Annual Review

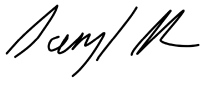
Werris Creek Coal Mine

Name of operation	Werris Creek Coal Pty Limited
Name of operator	Werris Creek Coal Pty Limited
Development consent/project approval number	Project Approval 10_0059 Modification 5
Name of holder of development consent/project approval	Werris Creek Coal Pty Limited
Mining lease number	ML1563 (Creek Resources Pty Ltd & Betalpha Pty Ltd); ML1671, ML1672 (Werris Creek Coal Pty Limited)
Name of holder of mining lease	Whitehaven Coal Mining Pty Ltd
Water licence number	WAL29506 (Betalpha Pty Ltd); WAL32224 (Werris Creek Coal Pty Ltd)
Name of holder of water licence	Whitehaven Coal Mining Pty Ltd
RMP start date	2 August 2022, reported on calendar year
Annual review start date	1 January 2024
Annual review end date	31 December 2024

I, Daryl Robinson, certify that this audit report is a true and accurate record of the compliance status of Werris Creek Coal Mine for the period 1st January 2024 to 31st December 2024, and that I am authorised to make this statement on behalf of Whitehaven Coal Mining Pty Ltd.

Note. *a) The Annual Review is an 'environmental audit' for the purposes of section 122B (2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, $1 million and for an individual, $250,000.*

b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); 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	Daryl Robinson
Title of authorised reporting officer	Manager of Environment and Mine Rehabilitation - Gunnedah Open Cut Operations
Signature of authorised reporting officer	
Date	26/03/25

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1 STATEMENT OF COMPLIANCE

This Annual Review has been prepared to provide a summary of the environmental performance of the Werris Creek Coal Mine (WCC) over the reporting period. The compliance status of the WCC against relevant approvals during the reporting period was assessed as at the end of the reporting period (i.e. 31 December 2024) and is summarised in Table 1.

Table 1 – Statement of Compliance

Were all the conditions of the relevant approvals complied with?	Yes/No
Project Approval 10_0059 Modification 4	Yes
Project Approval 10_0059 Modification 5	Yes
Annual Rehabilitation Report (Resource Regulator)	Yes
Mining Lease ML 1563	Yes
Mining Lease ML 1671	Yes
Mining Lease ML 1672	Yes
EPL12290	Yes
WAL29506	Yes
WAL32224	Yes

Any non-compliances during the reporting period are detailed in Table 3 and ranked according to the compliance status key in Table 2. Section 11 provides further details of any non-compliance and actions undertaken or proposed for the following reporting period to prevent re-occurrence and mitigate any potential adverse effects, as well as other compliance triggers that were investigated.

Table 2 – Compliance Status Key

Risk Level	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-compliance	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 – Non-Compliances

Relevant Approval	Cond. #	Condition Description (Summary)	Compliance Status	Comment	Where addressed in Annual Review
NA	NA	NA	NA	NA	NA

2 INTRODUCTION

This is the eighteenth Annual Review produced for the Werris Creek Coal Mine (WCC) and has been prepared in accordance with the NSW Department of Planning, Housing and Infrastructure (DPHI) Integrated Mining Policy – Annual Review Guideline, October 2015. This document has been prepared to satisfy the following requirements:

- The Annual Review requirements of the DPHI under the Project Approval PA 10_0059 (Condition 3 Schedule 5); and
- The routine reporting expectations of DPE Water.
- This report covers the period between 1st January 2024 to 31st December 2024.

2.1 PROJECT BACKGROUND

WCC is located approximately 4 km south of Werris Creek and 11 km north-northwest of Quirindi in northwest slopes and plains region of New South Wales (Figure 1) and lies within a 910 ha area covered by Mining Lease (ML) 1563, ML1671 and ML1672. The current Project Approval (PA) 10_0059 Modification 5 limits mining until 31st December 2032. The Rehabilitation Management plan outlines the projected rehabilitation for the next three years.

WCC is owned and operated by Werris Creek Coal Pty Limited (WCC), a wholly owned subsidiary of Whitehaven Coal Limited (WHC). The key operational personnel responsible for environmental management at WCC are listed in Table 4.

Table 4 – Key Personnel at WCC

Name	Title	Contact
Ms Olivia Hulbert	Environmental Advisor	02 6763 6000
Mr Ian Taylor	Superintendant – Operations	02 6763 6000
Mr Daryl Robinson	Operations Manager	02 6763 6000
Mr Dean Scott	General Manager – Open Cut Operations	02 6741 9300

N

Void

Out of Pit Emplacement

Site Access Road

0 0.33 0.65 1.3 Kilometers

MAP DATA: M:\Open Cut\Gunnedah\Rehab mine closure\02 GIS\MAP DATA\MWCC_017_Werris Creek Mine Site Layout

Legend

- Project Approval Boundary
- Mining Lease
- WHC Owned Properties

Whitehaven

Werris Creek Coal Mine
Mine Site Layout

MGA Zone 56
Date: Mar 2025
Scale: 1:15,000

Image: Feb 2025
Author: O.Hulbert

MWCC_017_Werris Creek Mine Site Layout

3 APPROVALS

Table 5 provides a summary of the key current licences, leases and approvals that have been obtained for the operation of WCC.

Table 5 – Licences, Leases and Approvals

Authority	Approval	Number	Issue	Expiry	Comments
Department of Planning, Housing & Infrastructure (DPHI)	Project Approval	PA10_0059	25/10/2011	31/12/2032	Life of Mine Project allows northerly continuation for entire coal deposit mining up to 2.5Mtpa and 24 hours 7 days per week.
		PA10_0059 MOD1	30/08/2012	31/12/2032	Modification of Biodiversity Offset Area to allow for augmentation of VWD1 to 250ML.
		PA10_0059 MOD2	3/11/2015	31/12/2032	Modification of overburden emplacement design, enabling of a dry processing plant, and to allow void water for agricultural use.
		PA10_0059 MOD3	01/04/2020	31/12/2032	Modification to address the incorrect Project Layout in the Project Approval
		PA10_0059 MOD4	12/05/2021	31/12/2032	Werris Creek Coal Mine Waste Tyre Disposal Modification
		PA10_0059 MOD5	17/12/2024	31/12/2032	Modification of final landform design
NSW Resource Regulator	Mining Lease	ML 1563	23/03/2005	23/03/2026	Mining Lease granted for 21 years. Varied on 17 October 2022 to include the new standard conditions from *Mining Regulation 2016*, Schedule 8A, Part 2.
		ML 1671	9/03/2012	9/03/2032	Mining Lease granted for 21 years. Varied on 17 October 2022 to include the new standard conditions from *Mining Regulation 2016*, Schedule 8A, Part 2.
		ML 1672	9/03/2012	9/03/2032	Mining Lease granted for 21 years. Varied on 17 October 2022 to include the new standard conditions from *Mining Regulation 2016*, Schedule 8A, Part 2.
Environment Protection Authority	Environment Protection Licence	12290	18/04/2005	Anniversary date: 1 April	Varied 2nd September 2022 to update conditions U1 and U2.
Department of Primary Industries – Water	Water Access Licence (Water Management Act 2000)	WAL29506	21/02/2013	Perpetuity	Aquifer – 50ML annual allocation. DPI-Water referenste waterce number 90AL822531. Formerly 90BL252588
		WAL32224	19/06/2013	Perpetuity	Aquifer – 211ML annual allocation. DPI-Water reference number 90AL828344. Formerly 90BL255087
	Water Works Approval	90WA822532	21/02/2013	15/01/2025	Surrendered

		90WA828345	19/06/2013	25/06/2027	Linked to WAL32224. Excavation. Formerly 90PT982872
Australian Department of Agriculture, Water and the Environment	Environment Protection and Biodiversity Conservation Act Approval	2010/5571	21/12/2011	31/12/2032	Authorises impacts on EPBC listed threatened species and communities and listed migratory species
Dam Safety Committee	Declared Dams	Werris VWD1 Werris VWD3 Werris VWD4	18/10/2012 13/12/2012 13/12/2012	Perpetuity Perpetuity Perpetuity	Significant Sunny Day and Flood Consequence

4 OPERATIONS SUMMARY

4.1 EXPLORATION ACTIVITIES

There were no exploration activities undertaken during the reporting period.

4.2 MINING OPERATIONS

Table 6 presents the production summary for the previous and current reporting periods and the anticipated production schedule for the next reporting period. ROM coal production is summarised by calendar year to align with PA_0059 conditions. All units are in tonnes unless otherwise stated.

Table 6 – Production Summary

Material	Approved limit	Previous reporting period (actual)	This reporting period (actual)	Next Reporting period (forecast)
Waste Rock / Overburden (bcm)	N/A	7,026,428	3,625,307	2,060,235
ROM Coal (t) (calendar year)	2,500,000 (PA 10_0059)	1,580,000	527,645	0
Coarse reject (t)	N/A	0	0	0
Fine reject (t)	N/A	0	0	0
Saleable Product (t)	5,000,000 (EPL12290)	1,759,584	702,570.90	0

*Estimate

4.3 COAL HANDLING AND PROCESSING

During the reporting period, while the mine was extracting and railing coal, coal processing operated Monday to Friday 6:00am to 2:40am with an occasional weekend shift. Train loading operations occurred 24 hours per day, 7 days per week dependent on train scheduling. Coal is segregated at the ROM coal stockpile based on the expected ash content of the coal. The coal products are processed through the fixed plant crusher and subsequently processed through the secondary crusher.

Product coal is transported by road trucks from the coal processing area to the product coal stockpile area at the train load out facility via the private coal haul road. The despatch of product coal from WCC is either railed to the Port of Newcastle or transported by road to domestic customers. Product movements by month for both rail and domestic road haulage can be found on the Whitehaven Coal website. WCC complied with Schedule 2, Conditions 7 and 8 of PA_0059. Total quantity of domestic coal transported from site on public roads was 0 tonnes for the period.

4.4 OTHER OPERATIONS

4.4.1 Hours of Operation

Mining operations are permitted to be conducted up to 24 hours per day, 7 days per week, except for blasting, which is restricted to 9:00am – 5:00pm Monday to Saturday. During the reporting period, mining operations generally maintained reduced hours of 20.6 hours per day (6:00am – 2:40am) 5 days per week (Monday to Friday), and a 10.5-hour day shift on both Saturday and Sunday. Some extended hour shifts were undertaken periodically via an earlier shift start of 5:00am as and when required to meet production demands. Other ancillary tasks and maintenance activities continued up to 24 hours per day, 7 days per week.

4.5 NEXT REPORTING PERIOD

4.5.1 Exploration

No exploration drilling was undertaken on the Mining Lease (ML1563, ML1671 and ML1672) during the reporting period, and none planned for the next 12 months.

4.5.2 Mine operations

Production has now ceased for the WCC, with no coal production. Works undertaken will be limited to rehabilitation which will include bulk earth moving/shaping using dozers, placement of subsoil and topsoil, seeding, tube stock planting and rock lining of drainage structures. Any vegetation clearing activities in mining areas over the next reporting period will be conducted in accordance with the approved associated Management Plans.

4.5.3 Rehabilitation progress

Updated site rehabilitation plans and methodologies have been detailed in the Annual Rehabilitation Report (ARR) submitted to the Resource Regulator.

5 ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

There were no outstanding actions carried over from the previous Annual Review.

6 ENVIRONMENTAL PERFORMANCE

6.1 NOISE

6.1.1 Environmental Management

During the reporting period, the noise mitigation strategies to minimise the effects of noise on the community have been continued as outlined below.

- Annual testing of maximum sound power levels;
- Stage 1 or 2 noise attenuation fitted on all trucks;
- Use of enclosed conveyors; and
- Use of silent horns by excavator operators during the night periods;
- Property acquisitions;
- Private agreements;
- Installation and maintenance of an acoustic and visual amenity bund; and
- Installation and maintenance of a mine infrastructure area bund.

During the reporting period, several operational strategies remained in place to respond to potential noise impacts from mining operations including:

- Continuous noise monitoring;
- Attended noise monitoring;
- Noise control operators engaged;
- Sound filtering and interpretation to isolate the masking effects of extraneous noise sources from birds, insects, and other environmental noise sources during monitoring.
- Modification of operations, including shutting down plant items, to reduce offsite impacts.
- Night time surface operations and dump locations planned to minimise noise where possible; and

Figure 2 below identifies the monitoring locations for both continuous and attended noise monitoring.

J Coronation Avenue
Werris Creek
I (R57) Kurrara Street
L (R103)
SX116 N1
K (R21) Alco Park
N
H (R98) Kyooma
G (R97)
SX2 N1
F (R96) Talavera
SX95 M2
SX93 M3
SX95 N1
E (R12) Quipolly Railway Cottage
C (R10/R11) Meadholme/Glenara
D (R24) Hazeldene
A (R5) Rosehill
B (R7/R8/R9/R22)
0 1 1 2
Kilometers

Legend

- Mining Lease
- Attended Noise Monitoring
- Noise Monitor
- Weather Station

Whitehaven

Werris Creek Coal Mine Noise Monitoring

MGA Zone 56
Date: Mar 2025
Scale: 1:26,000

Image: Dec 24
Author: A. Quiroz

Werris Creek
DG101
DG92
R92
TEOM92
DG103
DG34
DG62
R62
DG20
HVP20
DG14
HVP1
DG1
DG2
DG98
R98
HVP98
DG9
DG5
DG96
DG3
DG15
HVP11
R11
DG11
DG24
DG17
DG22
N
0 1 1 2
Kilometers

Legend

- Mining Lease
- DDG
- HVAS
- TEOM
- Blast Monitor

Whitehaven

Werris Creek Coal Mine
Blast and Air Quality Monitoring

MGA Zone 56
Date: Mar 2025
Scale: 1:26,000

Image: Dec 24
Author: A. Quiroz

6.1.2 Environmental Performance

Attended Monitoring

Attended monitoring is undertaken monthly by an independent consultant and is used to assess compliance with licence and approval limits for mine contributed noise. Attended noise monitoring identified no exceedances of the noise criteria during the reporting period (2024).

EA Predictions

Table 7 – Measured WCC Noise Levels vs EA Predictions

Measured WCC noise levels above NVIA Predictions (2024)			
	Day-time dB(A)LAeq,15min	**Evening/night-time dB(A)LAeq,15min**	**Sleep Disturbance dB(A)LA1,1min**
G Kyooma	--	--	5[1]
H R97	--	--	5[1]

1. Measured minus predicted level during October 2024

Based on attended noise monitoring conducted by Spectrum Acoustics, the historical noise data for WCC mine throughout the 2018, 2019, 2020, 2021, 2022, 2023, and 2024 noise monitoring surveys consistently demonstrated trends in which measured noise levels from the site were well below the worst-case EA predictions, respectively, for each receiver location.

Review of monitoring results over the five-year period WCC noise levels remained below the noise criteria, showing trends of very limited variation in measured noise levels from WCC. Most levels were inaudible, fewer than 1% were above EA predictions and none exceeded the relevant noise criteria at any receiver for the reporting period.

6.1.3 Proposed Improvement Measures

None proposed for the next reporting period as site activity is decreasing.

6.2 BLASTING

6.2.1 Environmental Management

Blast management measures are implemented at WCC to achieve acceptable outcomes in terms of blast overpressure and vibration, fume generation, and dust impacts.

During the reporting period, several controls were continued and maintained to reduce the potential for impacts, including:

- buffer management through acquisition of several adjacent properties through private negotiation;
- blasts designed with consideration of the predicted vibration of the shot, geology, ground conditions, explosives selection, initiation sequence/timing, powder factor, history/experience, and the sleeping time of the shot;
- maintenance of the predicted blast vibration objective for Werris Creek of 0.8 mm/s;
- explosive product selection and loading, to reduce the risk of auto-ignition and/or blast fume generation;
- stemming height and quality monitored by, the shot-firer to minimise the risk of elevated air overpressure from rifling;
- initiation sequence strategies are used to minimise vibration and air overpressure impacts;
- sleeping shots minimised to avoid potential deterioration of product;
- WCC aims to fire all blasts in the middle of the day generally between 12:00pm and 2:00pm, when atmospheric mixing is generally highest;
- blast notification prior to every blast;
- pre-blast weather assessment conducted;
- road closures of the Werris Creek Road when proximity of blasts occurred within 200 metres;
- blast fume rating recorded; and
- structural inspections - In response to claims of property damage due to blasting operations.

