Annual Review
Rocglen Coal Mine

Name of operation	Rocglen Coal Mine
Name of operator	Whitehaven Coal Mining Pty Ltd
Development consent/project approval number	PA 10_0015
Name of holder of development consent/project approval	Whitehaven Coal Mining Pty Ltd
Mining lease number	ML 1620, ML 1662
Name of holder of mining lease	Whitehaven Coal Mining Pty Ltd
Water licence number	WAL29461 and WAL 36758
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 2023
Annual review end date	31 December 2023

I, Daryl Robinson, certify that this audit report is a true and accurate record of the compliance status of Rocglen Coal Mine for the period 1st January 2023 to 31st December 2023, 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 - Environment and Mine Rehabilitation Gunnedah Open Cut Operations
Signature of authorised reporting officer	
Date	29/02/2024

Contents

Contents 1
1. STATEMENT OF COMPLIANCE 5
2. INTRODUCTION 6
2.1 Mine Contacts 7
3. APPROVALS 9
3.1 Tenements, Licences and Approvals 9
4. OPERATIONS SUMMARY 10
4.1 Mining Operations 10
4.2 Other Operations 10
4.2.1 Hours of Operations 10
4.2.2 Coal Haulage 10
4.2.3 Exploration 10
4.3 Next Reporting Period 10
5. ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW 11
6. ENVIRONMENTAL PERFORMANCE 11
6.1 Air Quality 11
6.1.1 Criteria 11
6.1.2 Environmental Management Measures 13
6.1.3 Long Term Trends 16
6.1.4 Key Environmental Performance/Management Issues 16
6.1.5 Proposed Improvements to Environmental Management 16
6.2 Onsite Biodiversity 16
6.2.1 Introduction 16
6.2.2 Woodland Domain 17
Vegetation Surface Cover 17
6.2.3 Pasture Domain 25
6.2.4 Recommendations 26
6.3 Biodiversity Offset Area (BOA) Management 26
6.3.1 Offset Security Management 26
6.3.2 Weather Summary of MCCM Offset Properties 26
6.3.3 Infrastructure Management 27
6.3.4 Seed Management 27
6.3.5 Revegetation Management 27
6.3.6 Heritage Management 27
6.3.7 Habitat Management 27
6.3.8 Weed Management 28
6.3.9 Feral Animals Management 28

6.3.10 Soil & Erosion Management 28
6.3.11 Grazing Management 29
6.3.12 Bushfire Management 29
6.3.13 Monitoring Program 29
6.4 Blasting 30
6.4.1 Criteria 30
6.4.2 Key Environmental Performance/Management Issues 30
6.4.3 Proposed Improvements to Environmental Management 30
6.5 Operational Noise 30
6.5.1 Criteria 30
6.5.2 Environmental Management Measures 31
6.5.3 Key Environmental Performance/Management Issues 31
6.5.4 Long Term Trends 31
6.5.5 Proposed Improvements to Environmental Management 31
6.6 Aboriginal Heritage Management 32
6.6.1 Environmental Management Measures 32
6.6.2 Consultation 32
6.6.3 Key Environmental Performance/Management Issues 32
6.6.4 Proposed Improvements to Environmental Management 32
6.7 Bushfire Management 32
6.7.1 Environmental Management Measures 32
6.7.2 Key Environmental Performance/Management Issues 32
6.7.3 Proposed Improvements to Environmental Management 32
6.8 Waste 33
6.8.1 Environmental Management Measures 33
6.8.2 Key Environmental Performance 33
6.8.3 Proposed Improvements to Environmental Management 33
6.9 Environmental Performance Summary 33
7. WATER MANAGEMENT 34
7.1 Surface Water Management 34
7.1.1 Surface Water Monitoring Results 34
7.1.2 Long Term Trends 35
7.1.3 Discharges 35
7.1.4 Uncontrolled Water Release 35
7.1.5 Supplementary Water Sources 35
7.2 Groundwater Management 36
7.2.1 Environmental Performance/Management 36

7.2.2 Groundwater Monitoring 36
7.2.3 Groundwater Levels 36
7.2.4 Groundwater Quality 36
7.2.5 Long Term Trends 36
7.2.6 Groundwater Management 37
7.3 Water Take 40

8. REHABILITATION 40
8.1 Rehabilitation Performance during the Reporting Period 40

8.1.1 Status of Mining and Rehabilitation 40
8.1.2 Post Rehabilitation Land Uses 40
8.1.3 Rehabilitation Monitoring 41
8.1.4 Renovation or Removal of Buildings 41
8.1.5 Other Rehabilitation Undertaken 41
8.1.6 Departmental Sign-off of Rehabilitated Areas 41
8.1.7 Variations in Activities against RMP 41
8.1.8 Trials, Research Projects and Initiatives 41
8.1.9 Key Issues to Achieving Successful Rehabilitation 42
8.2 Actions for Next Reporting Period 42

9. COMMUNITY 44
9.1 Community Consultation 44

9.2 Community Complaints 44

9.3 Community Engagement and Contributions 44

10. INDEPENDENT AUDIT 46
11. INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD 47
11.1 Reportable Incidents 47

11.2 Non-compliances. 47

11.3 Regulatory Actions 47

12. ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD 47

TABLES

TABLE 1A - STATEMENT OF COMPLIANCE 5
TABLE 1B - NON-COMPLIANCES 5
TABLE 1C - COMPLIANCE STATUS KEY FOR TABLE 1B 6
TABLE 3.1 - TENEMENTS, LICENCES AND APPROVALS 9
TABLE 4.1 - PRODUCTION SUMMARY 10
TABLE 6.1.1 - AIR QUALITY CRITERIA 11
TABLE 6.1.2A - DEPOSITED DUST RESULTS 13
TABLE 6.1.2B - PM10 SUMMARY DATA 14
TABLE 6.4.1 - BLASTING CRITERIA 30
TABLE 6.5.1A - ATTENDED NOISE MONITORING CRITERIA 30
TABLE 6.5.1B - CUMULATIVE ROAD NOISE CRITERIA 31

TABLE 6.9 - ENVIRONMENTAL PERFORMANCE SUMMARY 33
TABLE 7.1.1 - SUMMARY SURFACE WATER MONITORING RESULTS 34
TABLE 7.3 - WATER TAKE 40
TABLE 8.1.1 - REHABILITATION STATUS 40
TABLE 8.1.5 - HIKO SEEDLING PLANTED 41
TABLE 9.2 - COMPLAINTS HISTORY 44
TABLE 11.2 - NON-COMPLIANCES 47

FIGURES

FIGURE 1. SITE LOCALITY AND PROJECT LAYOUT 8
FIGURE 2. MONITORING LOCATIONS 12
FIGURE 3. ANNUAL MEAN DEPOSITIONAL DUST 13
FIGURE 4. 'ROSEBERRY' PARTICULATE MATTER (PM10) 14
FIGURE 6. 'ROSEBERRY' TSP ANNUAL ROLLING MEAN (FULL DATA SET) 15
FIGURE 5. 'ROSEBERRY' PM10 ANNUAL ROLLING MEAN (FULL DATA SET) 15
FIGURE 7. WOODLAND NATIVE VEGETATION SURFACE COVER AT ROCGLEN COAL MINE AND ANALOGUE SITES 20
FIGURE 8. WOODLAND NATIVE GRASS COVER AT ROCGLEN COAL MINE AND ANALOGUE SITES 21
FIGURE 9. WOODLAND NATIVE SPECIES RICHNESS AT ROCGLEN COAL MINE AND ANALOGUE SITES 22
FIGURE 10. WOODLAND MID-STOREY ABUNDANCE AT ROCGLEN COAL MINE AND ANALOGUE SITES 23
FIGURE 11. WOODLAND OVERSTOREY ABUNDANCE AT ROCGLEN COAL MINE AND ANALOGUE SITES 24
FIGURE 12. PASTURE SURFACE COVER AT ROCGLEN COAL MINE AND ANALOGUE SITES 25
FIGURE 13. ROCGLEN MINE GROUNDWATER PIEZOMETER DEPTH 38
FIGURE 14. ROCGLEN MINE GROUNDWATER PRODUCTION BORE DEPTH 39
FIGURE 15. ANNUAL REVIEW PLAN 43

APPENDIX

APPENDIX 1. SURFACE WATER
APPENDIX 2. GROUNDWATER

1. STATEMENT OF COMPLIANCE

The compliance status of Rocglen Coal Mine (RCM) as at 31st December 2023 is summarised in **Table 1A**. **Table 1B** notes non-compliances that occurred during the reporting period, as well as non-compliances from previous reporting periods that still require management action.

TABLE 1A - STATEMENT OF COMPLIANCE

Were all conditions of the relevant approval(s) complied with?	
PA10_0015	Yes
EPL 12870 (applicable conditions above)	Yes
ML 1620	Yes
ML 1662	Yes
WAL 29461	Yes
WAL 36758	Yes

TABLE 1B - NON-COMPLIANCES

Relevant Approval	Condition Numbers	Condition Description (summary)	Compliance Status	Comment	Where Addressed in Annual Review
No Non-compliances in reporting period					

TABLE 1C - COMPLIANCE STATUS KEY FOR TABLE 1B

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)

2. INTRODUCTION

This is the fifteenth Annual Review (AR), previously Annual Environmental Management Report, produced for the RCM, and it has been prepared in accordance with Conditions 4 and 5 of Mining Lease (ML1620) (Mining Act 1992), Condition 4 of Mining Lease (ML1662) and Condition 3 Schedule 5 of PA 10_0015, as modified. This report covers the period between the 1st January 2023 and the 31st December 2023. The AR follows the format required by the NSW Government Annual Review Guideline (October, 2015).

The RCM is located approximately 28km north of Gunnedah (refer **Figure 1**). The RCM is owned by Whitehaven Coal Limited (WCL) and operated by Whitehaven Coal Mining Pty Ltd (WCMPL).

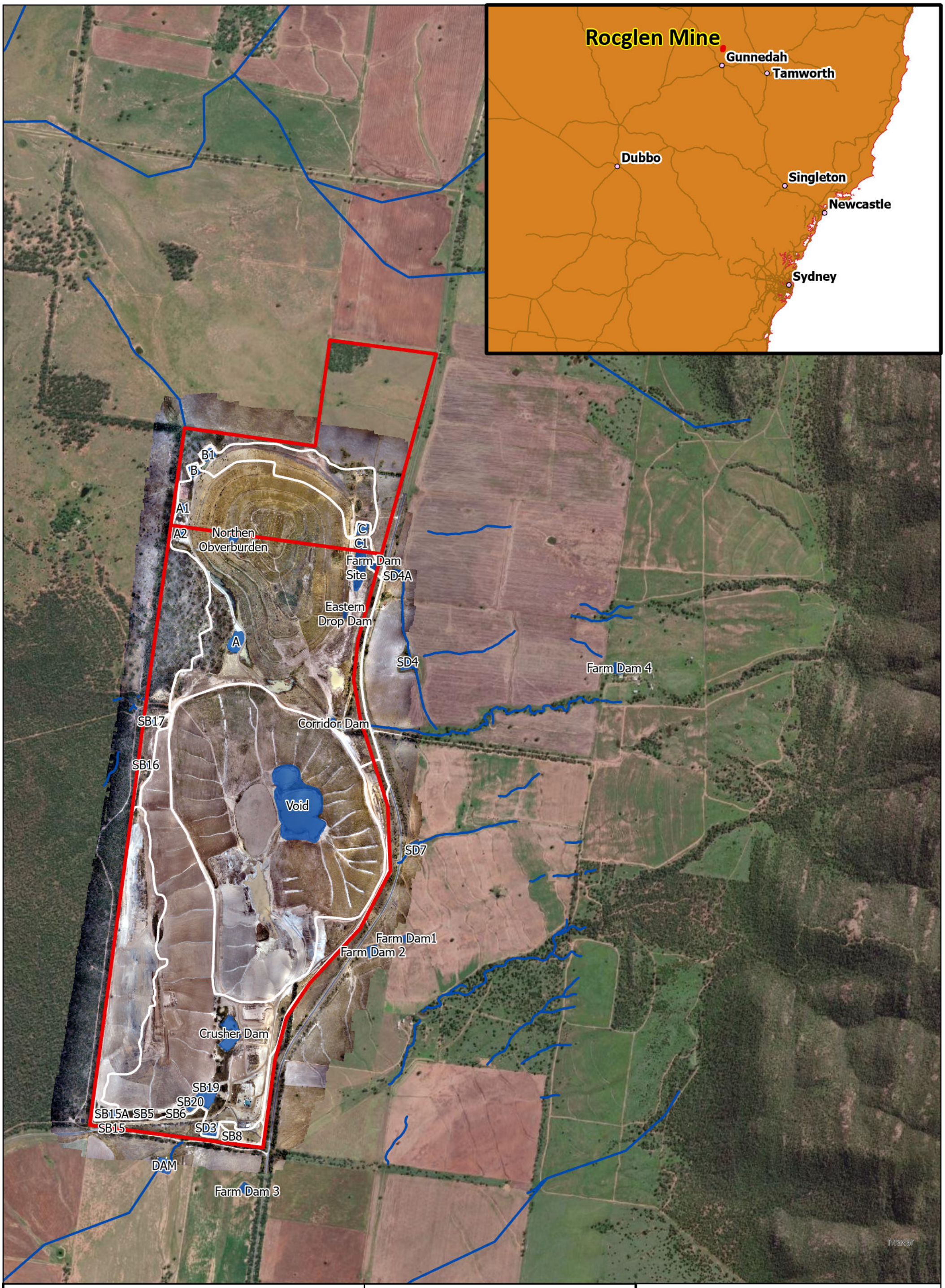
The RCM was initially approved on the 15th April 2008 under PA 06_0198 with a minor modification (PA 06_0198 MOD1) granted in May 2010 to address highwall stability issues. Whitehaven submitted a Project Application, and accompanying Environmental Assessment, under Part 3A of the *Environmental Planning and Assessment Act 1979* in March 2010. PA 10_0015 was issued on the 27th September 2011 and allows for additional extraction of up to 5 million tonnes of coal at a maximum recovery rate of 1.5 million tonnes per annum (i.e. increased project life of the operation of coal extraction by up to four years).

