard requirements for management plans (see Condition 2 of Schedule 5), this plan must include:** **(a) a Site Water Balance that:** **•includes details of:** **-sources of water supply;** **-water use on site;** **-water management on site; and** **-reporting procedures; and** **•describes what measures would be implemented to minimise potable water use on site; and** **b) a Surface Water Management Plan that includes:** **•a detailed description of the water management system on site, including the:**	**The presence of monitoring aligns with operations and currently going through the process of ceasing monitoring**	**All plans will be updated for detailed closure planning in the next audit period.**	DCPL accepts this recommendation Action: Complete environment management plan revision and update following the completion of Detailed Mine Closure Plan	31-Dec-24
Schedule 3, Condition 29		**Three dams on site have declared status with Dam Safety NSW (DSNSW), application to de-declare AD1 is with with Dams Safety NSW.AD2 will be removed from the declared dams register following removal of the dam structure.**	**Ensure completion of removal of declared dam status for rehabilitated declared dam, AD2.**	DCPL notes that de-declaration of AD1 is currently with Dam Safety NSW for approval. Application to de-declare AD2 will commence directly following decommissioning of the dam wall structure. Action: Apply to de-declare AD2 directly following decommissioning of the dam wall structure	Directly following Dam decommissioning

Schedule 3, Condition 57	**The Proponent shall prepare and implement a Rehabilitation Management Plan for the project to the satisfaction of the Secretary of DTIRIS.** **This plan must:** **a) be prepared in consultation with the Department, OEH, NOW, Council and the CCC;** **b) be prepared in accordance with any relevant DRE guideline;** **(c) build, to the maximum extent practicable, on the other management plans required under this approval;** **c1) address all aspects of mine closure and rehabilitation, including post-mining land use domains, rehabilitation objectives, completion criteria and rehabilitation monitoring and management;** **(d) provide for scientific knowledge gained during the rehabilitation, to be made publicly available;** **(e) be submitted to the Secretary of DTIRIS for approval within 3 months of the date of this approval, unless otherwise agreed by the Secretary.**	**Yancoal advised that there is no new knowledge to be gained. Viewed Annual Rehabilitation Report and Forward Program dated July 2022 which states that "amendments to the monitoring programs during the post-closure phase, following identification of any rehabilitation performance issues or knowledge gaps in the Annual Rehabilitation Report, will be reflected in the relevant environmental management plan revisions as well as future iterations of the ARRFP". Recommend RMP updated at next update to include this statement to address condition.**	**Recommend RMP is updated at next update to include a statement regarding scientific knowledge to make clear scientific knowledge will be made public if gained.**	DCPL accepts this recommendation Action: At next revision of DCM RMP, include a statement regarding scientific knowledge to make clear scientific knowledge will be made public if gained.	31-Aug-24
Schedule 3, Condition 57			**Update RMP to specifically if new scientific knowledge is gained during rehabilitation monitoring programs to be made publicly available and include information at public location (e.g. website)**	DCPL accepts this recommendation Action: Update RMP to specify if new scientific knowledge is gained during rehabilitation monitoring programs to be made publicly available and include information at public location (e.g. website)	Directly following new knowledge gained
Schedule 5, Condition 9A	**By the end of December 2013, and with every Independent Environmental Audit thereafter, unless the Secretary directs otherwise, the Proponent shall commission and pay the full cost of a Rail Haulage Audit of the project. This audit must:** **(a) be conducted by a suitably qualified, experienced and independent experts whose appointment has been endorsed by the Secretary;** **(b)review the existing rail haulage operations and determine whether all reasonable and feasible measures are being implemented to minimise the:** **•noise and dust impacts of these operations;** **•use of the shuttle train during the approved night-time hours;** **•dispatch of trains from the site between 9.25pm and 1am the following day; and** **(c) recommend appropriate measures or actions to improve the efficiency of these rail haulage operations and minimize their associated impacts; and** **(d) evaluate the use of the exceptional circumstances provision in condition 8 of schedule 2, and the associated reporting on any use of this provision on the Proponent's website (see condition 8A in schedule 2).** **Within 6 weeks of the completion of this audit, or as otherwise agreed by the Secretary, the Proponent shall submit a copy of the**	**Seek confirmation from DPE that the Rail Haulage Audit can be excluded from future audits as rail haulage complete**	**Seek confirmation from DPE that the Rail Haulage Audit can be excluded from future audits as rail haulage complete**	DCPL accepts this recommendation. Action: Seek confirmation from DPE that the Rail Haulage Audit can be excluded from future audits as rail haulage complete	31 June 2026