Air blast overpressure and ground vibration monitoring is undertaken at four monitoring locations illustrated in Figure 3. All blast monitors were operational during the reporting period.

6.2.2 Environmental Performance

There were 4 blasts undertaken during the reporting period. All blast events have been within the applicable air blast overpressure and ground vibration limits set out in PA 10_0059 MOD 4.

EA Predictions

As seen in Table 10 the 2024 Average Blasting Parameters has resulted in lower-than-expected average blast parameters at the lowest MIC level. This shows that the 2024 blasting impact data is lower than the predicted levels in the EA.

Maximum values have not exceeded the criteria of 120dB or 10mm/s ground vibration. Some maximum values for 2024 show correlation with the 1200 MIC blast predictions (Table 10). The maximum recorded data is consistent with the EA predictions for larger designed blasts.

An analysis of the data in Table 10 shows that the average blasting results are below the EA predictions therefore the monitoring data demonstrates a trend that blasting impacts are consistently below EA predicted levels.

Table 8 – Blasting EA Predictions

EA Predictions	2024 Performance
No exceedances of the maximum blast overpressure limit of 120dB have been predicted at any receiver for the range of blast sizes likely to be required.	No exceedance of 120dB was recorded in the reporting period. This is consistent with the EA predictions.

Table 9 - Predicted Blast Overpressure and Vibration Levels

Receiver		Distance	MIC (kg)						2024 Average Blasting Parameters		2024 Maximum Blasting Parameters	
			400		800		1200					
			OP	PPV	OP	PPV	OP	PPV	OP	PPV	OP	PPV
R20	**"Tonsley Park" [1]**	1740*	111	1.4	113	1.7	115	1.9	94.88	0.24	110	0.97
R55	**Pitkin [2]**	2680*	107	0.9	109	1.1	110	1.2	99.13	0.41	110.0	1.49
R96	**"Talavera"[3]**	2580*	107	0.9	109	1.1	111	1.3	99.24	0.75	112.6	1.70
R15	**"Glenara Blast Monitor"**	2525*	107	0.9	109	1.1	111	1.3	98.31	0.09	113.5	0.26

*Distances only accurate at time of report (Spectrum 2010).

1Tonsley Park receiver is located approx. 1.2km South West of Werris Creek South Blast Monitor.

2 Pitkin Receiver is located on Kurrara Street approx. 300m West of Werris Creek South Blast Monitor.

3 Talavera Receiver is located approx. 2.1km South, South West of Kyooma Blast Monitor.

6.3 AIR QUALITY

6.3.1 Environmental Management

The air quality criterion applicable to WCC is specified in Condition 16, Schedule 3 of PA10_0059 MOD2 and is managed through the implementation of the Air Quality and Greenhouse Gas Management Plan (AQGHGMP). During the reporting period, various controls were maintained and continued to manage dust including:

- Use of water carts across the site with an additional contractor water cart also utilised during rehabilitation activities;
- Overburden, coal and soil loading activities are not undertaken during periods of adverse weather (high winds or dry conditions), with SMS triggers employed to provide a near-real time operational response;
- Blasting activities restricted to suitable weather conditions and include notification to key stakeholders and residents;
- All personnel are instructed that all vehicles must utilise existing tracks on-site and must be driven to the conditions to minimise trafficable dust generation;
- The extent of disturbed areas (pre-strip clearing and rehabilitation) are minimised to that required for mining operations, with these areas stabilised and revegetated as soon as practicable once no longer required for ongoing operations;
- Water sprays are used on the coal feed hopper, crusher and at all conveyor transfer and discharge points;
- A sprinkler system installed during the reporting period to minimise dust entrainment off the steel Authority India Limited (SAIL) stockpile in adverse weather conditions;
- Water Sprinklers used on the TLO to aid in dust suppression in adverse weather conditions;
- Modification of operations, including shutting down plant items, to reduce offsite impacts; and
- Installed bird deterrents were maintained on depositional dust gauges to reduce contamination.

The above management measures will continue to be maintained throughout the next reporting period to continually improve air quality performance.

The WCC Air Quality Monitoring network is illustrated in Figure 3 and includes:

- Continuous monitoring of $PM_{2.5}$ and PM_{10} levels at the Werris Creek TEOM;

- PM_{10} levels are measured at four High Volume Air Samplers (HVAS) distributed across neighbouring properties surrounding WCC. The HVAS run for twenty-four hours every six days. Total Suspended Particulate Matter (TSP) is also measured at a separate HVAS unit located at Kyooma;
- A network of dust deposition gauges surrounding WCC, measuring deposited dust and particulates collected monthly.

6.3.2 Environmental Performance

TEOM

Monitoring conducted at the Werris Creek TEOM indicates the PM_{10} annual average remained below the applicable criteria of 30 µg/m^3. The 24-hour measurements of PM_{10} also remained below the 24-hour average limit of 50 µg/m^3.

Figure 4 below shows continuous results for PM_{10} (24hr) and $PM_{2.5}$ (24hr) for the reporting period, as well as a running annual average throughout the reporting year.

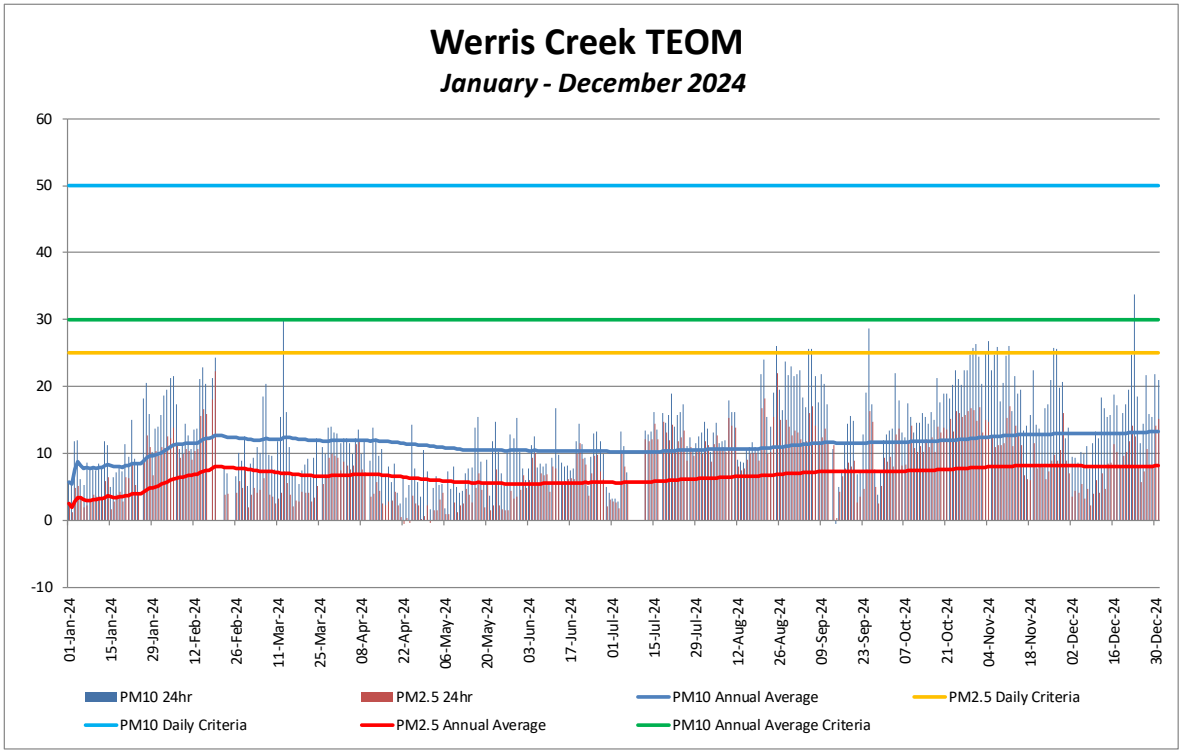


Figure 4 - Werris Creek TEOM summary for January – December 2024

HVAS

Monitoring conducted across the HVAS PM_{10} network has shown the rolling annual average PM_{10} concentrations to be below the criteria of 30 µg/m3 at all monitoring stations across the network during the reporting period, see Figure 3 and Table 11.

All the 24-hour measurements of PM_{10} remained below the daily criteria of 50 µg/m^3 as shown in Figure 5.

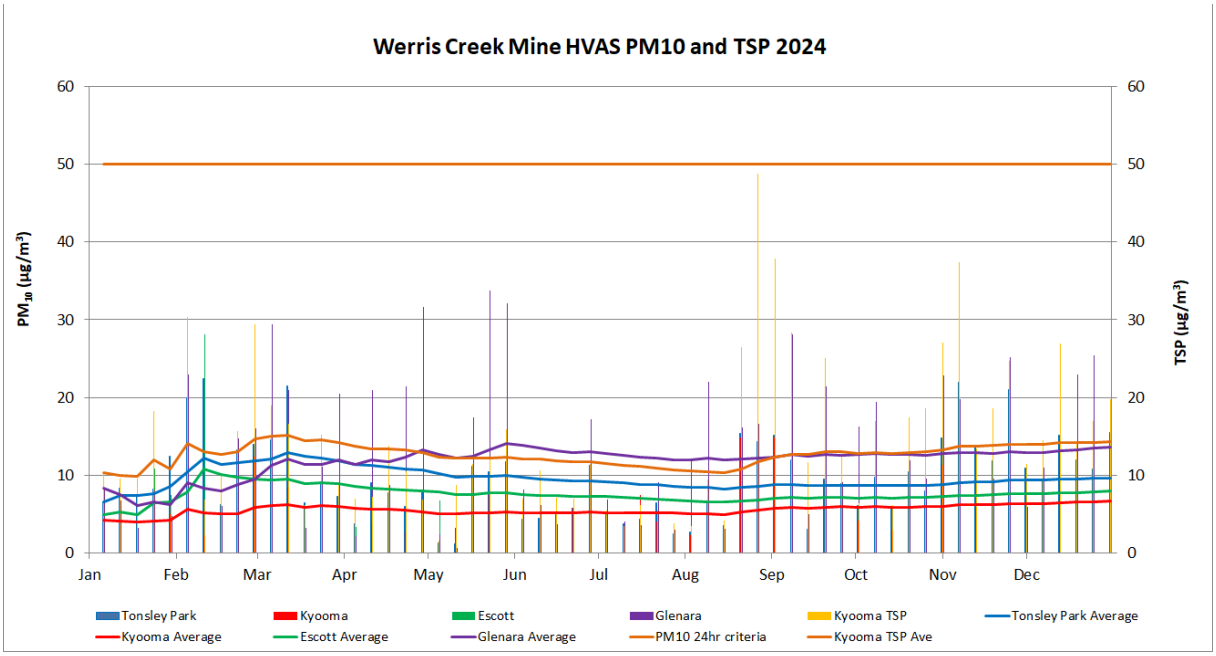


Figure 5 - Werris Creek Mine HVAS PM10 and TSP results for January – December 2024

A summary of current and historical HVAS and TEOM data is presented in Table 11.

Table 10 - TEOM and HVAS Averages

Location	2018	2019	2020	2021	2022	2023	2024
	µg/m^3						
10TEOM92 – Werris Creek	16.1	27.0	14.7	9.4	8.1	10.4	13.3
HVP20 – Tonsley Park	20.6	33.0	19.4	10.7	7.3	14.0	9.7
HVP98 – Kyooma	14.9	25.0	10.5	5.6	3.9	7.2	6.7
HVP1 – Escott	13.7	22.0	9.9	6.1	4.4	7.7	7.9
HVP11 – Glenara	23.4	32.3	14.5	8.9	8.4	12.6	13.6

Deposited Dust

Analysis of the reporting period showed the depositional dust results met compliance criteria. DG2 (Cintra) which is within the mining lease and within 200m of void edge recorded the

highest maximum result of 3.9 g/m^2/month, however, this result is still 0.1 less than the AQGHGMP criteria of 4.0 g/m^2/month. Across all monitoring sites, the annual average fell between 0.3 and 1.9 g/m^2/month, which is significantly less than the 2023 averages of 0.5 to 5.7 g/m^2/month. .

A summary of deposited dust monitoring results is presented in Table 12 below.

Table 11 – Deposited Dust Summary for 2024

EPL# 12290	ID	Property	Annual Average	Average - Excluded	Minimum	Maximum	AQGHGMP Criteria	# Results Excluded
-	DG1	Escott^	0.8	0.8	0.2	2.4	4.0	0
-	DG2	Cintra^	1.9	1.8	0.7	3.9	4.0	1
-	DG3	Eurunderee^	0.9	0.9	0.4	2.1	4.0	0
-	DG5	Railway View^	1.3	1.0	0.5	2.2	4.0	1
-	DG9	Marengo^	0.5	0.5	0.1	0.9	4.0	0
#29	DG11	Glenara	1.5	0.9	0.3	2.2	4.0	1
-	DG14	Greenslopes^	1.1	1.1	0.1	3.5	4.0	0
-	DG15	Plain View^	0.5	0.5	0.2	0.8	4.0	0
-	DG17	Woodlands	1.3	1.3	0.5	3.6	4.0	0
-	DG20	Tonsley Park^	1.0	1.0	0.3	3.0	4.0	0
-	DG22	Mountain View	0.6	0.6	0.2	1.2	4.0	0
-	DG24	Hazeldene	1.8	1.0	0.5	2.1	4.0	1
-	DG34	8 Kurrara Street	0.6	0.6	0.1	1.7	4.0	0
-	DG62	Werris Creek South	0.3	0.3	0.0	0.7	4.0	0
#30	DG92	Werris Creek Centre	0.6	0.6	0.1	2.9	4.0	0
#28	DG98	Kyooma	0.3	0.3	0.1	0.6	4.0	0
-	DG101	Westfall	2.0	1.4	0.4	3.7	4.0	1
-	DG103	West Street	1.4	1.4	0.7	2.5	4.0	0

^ Properties owned by Werris Creek Coal;

^* Properties owned by Werris Creek Coal; and within the mining lease

*Sample contaminated with organic matter from non-mining source (i.e. bird droppings and insects)

@ Sample contaminated from local dust source non-mining related (i.e. fire, farming activities)

Bold = elevated result

NS = Not Sampled

Results Removed = Sample was deemed contaminated or not sampled due to vandalism

EA Predictions

The DDG annual averages have been compared to the EA predictions (Figure 6).

The EA predictions have been made via scenarios whereby scenario two is year 7 of mining production and scenario three is year 15 of mining production. Werris Creek Coal mine is currently operating in year 15 of mining production since the predictions were made (Heggies 2010).

As seen in **Figure 6** below the 2024 results for the Deposited Dust Gauges (DDG) have displayed an overall decrease on some predictions made in the EA (Heggies 2010).

DG17 showed an increase of 1.5 g/m²/month, which aligns with expectations given the intensive cropping occurring in the paddock where the monitoring station is located. On the other hand, DG15, situated between the mine and DG17, showed a slight decrease of -0.1 g/m²/month compared to predictions. Overall, this indicates that the EA predictions are largely accurate, and the average DDG results for the site are showing improvement compared to the EA forecast.