PA 10_0015 was modified initially in November 2014 to condition cumulative coal haulage from the Tarrawonga/Vickery/Rocglen mines. In August 2015 another modification was made allowing changes to coal reject haulage to the site. During February 2017, PA10_0015 was modified to permit increased coal haulage during the 2017 calendar year, and then again in October 2018 to allow the continuation of the increased haulage into the 2018 calendar year.

2.1 Mine Contacts

The management personnel responsible for operational and environmental performance at the RCM and their relevant contact details are follows:

- Mr Daryl Robinson, Manager - Environment and Mine Rehabilitation Gunnedah Open Cut Operations - retains responsibility for mining activities at the site. Contact: (02) 6740 7000.
- Mr Andrew Raal, Superintendent Closed Mines – oversees day to day environmental and rehabilitation performance across the site. Contact: (02) 6740 7009.



WHITEHAVEN COAL

Datum: MGA Zone 56 **Author:** A.Raal **Image:** May 2023

Date: June 2023 **Size/Scale:** 1:12,000 (A3)

Figure 1: Regional Locality and Project layout

Mining Leas/Project Boundary

Surrounding Drainage

N

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3. APPROVALS

3.1 Tenements, Licences and Approvals

Table 3.1 identifies the approvals in place for the RCM at the end of the reporting period, the issuing/responsible Authority, dates of issue, expiry date and relevant comments.

TABLE 3.1 - TENEMENTS, LICENCES AND APPROVALS

Responsible Authority	Type of Lease, Licence, Approval	Date of Issue	Expiry	Comments
Department of Planning, Housing and Infrastructure (DPHI)	Project Approval PA10_0015	27th September 2011	N/A	-
Environment Protection Authority (EPA)	Environment Protection Licence 12870 (EPL12870)	31st July 2008	N/A Anniversary Date: 31st July	-
Department of Environment – Division of Resources and Geoscience (DRG)	ML1620	10th June 2008	10th June 2029	-
Department of Environment – Division of Resources and Geoscience (DRG)	ML1662	9th January 2012	9th January 2033	-
Division of Resources and Geoscience (DRG)	Rehabilitation Management Plan	2nd July 2022	N/A	Reviewed and reported against annually
Department of Primary Industries – Water (DPI Water)	WAL 36758	4th September 2014	In perpetuity	In process of being sold/ transferred.

4. OPERATIONS SUMMARY

4.1 Mining Operations

TABLE 4.1 - PRODUCTION SUMMARY

Material	Approved Limit	Previous Reporting Period (actual)	This Reporting Period (actual)	Next Reporting Period (forecast)
Waste Rock/Overburden	N/A	921,292 bcm	947,110 bcm	194,230 bcm
ROM Coal/Ore	1,500,000 t	0	0	0
Reject Material[1]	700,000 t	0	0	0
Saleable Product	N/A	0	0	0

4.2 Other Operations

4.2.1 Hours of Operations

RCM hours of operation during the reporting period were within Project Approval limits, which permit mining 24 hours per day Monday to Saturday, with the exclusion of public holidays. Blasting is restricted to 9:00am – 5:00pm Monday to Saturday. As of the first of July 2019, the shifts at Rocglen were minimised in line with the transition from coal production to rehabilitation. Currently the mine operates one shift, a 9.5-hour day shift on weekdays (7am – 4.30pm). Other ancillary tasks and maintenance activities may have extended hours.

4.2.2 Coal Haulage

For the reporting period there were no haulage movements for ROM coal or receival of Coal rejects.

4.2.3 Exploration

No exploration drilling was undertaken on the Mining Lease (ML1620, ML 1622) during the reporting period, and none planned for the next 12 months.

4.3 Next Reporting Period

Production has now ceased for the RCM, 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.

5. ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

Department of Planning, Housing and Infrastructure – Resources Regulator Department of primary industry (DPHI-RR) issued no request for any changes.

6. ENVIRONMENTAL PERFORMANCE

The following sub-sections document the implementation and effectiveness of the various control strategies adopted by RCM, together with monitoring data for the reporting period. Life of mine monitoring data is included as appendices to this AR, where relevant, to allow for discussion on longer-term trends.

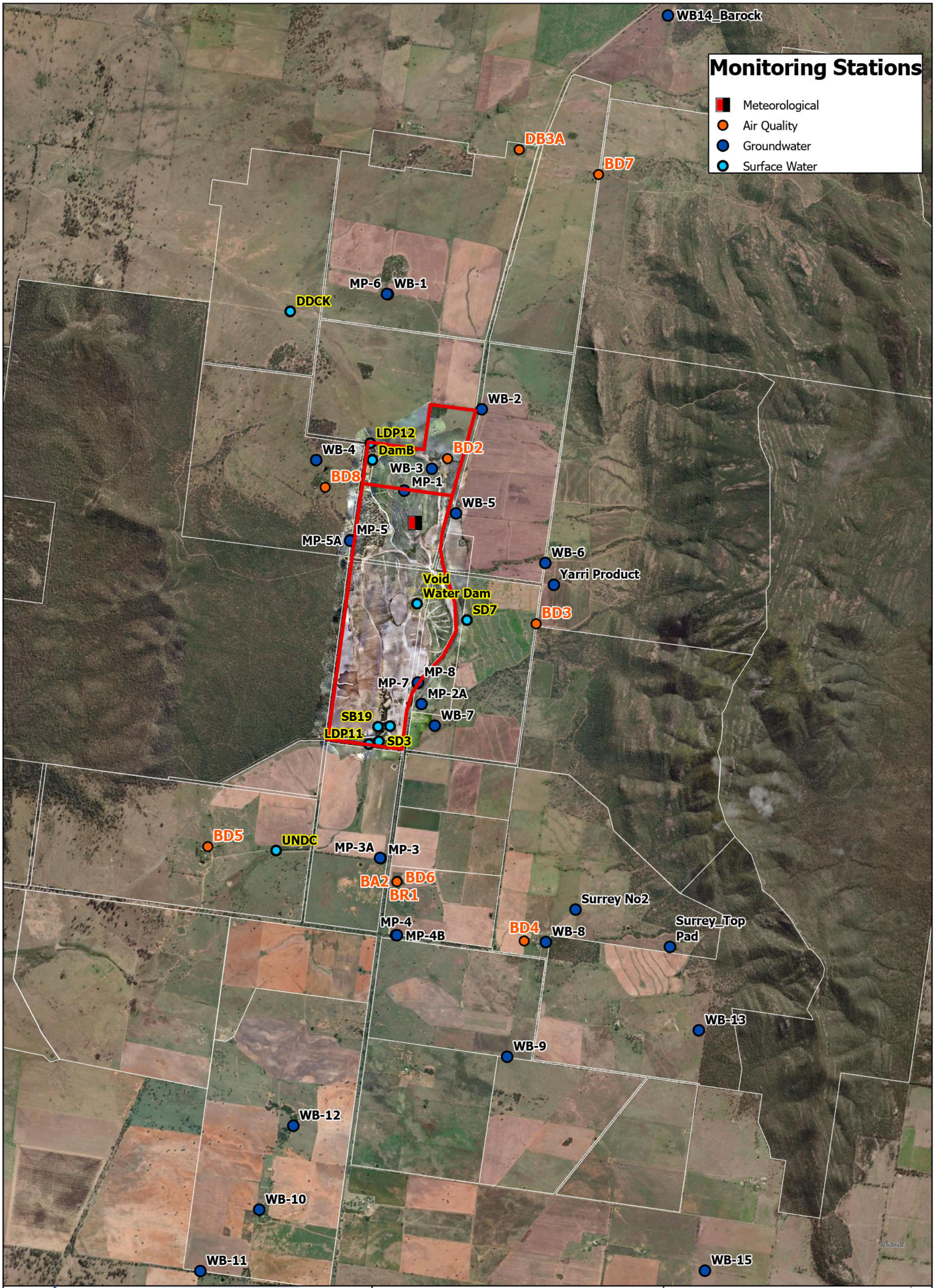
6.1 Air Quality

6.1.1 Criteria

The air quality criteria applicable to RCM are specified in PA 10_0015 and summarised below.

TABLE 6.1.1 - AIR QUALITY CRITERIA

Air Quality Type	Criteria
Acceptable Mean Annual Increase in Deposited Dust	2 g/m^2/month
Mean Annual Dust Deposition (all sources)	4 g/m^2/month
Mean Annual Total Suspended Particulate (TSP) Matter (all sources) Concentration	90 $\mu g/m^3$
Mean Annual PM_{10} Particulate Level	30 $\mu g/m^3$
24hr Mean PM_{10} Particulate Level	50 $\mu g/m^3$



WHITEHAVEN COAL

Datum: MGA Zone 56 **Image:** UAV Dec 23
Date: Feb 24 **Author:** A.Raal **Scale:** 1:42,000 (A3)

Rocglen Coal Mine Monitoring Stations

Mining Leas/Project Boundary

N

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6.1.2 Environmental Management Measures

Monitoring of Deposited Dust is undertaken on a monthly basis, whilst PM_{10} levels are monitored every 6 days. Table 6.1.2a and Figure 3 below presents a summary of the Deposited Dust monitoring data.

TABLE 6.1.2A - DEPOSITED DUST RESULTS

Site	EPL I.D. No.	Property Name	Annual Mean Total Insoluble Solids (g/m^2/month)	Annual Mean Ash	Long Term Insoluble Solids Mean
BD3		Belah	1.4	49.8%	1.8
BD4	4	Surrey	1	66.7%	1.0
BD5		Stratford	0.9	76.9%	2.2
BD6	6	Roseberry	1.2	58.3%	2.6
BD7		Roseglass	1.1	54.2%	1.4
BD8		Yarrawonga	0.6	50.0%	2.6
BD2-A		Penryn	1.9	50.0%	1.4

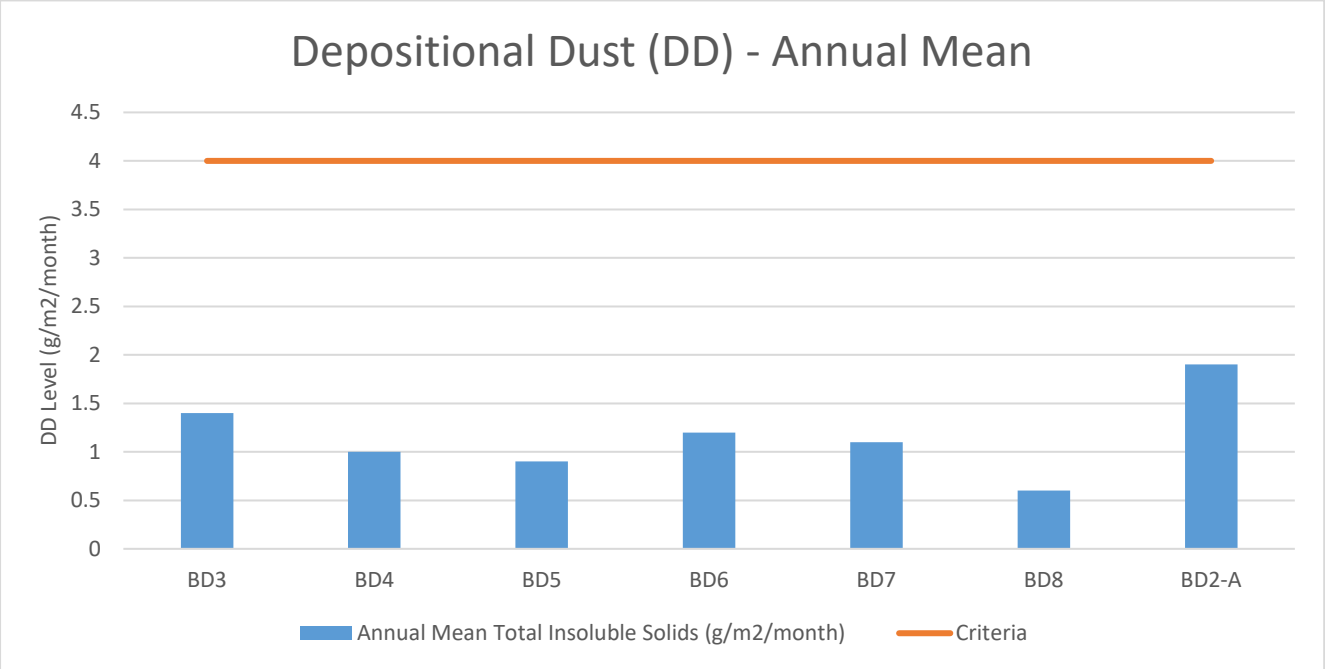

Figure 3. Annual mean depositional dust

A review of the above, shows that the annual mean limit for deposited dust was below the set criteria at each monitoring site.

RCM had one licenced HVAS (EPL ID - 10) monitoring operation which is located to the south-east of the mine on 'Roseberry' (a privately owned property under private agreement) during the reporting

period. Following approval from DPE (now DPHI) on 11 April 2022 to remove HVAS located to the north of the mine on the project related property 'Costa Vale', monitoring at this location ceased in May 2022. Figure 4 displays the PM10 24hr results for 'Roseberry'.