EPL 11701					
A1.1	**This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation. Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this**	**Consider whether a licence variation to reduce the scale of the activities is appropriate (currently includes coal works, extractive activities and mining for coal).**	**Consider whether a licence variation to reduce the scale of the activities is appropriate (currently includes coal works, extractive activities and mining for coal).**	DCPL Accepts this recommendation. Action: Consider whether a variation to EPL 11701 to reduce the scale of the activities is appropriate (currently includes coal works, extractive activities and mining for coal).	30-Jun-24

L4.2	**To determine compliance:** **a) with the Leq(15 minute) noise limits in condition L4.1, the noise measurement equipment must be located:** **•approximately on the property boundary, where any dwelling is situated 30 metres or less from the property boundary closest to the premises; or** **•within 30 metres of a dwelling façade, but not closer than 3m, where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable** **•within approximately 50 metres of the boundary of a National Park or a Nature Reserve.** **b) with the LA1(1 minute) noise limits in condition L4.1, the noise measurement equipment must be located within 1 metre of a dwelling façade.** **c) with the noise limits in condition L4.1, the noise measurement equipment must be located:** **•at the most affected point at a location where there is no dwelling at the location; or**	**Noise monitoring was conducted guided by the requirements of the NMP and EPL11701. Operator-attended noise measurements were conducted during the day, evening and night-time periods for 15 minutes per period at each of the four nominated noise monitoring locations.**	**NMP should be updated at new review to include discussion for each monitoring location's relationship to the 30 m condition.**	DCPL Accepts this recommendation. Action: Update NMP at next review to include discussion for each monitoring location's relationship to the 30 m condition.	31-Aug-24
L4.7	**For the purposes of determining the noise generated at the premises a Class 1 or 2 noise monitoring equipment as defined by AS IEC61672.1-2004 and AS IEC61672.2-2004, or other noise monitoring equipment accepted by the EPA in writing, must be used.**	**At next review of NMP that condition details are specifically described (i.e. for the purposes of determining the noise generated at the premises a Class 1 or 2 noise monitoring equipment as defined by AS IEC61672.1-2004 and AS IEC61672.2-2004, or other noise monitoring equipment accepted by the EPA in writing, must be used).At next review of NMP that condition details are specifically described (i.e. for the purposes of determining the noise generated at the premises a Class 1 or 2 noise monitoring equipment as defined by AS IEC61672.1-2004 and AS IEC61672.2-2004, or other noise monitoring equipment accepted by the EPA in writing, must be used).**	**At next review of NMP that condition details are specifically described (i.e. for the purposes of determining the noise generated at the premises a Class 1 or 2 noise monitoring equipment as defined by AS IEC61672.1-2004 and AS IEC61672.2-2004, or other noise monitoring equipment accepted by the EPA in writing, must be used).**	DCPL Accepts this recommendation. Action: At next review of NMP that condition details are specifically described (i.e. for the purposes of determining the noise generated at the premises a Class 1 or 2 noise monitoring equipment as defined by AS IEC61672.1-2004 and AS IEC61672.2-2004, or other noise monitoring equipment accepted by the EPA in writing, must be used).	31-Aug-24
P1.2	**The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.**	**Request this condition deleted in next variation as it has no content.** **The condition states "The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area" however does not contain a table of values.**	**Request this condition deleted in next variation as it has no content.** **The condition states "The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area" however does not contain a table of values.**	DCPL Accepts this recommendation. Action: Request EPL11701 Condition P1.2 is deleted in next variation as it has no content. The condition states "The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area" however does not contain a table of values.	31-Aug-24
P1.3	**The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.**	**At next variation, the figure dated '20 October 2017' should be updated to current version reference.**	**At next variation, the figure dated '20 October 2017' should be updated to current version reference.**	DCPL Accepts this recommendation. Action: At next variation, update the figure dated '20 October 2017' to reference current version	At next EPL variation