It can be shown that PM_{10} and TSP were significantly under the EA predictions in both Scenario 2 and 3 **(Figure 6).**

DUST DEPOSITION *(g/m^2/month)*

SCENARIO 2 (Year 7)	AQ Assessment* Receptor ID	2024 Annual Average	SCENARIO 2 (Year 7) PREDICTION	Variance from Prediction
DG11 "Glenara"	11	1.5	0.7	0.8
DG14 "Greenslopes"	14	1.1	1.1	0.0
DG15 "Plain View"	15	0.5	0.9	-0.4
DG17 "Woodlands"	17	1.3	0.7	0.6
DG20 "Tonsley Park"	20	1.0	1.2	-0.2
DG22 "Mountain View"	9	0.6	0.7	-0.1
DG24 "Hazeldene"	24	1.8	0.7	1.1
DG98 "Kyooma"	98	0.3	0.7	-0.4

SCENARIO 3 (Year 15)	AQ Assessment* Receptor ID	2024 Annual Average	SCENARIO 3 (Year 15) PREDICTION	Variance from Prediction
DG11 "Glenara"	11	1.5	0.7	0.8
DG14 "Greenslopes"	14	1.1	1.3	-0.2
DG15 "Plain View"	15	0.5	0.8	-0.3
DG17 "Woodlands"	17	1.3	0.7	0.6
DG20 "Tonsley Park"	20	1.0	1.1	-0.1
DG22 "Mountain View"	9	0.6	0.6	0.0
DG24 "Hazeldene"	24	1.8	0.6	1.2
DG98 "Kyooma"	98	0.3	0.7	-0.4

PM_{10} (HVAS) *(µg/m^3)*

SCENARIO 2 (Year 7)	AQ Assessment* Receptor ID	2024 Annual Average	SCENARIO 2 (Year 7) PREDICTION	Variance from Prediction
HVP11 "Glenara"	11	13.6	16.3	-2.7
HVP20 "Tonsley Park"	20	9.7	20.0	-10.3
HVP98 "Kyooma"	98	14.9	16.0	-1.1

SCENARIO 3 (Year 15)	AQ Assessment* Receptor ID	2024 Annual Average	SCENARIO 3 (Year 15) PREDICTION	Variance from Prediction
HVP11 "Glenara"	11	13.6	15.9	-2.3
HVP20 "Tonsley Park"	20	9.7	19.9	-10.2
HVP98 "Kyooma"	98	14.9	15.9	-1.0

TSP (HVAS) *(µg/m^3)*

SCENARIO 2 (Year 7)	AQ Assessment* Receptor ID	2024 Annual Average	SCENARIO 2 (Year 7) PREDICTION	Variance from Prediction
HVT98 "Kyooma"	98	14.3	32.6	-18.3

SCENARIO 3 (Year 15)	AQ Assessment* Receptor ID	2024 Annual Average	SCENARIO 3 (Year 15) PREDICTION	Variance from Prediction
HVT98 "Kyooma"	98	14.3	32.2	-17.9

Figure 6 - Air Quality Data vs EA Predictions

*Air Quality Assessment for Werris Creek Coal Mine Life of Mine Project (Heggies Pty Ltd, December 2010)

NOTES:

- **DUST DEPOSITION** - Across all receptors, there was an overall annual average increase of 0.2 g/m^2/month above the Predicted level for both Year 7 and Year 15
- **PM^{10}** - Across all receptors, there was an overall annual average decrease of 4.7 µg/m^3 below Predicted level in Year 7 and 4.5 µg/m^3 in Year 15
- **TSP** - At designated receptor there was an annual average decrease of 18.3 µg/m^3 below Predicted level for Year 7 and 17.9 µg/m^3 in Year 15

6.4 GREENHOUSE GAS

6.4.1 Environmental Management

Greenhouse Gas (GHG) emissions at the Werris Creek Mine are managed in accordance with Schedule 3 Conditions 15 of PA 10_0059 and the AQGHGMP. The main sources of GHG emissions considered in the AQGHGMP are:

- Consumption of diesel fuel – Scope 1;
- Release of fugitive emissions from the fracturing of coal seams – Scope 1; and
- Consumption of electricity – Scope 2.

6.4.2 Environmental Performance

GHG emissions are reported through participation in the National Pollutant Inventory (NPI) and as part of the Whitehaven Group in the National Greenhouse and Energy Reporting Scheme (NGERS). The total of Scope 1 and Scope 2 GHG emissions attributed to WCC reported for the NGERS FY2024 reporting year were 23,176 CO2-e. The FY2024 EA prediction was 167,140 t CO2-e.

There is not a comparable methodology available when reviewing Fugitives Emissions in EA predictions and NGERS reporting at WCC. Which leads to a large difference between EA predictions and NGERS reported data. Method 1 was utilised for estimating EA predictions using a default emissions factor. Method 2 was used for FY2024 GHG data reporting utilising an operations emissions model which was created by a comprehensive gas sampling program to determine site specific emission factors for each coal seam. Fugitive emissions have been reported using method 2 at Werris Creek since 2016.

Scope 1 emissions

Scope 1 greenhouse gas emissions for the FY2024 NGERS reporting period were 22,410 t CO2-e. The FY2024 EA prediction for Scope 1 emissions was 79,752 CO2-e.

Scope 2 emissions

Approximately 1,126,916 kWh electricity was purchased by the mine during the FY2024 reporting period equating to 766 t CO2-e GHG emissions. This is less than the previous reporting period and the FY2023 EA predicted of 907 t CO2-e. From October 2022 WHC offset Scope 2 emissions by purchasing 100% carbon neutral electricity across all sites.

6.5 BIODIVERSITY

6.5.1 Environmental Management

Biodiversity was managed in accordance with:

- Schedule 3 Conditions 28 of the PA 10_0059;
- EPBC 2010 / 5571 Condition 1; and

- The WCC Biodiversity Offset Management Plan (BOMP).

6.5.2 Environmental Performance

The Werris Creek Coal Mine (WCCM) Biodiversity Offset Management Plan (BOMP) was approved by the former NSW DPE (now DPHI) on 30 August 2013 and WCCM Offset Management Plan was approved by the former DoEE (now DCCEEW) on 4 July 2017. The WCCM Biodiversity Offset Strategy (BOS) is required to offset 1317ha of native woodland to achieve a 'like for like or better' biodiversity outcome across offset areas combined from 6 Biodiversity Management Areas (BMA - Eurunderee, Narrawolga, Railway View, Hillview, Greenslopes and Marengo) within properties adjacent to the WCCM for the purpose of restoring vegetated corridors across WCC land holdings and Quipolly Creek Catchment linking with sub-regional habitat corridors. Another 2 BMAs (Escott A and Plainview North) are Compensatory Revegetation Areas approved by PA 10_0059 MOD 5.

Offset Security Management

The 6 BMAs that form the WCCM Offsets Areas have previously been secured using NSW Conveyancing Act 1919 Section 88E Instruments which were registered on 20 July 2018 and 2 August 2018 finalising compliance with PA 10_0059 Schedule 3 Condition 27 and EPBC Act Approval 2010/5571 Condition 1 and therefore achieving securement of the WCCM BOS. In 2024, WHC has recommenced consultation with DPHI for reviewing the type of securement for the WCCM Offsets Areas.

Weather Summary of WCCM BMA

Regionally central meteorological station to the BMA is the Gunnedah Airport site (BOM 2024) which has recorded highly variable rainfall over the last 5 years; from the driest on record of 233mm in 2019, followed by above average rainfall years in 2020, 2021 and 2022 of 844mm, 990mm and 860mm respectively (resulting in a numerous of major flooding events of the Namoi River While in 2023 and 2024, the Gunnedah Airport site (BOM 2024) recorded 496mm and 572mm which are closer to the annual average rainfall of 572mm. WHC maintains a meteorological station within the WCCM BMA with a summary of weather conditions experienced at the Narrawolga during the 2024 reporting period being maximum monthly average temperature was 33°C in December 2024. Minimum monthly average temperature was 2°C in July 2024. Annual temperature ranges were -3°C to 38°C in 2024. The total annual rainfall in 2024 was 682mm with the maximum in January (102mm) and minimum in March (20mm).

Infrastructure Management

During the reporting period, a total of 6.1km of new or repaired fencing (fauna friendly) was constructed along the perimeter of the BMAs on Eurunderee, Narrawolga, Railway View, Hillview, Greenslopes & Marengo as well as maintenance of signage and gates undertaken

as required to continue to restrict unauthorised access and minimise livestock incursion. Any remaining derelict assets/infrastructure items will continue to be assessed, removed and remediated as required.

Seed Management

The routine seed assessments on the WCCM BMA aims to identify on a seasonal basis the life cycle stage and development of native plants to identify what, where, when and how to target appropriate resources to collect seed for future revegetation programs. A total of 2 species were collected resulting in 132g of local provident seed from the WCCM BMAs biodiversity properties that was incorporated with other local and regionally provident seed sourced by reputable seed collectors as part of the WHC group wide revegetation planning. A local revegetation provider was engaged to propagate the seed to produce Box Gum and non-EEC/CEEC Woodland overstorey species seedlings required for the completed 2024 revegetation program as well as planning for the 2025 revegetation program for the WCCM BMA

Revegetation Management

The WCCM BOS revegetation strategy focuses on restoration and revegetation of cleared non-native grassland (former cultivation) and derived native grasslands and assisting natural regeneration in better quality woodland areas. During the reporting period, revegetation ground preparation utilised tractors augering holes (to a depth >0.3m) to relieve compaction, improve permeability and infiltration to increase sub-surface soil moisture for planting. There was 1ha of understorey revegetation carried out during the reporting period associated with the Marengo erosion rehabilitation area. The overstorey revegetation program was undertaken in July, September, October and November 2024 on Eurunderee, Narrawolga, Railway View, Hillview, Greenslopes and Marengo BMAs with 8320 hiko seedlings of woodland species planted over 162ha. Routine tree watering and maintenance activities post planting have achieved 58% average survival has been achieved for the WCCM 2024 revegetation program which is commensurate with the target woodland vegetation structure.

Heritage Management

During the reporting period, annual heritage inspections were completed on the 3 known heritage sites (2 Aboriginal archaeological and 1 historical) across the WCCM BMA. Heritage sites are maintained with 155m of demarcation fencing around the heritage site perimeter and signage to mitigate access and inadvertent disturbance. During the reporting period there were no new heritage sites identified.

Habitat Management

During the reporting period, habitat augmentation was undertaken with 24 new nest boxes targeted for Small Gliders, Microbats and Turquoise Parrots were installed on the Eurunderee, Railway View, Hillview and Marengo biodiversity properties during reporting period. This

brings the total habitat augmentation undertaken across WCCM BMA to 90 nest boxes installed since 2021.

Weed Management

WHC coordinated routine weed monitoring and inspections being undertaken across WCCM BMA in May, June, September, November and December 2024. The priority weeds identified included legacy weeds inherited from previous owner's management regimes such as Pattersons Curse, African Lovegrass, African Boxthorn, Johnson Grass, Coolatai Grass, Prickly Pear, Noogoora Burr, Bathurst Burr, St John's Wort, Fireweed and Velvet Pear. The weed monitoring/inspections ensure that timely and prioritised weed control is undertaken on a seasonal basis with the information directly given to spraying contractors to identify what, where, when and how to target appropriate resources across the WCCM BMA for weed control. During the reporting period, WHC implemented a weed control program including 799ha treated across the Eurunderee, Narrawolga, Railway View, Hillview, Greenslopes, Marengo, Escott A and Plainview North biodiversity properties between January and December 2024 targeting Johnson Grass, African Boxthorn, Prickly Pear, St Johns Wort and other broadleaf weeds within revegetation areas and along tracks. Only appropriately qualified and experienced weed contractors (AQF3 accreditation or higher for use of herbicide) were engaged to undertake weed control works for WHC.

Pest Animals Management

WHC aims to apply an even and consistent pest animal management effort by routinely scheduling rolling monitoring and control programs across WCCM BMAs. This standardised approach can also be supplemented with periodic targeted programs that focus on specific areas with high pest animal detection, or, on species which have increasing rates of detection. Both the overall management and targeted programs are planned using data collected from grid based motion detection camera monitoring program, pest animal observations and the results of previous control programs. Monitoring demonstrated that certain animals like Eastern Grey Kangaroos were highly detectable and Feral Pigs were moderately detectable across the year plus Feral Deer locally or seasonally moderately detectable on specific biodiversity properties. All other pest animal species had a scarce to low detectability across 2024. The pest animal monitoring ensures that timely and prioritised pest animal control is undertaken on a seasonal basis identifying what, where, when and how to target appropriate resources across the WCCM BMA for pest animal management. During the reporting period, WHC implemented a comprehensive pest animal control program across the WCCM BMA with routine 1080 canid pest ejectors as well as Hoggone baiting for Feral Pigs. During the reporting period; there were 89 canid pest ejectors triggered from 287 deployed and 379 Hoggone baits consumed from 876 presented across the WCCM BMA. Open range shooting programs were also implemented in conjunction with the other pest animal programs resulting

in an additional 12 Feral Pigs and 8 Deer being controlled in 2024. Only appropriately qualified and experienced feral animal contractors (appropriate feral animal management qualifications, NSW fire arm licence and pesticide accreditation where relevant) were engaged to undertake feral animal control works for WHC.

Soil & Erosion Management

Annual inspections were undertaken including unsealed fire break tracks and associated drainage structures across the WCCM BMA to review appropriate erosion and sediment control measures required in accordance with the Blue Book (Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004)). A total of 21 observations were recorded across the WCCM BMA with only 5 locations requiring targeted additional track maintenance to mitigate further erosion and sedimentation. The remaining tracks/drainage structures are maintained during routine WHC Biodiversity fire break track maintenance program. There are also a number of legacy erosion sites inherited from previous owners management regimes that are subject to a separate annual inspection process and updates to the WHC erosion register made. During the reporting period, the Marengo erosion site was successfully rehabilitated so therefore monitoring and investigations commensurate to the risk reduced from 3 to 2 erosion sites remaining within WCCM biodiversity properties.

Grazing Management

The original WCCM biodiversity properties have been destocked since 2012 and continued to be destocked and no strategic grazing occurring during the reporting period and the 2 Compensatory Revegetation BMAs only destocked in 2023. There were 2 instances of stock incursion during the reporting period; with stock on each occasion retrieved and fencing repaired as required.

Bushfire Management

In accordance with the WCCM BOMP, annual fuel load monitoring was undertaken between September and November 2024 as part of planning and assessment of bushfire hazard and ecological burn program for 2024; with the results indicating moderate to high overall and grassland fuel loads present. During the reporting period, there was one Controlled Ecological Burn in March 2024 resulting in 30.3ha burnt on the Marengo Biodiversity property of a low intensity. Other fire management implemented by WHC during the reporting period was maintenance carried out as

required on 79.4km of fire trails to a zero fuel barrier standard on the WCCM BMA. WHC maintains regular communications throughout the reporting period with the Liverpool Range Zone RFS team around planning of WHC Biodiversity's ecological burn programs as well as maintaining contact points in case of emergency. WHC maintains a specialist fire fighting

contractor for an oncall engagement during the fire season to respond in the event of a bushfire on WHC BMAs and non-mining lands.