TABLE 6.1.2B - PM10 SUMMARY DATA

PM10 Summary		
Sites	**Roseberry- Full data set**	**Roseberry- excluding extraordinary events**
No. of readings	61	59
No. days above criteria	2	0
Maximum	321	35
Minimum	0.4	0.4
Mean	15	9
Comment	Costa Vale HVAS removed in May 2022 following approval of updated AQGHG Management Plan on 11 April 2022	

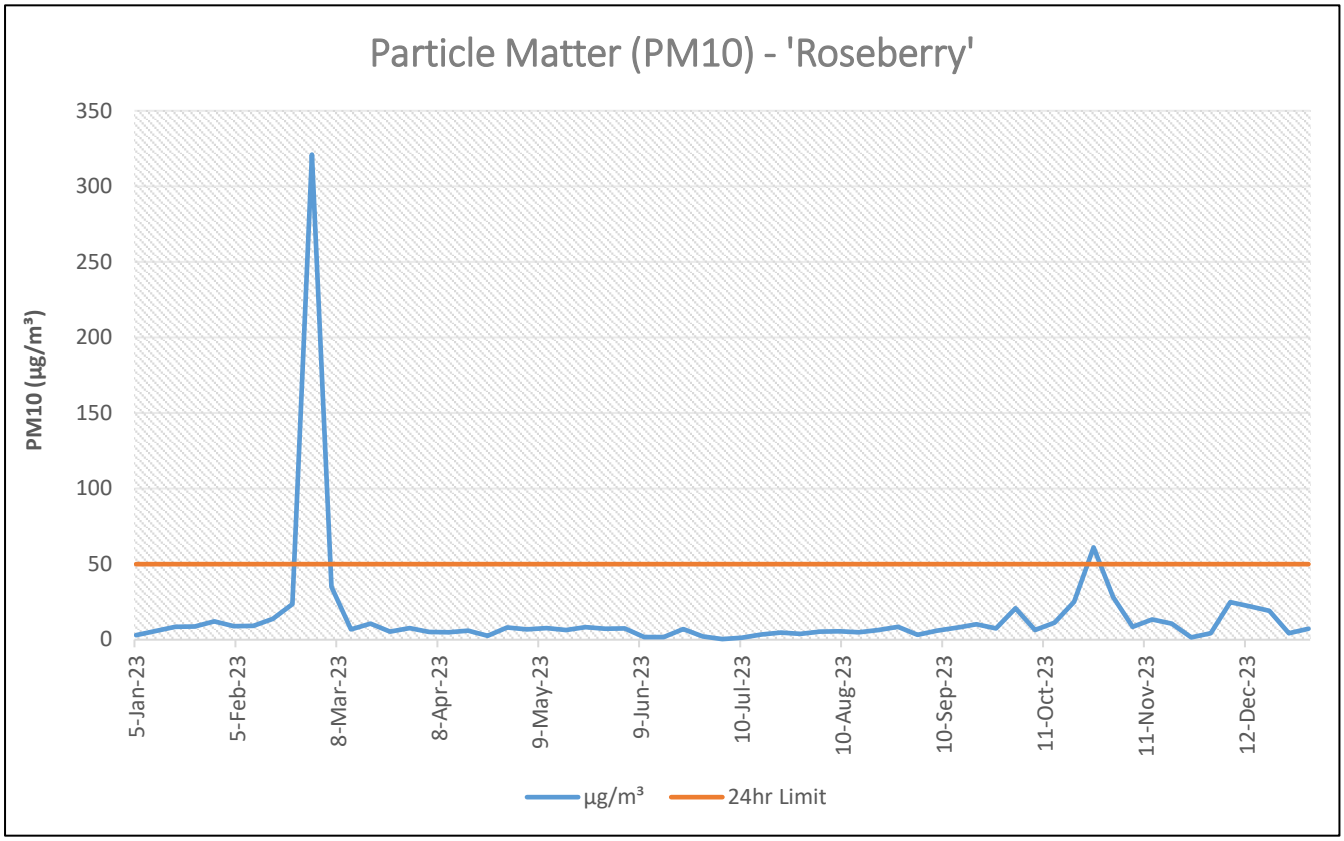

Figure 4. 'Roseberry' Particulate Matter (PM10)

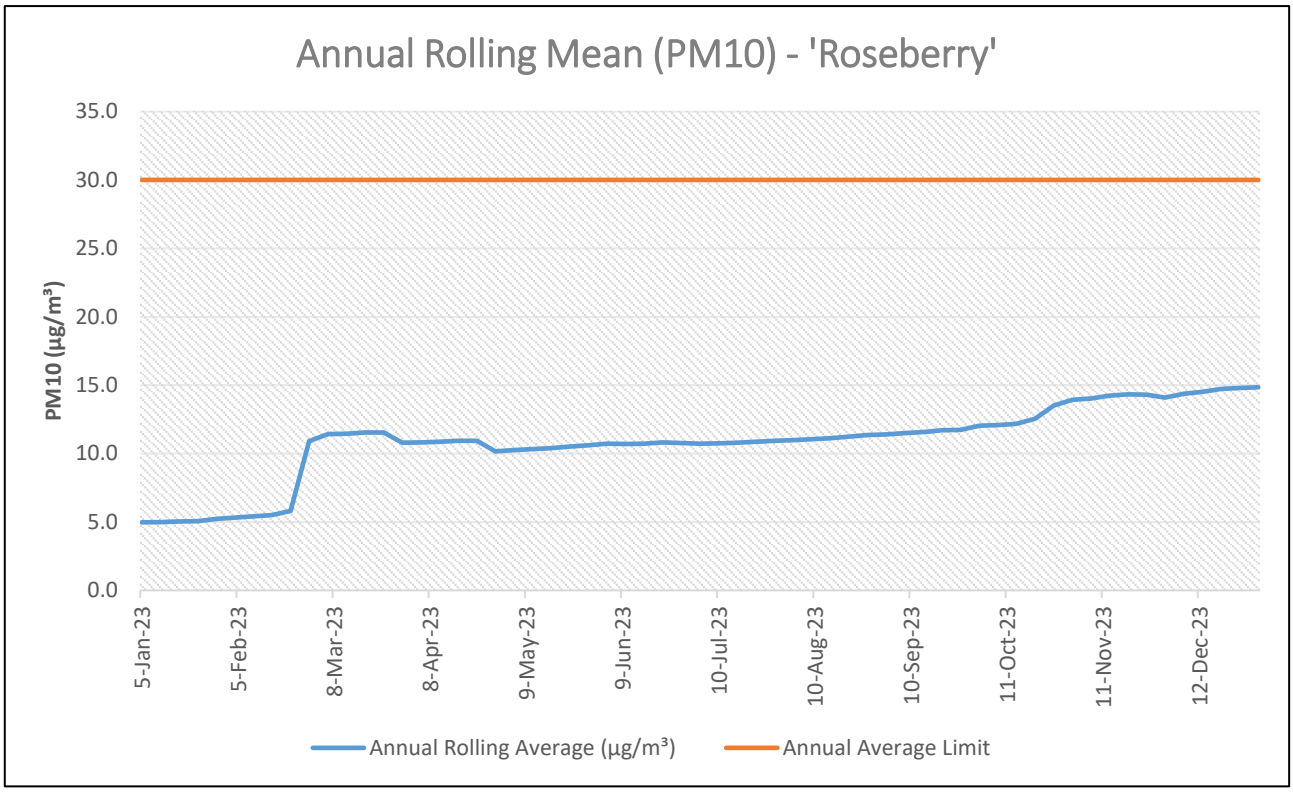

Figure 5. 'Roseberry' PM10 Annual Rolling Mean (full data set)

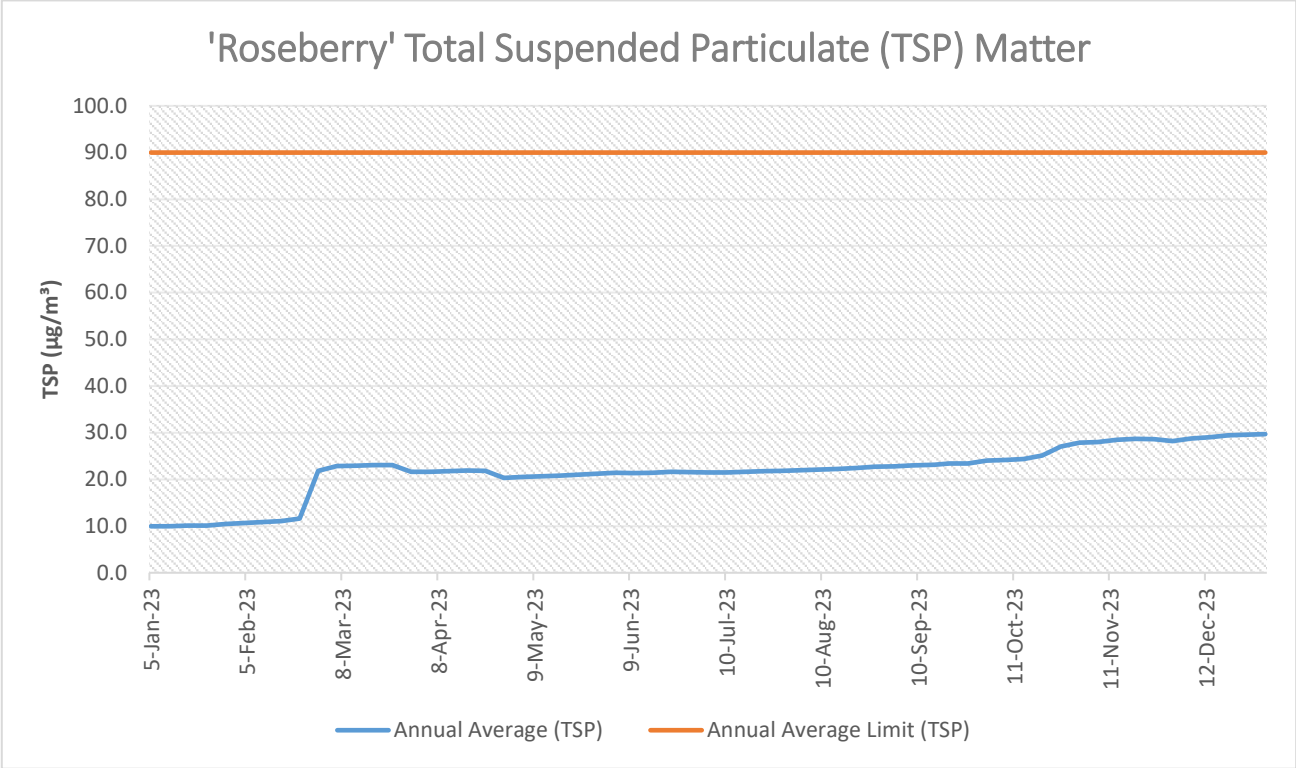

Figure 6. 'Roseberry' TSP Annual Rolling Mean (full data set)

There were two occasions at 'Roseberry' where the 24hr limit of 50 µg/m3 was exceeded, 321µg/m³ on 28 February 2023 and 61µg/m³ on 26 October 2023. Both events were reported to DPE (now DPHI) via portal. The events were determined to be not mine related and a result of agricultural activities. Annual rolling mean for TSP and PM10 reported below limits.

6.1.3 Long Term Trends

Dispersion modelling undertaken for the Rocglen Extension Project Environmental Assessment (EA) (PAEHolmes, 2011) predicted that depositional dust would comply with assessment criteria at all nearby residential properties except 'Yarrawonga' (for the proposed mine extension alone). Results from this reporting period, along with those in past years, are generally consistent with the prediction.

Modelling predicted only one exceedance a year at 'Roseberry' and 'Glenroc', and it was noted cumulative 24-hour impacts were unlikely to arise (PAEHolmes, 2011). The EA noted that in conditions of significant high winds and dust storms, the proportional contribution of mining activities to the total PM10 concentration would be low (PAEHolmes, 2011). As the mine site has now ceased production and earthworks are limited to day shift only with reduced equipment on site local contribution from mining has decreased. Bulk haulage of overburden material for rehabilitation was completed in 2021.

6.1.4 Key Environmental Performance/Management Issues

Dust levels have decreased due to wet weather and good vegetation cover across the local region where Rocglen Mine is situated. Bulk excavation and haulage of overburden material ceased in September 2021.

6.1.5 Proposed Improvements to Environmental Management

None proposed for the next reporting period as dust monitors have been working correctly and site activity will be decreasing, with large areas rehabilitated and seeded which would further reduce potential dust generation.

6.2 Onsite Biodiversity

6.2.1 Introduction

A detailed annual ecological assessment of rehabilitated areas and analogue sites was undertaken during October/November 2023. Monitoring was undertaken using the Whitehaven Annual Rehabilitation Monitoring Methodology (WARMM). 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:

- seventeen repeat monitoring woodland rehabilitation sites, including one in 2016 rehabilitation to improve representative sampling within that year seeded;
- four newly established woodland rehabilitation sites;
- one repeat monitoring analogue woodland site; and
- fifty-eight categorical point assessments at notable locations within the Woodland rehabilitation.

Monitoring in the Pasture Domain comprised:

- six repeat monitoring pasture rehabilitation sites;
- one repeat monitoring analogue pasture site;
- one newly established analogue pasture site; and
- sixteen categorical point assessments at notable locations within the Pasture rehabilitation.

6.2.2 Woodland Domain

Vegetation Surface Cover

Vegetation surface cover is undefined in the RMP but serves as an indicator of the rehabilitation objective for woodland re-establishment. In the 2023 monitoring year. Results for Vegetation Surface Cover are illustrated in Figure 7.

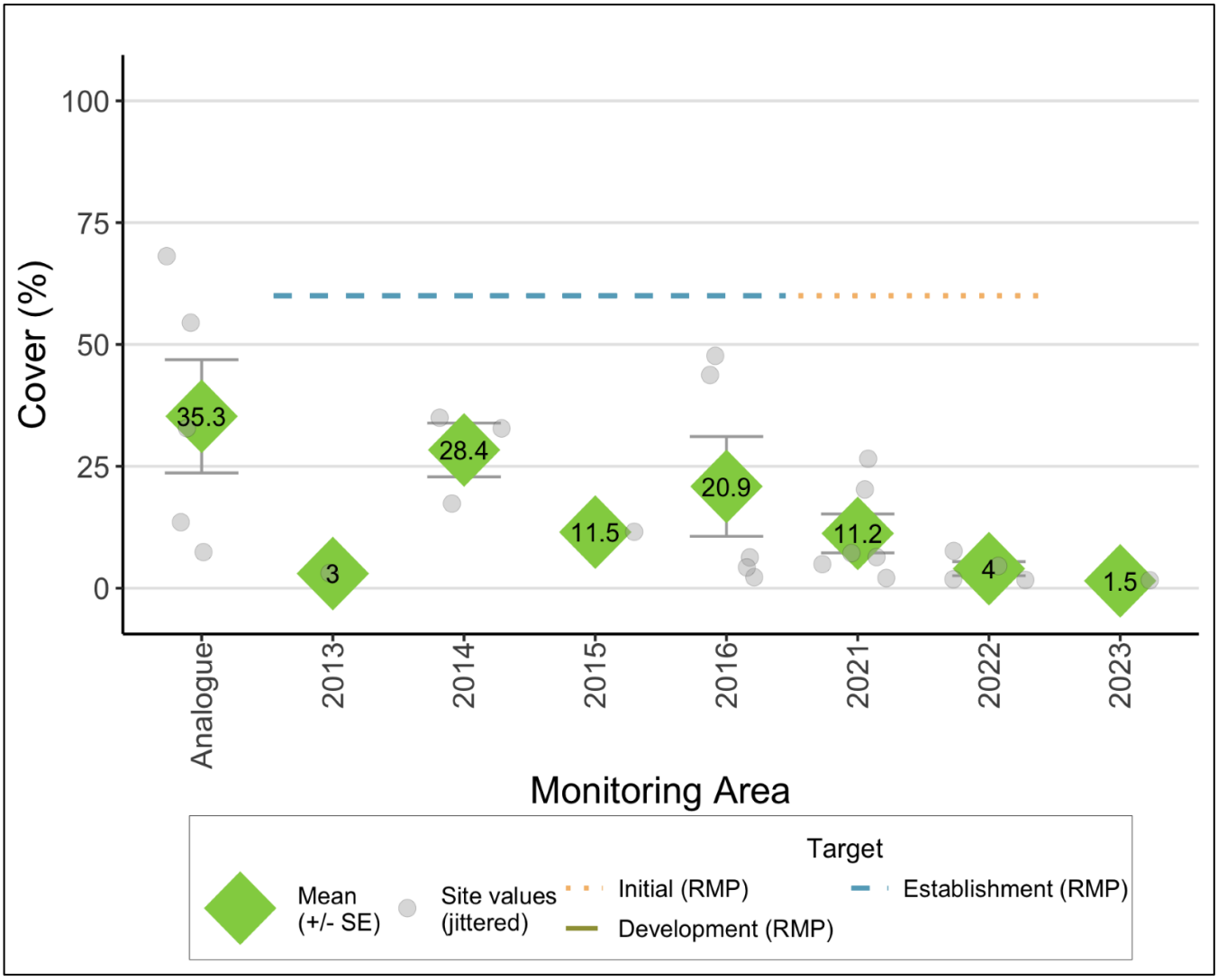

Figure 7. Woodland native vegetation surface cover at Rocglen Coal Mine and Analogue Sites

Native Grass Cover

In the 2023 monitoring year, the analogue site mean was 22.2%. This results in a derived target of 17.7% for the Ecosystem Development Phase. Rehabilitation established in 2014 met the completion criterion target for this indicator and the 2016 rehabilitation is approaching the completion criterion target.

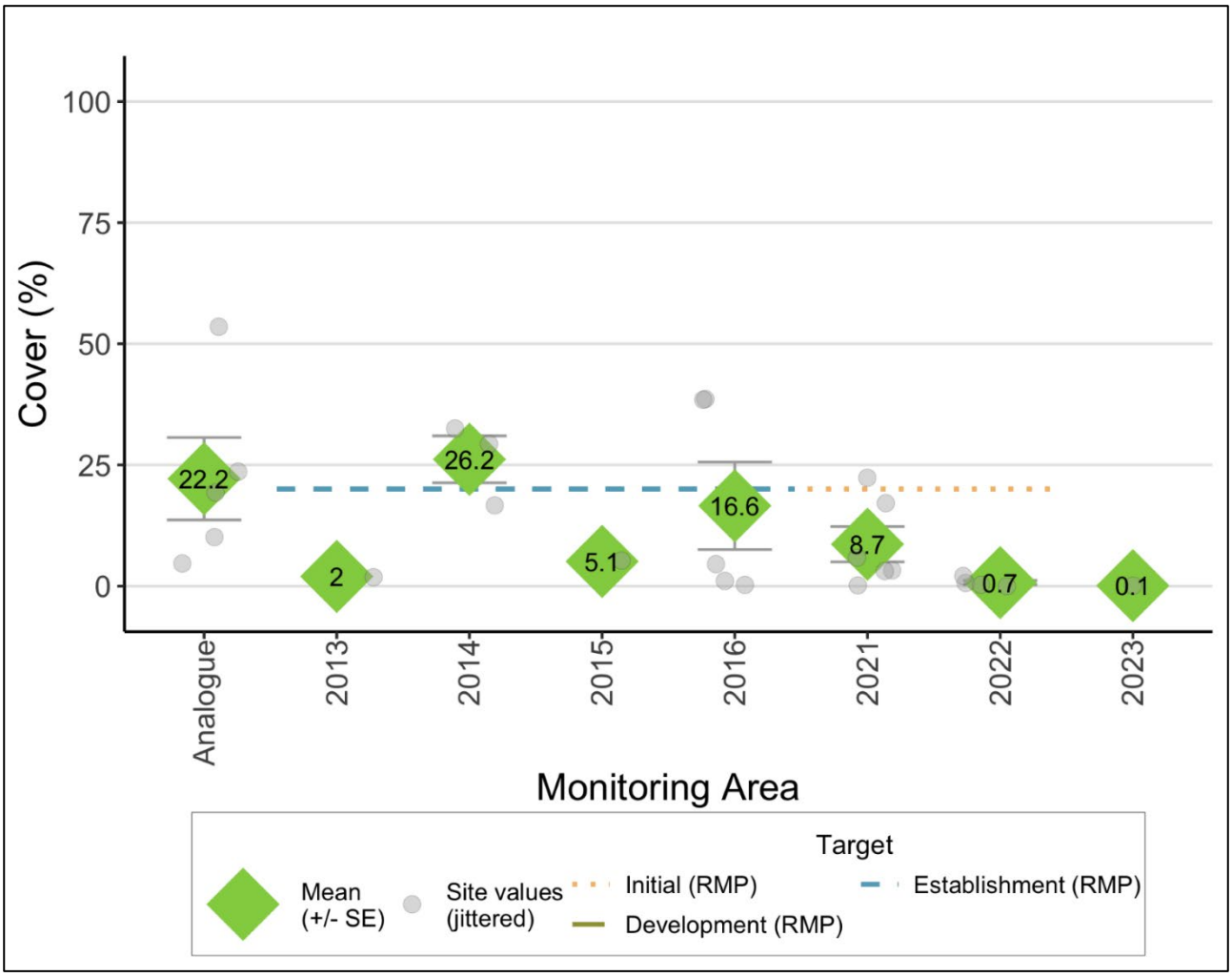

Figure 8. Woodland native grass cover at Rocglen Coal Mine and Analogue Sites

Native Species Richness

In the 2023 monitoring year, the analogue site mean was 37 species. This results in a derived mean target of 30 species for the Ecosystem Development Phase. Results are illustrated in Figure 9.

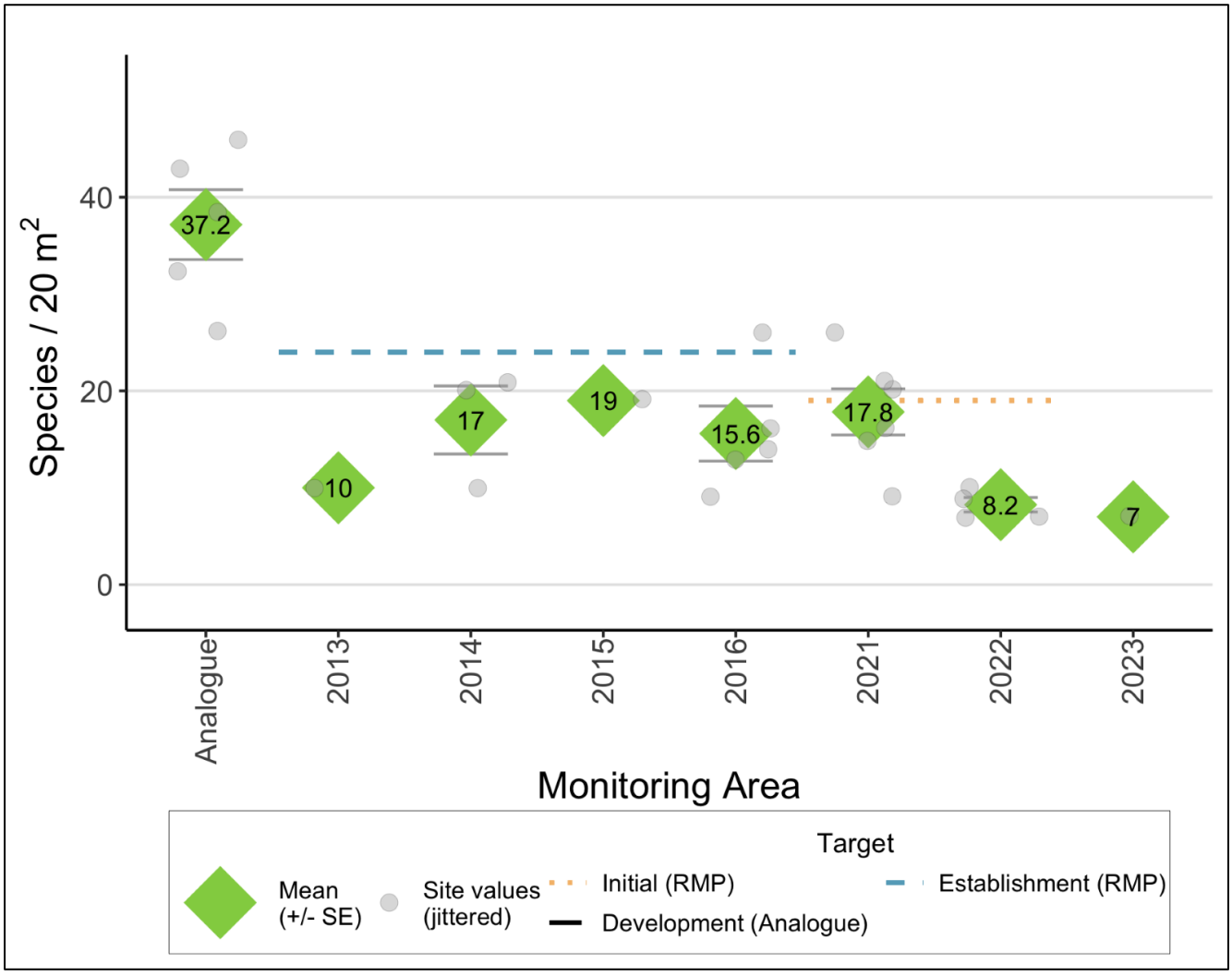

Figure 9. Woodland native species richness at Rocglen Coal Mine and Analogue Sites

Native Mid-storey Species Abundance

Three rehabilitation areas, established in 2014, 2016 and 2021, achieved the phase-specific targets for this indicator (Figure 10).

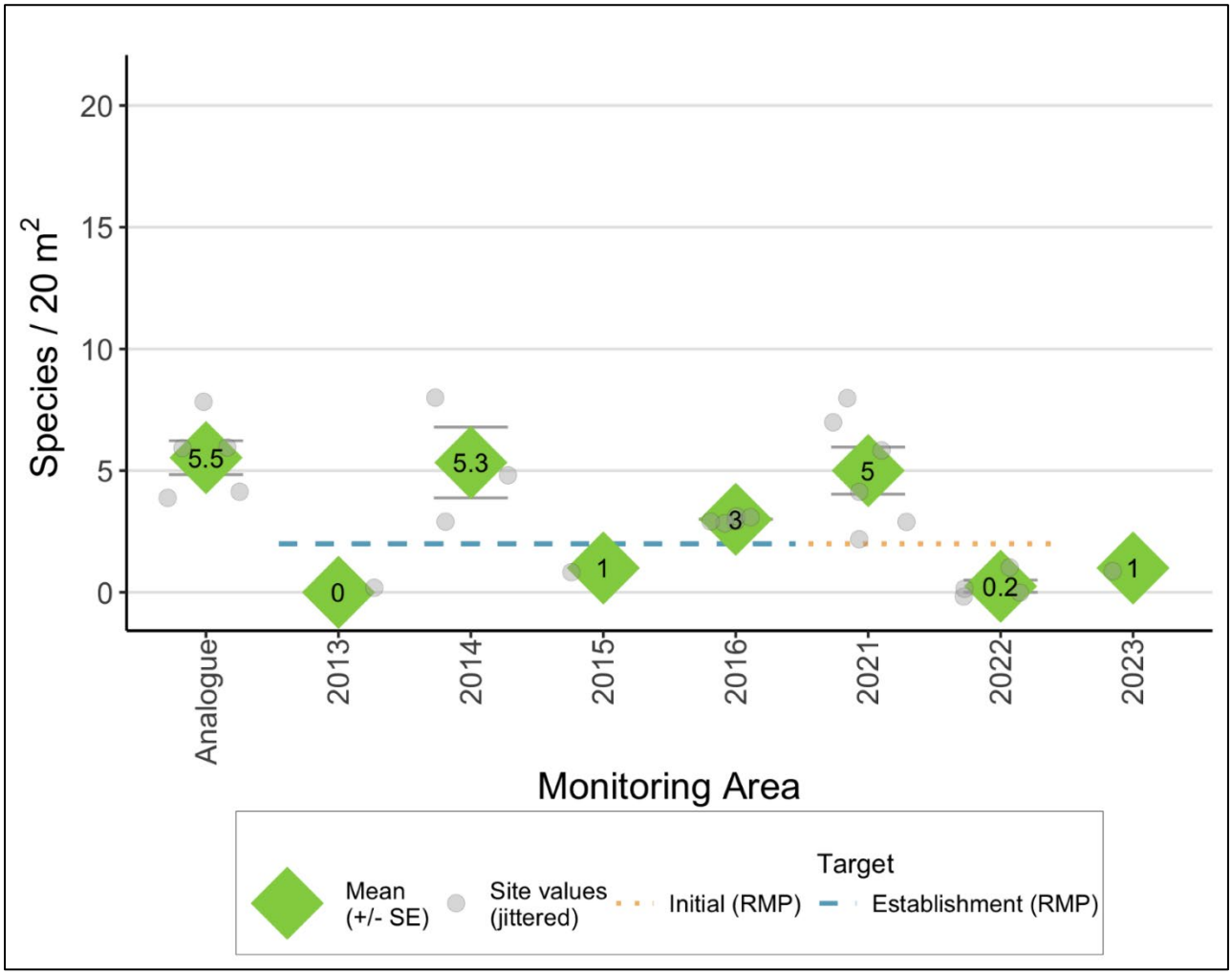

Figure 10. Woodland mid-storey abundance at Rocglen Coal Mine and Analogue Sites

Native Overstorey Species Abundance

Two rehabilitation areas, established in 2014 and 2016 are close to achieving the phase-specific targets for this indicator (Figure 11). All other sites are trending toward targets and all have shown increases since 2022 monitoring.