Monitoring Program

The 2024 ecological monitoring program of the Werris BOA included winter bird surveys that were undertaken in July and August 2024; annual spring flora monitoring of 25 plots across four vegetation zones (VZs) undertaken from September to November 2024 as well as the fauna monitoring program surveyed 22 bird monitoring sites, 14 microbat echolocation monitoring sites and 6 motion detection camera sites between January 2024 and November 2024.. During the winter bird surveys, one threatened species (Little Lorikeet) was recorded. During flora monitoring, one VZ (VZ 29) was recorded as meeting or exceeding completion criteria for all four biometrics. Native plant species richness (NPS) completion criteria (native species richness benchmark for relevant biometric vegetation communities) was met or exceeded at 1 out of 4 VZs. Native overstorey cover (NOS) completion criteria (minimum overstorey cover benchmark for relevant biometric vegetation communities) was met or exceeded at 3 out of 4 VZs. Native midstorey cover (NMS) completion criteria (minimum midstorey cover benchmark for relevant biometric vegetation communities) was met or exceeded at all four VZs. Native ground cover grass (NGCG) completion criteria (minimum groundcover benchmark for relevant biometric vegetation communities) was met or exceeded at all four VZs. Comparison of individual plot data shows that NPS decreased from 14 out of 25 plots meeting or exceeding completion criteria in 2023, to 12 out of 25 plots in 2024. Native overstorey cover (NOS) remained consistent between 2023 and 2024, with 16 out of 25 plots meeting or exceeding completion criteria in both years. Native midstorey cover (NMS) slightly decreased from 22 out of 25 plots meeting or exceeding the completion criteria in 2023 to 21 out of 25 plots in 2024. Native ground cover grass (NGCG) remained consistent between 2023 and 2024, with all 25 plots meeting or exceeding completion criteria in both years. Apart of the annual fauna monitoring program were standardised bird surveys across 22 sites which recorded 86 bird species in total with a slight increase from the 2023 species richness of 72. Habitat type species richness detected was 66 birds in 8 remnant woodland sites (average = 21.4, range 18 to 26); then 40 birds in 7 revegetation sites (average = 11.62; range 8 to 15) and 72 birds in 7 naturally regenerating sites (average = 11.3; range 5 to 18). For the annual microbat survey resulted in 18 species positively identified from echolocation recordings across 14 sites including 7 species listed as threatened under the BC Act with species richness values between 0 and 14 per site. Habitat type species richness detected was 15 in remnant woodland sites (average 13, range 13 - 13), 13 species in naturally regenerating sites (average = 12.5, range 10-15) and 11 species in revegetated woodland sites (average 3, range 0 - 12). Eleven species of fauna were detected at motion detection camera sites including six introduced species.

6.5.3 Environmental Management

The LOM Environmental Assessment determined that the project would not result in any future adverse impacts on Aboriginal cultural heritage. The impact associated with the removal of the remnant features of the former Werris Creek Colliery is considered to be minor, as the historic sites do not meet the NSW Heritage Office (2001) criteria for high significance sites (even at a local level) (Landskape, 2010). WCC previously undertook quarterly inspections of the only known significant Aboriginal heritage item onsite – the "Narrawolga" Axe Grinding Grooves prior to their relocation in consultation with stakeholders, to the Willow Tree Visitor Information Centre in 2015.

The Heritage Management Plan outlines additional heritage management actions related to items associated with the former underground and these have been completed. The mining of the former underground workings was finalised during the first half of 2020. No items of heritage significance were located.

6.5.4 Environmental Performance

There was no additional disturbance during 2024, and no previously unknown sites or artefacts were discovered during the period. This is consistent with the EA Predictive model and the Cultural Heritage Assessment undertaken by Landskape (2010).

EA Predictive Model

Based on the regional archaeological record, the high level of disturbance on the Project Site and the general setting of the Project Site, Landskape (2010) proposed the predictive model of Aboriginal cultural heritage site locations on the Project Site summarised in Table 13.

Table 12 – Heritage EA Predictions

EA Prediction	2024 Performance
Trees scarred or carved by Aboriginal people may occur wherever mature Eucalypt and Cypress Pine trees grow. However, given the extent of vegetation clearance the probability of encountering culturally modified trees is not particularly high.	No previously unknown Scarred Trees were observed in the reporting period. This is consistent with the EA predictions.

Stone artefact scatters and isolated finds of stone artefacts are possible over the entire Project Site, but their density is likely to be low due to the absence of creeks and wetlands on or immediately surrounding the Project Site.	No previously unknown Stone Artefacts were observed in the reporting period. This is consistent with the EA predictions.
Burial sites are unlikely, given that the region's acidic soils are not suited to preserving bone and other organic material.	No previously unknown burial sites were observed in the reporting period. This is consistent with the EA predictions.
Freshwater shell middens will not occur because they are rarely found more than 100m from permanent water sources.	No Freshwater Shell Middens were observed in the reporting period. This is consistent with the EA predictions.
Earthen features including mounds, ovens and hearths, stone arrangements and ceremonial rings are unlikely to be encountered because previous land disturbance such as earthworks associated with past and recent quarrying and mining activities, grading roads and fence lines, and ploughed cultivation during agricultural cropping is likely to have destroyed earthen and stone features (had these site types originally occurred within the Project Site).	No previously unknown mounds, ovens, hearths, stone arrangements or ceremonial rings were observed in the reporting period. This is consistent with the EA predictions.
Some sites dependent upon the presence of rock formations such as rock shelters and rock art sites are also improbable because the sedimentary bedrock in the low hills and ridges of the Project Site does not contain caves or overhangs. The Project Site is not suited to quarrying, although Aboriginal people may have collected pebbles and cobbles from colluvial and alluvial deposits for stone artefact knapping.	No previously unknown rock formations or rock shelters were observed in the reporting period. This is consistent with the EA predictions.
Axe-grinding grooves may occur on sandstone surfaces, and as such outcrops in the Project Site were targeted for particular attention during the survey.	No previously unknown Axe-grinding Grooves were observed in the reporting period. This is consistent with the EA predictions.

Any historical heritage sites in the Project Site were anticipated to most likely relate to early pastoral activities of the last half of the nineteenth century or the first half of the twentieth century and coal mining activities associated with the former Werris Creek Colliery (of 1920s to 1960s). Site types that have the potential to occur include ruins of mine structures, discarded mining and farming machinery and blazed survey marks.	No previously unknown European artefacts or items of interest were observed in the reporting period. This is consistent with the EA predictions.

6.6 WASTE

6.6.1 Environmental Management

WCC continued to engage a total waste management service provider during 2024. This practice has ensured WCC is positioned to maintain regulatory compliance regarding offsite disposal at licenced facilities and on-site storage requirements.

6.6.2 Environmental Performance

The engaged waste management service provider records waste generation quantities at the point of either disposal or collection. The quantities of each generated waste type have been summarised in Table 14 for the 2024 period. The current reporting period demonstrates benefits in total levels of resource recovery seen from improvements to waste management practices at WCC originally implemented in late 2014. These improvements have led to reduction in general waste volumes, while seeing regular recycling / resource recovery overall 2024 saw improvements in waste tracking via increased accuracy in recording of waste quantities being generated and disposed from site. These waste tracking improvements provide for an enhanced degree of measurability of the success for all resource recovery initiatives undertaken going forward.

Table 13 – Approximate Quantities of Waste Generated in 2024 vs EA Predictions

Waste Stream	2020	2021	2022	2023	2024	EA Estimate/ Predictions	Discrepancy
Waste Oil (kL)	214.5	212.5	178.9	152.6	65.6	130	-34.4
Scrap Metal (tons)	36.5	46.0	52.8	24.6	28.1	#	+3.5^
General Waste (tons)	163.8	138.53	88.17	91.65	70.82	800m^3	#
Co-Mingled Recycling (tons)	6.25	6.74	7.73	2.8	0	#	-2.8^
Timber (tons)	6.76	12.6	8.0	8.0	0	#	-8.0^
Liquid Waste – J120 / Septic (L)	22,500	54,100	15,500	77,400	78,600	10,000#	n/a
Empty IBCs (tons)	4.4	0.9	1.0	1.0	1.15	#	+0.15^
Hydraulic Hoses + Filters (tons)	17.2	12.3	12.2	7.6	2.8	#	-4.8^
Batteries (tons)	4.9	2.2	3.1	3.6	0	#	-3.6^
Tyres (each)	NA	56	52	54	16	73	19$

* Previously recorded / reported as cubic meters (m3) only.
^Discrepancies calculated from previous year instead of EA Prediction.
@Estimate of Septic only not including J120 waste
No estimate/prediction for this waste stream. (Note: all waste streams are removed by a licenced contractor and majority recycled)
$ 223 tyres were disposed of in-pit in accordance with WCC's EPL in 2024 (150 tyres on 13/03/2024 & 73 tyres on 17/06/2024). Majority of these tyres were stockpiled from previous years.

EA Prediction

Table 14 documents the variation between 2024 and the EA predicted waste volumes and the reported waste for 2024.

As seen in Table 14 some waste streams produced by Werris Creek are not covered in the EA predictions. This shows that WCC is segregating waste effectively and recycling material to individual waste types resulting in reduced overall waste disposed of.

6.7 ENVIRONMENTAL PERFORMANCE SUMMARY

An environmental performance summary is presented in Table 15 below.

Table 14 – Environmental Performance

Aspect	Approval Criteria / EIS Prediction	Performance during the reporting period	Trend / Key Management Implications	Implemented / proposed management actions
Noise	Refer s6.1	Approval criteria has been met	NA	NA
Blasting	Refer s6.2	Approval criteria has been met	NA	NA
Air Quality	Refer s6.3	Approval criteria has been met	NA	NA
Biodiversity	Refer s6.4	Approval criteria has been met	NA	NA
Heritage	Refer s6.5	Approval criteria has been met	NA	NA

7 WATER MANAGEMENT

7.1 WATER TAKE

WCC currently holds two Water Access Licences, with the water taken under these licences for the 2024 reporting year summarised in Table 16. Inflow into the void includes groundwater inflow and spoil aquifer seepage.

Table 15 - Water Take 2024 January - December (ML)

Water Licence #	Water Sharing Plan	Water Source and Management Zone	Entitlement	Passive Take / Inflows	Active Pumping by WCC	Total
WAL 32224	NSW Murray Darling Basin Porous Rock Groundwater Sources	Gunnedah – Oxley Basin Mdb Groundwater Source	211	49	0	49
WAL 29506	NSW Murray Darling Basin Porous Rock Groundwater Sources	Gunnedah – Oxley Basin Mdb Groundwater Source	50	0	0	0

7.2 SURFACE WATER MANAGEMENT

7.2.1 Environmental Management

The management of surface water aims to prevent surface water pollution both within onsite dams and offsite watercourses. The overall water management strategy is to segregate different water streams onsite based on the potential pollutant in each stream.

Void Water – the void water catchment area is comprised of the active mining area and overburden emplacement which collects both rainfall runoff and groundwater in the base of the open cut void and needs to be dewatered by pumping to the surface to allow mining of the basal coal seam;

Dirty Water – the dirty water catchment area is comprised of areas previously disturbed by mining such as rehabilitation and soil stockpile areas, with the focus on the reduction of suspended solids and subsequent discharge of treated water;

Clean Water – the clean water catchment area is undisturbed by mining activities and allowed to flow offsite without active management; and

Contaminated Water – includes potentially hydrocarbon contaminated water runoff from the workshop and fuel farm areas which is treated through an oil-water separator, as well as water from ablutions which is treated through a septic system onsite.

Void Water Management

Void Water is stored in one of five designated void water dams (VWDs) comprising the void water management system at WCC. VWDs 1, 3, 4, and 7 are long term water storage structures, while VWD 8 is a temporary structure, designed for the transfer of void water for

use around the project or short term out of pit storage of out of surplus void water. VWD2 was decommissioned during 2023 as part of rehabilitation of the overburden dump. An annual inspection of the prescribed dams (VWDs 1, 3 and 4) was undertaken by an external structural engineer. The annual inspection identified that all prescribed dams were being managed appropriately.

Void water is predominantly used for dust suppression purposes on site. Water carts engaged in watering haul roads and other areas of the mining excavation are the predominant user of water for dust suppression purposes, with water also used to control dust at conveyor loading points and on coal stockpiles, crushing and loading facilities. Void water use is monitored and calculated monthly using water meters on key pipelines and water fill points, supplemented by surveyed volumes of water stored in dams and the void on site. This data is used to update the Water Balance Model for site.

Dirty Water Management and Erosion and Sediment Control Measures

During the period, dirty water dams remained in place to capture surface runoff from disturbed areas of the mine site. There were 5 discharge events in 2024, all of which were controlled.

Regular checks of the dirty water management system were undertaken as required dependent on rainfall volume.

Contaminated Water Management

WCC undertook regular maintenance of the key contaminated water infrastructure during the reporting period, with the servicing of both the workshop sump and the oil water separator occurring as required throughout the reporting period. Waste from these facilities is transported either offsite (liquid waste to licensed waste facility) or to the onsite bioremediation area (solids) for treatment / disposal of residual hydrocarbons within the material.

7.2.2 Environmental Performance

Surface Water Quality – Routine Quarterly Monitoring

Quarterly sampling of water stored within the clean, dirty and void water dams and within Quipolly and Werris Creeks' was undertaken by WCC.

Table 17 presents the average results recorded for routine quarterly monitoring at each location for the 2024 reporting period.

Table 16 – Quarterly Surface Water Quality for Dams and Offsite Creeks

Dam/ Creek	Monitoring Site (EPA No)	Number of Samples	Value	pH	Electrical Conductivity (µS/cm)	Total Suspended Solids (mg/L)	Oil & Grease (mg/L)
VWD1	16	4	Ave	7.9	1793	13	<5
			Max	8.0	1930	13	<5
VWD2	27	Decommissioned November 2024					
VWD3	-	4	Ave	8.0	1840	17	<5
			Max	8.0	1900	18	<5
VWD4	-	4	Ave	7.9	1993	6	<5
			Max	8.0	2030	7	<5
SB2	10	2	Ave	7.8	526	8	<5
			Max	8.1	549	11	<5
SB9	12	1*	Ave	7.1	246	20	<5
			Max	7.1	246	20	<5
SB10	14	0*	Ave	Dry	Dry	Dry	Dry
			Max	Dry	Dry	Dry	Dry
SB18	32	0*	Ave	Dry	Dry	Dry	Dry
			Max	Dry	Dry	Dry	Dry
QCU	25	2*	Ave	7.7	524	<5	<5
			Max	7.8	722	<5	<5
QCD	26	4	Ave	8.0	714	15	<5
			Max	8.3	869	18	<5
WCU	23	4	Ave	8.1	1138	<5	<5
			Max	8.4	1370	<5	<5
WCD	24	4	Ave	8.3	1092	22	<5
			Max	8.5	1310	34	<5

* Sample location was dry or muddy during some or all the quarterly monitoring periods.

Surface Water Quality – Discharge Monitoring

Sampling of water discharged at the Licensed Discharge Points (LDPs) and Quipolly and Werris Creeks' (Figure 7) was undertaken by WCC during the controlled discharge events.

Table 18 presents the average results recorded for discharge monitoring at each location for the 2024 reporting period.

Table 17 - Discharge Water Quality for LDP's and Offsite Creeks

Licensed Discharge Point/ Creek	Monitoring Site (EPA No)	Number of Samples	Value	pH	Electrical Conductivity (µS/cm)	Total Suspended Solids (mg/L)	Oil & Grease (mg/L)
SB2	10	2	Ave	7.8	473	10	<5
			Min	7.6	460	8	<5
			Max	7.9	486	11	<5
SB9	12	2	Ave	7.1	871	6	<5
			Min	6.9	829	<5	<5
			Max	7.3	912	6	<5
SB10	14	2	Ave	7.3	321	33	<5
			Min	7.2	150	26	<5
			Max	7.3	492	41	<5
QCU	25	1	Ave	7.7	338	90	6
			Min	7.7	338	90	6
			Max	7.7	338	90	6
QCD	26	2	Ave	7.9	589	110	<5
			Min	7.7	304	6	<5
			Max	8.1	874	214	<5
WCU	23	2	Ave	7.6	273	118	<5
			Min	7.4	175	23	<5
			Max	7.7	370	214	<5
WCD	24	2	Ave	7.6	250	230	6
			Min	7.2	100	142	<5
			Max	8.0	400	318	7

* Sample location was dry during some of the discharge monitoring events.

Bold – indicates results outside criteria due to 5 day rain trigger >39.2mm.

Surface Water Quality – Void Water Discharge - Irrigation

Table 19 outlines the water quality results for irrigation throughout the reporting period. All results were within water quality criteria.