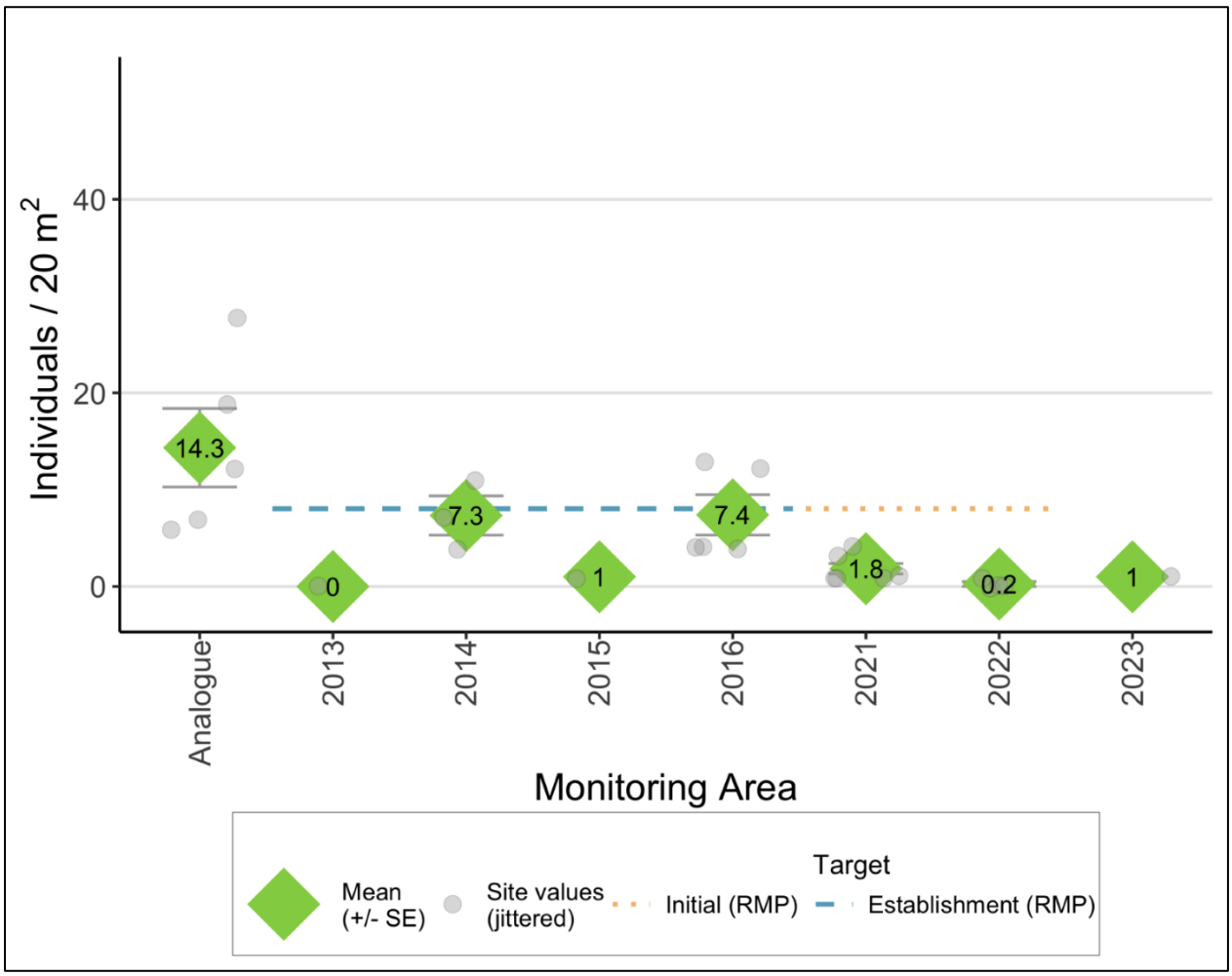

Figure 11. Woodland overstorey abundance at Rocglen Coal Mine and Analogue Sites

6.2.3 Pasture Domain

Surface Cover

On average, rehabilitation sites have increased in surface cover by 36.1% since 2019 monitoring. Phase-specific targets currently do not apply to any rehabilitation areas. Figure 12 shows pasture surface cover results from 2023 monitoring.

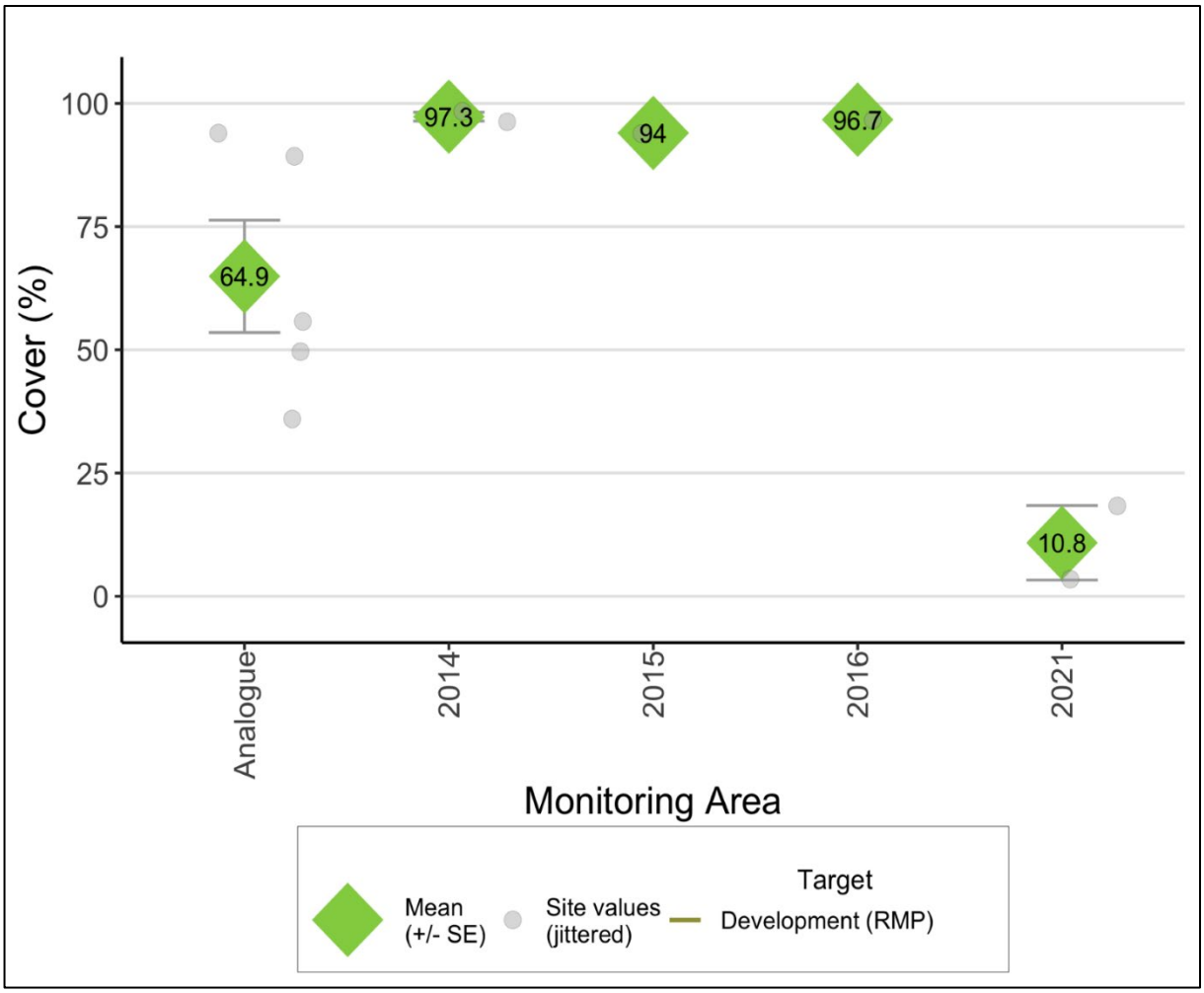

Figure 12. Pasture surface cover at Rocglen Coal Mine and Analogue Sites

6.2.4 Recommendations

It is recommended that:

- for rehabilitation seeded during or before 30th June 2022, groundcover plantings should be reviewed in areas of woodland rehabilitation with sparse native groundcover;
- for rehabilitation seeded after 30th June 2022, monitoring should be ongoing to assess germination of native seed;
- Continue tube stock supplementation in areas with insufficient tree species density, where native groundcover is acceptably established and there are no significant weed infestations;
- Review rehabilitation areas which exhibit low establishment rates
- Continue weed control, spot spraying and slashing programs.

6.3 Biodiversity Offset Area (BOA) Management

The approved WHC Biobank Biodiversity Offset Management Plan (BOMP, 2013) outlines the Biodiversity Offset Strategy (BOS) requiring 1,524ha of native woodland to be maintained and improved on the Yarrari and Belah properties (the approved Offset Areas collectively known as Biobank Biodiversity Management Area (BMA)). Biobanking Agreement 43 generated 13,754 biobanking credits that were retired against the Rocglen Coal Mine, Canyon Coal Mine and the original Tarrawonga Coal Mine in February 2013; with the final biobanking credits retired against the Vickery Coal Mine in December 2022.

6.3.1 Offset Security Management

The Biobank BMA was secured on title by Biobanking Agreement 43 on 28 June 2012 (now considered a Biodiversity Stewardship Agreement under the Biodiversity Conservation Act 2016). The BOMP outlines the intention to transfer the property to the National Parks Estate as an addition to the Boonalla Aboriginal Area (formerly Kelvin State Forest) after Year 10 (~2023), subject to NPWS negotiation and agreement

6.3.2 Weather Summary of MCCM Offset Properties

Regionally central meteorological station to the BMA is the Gunnedah Pool site (BOM 2023) which has recorded highly variable rainfall over the last 5 years; from the driest on record in 140 years of 237mm in 2019, followed by above average rainfall years in 2020, 2021 and 2022 of 833mm, 990mm and 860mm respectively (resulting in numerous major flooding events of the Namoi River). In 2023, the Gunnedah Pool site recorded 496mm being below annual average rainfall of 615mm. WHC maintains a meteorological station adjacent to the Biobank BMA with a summary of weather conditions experienced at the Roseglass biodiversity property during the 2023 reporting period being the maximum monthly average temperature was 35°C in January 2023; minimum monthly average temperature was 9°C in July 2023; annual temperature ranges were between 4°C to 41°C in 2023 and the total annual rainfall in 2023 was 434mm with the maximum in March (152mm) and minimum in May (0mm).

6.3.3 Infrastructure Management

During the reporting period, existing fencing (fauna friendly) was maintained along the perimeter of Biobank BMA as well as maintenance of signage and gates were 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 prior to transfer of Yarrari and Belah biodiversity properties to National Park Estate. Remediation of hazardous material sites on the Belah biodiversity property occurred during the reporting period with five of the six sites receiving clearance certificates free of asbestos containing materials that originated from derelict assets/infrastructure items associated with previous agricultural management onsite.

6.3.4 Seed Management

The routine seed assessments on the Biobank 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. During the reporting period, 1 species was collected resulting in 320 grams of local provident seed from the Yarrari biodiversity property that was incorporated with other local and regionally provident seed sourced by reputable seed collectors as part of the WHC group wide revegetation planning.

6.3.5 Revegetation Management

The revegetation schedule within Biobanking Agreement 43 requires enhancement planting to occur between Year 8 (2021) and 10 (2023) as required. During the reporting period, no specific revegetation works were undertaken as the revegetation program in the BOMP was completed in 2021.

6.3.6 Heritage Management

During the reporting period, annual heritage inspections were completed on the 35 known archaeological heritage sites and historical heritage sites within the Biobank BMA. The sites are maintained with 5.1km of demarcation fencing around the heritage site perimeter and signage to mitigate access and inadvertent disturbance. During this reporting period, no new heritage sites were found but 1 existing archaeological heritage site was updated in AHIMS due to a change in its coordinate system so that it is now projected on the Yarrari property. Further, 32m of heritage site fence maintenance was carried out during 2023.

6.3.7 Habitat Management

During the reporting period, habitat augmentation was undertaken with 11 new nest boxes established targeted for Microbats, Turquoise Parrots, Small Gliders and Pale-headed Snakes were installed on the Biobank BMA.

6.3.8 Weed Management

WHC coordinated routine weed monitoring and inspections being undertaken across the Biobank BMA in February, June, October and November 2023. The priority weeds identified included legacy weeds inherited from previous owners' management regimes such as African/Consul Lovegrass, Buffel Grass, African Box Thorn, Lippia and Prickly Pear as well as a range of broadleaf weeds within revegetation areas. 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 Biobank BMA for weed control. During the reporting period, WHC implemented a weed control program across the Biobank BMA including 30ha treated in January, May, September and December 2023 targeting primarily African/Consul Lovegrass and Buffel Grass, Prickly Pear plus other broadleaf weeds as required. Only appropriately qualified and experienced weed contractors (AQF3 accreditation or higher for use of herbicide) were engaged to undertake weed control works for WHC.

6.3.9 Feral Animals Management

WHC aims to apply an even and consistent pest animal management effort by routinely scheduling rolling monitoring and control programs across the Biobank BMA. 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 Feral Pigs were highly detectable across the year; while other pest animal species had a scarce detectability. 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 Biobank BMA for pest animal management. During the reporting period, WHC implemented a comprehensive pest animal control program across the Biobank BMA with routine 1080 canid pest ejectors, Hoggone baits and trapping programs as well as Open Range Shooting undertaken throughout 2023. During the reporting period; there were 52 canid pest ejectors triggered from 286 deployed and 642 Hoggone baits consumed from 1518 presented across the Biobank BMA. A further 27 Feral Pigs were trapped and removed from the Biobank BMA. Night time open range shooting programs were implemented in conjunction with the other pest animal programs resulting in an additional 4 Feral Pigs being controlled in 2023. Feral Goat mustering continued during the reporting period resulted in 210 Feral Goats being captured with the saleable Goats on sold to an abattoir. Only appropriately qualified and experienced pest animal contractors (appropriate pest animal management qualifications, NSW fire arm licence and pesticide accreditation where relevant) were engaged to undertake pest animal control works for WHC.

6.3.10 Soil & Erosion Management

Annual inspections were undertaken including unsealed fire break tracks and associated drainage structures across the Biobank 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 4 observations were recorded within the Biobank BMA with no locations requiring targeted additional track maintenance. The remaining tracks/drainage structures are maintained during routine WHC Biodiversity fire break track maintenance program.

6.3.11 Grazing Management

Biobank BMA was destocked in 2016 and continued to be destocked with no strategic grazing occurring during the reporting period. There were no instances of stock incursion during the reporting period.

6.3.12 Bushfire Management

The Biobanking Agreement 43 prohibits the use of fire within the Biobank BMA until Year 40. During the reporting period, no bushfires occurred and no ecological burns were undertaken. Other fire management implemented by WHC during the report period was maintenance on 33.8 kilometres to zero fuel barrier standard across the Biobank 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 firefighting contractor for an on call engagement during the fire season to respond in the event of a bushfire on WHC BMAs and non-mining lands

6.3.13 Monitoring Program

The 2023 ecological monitoring program of the Biobank BOA included winter bird surveys that were undertaken in July and August 2023; spring flora monitoring of 32 plots across five vegetation zones (VZs) undertaken during September and November 2023 and annual fauna monitoring program including 4 motion detection camera sites, 3 pitfall/funnel trap sites and 1 harp trap monitoring site undertaken between January 2023 and November 2023. During the winter bird surveys, no threatened species were recorded. During flora monitoring, two VZs were recorded as meeting or exceeding completion criteria for all four biometrics. Native plant species richness (NPS) completion criteria (NPS benchmark for relevant biometric vegetation communities) was met or exceeded at 3 out of 5 VZs. Native overstorey cover (NOS) completion criteria (minimum NOS benchmark for relevant biometric vegetation communities) was met or exceeded at 2 out of 5 VZs. Native midstorey cover (NMS) completion criteria (minimum NMS benchmark for relevant biometric vegetation communities) was met or exceeded at 4 out of 5 VZs. Native ground cover grass (NGCG) completion criteria (minimum NGCG benchmark for relevant biometric vegetation communities) was met or exceeded at all five VZs. Comparison of individual plot data shows that NPS decreased from 25 out of 32 plots last year to 22 out of 32 plots meeting or exceeding completion criteria in 2023. Native overstorey cover (NOS) increased from 13 out of 32 plots last year to 14 out of 32 plots meeting or exceeding the completion criteria in 2023. Native midstorey cover (NMS) decreased from 30 out of 32 plots last year to 27 out of 32 plots meeting or exceeding the completion criteria in 2023. Native ground cover grass (NGCG) increased from 27 out of 32 plots last year to 28 out of 32 plots meeting or exceeding the completion criteria in 2023. Pitfall and funnel trapping surveys on the Biobank BMA detected 11 fauna species in total including 3 frog, 7 reptiles and 1 mammal species. Site species richness ranged between 4 and 7 and averaged 5.7. Habitat type species richness averaged 7 species

detected at woodland sites and 8 species detected at revegetated sites (average 5, range 4 to 6). Harp trapping surveys detected eight species of microbat with habitat type species richness of 4 species detected at revegetation sites and 6 species detected in woodland sites. The motion detection cameras recorded 2 native mammal species and 5 native bird species.

6.4 Blasting

6.4.1 Criteria

Blasting criteria for RCM are noted in PA10_0015 and included in Table 6.4.1 below.

TABLE 6.4.1 - BLASTING CRITERIA

Location	Airblast Overpressure (dB(Lin Peak))	Ground Vibration (mm/s)	Allowable Exceedance
Residence on privately-owned land	115	5	5% of the total number of blasts over a period of 12 months
	120	10	0%

Note: criteria do not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

6.4.2 Key Environmental Performance/Management Issues

No blasting was undertaken during the reporting period.

6.4.3 Proposed Improvements to Environmental Management

RCM Blast Management Plan will continue to be reviewed and updated as required.

6.5 Operational Noise

6.5.1 Criteria

The operational noise criteria specified in PA10_0015 and EPL 12870 are as follows:

TABLE 6.5.1A - ATTENDED NOISE MONITORING CRITERIA

Location	Day	Evening	Night	
All privately-owned land	$L_{Aeq(15min)}$	$L_{Aeq(15min)}$	$L_{Aeq(15min)}$	$L_{Aeq(1min)}$
	35	35	35	45

The cumulative road noise criteria specified in PA10_0015 (RCM) and PA11_0047 (Tarrawonga) are below:

TABLE 6.5.1B - CUMULATIVE ROAD NOISE CRITERIA

Location	**Day** $L_{Aeq(15hour)}$	**Evening** $L_{Aeq(15hour)}$	**Night** $L_{Aeq(9hour)}$
All privately-owned residences	60	60	55

6.5.2 Environmental Management Measures

Control of noise generation and propagation at the mine is by a combination of general source and propagation path methods including:

- Where operationally feasible, scheduling activities to minimise operation of equipment in exposed locations when winds are blowing towards residences and elevated locations when temperature inversions are present;
- Equipment removal or replacement;
- Changing operation procedures;
- Restricting hours of operation;
- Enclosure of fixed items of plant, e.g., generators;
- On-going site road maintenance using the mine-based grader; and
- Regular equipment maintenance.

6.5.3 Key Environmental Performance/Management Issues

Site activity remains limited to rehabilitation activities with reduced equipment on site.

6.5.4 Long Term Trends

The RCM Extension Project Environmental Assessment (EA) – Noise and Vibration Impact Assessment conducted by Spectrum Acoustics (2010), shows historical traffic noise measurements to vary from 3-9 dB below the 60dB(A) criteria – no significant change in levels were predicted to be observed at 'Brooklyn' following the extension. During 2019 and 2020 monitoring, readings were often inaudible at the monitoring locations, supporting those predictions in the EA. Previous years of monitoring have also shown compliance with the criteria.

6.5.5 Proposed Improvements to Environmental Management

There are no proposed improvements to environmental noise management in the upcoming reporting period. Current mine working hours are day time only with reduced equipment on site.

6.6 Aboriginal Heritage Management

6.6.1 Environmental Management Measures

In 2010, RPS archaeologists conducted an assessment and field survey of the potential impact of the Rocglen Extension on Aboriginal heritage. The archaeological field survey, which covered the area proposed to be disturbed by the expansion of the Northern Emplacement Area, was undertaken with members of four local Aboriginal Stakeholder groups. In summary, three stone artefact sites were located comprising of one isolated find (IF1) and two artefact scatters (AS1 and AS2). To date, the measures in place to protect Aboriginal Cultural Heritage are considered satisfactory, with all measures identified in the EA and consent criteria in place.

6.6.2 Consultation

No further stripping or clearing was undertaken during the reporting period outside areas previously assessed by the RCM Registered Aboriginal Parties or during the EA assessments, and as such no consultation has been undertaken.

6.6.3 Key Environmental Performance/Management Issues

No key environmental performance/management issues were identified during the reporting period.

6.6.4 Proposed Improvements to Environmental Management

No improvements are proposed to be undertaken during the upcoming reporting period.

6.7 Bushfire Management

6.7.1 Environmental Management Measures

The mine maintains firebreaks around both its landholding and the mine area and maintains firefighting equipment as well as earthmoving equipment, a water truck, which would be used to control fires. RCM personnel also liaise with the local (Nandewar) Rural Fire Service (RFS) and Regional Fire Control, as required. Previously on request from the RFS due to drought conditions and lack of water availability, the mine has nominated a dam on site that can be used as a water source during emergencies. Whitehaven Coal have engaged a firefighting contract company LRM Fire and Rescue on a retainer bases to assist in case of any fire breakout.

6.7.2 Key Environmental Performance/Management Issues

No key environmental performance/management issues were identified during the reporting period, with no fires occurring on site or on project-related mine-owned land.

6.7.3 Proposed Improvements to Environmental Management

No improvements are proposed within the next reporting period.

6.8 Waste

6.8.1 Environmental Management Measures

During 2023, RCM engaged a contractor (Namoi Waste Corporation) that is responsible for the collection and management of the entire waste streams generated at the mine.

6.8.2 Key Environmental Performance

During the reporting period there were no incidents relating to waste management.

6.8.3 Proposed Improvements to Environmental Management

Rocglen continues to reduce waste via a number of initiatives including recycling (oils, greases, scrap steel and domestic recyclables).

6.9 Environmental Performance Summary

An environmental performance summary for RCM is presented in Table 6.9 below.

TABLE 6.9 ENVIRONMENTAL PERFORMANCE SUMMARY

Aspect	Approval Criteria/EIS Prediction	Performance During the Reporting Period	Trend/Key Management Implications	Implemented/Proposed Management Actions
Air Quality	Refer to Section 6.1	Two Exceedances at Rosebery HVAS sampler. Both exceedances were reported to DPE (now DPHI)	Nil	Onsite dust management will follow the Air Quality Management Plan, and will be aided given the state of the mine, with reduced shifts, no coal production and progressive vegetation of site.
Biodiversity	Refer to Section 6.2 and Section 6.3	Biobank BOA continues to maintain compliance with BOMP while restoration works are ongoing.	Nil	Nil
Blasting	Refer to Section 6.4	Approval criteria met.	Nil	No further blasting on site
Noise	Refer to Section 6.5	Approval criteria met.	Nil	Nil
Heritage	Refer to Section 6.6	Approval criteria met.	Nil	Nil

Bushfire Management	Refer to Section 6.7	No bushfires on site or in biobank site during reporting period.	Nil	Nil
Rehabilitation	Refer to Section 8.2	Ongoing.	Nil	Rehabilitation undertaken as per RMP.
Water	Refer to Section 7.1.3 and 7.1.4	Approval criteria met.	Nil	Nil

7. WATER MANAGEMENT

7.1 Surface Water Management

The mine lies within the catchment of the Namoi River, and in close proximity to Driggle Draggle Creek. The design of sediment retention basins on site aims to limit the opportunity of discharge of runoff from mine-disturbed areas, until such time as the licenced discharge criteria is met. All sediment basins, storage dams and associated banks and drains have been designed and constructed in accordance with the *Managing Urban Stormwater: Soils and Construction Vol 2E Mines and Quarries* (DECC, 2008) in conjunction with the references to Volume 1 (Landcom, 2004).

7.1.1 Surface Water Monitoring Results

In addition to any monitoring required during discharge events, RCM has a requirement to undertake surface water monitoring on a quarterly basis. Whilst there are no criteria or concentration limits specified for the quarterly surface water samples, the results do provide an indication as to the quality of waters onsite. The assessment of sediment load, electrical conductivity, pH, oil and grease, and other monitoring parameters during these quarterly water monitoring rounds also provides an indication of the ability of those storages to meet water quality criteria should a wet weather discharge occur, and if additional treatment methods would be warranted to minimise potential for a non-compliant discharge. The quarterly surface water testing includes the Void Water Dam (Void), three additional out-of-pit surface water storages (SD3, SB19 & Dam B), and one offsite, upstream dam (SD7). A summary of water quality results is given in Table 7.1.1, and complete surface water quality monitoring results are provided in Appendix 1.

TABLE 7.1.1 SUMMARY SURFACE WATER MONITORING RESULTS

Storage	No. Samples	Annual Mean Oil and Grease	Annual Mean Conductivity µS/cm	pH Range	Annual Mean TSS mg/L
Void	4	<5	718	8 – 9	37
SD3	4	<5	1,110	8.4 – 9	53
SB19	4	<5	825	8.2 – 8.8	82
Dam B	4	<5	503	8.3 - 8.6	20

SD7	4	<5	239	8 – 9	29

7.1.2 Long Term Trends

The surface water assessment carried out by GSS Environmental for the Extension EA predicted that there would be minimal impact on flow regimes downstream of the Project due to the RCM, which has proven to be generally correct over the long-term operations of the site.
Soil and water assessments for the site suggested that Total Suspended Soils (TSS) was likely to be the key water quality parameter requiring management during the life of the Project to ensure the water quality in downstream watercourses is not impacted.