Table 18 – Surface Water Quality for Irrigation discharges in 2024

Dam/ Creek	Monitoring Site (EPA No)		pH	Electrical Conductivity (µS/cm)
EPL 100% Limit			**9**	**2000**
VWD1	**33**	**Min Value**	**7.27**	**1595**
		Max Value	**8.3**	**1971**

N

WCU

Werris Creek

WCD

SB10

SB18

SB9

VWD3

VWD4

VWD1

SB2

QCU

QCD

0 1 2 3

Kilometers

Legend

Mining Lease

Surface Water Location

Whitehaven

Werris Creek Coal Mine Surface Water Monitoring

MGA Zone 56
Date: Mar 2025
Scale: 1:30,000

Image: Dec 24
Author: A. Quiroz

7.3 GROUNDWATER MANAGEMENT

7.3.1 Environmental Management

The management of groundwater at WCC is undertaken to achieve two goals, namely:

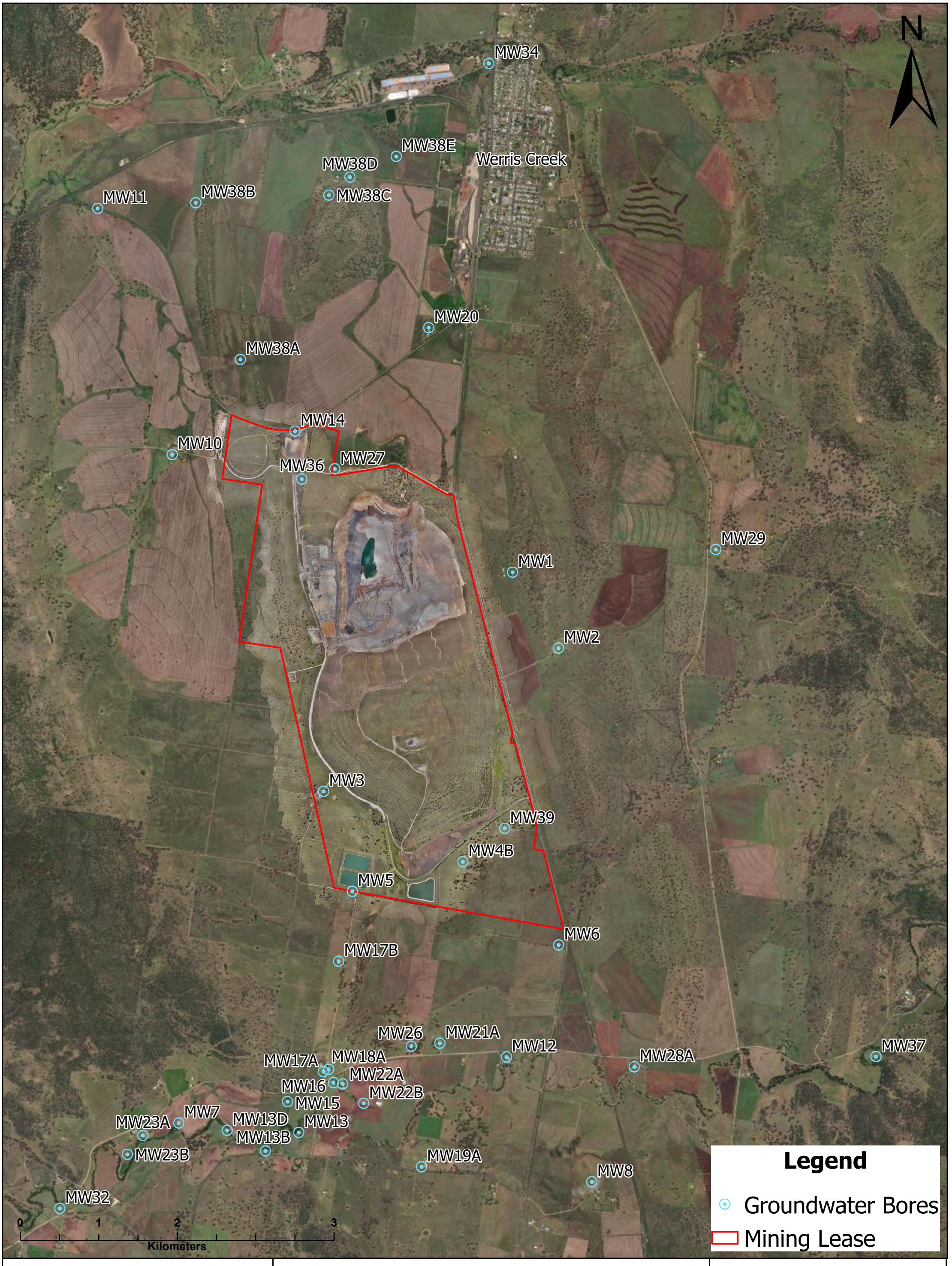
- Monitoring and measuring potential impacts from mining operations on adjacent aquifers and privately owned bores: and
- Dewatering and use of void water (rainfall runoff and groundwater) that is intercepted by mining operations.

WCC currently monitors 42 groundwater bores, located on the mine site and neighbouring properties, to measure potential impacts on groundwater quality and groundwater availability. WCC monitors groundwater quality and levels across a range of bores as shown in Table 20 and Figure 8**.** Monitoring bores in the Werrie Basalt are separated into those close to WCC and those further away, with select bores in both the Werrie Basalt and Quipolly Alluvium nominated as background monitoring bores, due to their location far upstream from WCC when considering the dominant groundwater flow contours. In addition, ten bores also contain logging piezometers, providing a higher resolution water level dataset to enhance the understanding gained from the bimonthly groundwater level sampling of the monitoring network. These piezometers have been placed to target certain zones, including the Werrie Basalt northwest, south and east of WCC, and the upper, middle and lower reaches of the Quipolly Alluvium aquifer in the vicinity of WCC. The groundwater piezometers have been replaced in 2024.

Table 19 – WCC Groundwater Monitoring Program

Precinct	Bores
Werrie Basalt near WCC	MW1, MW2, MW3, MW4B*, MW5, MW6, MW27, MW36A, MW36B*
Werrie Basalt	MW8#*, MW10, MW14, MW17B, MW19A, MW20, MW38A, MW38B, MW38C, MW38E, MW41* and MW43*
Quipolly Alluvium	MW7^, MW12, MW13, MW13B, MW13D, MW15, MW16, MW17A, MW18A, MW21A, MW22A*, MW22B, MW23A, MW23B, MW26B, MW28A#, MW32, MW40* and MW42*
Others	MW24A, MW29 (both Werrie Basalt in the Black Soil Gully valley) MW34 (minor alluvium associated with Werris Creek)
Monitoring Frequency	**Parameters**
Bimonthly	Standing Water Level
6 Monthly +	Total Nitrogen, Nitrate, Total Phosphorus, Reactive Phosphorus, Electrical Conductivity, pH
Annually	Chloride, Sulfate, Alkalinity, Calcium, Magnesium, Sodium, Potassium, Arsenic, Barium, Beryllium, Cadmium, Cobalt, Chromium, Copper, Manganese, Nickel, Lead, Vanadium, Zinc, Mercury, Ammonium, Nitrite, Nitrite+Nitrate, TKN, Anions, Cations, Ion Balance, TPH
# Regional monitoring bore * Groundwater logger installed in bore. +Applies to MW1, MW2, MW3, MW4B, MW5, MW6 in conjunction with bi-montly depth monitoring ^ Access to MW7 Is not available due to landholder restricting access for monitoring	

The Water Balance Model for WCC was updated as part of this Annual Review, with this model used to verify model assumptions in relation to groundwater interception in the mining void. A CUSUM statistical analysis was undertaken on all monitoring bores at the end of the reporting period to assess whether any bores show changes in water level outside of natural variability.



Whitehaven

Werris Creek Coal Mine Groundwater Monitoring

MGA Zone 56
Date: Mar 2025
Scale: 1:31,000

Image: Dec 24
Author: A. Quiroz

7.3.2 Environmental Performance

Performance with respect to groundwater management, the prevention of pollution and the assessment of impacts on groundwater availability to other surrounding users, has been assessed through groundwater level and chemistry monitoring. Monitoring focuses on the Werrie Basalt and Quipolly Alluvium aquifers.

Table 21 presents the groundwater level monitoring data for January to December in the Werrie Basalt and Quipolly Alluvium aquifers. For Quipolly Creek Alluvium, MW28A and MW23A are representative of upstream and downstream aquifer conditions respectively. For Werrie Basalt, MW5 and MW14 are representative of aquifer conditions either side of the watershed between Quipolly Creek in the south and Werris Creek in the north. All groundwater sampling and analyses were undertaken by a NATA accredited laboratory.

Whitehaven

Table 20 – Groundwater Monitoring Bore Level Summary – January to December 2024

Site		March-24		May-24		June-24		August-24		October-24		December-24	
		mbgl	%	mbgl	%	mbgl	%	mbgl	%	mbgl	%	mbgl	%
Werrie Basalt near WCC	**MW1**	57.48	-2%	58.02	-1%	57.98	0%	58.06	0%	57.76	1%	57.37	1%
	MW2	29.70	-5%	31.24	-5%	32.16	-3%	32.23	0%	30.59	5%	29.41	4%
	MW3	15.73	-3%	15.91	-1%	15.91	0%	15.55	2%	15.24	2%	15.31	0%
	MW4B	13.10	-1%	13.12	0%	13.06	0%	12.83	2%	12.46	3%	12.31	1%
	MW5	9.18	-8%	9.36	-2%	9.15	2%	8.57	9%	8.32	3%	8.36	0%
	MW6	13.62	-2%	13.79	-1%	13.81	0%	14.97	-8%	13.85	8%	13.16	5%
	MW27*	50.26	0%	51.43	-2%	51.20	0%	50.47	1%	49.52	2%	49.32	0%
	MW36A	Not found		Not found		Not monitored		No longer monitored		No longer monitored		No longer monitored	
	MW36B	18.55	-1%	18.93	-2%	19.36	-2%	18.38	5%	18.85	-2%	19.51	-3%
Werrie Basalt	**MW8***	15.83	-7%	16.29	-3%	16.49	-1%	13.87	19%	12.04	15%	12.41	-3%
	MW10	9.69	-12%	9.82	-1%	9.83	0%	9.55	3%	9.43	1%	10.72	-12%
	MW14	14.42	-2%	14.71	-2%	14.96	-2%	14.51	1%	14.56	0%	15.07	-3%
	MW17B*	10.23	-3%	10.62	-4%	10.23	4%	9.35	9%	11.67	-20%	18.58	-37%
	MW19A*	8.34	77%	8.47	-2%	7.97	6%	6.63	20%	4.95	34%	5.13	-4%
	MW20*	17.93	-9%	17.62	2%	17.71	-1%	17.71	0%	17.55	1%	New probe won't fit	
	MW38A	10.78	-3%	10.92	-1%	10.94	0%	10.52	4%	10.56	0%	11.24	-6%
	MW38B*	9.21	-1%	9.30	-1%	9.24	1%	9.12	1%	9.09	0%	9.16	-1%
	MW38C*	Pump over bore		Pump over bore		Pump over bore		Pump over bore		Pump over bore		Pump over bore	
	MW38E*	7.83	-2%	7.91	-1%	7.83	1%	7.46	5%	7.35	1%	7.42	-1%
	MW41	6.24	-10%	6.47	-4%	6.29	3%	5.69	11%	4.97	14%	5.12	-3%
	MW43	5.37	-9%	5.55	-3%	5.31	5%	4.80	11%	4.52	6%	4.55	-1%
#[1]	**MW24A***	12.38	1%	12.32	0%	12.30	0%	11.96	3%	11.62	3%	11.51	1%
	MW29*	11.40	-3%	11.53	-1%	11.20	3%	10.12	11%	10.08	0%	10.39	-3%

mbgl – meters below ground level, the distance from top of bore to groundwater surface.

Bold –lowest recorded groundwater level measured during the reporting period.

Orange – Change decrease

Green – Change increase or no change

* - Bore is used for water extraction unrelated to WCC (i.e. stock and domestic or irrigation).

#[1] – Werrie Basalt in the Black Soil Gully valley to east of Werris Creek Mine.

#[2] - Werris Creek Alluvium.

Site		March-24		May-24		June-24		August-24		October-24		December-24	
		mbgl	%	mbgl	%	mbgl	%	mbgl	%	mbgl	%	mbgl	%
Quipolly Alluvium	**MW12***	9.23	-11%	9.51	-3%	9.65	-1%	7.75	25%	6.89	12%	7.19	-4%
	MW13*	5.19	-6%	5.33	-3%	4.96	7%	4.46	11%	4.63	-4%	4.79	-3%
	MW13B*	3.73	1%	3.72	0%	3.61	3%	3.22	12%	3.36	-4%	3.42	-2%
	MW13D*	4.38	2%	4.53	-3%	4.39	3%	4.13	6%	4.37	-5%	4.63	-6%
	MW15*	No access		No access		No access		No access		No access		No access	
	MW16*	5.23	-12%	5.47	-4%	5.29	3%	4.29	23%	4.13	4%	4.22	-2%
	MW17A*	4.24	-9%	4.59	-8%	4.41	4%	3.46	27%	3.24	7%	3.39	-4%
	MW18A*	4.13	-8%	4.42	-7%	4.22	5%	3.25	30%	2.98	9%	3.04	-2%
	MW21A*	7.45	-12%	7.72	-3%	7.95	-3%	6.77	17%	5.61	21%	5.67	-1%
	MW22A*	5.28	-12%	5.56	-5%	5.48	1%	4.31	27%	4.15	4%	4.21	-1%
	MW22B*	5.23	-5%	5.85	-11%	5.78	1%	4.33	33%	4.29	1%	4.37	-2%
	MW23A*	3.77	-1%	3.77	0%	3.72	1%	3.29	13%	3.61	-9%	3.94	-8%
	MW23B*	3.89	12%	3.96	-2%	3.94	1%	3.51	12%	3.84	-9%	3.70	4%
	MW26B*	5.87	-14%	6.30	-7%	6.22	1%	4.59	36%	4.20	9%	4.44	-5%
	MW28A*	12.11	-7%	12.43	-3%	12.41	0%	6.98	78%	6.11	14%	7.29	-16%
	MW32*	3.90	16%	3.89	0%	3.88	0%	3.54	10%	3.82	-7%	3.92	-3%
	MW40	6.26	-11%	6.51	-4%	6.28	4%	5.65	11%	4.98	13%	5.10	-2%
	MW42	5.28	-9%	5.35	-1%	5.40	-1%	4.74	14%	4.47	6%	4.51	-1%
#[2]	**MW34***	Tap		Pump over bore		Pump over bore		Pump over bore		Pump over bore		Pump over bore	

mbgl – meters below ground level, the distance from top of bore to groundwater surface.

Bold –lowest recorded groundwater level measured during the reporting period.

Orange – Change decrease

Green – Change increase or no change

* - Bore is used for water extraction unrelated to WCC (i.e. stock and domestic or irrigation).

#[1] – Werrie Basalt in the Black Soil Gully valley to east of Werris Creek Mine.

#[2] - Werris Creek Alluvium.

The persistent dry period in NSW that occurred from 2017 to early 2020 caused a large reduction in groundwater levels and resulted in the majority of WCCM bores exceeding their Cusum trigger limits at the end of 2020. During 2021 and 2022, recovery of groundwater levels has been observed in most bores across the WCCM area, with most bores observing a reversal in Cusum trend (to a decreasing depth to groundwater trend) and dropping beneath their trigger limits and back into the acceptable Cusum range. At the end of 2023, the following bores are still exceeding their respective Cusum trigger limit; MW15 in the Quipolly Alluvium and MW1, MW2, MW4b, MW5, and MW6 that monitor the Werrie Basalt. This is a reduction in the number of exceedances since 2023 reporting. Since 2013 it appears that within the near Werrie Basalt bores (MW1, MW2, MW4b, MW5 and MW6), there has been a more muted response to rainfall events within all bores, which may indicate a mining effect. These include MW1, MW4b, MW6, and MW39 that all show reduced recovery after four wet years (compared to their historic levels, and to other bores), with groundwater levels at the end of 2023 still up to 5 m below pre-mining levels. MW2 is also a supply bore and heavily influenced by pumping and should therefore not be used to assess natural groundwater level variations in the wider aquifer. All other monitoring bores at WCCM show correlations in depth to groundwater trends with the rainfall conditions, with increasing trends observed over the first half of 2023 with the above long-term average rainfall conditions. Electrical conductivity, as a proxy for salinity, exceeds the upper trigger level in only MW5c, though this is not considered to be representative of aquifer wide trends or impact from mining. Nitrate exceedances are widespread across the Quipolly Alluvium aquifer, though this is not considered linked to mining activity as the Werrie Basalt (hydraulically between the mine and the Quipolly Alluvium) does not also show high nitrate concentrations. No other bore shows prolonged elevated concentrations for any of the other GWMP parameters, and the likely cause for these occasional trigger level exceedances is the surrounding agricultural land use (cereal cropping, improved pastures, and grazing land).