7.1.3 Discharges

There are two Licenced Discharge Points (LDPs) nominated in the current EPL 12870, LDP11 to the south of the site, and LDP12 to the north of the site.

There were three (3) uncontrolled wet weather discharges from Dam SD3 through licenced discharge point LDP11 on the 3 February 2023, 13 march 2023 and 25 March 2023. with respective rainfall totals for the preceding 5 days being 52mm, 40mm and 44.6mm. All results were within EPL standards.

There was one (1) controlled discharges from Dam SD3 through licenced discharge point LDP11 on the 28 November 2023. Water qualities were within EPA standards. Discharges were undertaken after the dam sediment load was reduced by flocculating the dam, and water quality samples taken to confirm all criteria were within EPA approval limits.

There were zero (0) uncontrolled wet weather discharges from Dam B through licenced discharge point LDP12.

There were three (3) controlled discharges from Dam B through licenced discharge point LDP12 on the 23 March 2023, 4 April 2023 and 18 April 2023. Water qualities were within EPA standards. Discharges were undertaken after the dam sediment load was reduced by flocculating the dam, and water quality samples taken to confirm all criteria were within EPA approval limits.

7.1.4 Uncontrolled Water Release

All results were within EPL standards.

7.1.5 Supplementary Water Sources

No supplementary water was sourced.

7.2 Groundwater Management

7.2.1 Environmental Performance/Management

The mine's performance with respect to groundwater performance/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 undertaken at a series of bores within the Project Area and adjacent properties.

7.2.2 Groundwater Monitoring

Groundwater sampling and analysis was undertaken by ALS Acril Pty Ltd during the reporting period at the Groundwater Monitoring Points identified in Figure 2. Surface Water Level (SWL), Electrical Conductivity (EC) and pH are recorded on a quarterly basis, with representative metals and ions analysed six monthly in accordance with the approved Water Management Plan.

7.2.3 Groundwater Levels

Monitoring piezometer water levels remained stable throughout the reporting period. Water levels at MP7 & MP8 are related to isolated perched aquifer adjoining the mine void. Groundwater levels to the south of the mine site continue to rise, with WB10 rising by 1.87m, WB11 rising by 1.5m and WB9 rising by 3.48m. Water level trends in all other sites trend in accordance with rainfall.

The mine void was backfilled in December 2020 above groundwater inflow level. There was no bore water extraction or groundwater take from void seepage during the reporting period.

7.2.4 Groundwater Quality

Analysis of samples taken during the reporting period has shown that groundwater quality has remained generally consistent with historical data at all locations monitored. Water quality has been compared to the Australian and New Zealand Guidelines for Fresh and Marine Water Quality, ANZG (August 2018).

7.2.5 Long Term Trends

The hydrogeological assessment undertaken by Douglas Partners for the Extension EA concluded that drawdown on the surrounding groundwater system as a result of the expanded mining operation would be limited during the operation of the mine. This is due to faulting in the vicinity of the mine and generally low permeability of the Maule's Creek Formation Strata, with hydraulic connectivity within the alluvium at the north and south of the site considered to be limited.
The hydrogeological assessment predicted that groundwater levels would be drawn down by approximately 30 metres in close proximity to the pit and that this drawdown would be "mostly limited to within the fault block which surrounds the mine." The drawdown seen at bores MP-7 and MP-8 is consistent with these predictions. Water levels continue to return to pre mining levels (see Figure 13 and Figure 14).

7.2.6 Groundwater Management

Pumping from the void ceased in February 2020 therefore the water held in the in-pit dams across the reporting period are from rainfall capture.

Contamination of groundwater is controlled by the management of chemical, oil and grease spills and storage, with:

- Vehicle maintenance carried out in designated areas;
- Any spills being cleaned up, with contaminated soil placed in the designated bioremediation areas; and
- Fuels, oil and grease being stored within a bunded area, constructed in accordance with EPA requirements.

As discussed previously, groundwater from surrounding bores is monitored on a regular basis to detect and assess any changes in groundwater quality or level that may be attributable to the mine.

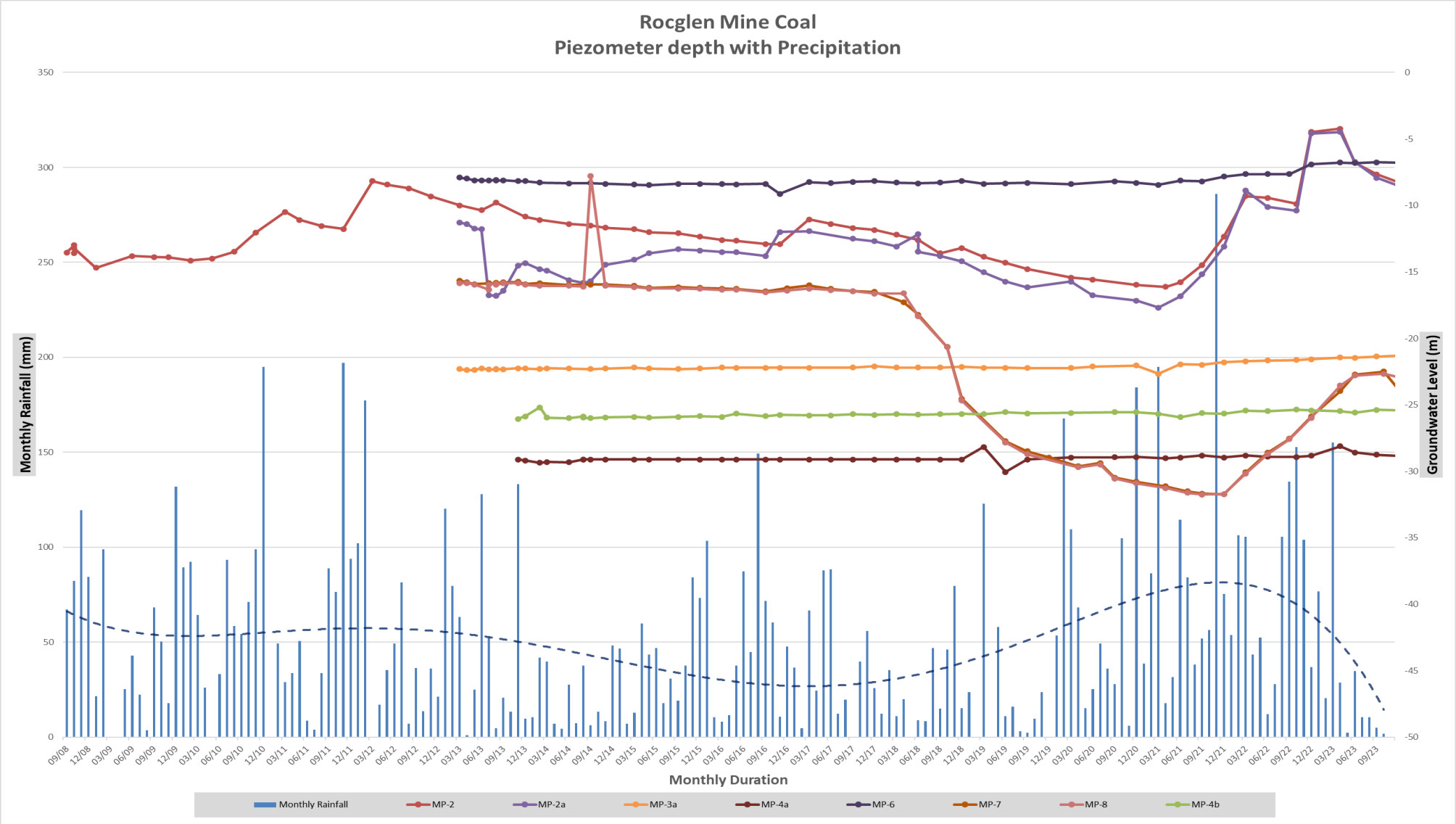

Figure 13. Rocglen Mine Groundwater Piezometer Depth

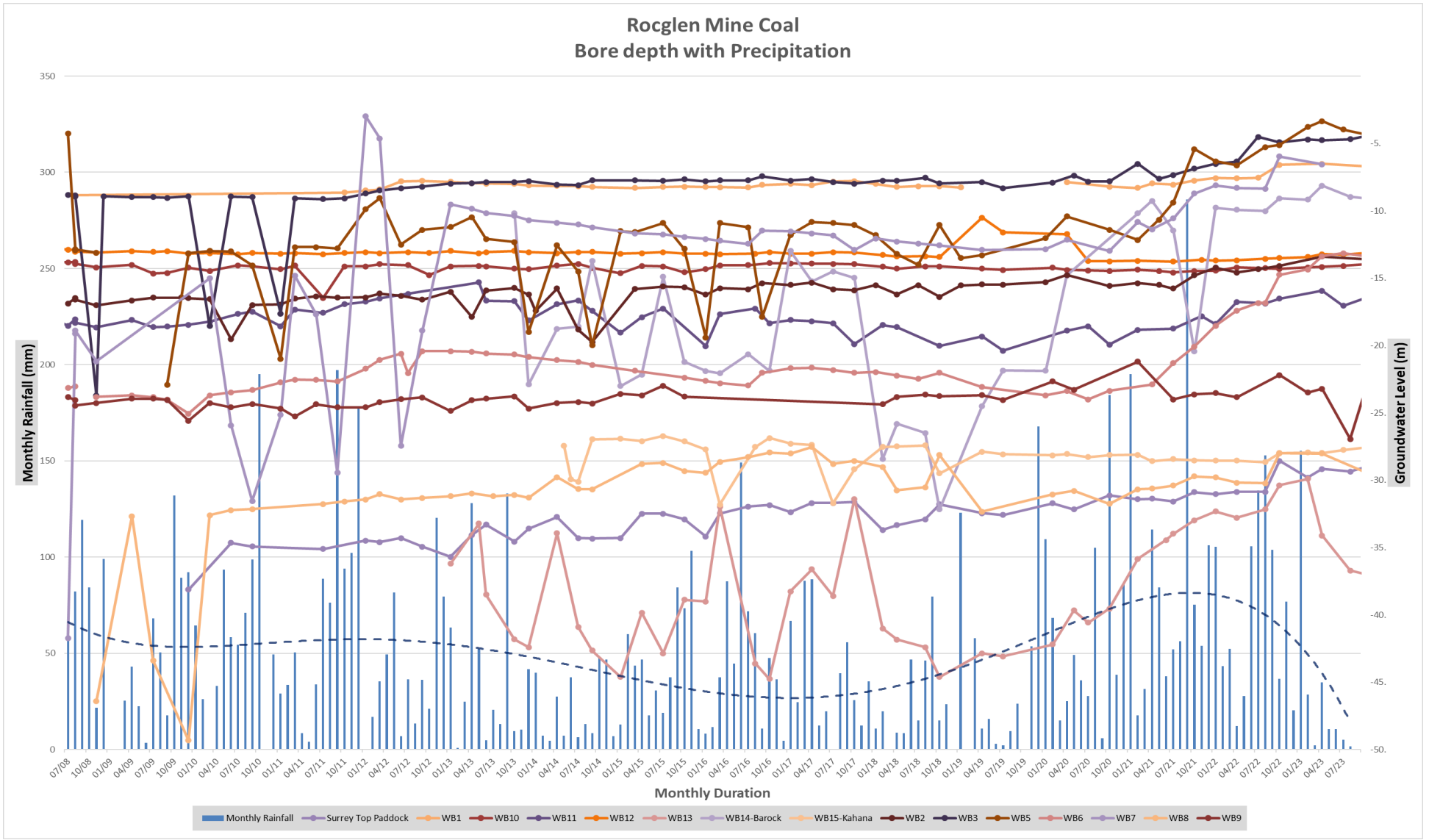

Figure 14. Rocglen Mine Groundwater Production Bore Depth

7.3 Water Take

The water taken by the operation is summarised in Table 7.3, and shows compliance with the licence entitlements. Groundwater takes from the void seepage ceased in February 2020.
Site water usage for 2023 for dust suppression was approximately 20.91 ML, which was sourced from rainfall runoff in the various sedimentation dams.

TABLE 7.3 WATER TAKE

Water Licence Number	Water Sharing Plan, Source and Management Zone (as applicable)	Entitlement	Passive take/inflows	Active Pumping	TOTAL
WAL36758	Gunnedah-Oxley Basin Mdb Groundwater Source	700 units	0	0	0ML

8. REHABILITATION

8.1 Rehabilitation Performance during the Reporting Period

8.1.1 Status of Mining and Rehabilitation

The status of mining and rehabilitation at the completion of the reporting period is presented in Table 8.1.1 and Figure 15.

TABLE 8.1.1 REHABILITATION STATUS

Mine Area Type	Previous Reporting Period (Actual)	This Reporting Period (Actual)	Next Reporting Period (Forecast)
	2022 (ha)	2023 (ha)	2024 (ha)
A. Total Mine Footprint	374.9	374.9	374.9
B. Total Active Disturbance	105.4	39.23	33.95
C. Land Being Prepared for Rehabilitation	72.7	64.81	0
D. Land Under Active Rehabilitation	196.3	270.86	340.95
E. Completed Rehabilitation	0	0	0

* Refer to Annual Review Guideline (pg. 11) for description of mine area types.

8.1.2 Post Rehabilitation Land Uses

The disturbed area within the Project Site will be restored to either woodland or pasture.

8.1.3 Rehabilitation Monitoring

Detailed annual ecological rehabilitation monitoring was undertaken by Aspect Ecology, with summary of results documented in section 6.2.

8.1.4 Renovation or Removal of Buildings

No buildings were removed or constructed during the reporting period.