Quipolly Alluvium Aquifer

The Quipolly and Werris Creek alluvial deposits typically comprise clay overlying sand and gravel. The alluvium is considered to behave as an unconfined aquifer, predominantly recharged by rainfall and stream flow infiltration (DPI, 2015). Several of the alluvial monitoring bores are water supply bores (stock and domestic and/ or irrigation) with water levels sometimes reflecting a significant influence from pumping. Therefore, the bores plotted are those which show limited pumping influence, to demonstrate the natural variations in groundwater levels at WCCM

Groundwater levels within the alluvium typically mimic local rainfall patterns, most notably in MW28a and MW26b, with a more subdued response in the others. There are three periods of decline in the CRD (trending years below long-term average rainfall), from 2013 to 2016 and 2017 to 2019, and late 2022 to late 2023, in which we see reciprocated responses in groundwater with level declines. Similarly, groundwater level increases correlate with periods of above average rainfall. Most noticeably, the 2020 to mid-2022 wet years show groundwater level recovery in all bores reaching above historical maximum, or near maximum, recorded groundwater conditions.

The significant increase in groundwater levels in late September 2016 is coincident with the overflow of Quipolly Dam, located upgradient of these bores, with the bores closest to the dam demonstrating a

greater response to this event (SLR, 2021b). The decrease in groundwater levels seen over the first half of 2022 in MW28a and to a lesser extent, MW26b, are attributed to extraction from, or in the vicinity of, these bores during this wet period.

Groundwater levels show a higher variability in upstream bores along Quipolly Creek. In Figure 6, the furthest upstream monitoring bore MW28a shows the greatest fluctuations in alluvial groundwater levels whilst MW32, the furthest downstream monitoring bore, shows the least. This is thought to be due to the limited catchment for these bores and their proximity to Quipolly Dam releases and runoff from the weathered basalt from the east. This results in greater range of recharge and recession compared to bores further down the alluvial catchment. It is noted that this groundwater regime has not changed since open cut mining began in 2005, with greater groundwater level recovery in 2020 to 2022 still observed in upstream bores.

Groundwater levels in the reporting period are again commensurate with CRD, showing mild fluctuation both up and down with rainfall variability.

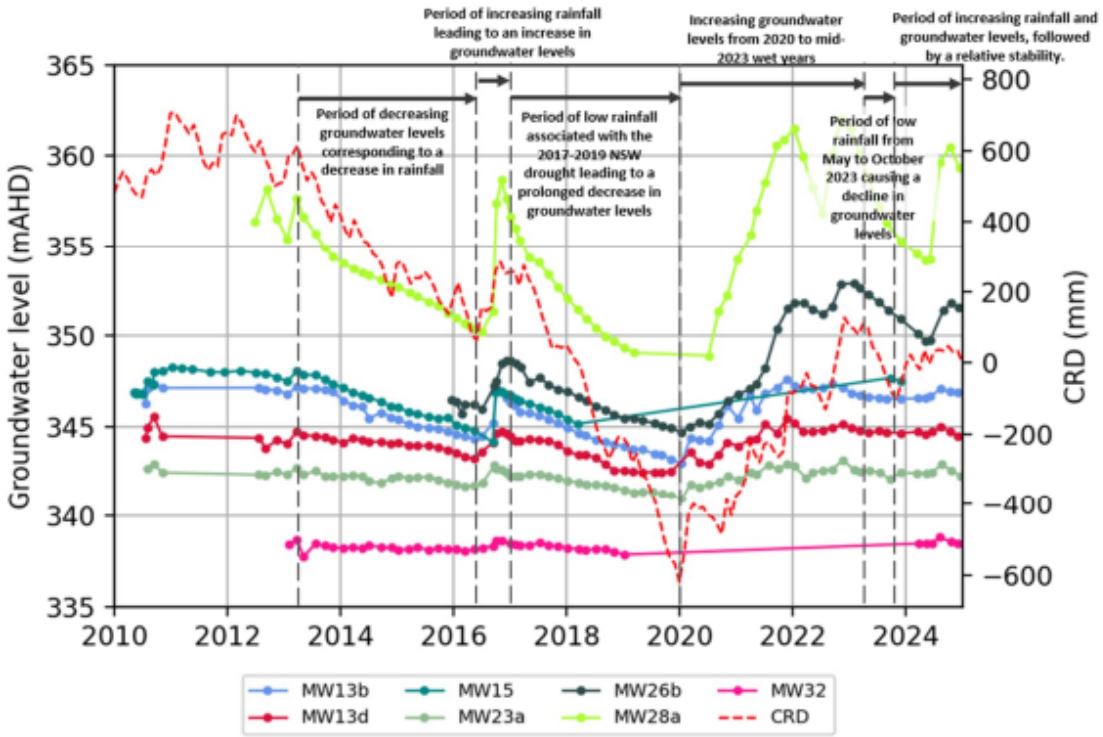


Figure 9 - Groundwater levels in Quipolly Alluvium compared to cumulative rainfall

Werrie Basalt Aquifer

The surface of the Werrie Basalt has weathered to a clay layer that acts as a confining or semi-confining layer to the basalt aquifer. Due to the presence of the overlying weathered basalt layer, the majority of recharge to the basalt aquifer is considered to occur to the west and east of WCCM where clay capping to the basalt may be thinner or absent (SLR, 2021b), and to the west and east across the more permeable sandstone ridges of the Temi and Currabubula formations which underlie the basalt.

Groundwater levels in the Werrie Basalt bores show a clear response to the cumulative rainfall trend indicating that direct recharge with groundwater level declines observed from 2013 to 2016, 2017 to 2019, and 2023; with groundwater recovery in 2016 and 2020 to mid-2022.

In comparison to the hydrograph for the alluvial bores, the groundwater decline in the latter half 2023 shows a greater lag time to the start of the dry conditions (May 2023 onwards). Groundwater levels vary more than those in the alluvium, with a greater difference between groundwater peaks and troughs, potentially a result of lower storage in the basalt.

Within the reporting period, groundwater level have shown a delayed response to above average rainfall conditions occurring since late 2023, and primarily still show rising groundwater levels at the end of the reporting period as rainfall has averaged out.

All bores show groundwater levels significantly above the base of mining (at relative level of 214 mAHD) and therefore through this monitoring period these basalt bores still show >100 m higher groundwater levels than in the adjacent mined Coal Measures

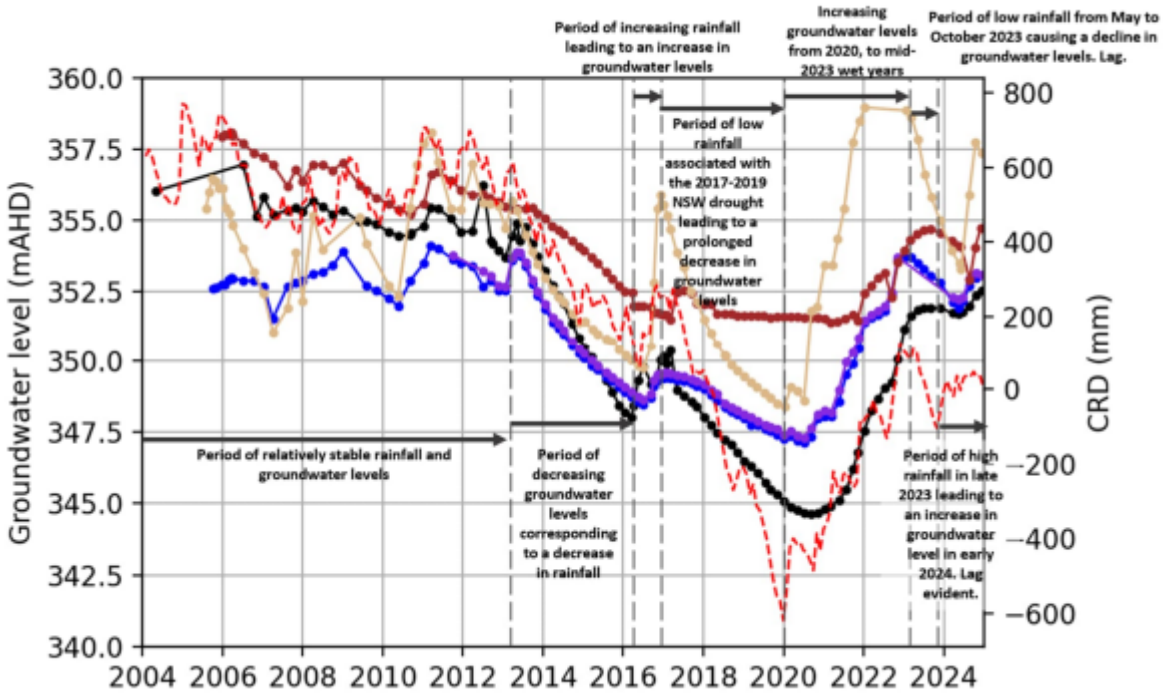


Figure 10 - Groundwater levels in Werrie Basalt compared to cumulative rainfall

Groundwater Quality

None of the bores that have exceeded the lower water quality limits for any of the water quality parameters are considered significant in the context of this assessment. These lower limit exceedances are overall due to the detection limits of the equipment used, the small differences in most cases from the actual lower limit (for example, 0.9 vs 1.1), and the fact that low levels are usual in groundwater. It

is also acknowledged that a reduction in these parameters results in an improvement in water quality, and that a drop below the lower limit is not considered concerning in terms of water quality..

No electrical conductivity (EC) exceedances were recorded for the 2024 reporting period within the Quipolly Alluvium. Of note, MW13b levels have been recorded above the upper trigger limit of 1,260 µs/cm since 2018, the EC at this bore has now dropped below this trigger level when measured in March 2024.

One exceedance of the upper trigger limits was observed for the Werrie Baslat aquifer, at MW5c for EC. MW5c has only been monitored since March 2020, with all measurements above the upper electrical conductivity trigger for the Werrie Basalt. It is likely that this is due to a local effect, such as agricultural land use surrounding the bore, as elevated EC is not widespread across the Werrie Basalt aquifer.

Exceedances in pH were observed at MW21b and MW26b. Both bores showed an elevation in pH recorded from the last reporting period, where they were within trigger limits. MW21b has shown fluctuations above and below the upper trigger limit since 2019. MW26b in contrast has a general increasing trend over the last 5 years, with the latest observation showing the highest pH value. Given only two locations have exceedances it is not considered “wide-spread”.

7.3.3 Proposed Improvement Measures

The groundwater monitoring program described above will continue to be implemented during the next reporting period.

7.4 SITE WATER BALANCE MODEL VALIDATION

The WCC Water Balance Model is focused on accounting for all water entering and leaving the open cut pit to allow a verification of groundwater interception during the reporting year (Table 22). The key inputs to the water balance model are:

- Direct rainfall and runoff – Generally the largest input due to the large pit catchment, this item relates to rainfall that falls directly in the void water catchment. During any rainfall event, runoff is significant due to the large catchment and hard, compacted surfaces.
- Evaporator’s recharge – Evaporator sprays were utilised up until July 2024 toreduce the volume of void water stored on site. A portion of this water will not evaporate but instead percolate through the accumulated spoil until it collects in the void.
- Dust Suppression – To minimise the generation of dust from vehicle movements, water is applied directly to haul roads and dumps. Furthermore, water may be applied to excavator loading faces and production drills to minimise the generation of dust at these points.
- Groundwater – Located within the Coal Measures sequence, the enclosed basin contains various small-scale water bearing zones generally associated with the coal seam. A small proportion of groundwater may also be derived from the Werrie Basalt aquifer.

- Overburden Dump Seepage – Water from Dam 8 on the overburden dump seeps through and is accumulated in the pit.

The key outputs to the model include:

- Pit dewatering – Includes all water pumped from the pit during the year, which is the principle pathway for water leaving the void.
- Irrigation – Includes void water tested and approved for offsite irrigation from VWD 1 onto cropping land.
- Direct evaporation – Includes the volume of water directly evaporated from the pit and other locations within the void water cycle.
- Use of water onsite – Dust suppression, Evaporators, etc.

Table 21 – Water Balance Inputs and Outputs.

	Description	Dry Year Ml/Year 580mm
Water Source (Inputs)	Total runoff	415
	Groundwater inflow	49
	Total Input	**464**
Water Losses and Usage (Outputs)	Evaporation (from water storage)	311
	Haul road and ROM pad dust suppression	108
	Irrigation loss	26
	Evaporator net loss	104
	Workshop water use	2
	TLO Water use	2
	Crushing Plant water use	0
	Pumped sediment dam discharge	28
	Sediment dam spills	8
	Total Output	**585**
Water Surplus/ Deficit	**Total Input-Total Output**	**-121**

As presented in, Table 22 once inputs, outputs and the observed change in water in the void have been accounted for, the model reflects a net decrease of 121ML. The site water balance shows a slight reduction of overall site water inventory but an increase in pit water storage due to ceasing pit dewatering.

8 REHABILITATION

8.1 REHABILITATION PERFORMANCE DURING THE REPORTING PERIOD

The rehabilitation objectives for WCC is described in Rehabilitation Management Plan. The post mining land use goal for WCC is to reinstate certain areas of the mine to White-box Grassy Woodland communities and to ensure rehabilitation and revegetation is self-sustaining.

As discussed in Section 8.2 the rehabilitation monitoring observed that tree species matching closely with Box Gum woodland TEC/EEC canopy assemblages, including *Eucalyptus melliodora, E. blakelyi* and *E. albens*, were frequently observed to be establishing satisfactorily. Monitoring of rehabilitation using the newly established methodology will continue in 2025. Section 8.2.2 discussed rehabilitation progression towards identified Plant Community types (PCT).

During the reporting period, mining operations progressed in line with the proposed forward plan. Works were undertaken to progress to final landform (approx. 60ha) and growth medium development (approx. 40ha), 40ha was progressed to ecosystem establishment in 2024. All infrastructure continued to be in use during the period, and as such, no areas of infrastructure were rehabilitated during the period.

2024 rehabilitation works included the planting of approximately 20,830 native tube stock coupled with and watering.

8.2 REHABILITATION MONITORING

8.2.1 Introduction

A detailed annual ecological assessment of rehabilitated areas and analogue sites was undertaken during October/November 2024. Monitoring was undertaken using the Whitehaven Annual Rehabilitation Monitoring Methodology (WARMM—Aspect Ecology [in prep.]). Completion criteria targets are limited to mean targets derived from analogue site values or specific values provided in the RMP. The New South Wales Department of Planning and Environment BioNet benchmarks listed in the RMP have been superseded in a recent revision (Oliver et al., 2019) and have been omitted from this report. Analogue benchmark values have been derived using all available analogue site data from current and prior monitoring years.

Monitoring in the Woodland Domain comprised:

- twenty-four repeat monitoring woodland rehabilitation sites
- seven newly established woodland rehabilitation sites
- one repeat monitoring analogue woodland site and
- thirteen categorical rehabilitation point assessments at notable locations within the Woodland rehabilitation.

Woodland: Surface Cover

Surface cover represents the summed groundcover components of vegetation, litter, and mulch. This serves as an indicator of the rehabilitation objective for soil profile development in the RMP. To achieve the completion criterion target for this indicator, surface cover is to be greater than 85% during the Ecosystem Development Phase (RMP tbl 11).

In the 2024 monitoring year, all rehabilitation areas in the Ecosystem Development Phase, specifically those seeded in 2007, 2008, 2011, and 2013, achieved the phase-specific targets for the indicator of surface cover. Phase-specific targets currently do not apply to any rehabilitation areas seeded in 2014 and later

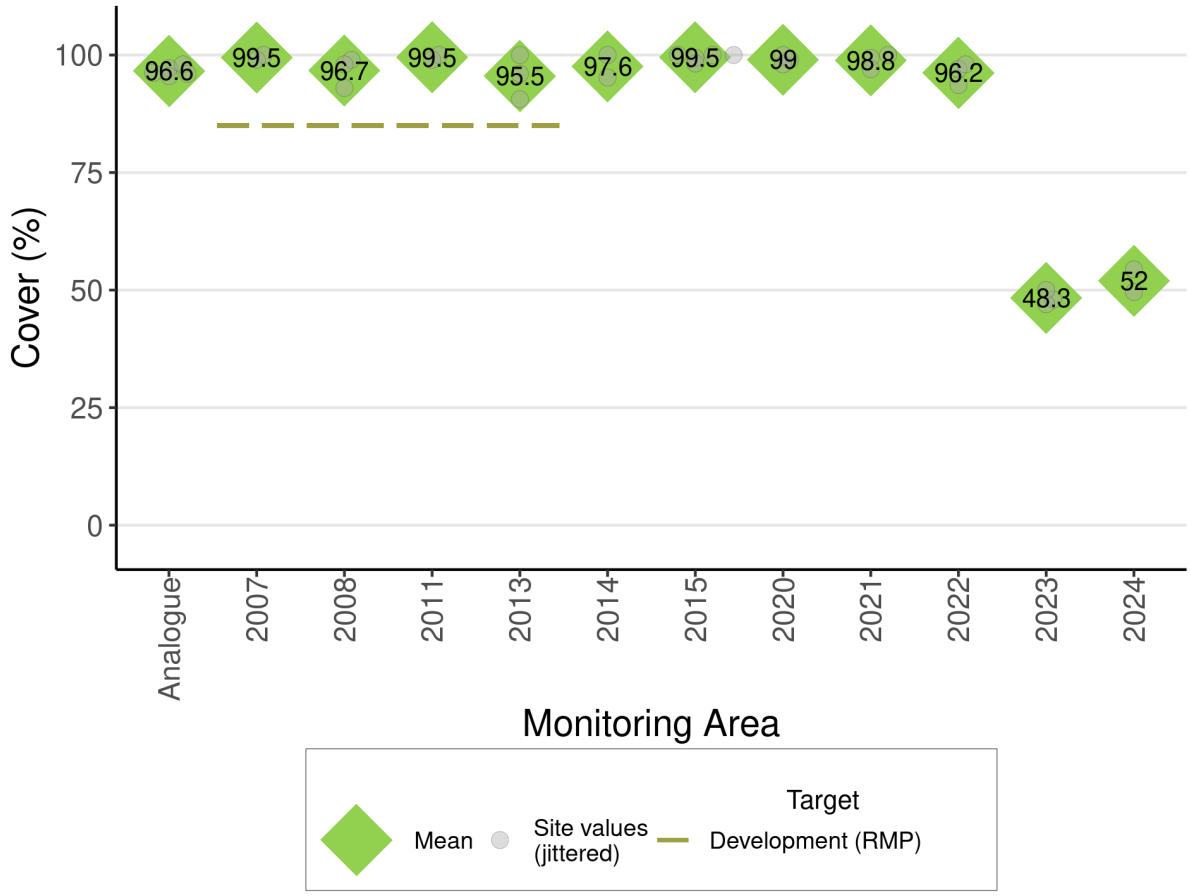


Figure 11 - Woodland surface cover at Werris Creek Coal Mine and Analogue sites.

Native vegetation groundcover

Native vegetation groundcover serves as an indicator of the rehabilitation objective for woodland re-establishment. To achieve the completion criteria targets for this indicator, the rehabilitation must fall within the 10th and 90th percentile range of analogue site values. In the 2024 monitoring year, the analogue sites' 10th–90th percentile range for native vegetation groundcover was 59.7%–93.6%.

No rehabilitation areas met the completion criterion target for native groundcover in 2024; however, the rehabilitation seeded in 2011 was only marginally below (59.2 % cover) the 10th percentile of analogue sites (59.7% cover). There was a general trend evident of increasing native groundcover with increasing rehabilitation age

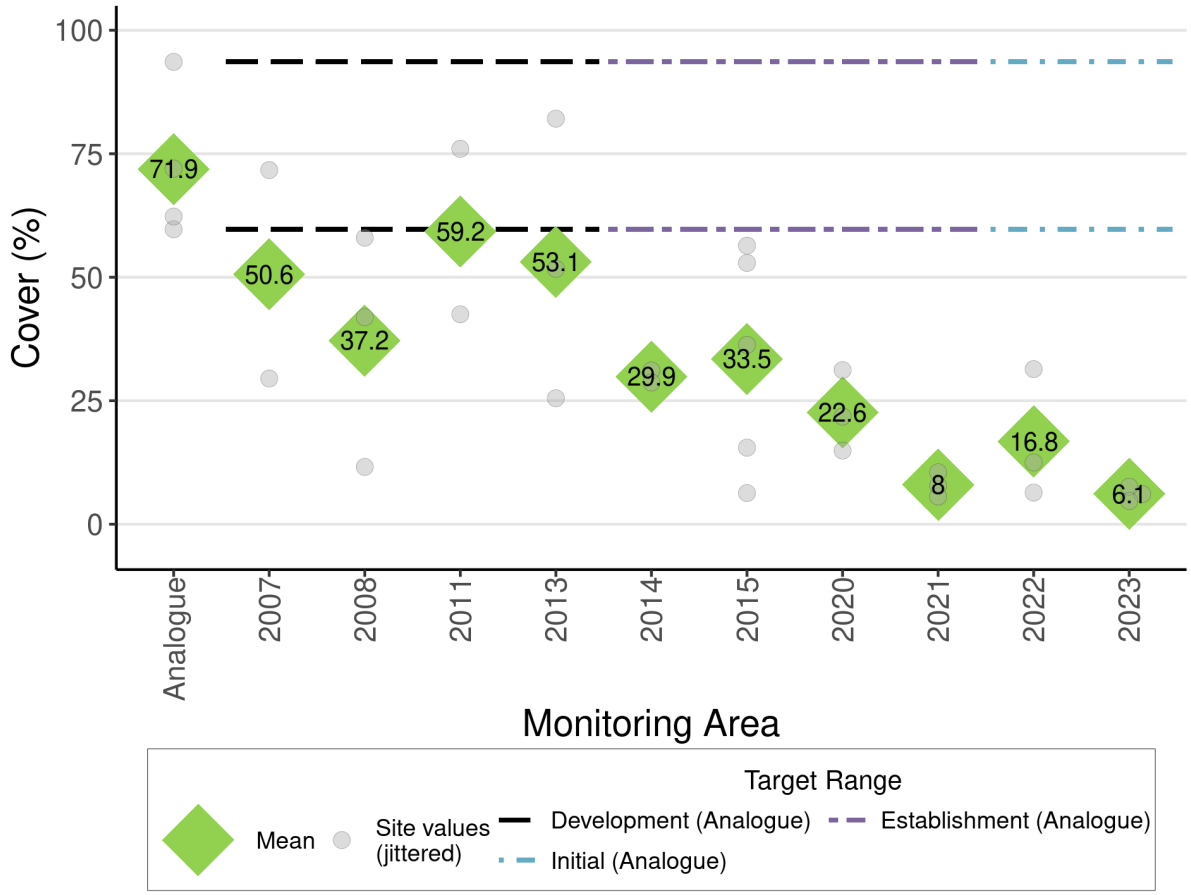


Figure 12 - Woodland native vegetation surface cover at Werris Creek Coal Mine and Analogue sites.

Native Grass Cover

Native grass cover serves as an indicator of the rehabilitation objective for woodland re-establishment. To achieve the completion criteria targets for this indicator, the rehabilitation must fall within the 10th and 90th percentile range of analogue site values. In the 2024 monitoring year, the analogue sites' 10th–90th percentile range for native grass cover was 42.15%–62.7%.

In the 2024 monitoring year, only the rehabilitation areas established in 2007, 2011, and 2013 achieved the completion criterion targets for native grass cover. Native grass cover was highly variable among monitoring sites, even within the same rehabilitation year-seeded. Overall, there was an evident trend of increasing native grass cover with increasing rehabilitation age

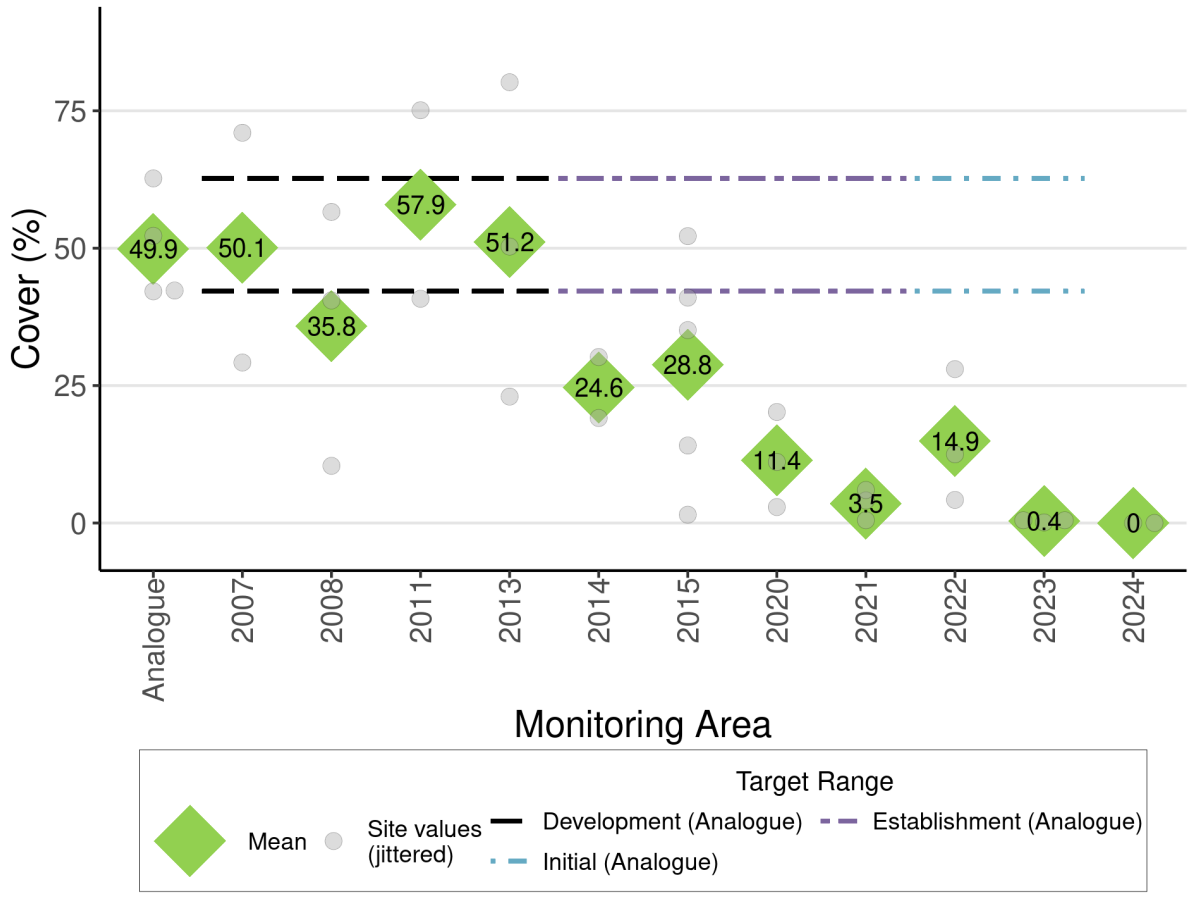


Figure 13 - Woodland native grass cover at Werris Creek Coal Mine and Analogue sites.

Native Mid-storey Cover

Native mid-storey cover serves as an Ecosystem and Land use Development Phase indicator of the rehabilitation objective for woodland re-establishment. To achieve the completion criteria targets for this indicator, the rehabilitation must fall within the 10th and 90th percentile range of analogue site values. In the 2024 monitoring year, the analogue sites' 10th–90th percentile range for native mid-storey cover was 0.95%–20.7%.

Among the rehabilitation areas with applicable phase-specific targets, only the rehabilitation seeded in 2008 met the target in 2024. Native mid-storey cover was absent at the remaining three rehabilitation areas with applicable targets

Figure 14 - Woodland native mid-storey cover at Werris Creek Coal Mine and Analogue sites.

Native Overstorey Cover

Native overstorey cover serves as an Ecosystem and Land use Development Phase indicator of the rehabilitation objective for woodland re-establishment. To achieve the completion criteria targets for this indicator, the rehabilitation must fall within the 10th and 90th percentile range of analogue site values. In the 2024 monitoring year, the analogue sites' 10th–90th percentile range for native overstorey cover was 10%–50%.

No rehabilitation areas met the phase-specific completion criterion targets for native overstorey cover; however, the rehabilitation seeded in 2008 was only marginally below the 10th percentile of analogue sites (10% cover), with 8.3% cover

Figure 15 - Woodland native overstorey cover at Werris Creek Coal Mine and Analogue sites.

Native Species Richness

Native species richness serves as an indicator of the rehabilitation objective for woodland re-establishment. To achieve the completion criteria targets for this indicator, the rehabilitation must fall within the 10th and 90th percentile range of analogue site values. In the 2024 monitoring year, the analogue sites' 10th–90th percentile range for native species richness was 29.5–57.5 species.

In the 2024 monitoring year, none of the rehabilitation areas met the phase-specific completion criterion targets for the indicator of native species richness.

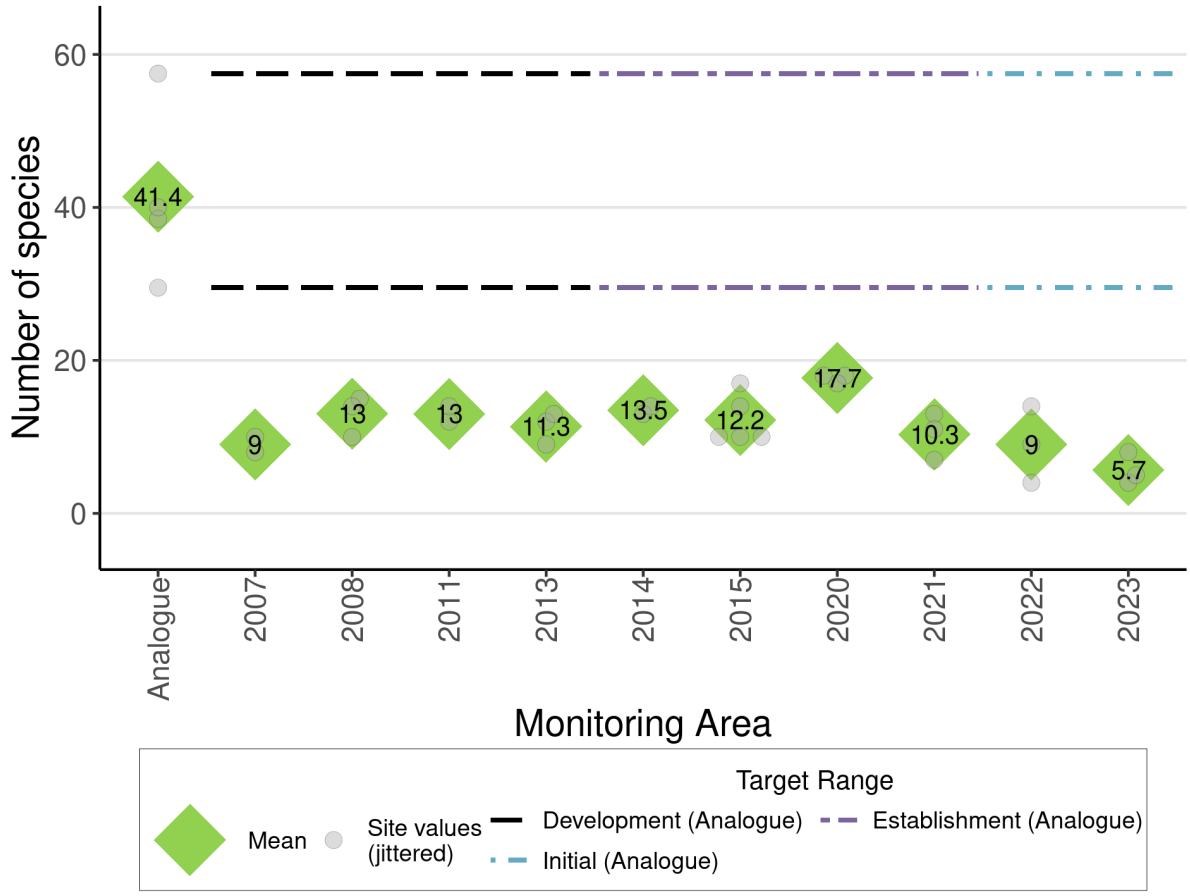


Figure 16 - Woodland native species richness at Werris Creek Coal Mine and Analogue sites

Weed Presence

Weed presence serves as an indicator of the rehabilitation objective for weeds to be controlled and not represent a risk to rehabilitation. To achieve the completion criteria targets for this indicator, the number of weed species and their abundance must not be greater than 20% above analogues site values during the Ecosystem Establishment and Ecosystem Development Phases (RMP tbl 11). Results are provided for exotic species richness and groundcover as indicators for weed presence. Oats (*Avena sativa*) have been excluded from this analysis owing to their use as a temporary cover crop. In the 2024 monitoring year, the analogue site mean number of exotic species was 19. This results in a derived target of 23 species.

In the 2024 monitoring year, all rehabilitation areas met the phase-specific completion criterion target except for the rehabilitation established in 2020, which was above the threshold

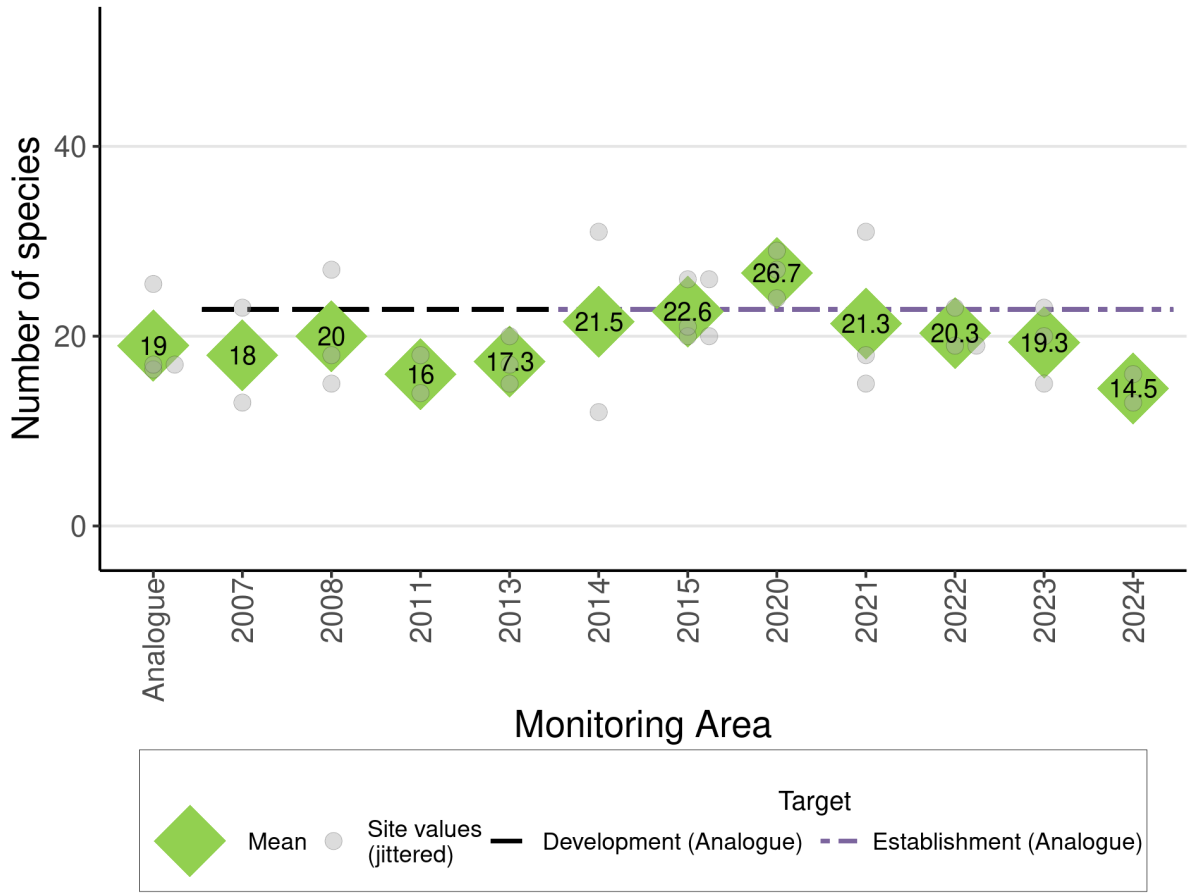


Figure 17 - Woodland exotic species richness at Werris Creek Coal Mine and Analogue sites

Recommendations

It is recommended that:

- Weed management is undertaken to reduce perennial exotic grass abundance in the woodland rehabilitation.
- management actions are undertaken to prevent further increases in exotic cover within the 2021 woodland rehabilitation.
- ground plantings are initiated to increase the diversity of the woodland rehabilitation groundcover; and
- feral animals are controlled.

Mining Lease
Project Approval Boundary

Rehabilitation Phase (9128)

- Decommissioning
- Landform Establishment
- Growth Media Development
- Ecosystem and Land Use Establishment

Mining Domain Type (9127)

- Infrastructure Area
- Active Mining Area (Open cut void)
- Water Management Area

0 0.25 0.5 Kilometers

Whitehaven

Werris Creek Coal Mine

Plan 1A: Current Status of Mining and Rehabilitation
Dec 2024

Datum: MGA Zone 56
Date: Feb 2025
Scale: 1:12,500
Image: Jan 25
Author: O.Hulbert

N

8.3 REHABILITATION TRIALS

WHC is supporting research into arboreal habitat augmentation of woodland rehabilitation by installing previously cleared timber back on the post mining landform to replicate habitat provided by stag trees that occur naturally in woodland communities.

8.4 REHABILITATION WORKS PROPOSED FOR NEXT REPORTING PERIOD

Table 23 presents a summary of the disturbance classes for the end of the previous reporting period, the end of the current reporting period, and a forecast as at the end of the next reporting period and Figure 13 identifies the rehabilitation categories as at December 2024.

Table 22 – Rehabilitation Status

Mine Area Type[1]	Previous Reporting Period 2023	This Reporting Period 2024 (Actual)	Next Reporting Period 2025 (Forecast)
	2023 (ha)	2024 (ha)	2025 (ha)
A. Total mine footprint	603.2	603.2	603.2
B. Total active disturbance	301.62	210.87	138.70
C. Land being prepared for rehabilitation	36.24	73.25	72.80
D. Land under active rehabilitation	302.4	304.82	417.87 (113.05ha 2025 Forward Program)
E. Completed rehabilitation	0	0	0

[1] *Refer Annual Review Guideline (p.11) for description of mine area types.*

No areas of rehabilitation at WCC have received formal signoff for completion; however, areas under active rehabilitation as listed in item D above are trending well towards completion.

Mining Lease
Project Approval Boundary

Forcast Area (9207)
Forecast Land Prepared for Rehabilitation

Rehabilitation Phase (9128)
Decommissioning
Landform Establishment
Growth Media Development
Ecosystem and Land Use Establishment

Mining Domain Type (9127)
Infrastructure Area
Active Mining Area (Open cut void)
Water Management Area

0 0.25 0.5 Kilometers

Whitehaven

Werris Creek Coal Mine

Plan 2A: Mining and Rehabilitation - Year 1 2025
FWP0001563

Datum: MGA Zone 56
Date: Feb 2025
Scale: 1:12,500
Image: Jan 25
Author: O.Hulbert

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In the next reporting period, rehabilitation will focus on topsoiling and seeding the remaining section of the void that was taken to final landform in 2024. The remaining section of the pit will be taken to final landform in next reporting period.

As shown in Figure 14 approx. 113ha will be progressed from "under rehabilitation" to "ecosystem establishment" via the spreading of seed and planting of native tube stock in the next reporting period.

Existing areas of rehabilitation will be managed to ensure a continued trend towards the rehabilitation objectives as previously described. This will include significant focus on infill planting on existing established areas with native tube stock including relevant mid storey species coupled with increased weed management programs to target any emerging weed issues.

8.5 KEY ISSUES TO ACHIEVING SUCCESSFUL REHABILITATION

There are three key issues in achieving successful rehabilitation, including:

- Managing weed and feral animal infestation due to increased rainfall;
- Improving landform water management to reduce erosion and sedimentation resulting in instability and vegetation growth issues;
- Wet planting conditions and continuous rainfall

In cases where the performance is sub-optimal, additional management measures will be implemented (e.g. replanting, repairing landform and water management features, application of mulch/fertilisers, feral animal and weed control etc.).

9 COMMUNITY

WCC is located approximately 2 km south-southwest of the residential area of Werris Creek and 1.5km north of the rural community of Quipolly, and as such works closely with these communities to provide beneficial outcomes resulting from coal mining activities at WCC.

9.1 COMMUNITY ENGAGEMENT ACTIVITIES

WCC uses a variety of community engagement and consultation methods including the WCC Community Consultative Committee (CCC), regular updates to the Whitehaven Coal website, designated community telephone complaints lines, local media updates, local school visits, sponsorship of local community events and groups, and meetings as required with neighbours and a range of stakeholders including government and non-government agencies.

In addition, there were two(2) CCC meetings held during the 2024 reporting period.

9.2 COMMUNITY CONTRIBUTIONS & INITIATIVES

WHC, which includes WCC, contributes financially to the economy at both state and federal level and to the communities in which we operate. Employees and contractors also add a significant economic contribution to townships in the Liverpool Plains Shire Council (LPSC) through their purchases from local businesses. Whitehaven Coal has contributed in excess of $1 billion to the North West NSW region since 2012.

Community Enhancement Fund (CEF)

Community contributions are managed in accordance with the Whitehaven Coal Donations and Sponsorship Policy. Whitehaven Coal donated $245,490 to local Gunnedah groups and over $101,361 to support local groups in Liverpool Plains (Quirindi, Werris Creek, Wallabadah, Tamworth) during the reporting period. Groups and activities which received contributions included, but were not limited to the following;

Gunnedah	**Liverpool Plains**
yawiriawiri murri ganuur descendants	Tamworth P & A Assoc Inc
rotary club Gunnedah west	Tamworth Touch Association
Carroll community bus incorporated	Spring Ridge Public School P & C
swimming Gunnedah incorporated	Tamworth Touch Association
Extent	Quirindi High School
the combined catholic schools p&f	Tamworth Business Chamber
Winganga Li Early Learning and Care Services	Wallabadah Public School
CrossFit Gunnedah	Tamworth Family support service
Gunnedah High School	Quirindi RSL sub-Branch
Gunnedah Filipino Australia Community	Walhallow Public School
Gunnedah Junior Rugby Club Incorporated	Quirindi Rugby
Gomeroi Roos	Children's Medical Research Institute - Quirindi Branch
Australian Whipcrackers & Plaiters Association	Quirindi Netball
Multicultural Women's Association Inc Charity no.	Aircooled Assembly Inc
Gunnedah and District Bulldogs AFL	One 2 boxing
Naidoc Week Committee Incorporated	The old Boys Cricket
The Central Noth Rugby Union	Blackville Public School
Gunnedah Bulldogs	North West Cow Horse Inc
Gunnedah Shire Council	One2Boxing Westside Boxing Club Inc
Gunnedah and District Chamber of Commerce	Manilla Show
Women in Mining	Quirindi Rural Heritage Village
Gomeroi Allstars	Werris Creek Golf Club
Gunnedah Pistol Club	lions club werris creek
Lions Club of Gunnedah	The Werris Creek Community Garden
Gunnedah Junior Rugby Club Incorporated	Rotary Club of Tamworth First Light
Eric & Carol Hannan	The Lions Club of Werris Creek Inc Charity no.
Boggabri Gunnedah Gun club	Werris Creek RLFC Magpies
Gunnedah Ministers Fraternal	Werris Creek Swimming Club Incorporated
Dorothea Mackellar Poetry Awards	One2Boxing Westside Boxing Club Inc
Lake Keepit Fishing Club	Quirindi show society inc.

The Red Chief - Local Aboriginal Local Council ABCRA
Gunnedah Shire Council
Gunnedah Shire Council
Gunnedah Swimming
cougar warriors
Gunnedah Shire Council
Plains of Plenty
Gunnedah Meals on Wheels
Curlewis PS P&C
Movember Foundation
Gunnedah and District Chamber of Commerce
Gunnedah South Public School P&C Association
Gunnedah Can Assist
Gunnedah Shire Council
Gunnedah High School
Gunnedah High School
Gunnedah & District Chamber of Comm
PCYC Gunnedah

9.3 COMMUNITY COMPLAINTS

WCC maintains a dedicated community telephone complaints line (1800 942 836) which is published at the mine entrance and on the Whitehaven Coal website. In the event of a complaint or enquiry, details pertaining to the complainant, the complaint and action taken is recorded in the complaints register. The register is available on the Whitehaven website.

No community complaints were recorded for 2024.

Table 23 – WCC Complaints 2024

Issue	2018	2019	2020	2021	2022	2023	2024
Blast - Vibration/Overpressure	19	12	5	13	3	1	0
Blast - Dust/Fume	2	1	0	0	0	0	0
Blast/Other	0	0	1	0	0	0	0
Noise – Mine	0	0	0	0	1	1	0
Dust – Mine	5	3	0	0	0	0	0
Surface Water	0	0	0	0	0	0	0
Odour	8	1	0	0	0	0	0
Water- evaporation	1	0	0	0	0	0	0
Other	0	0	0	2	0	1	0
Number of Complaints Raised*	**35**	**17**	**6**	**15**	**4**	**3**	**0**

* Number of complaints does not equal the number of issues raised as one complaint can raise multiple issues.

10 INDEPENDENT AUDITS

No Independent Environmental Audit (IEA) was undertaken at WCC during the 2024 reporting period.

The next Independent Environmental Audit and Independent Noise Audit is scheduled for 2026.

11 INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD

11.1 REPORTABLE INCIDENTS

No reportable incidents occurred during the reporting period.

11.2 NON-COMPLIANCES

The compliance status of WCC against relevant approvals during the reporting period was assessed in Section 1 as at the end of the reporting period (2024). There were no outstanding actions or non-compliances relating to operations undertaken in 2024.

Table 28 – Non-compliance Details and Proposed Action Plan

Non - Compliance	Date / Location	Cause	Action Plan	Estimated Completion Date
No non-compliances for 2024				

11.3 REGULATORY ACTIONS

During the reporting period no official cautions, warning letters or penalty notices were issued to WCC.

12 ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD

Activities to be completed in the next reporting period to improve the environmental or community performance of WCC.

Table 29 – Activities proposed to be completed in the next reporting period

Activity	Timeframe
Completion of review and, if necessary, revision of Environmental Management Plans – submit to relevant Govt agencies and stakeholders for consultation / sign off as relevant.	In accordance with PA 10_0059
Continued community liaison and engagement with local stakeholders	Ongoing
Focus on rehabilitation	Ongoing
Demolition of fixed infrastructure	Dec 2025