8.1.5 Other Rehabilitation Undertaken

Rehabilitation planting undertaken in the reporting year is detailed in Table 8.1.5 below.

TABLE 8.1.5 HIKO SEEDLING PLANTED

Area	Hiko Seedlings planted
Year 2020	
Northern Dump	**7,200**
Eastern Boundary Screen	**980**
Year 2021	
Northern Dump	**1,434**
Eastern Void	**1,894**
Southern Void	**987**
Year 2022	
Northern Dump	**1,300**
Eastern Void	**8,594**
Southern & Western Void	**470**
Year 2023	
Western Void	**2,240**
Northern Emplacement	**838**
Western Emplacement	**7,770**

8.1.6 Departmental Sign-off of Rehabilitated Areas

Departmental sign-off has not been requested for any rehabilitated areas.

8.1.7 Variations in Activities against RMP

Entire mine site has been taken to final landform. Small section of final void still to be topsoiled and seeded to progress to ecosystem establishment.

8.1.8 Trials, Research Projects and Initiatives

No trials undertaken during reporting period. A seeding trial commenced in Q4 2022 on topsoil stockpile located near the office. 6 plots were established to test native seed germination. All vegetation was stripped using dozer and grader, area was seeded using mechanical method (tractor). This top-soil has now been placed on the landform and ongoing monitoring of these areas will

continue. Trials will continue at other closed mine sites managed by Whitehaven Coal Rehabilitation and Closed Mines team.

8.1.9 Key Issues to Achieving Successful Rehabilitation

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

- Poor vegetation establishment and growth due to poor soils, nutrient issues and weed competition;
- Weed and feral animal infestation;
- Excessive erosion and sedimentation resulting in land stability and vegetation growth issues; and
- Harsh weather conditions limiting growth, i.e., extended periods of drought or intense rainfall.

In cases where performance is sub-optimal, additional management measures will be implemented (e.g., replanting/seeding, repairing landform and water management features, additional soil amelioration, feral animal and weed control etc.). Advice may also be sought from contractor companies, to determine the best course of action.

8.2 Actions for Next Reporting Period

- 34ha of void to be topsoiled and seeded to progress towards ecosystem establishment
- A number of drains to be rock lined, including main north-south drain on the western edge of the void.
- Upgrade of site fencing with Vickery state forest

Domains
Active Mining
Ecosystem Establishment
Growth Medium
Landform
Water

WHITEHAVEN COAL

Datum: MGA Zone 56 **Author:** A.Raal **UAV:** Jan 2024
Date: Feb 2024 **Scale:** 1:10,000 (A3)

Figure 15
Domains Dec 2023

Mining Lease

N

MRC125 \Spatial\ARCGIS\Rocglen\Rocglen.gdb

9. COMMUNITY

9.1 Community Consultation

In accordance with Schedule 5 Condition 5 of PA 10_0015, a Community Consultative Committee (CCC) continues to be operated for RCM. The committee comprises representatives of Gunnedah Shire Council, RCM and the community.
Since its inception, the CCC has met on a regular basis. One meeting was held during the reporting period in September 2023. Due to the mine going into closure the independent chairperson has changed the meeting frequency to annually.

9.2 Community Complaints

RCM has a designated complaints line advertised on the Whitehaven Coal Website. In the event of a complaint, details pertaining to the complainant, complaint, and action taken are recorded. A complaints register is maintained on Whitehaven's website. No complaints were received during the reporting period.

TABLE 9.2 COMPLAINTS HISTORY

Topic	Calendar Year							
	2016	2017	2018	2019	2020	2021	2022	2023
Air Quality	-	-	-	-	-	-	-	-
Blasting	3	1	-	-	-	-	-	-
Noise	-	-	-	-	-	-	-	-
Water Quality	-	-	-	-	-	-	-	-
Other	-	-	1	-	-	1	-	-

9.3 Community Engagement and Contributions

Community contributions are managed in accordance with the Whitehaven Coal Donations and Sponsorship Policy. Whitehaven Coal donated $245,490.80 to local Gunnedah groups and over $339,094.89 to support local groups in Narrabri during the reporting period. Groups and activities which received contributions included, but were not limited to the following;

Gunnedah LGA:

Yawiriawiri Murri Ganuur descendants
Rotary Club Gunnedah west
carroll community bus incorporated
Swimming Gunnedah incorporated
Extent
Combined Catholic schools p&f
Winganga Li Early Learning and Care Sevices
CrossFit Gunnedah

Gunnedah High School
Gunnedah Filipino Australia Community
Gunnedah Junior Rugby Club Incorporated
Gomeroi Roos
Australian Whipcrackers & Plaiters Association
Multicultural Women's Association Inc Charity no.
Gunnedah and District Bulldogs AFL
Naidoc Week Committee Incorporated
The Central Noth Rugby Union
Gunnedah Bulldogs
Gunnedah Shire Council
Gunnedah and District Chamber of Commerce
Women in Mining
Gomeroi Allstars
Gunnedah Pistol Club
Lions Club of Gunnedah
Gunnedah Junior Rugby Club Incorporated
Eric & Carol Hannan
Boggabri gunnedah Gun club
Gunnedah Ministers Fraternal
Dorothea Mackellar Poetry Awards
Lake Keepit Fishing Club
The Red Chief - Local Aboriginal Local Council
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

Narrabri LGA:

North Branding
Narrabri industrial network inc
education public schools
North western courier
Boggabri Golf Club
Forest Coaches

Narrabri Arts Eisteddfod Inc
Eulah Creek Recreation Reserve Trust
Wee waa & District Historical Society Inc
Presbyterian Social Service
Narrabri district junior rugby league club
rotary club narrabri
Narrabri Shire Community Radio Inc
The Rotary Club Of Narrabri Inc.
narrabri and district chamber of commerce
Narrabri High School
Narrabri & District Community Aid Service Incorporated
Narrabri Dolphins Water Polo Club Incorporated
Wee Waa Community Band Inc.
Narrabri Dolphins Water Polo Club Incorporated
Wee Waa Show Society Inc.
Narrabri industrial network inc
Narrabri Oztag
Narrabri Rugby League Football Club
Namoi Women's Shed Incorporated
Narrabri industrial network inc
Richard Barry
Narrabri RSL sub-Branch
Maules Creek Campdraft and Junior Rodeo 2023
Yarrie Lake Flore & Fuana Trust
St Xaviers Narrabri
Boggabri Rugby League Football Club
Nosh Narrabri Committee
Nosh Narrabri Committee
Boggabri Public School
WHC - Clontarf

10. INDEPENDENT AUDIT

The most recent Independent Environmental Audit (IEA) occurred during early 2022, with submission of the final report and response to Audit Recommendations submitted to the Department in May 2022. Non-compliances identified by the IEA were risk ranked by the auditor in accordance with Figure 1. RCM subsequently developed an Audit Action Plan for the non-compliances. The Audit Action Plan is available on the Whitehaven Coal website, there are no outstanding audit actions.

Next Independent Audit is scheduled for 2025.

11. INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD

11.1 Reportable Incidents

There were no reportable incidences during the reporting period.

11.2 Non-compliances.

There were two occasions at 'Roseberry' HVAS unit where the 24hr limit of 50 µg/m^3 was exceeded, 321µg/m^3 on 28 February 2023 and 61µg/m^3 on 26 October 2023. Both events were reported to DPE (now DPHI) via portal. The events were determined to be not mine related and a result of agricultural activities.

TABLE 11.2 NON-COMPLIANCES

Approval(s)	Schedule/Condition	Non-compliance	Action(s)
No Non-compliances in reporting period			

11.3 Regulatory Actions

None

12. ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD

The following measures will be continued, or implemented, in the next reporting period:

- Undertake rehabilitation activities in accordance with the RMP timing.
- The continuation of environmental monitoring and management, as per the relevant approvals and environmental management plans;
- Completion of all disturbed areas to ecosystem establishment.
- Review and revise (where required) various environmental management plans, as per PA 10_0015; and
- Continue community liaison and engagement with local stakeholders, as required.

Appendix 1: Surface Water

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_Clarified Water O/S (Maintenance water separator); Northing: 238844.6392; Easting: 6592481.4637

	27-Feb-23	25-May-23	09-Aug-23	08-Nov-23
Rec ID	**89331**	**90490**	**92263**	**93731**
Lab Ref	**99022**	**100169**	**101941**	**103408**
Antimony (total)				<0.001
Appearance				slighty Turbid
Arsenic-Total (mg/L)				0.002
Colour				GREEN
Comments	No Sample - Dry	No sample - Dry	No sample - Dry	
EC - Field				630.
Electrical Conductivity @ 25°C (µS/cm)				705.
Molybdenum (total)				0.003
Odour				NIL
Oil & Grease				<5
pH (pH Unit)				7.8
pH Value (pH Unit)				7.56
Selenium-Total (mg/L)				<0.01
Temperature				20.4
Total Organic Carbon				22.
Total Suspended Solids (TSS)				71.

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_DAMB (Northern Discharge Dam); Northing: 238544.8162; Easting: 6595821.1792

	16-Feb-23	27-Feb-23	21-Mar-23	03-Apr-23	25-May-23	05-Jun-23	09-Aug-23	08-Nov-23
Rec ID	**89204**	**89334**	**89674**	**89892**	**90492**	**90554**	**92266**	**93734**
Lab Ref	**98895**	**99025**	**99360**	**99573**	**100171**	**100233**	**101944**	**103411**
Antimony (total)		<0.001			<0.001		<0.001	<0.001
Appearance		SLIGHT TURBID	Clear	Clear	Slight Turbid		Clear	SLIGHTY TURBID
Arsenic-Total (mg/L)		0.004			0.005		0.003	0.004
Colour		SLIGHT BROWN	Clear	Clear	Brown		Clear	BROWN
Comments				Pre-Discharge Sample				
EC - Field		410.			595.		610.	680.
Electrical Conductivity @ 25°C (µS/cm)		353.	469.	432.	580.		586.	762.
Molybdenum (total)		0.002			0.005		0.004	0.005
Odour		NIL			Nil		Nil	NIL
Oil & Grease		<5	<5	<5	<5		7	<5
pH (pH Unit)		8.6			8.3		8.5	8.6
pH Value (pH Unit)		8.37	8.06	8.23	8.41		8.78	8.61
Selenium-Total (mg/L)		<0.01			<0.01		<0.01	<0.01
Temperature		24.2			11.8		14.5	22.7
Total Organic Carbon		15.	9.		7.		8.	10.
Total Suspended Solids (TSS)	44.	30.	6.	12.	7.	<5	11.	32.

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_SB19 (Final ROM Containment Dam); Northing: 238616.3226; Easting: 6592501.3803

	16-Feb-23	27-Feb-23	25-May-23	09-Aug-23	08-Nov-23
Rec ID	**89206**	**89335**	**90493**	**92267**	**93735**
Lab Ref	**98897**	**99026**	**100172**	**101945**	**103412**
Antimony (total)		<0.001	<0.001	<0.001	<0.001
Appearance		TURBID	Slight Turbid	Turbid	TURBID
Arsenic-Total (mg/L)		0.011	0.009	0.006	0.011
Colour		BROWN	Brown	Brown	BROWN
EC - Field		770.	690.	770.	1,070.
Electrical Conductivity @ 25°C (µS/cm)		705.	664.	744.	1,260.
Molybdenum (total)		0.004	0.007	0.009	0.012
Odour		NIL	Nil	Nil	NIL
Oil & Grease		<5	<5	7	<5
pH (pH Unit)		8.7	8.2	8.4	8.8
pH Value (pH Unit)		8.6	8.48	8.55	8.71
Selenium-Total (mg/L)		<0.01	<0.01	<0.01	<0.01
Temperature		23.1	9.	12.9	23.2
Total Organic Carbon		19.	5.	<1	14.
Total Suspended Solids (TSS)	146.	145.	14.	59.	110.

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_SD3 (Southern Discharge Dam); Northing: 238626.3039; Easting: 6592319.8866

	27-Feb-23	25-May-23	09-Aug-23	08-Nov-23
Rec ID	**89336**	**90494**	**92268**	**93736**
Lab Ref	**99027**	**100173**	**101946**	**103413**
Antimony (total)		<0.001	<0.001	<0.001
Appearance		Slight Turbid	Slight Turbid	SLIGHTY TURBID
Arsenic-Total (mg/L)		0.003	0.005	0.004
Colour		Brown	Brown	BROWN
Comments	No sampling - Dry			
EC - Field		1,180.	810.	1,340.
Electrical Conductivity @ 25°C (µS/cm)		1,260.	800.	1,600.
Molybdenum (total)		0.023	0.01	0.024
Odour		Nil	Nil	NIL
Oil & Grease		<5	<5	<5
pH (pH Unit)		8.6	8.4	9.
pH Value (pH Unit)		8.95	8.6	9.45
Selenium-Total (mg/L)		<0.01	<0.01	<0.01
Temperature		9.1	14.6	23.
Total Organic Carbon		10.	6.	20.
Total Suspended Solids (TSS)		42.	46.	71.

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_SD7 (Upstream Dam to east of Pit); Northing: 239721.4068; Easting: 6593828.1269

	27-Feb-23	25-Mar-23	25-May-23	09-Aug-23	08-Nov-23
Rec ID	**89333**	**89772**	**90495**	**92265**	**93733**
Lab Ref	**99024**	**99458**	**100174**	**101943**	**103410**
Antimony (total)	<0.001		<0.001	<0.001	<0.001
Appearance	SLIGHT TURBID		Slight Turbid	Slight Turbid	CLEAR
Arsenic-Total (mg/L)	0.003		0.002	0.002	0.002
Colour	SLIGHT GREEN		Brown	Brown	CLEAR
Comments		NO FLOW			
EC - Field	262.		220.	240.	235.
Electrical Conductivity @ 25°C (µS/cm)	212.		196.	198.	240.
Molybdenum (total)	<0.001		<0.001	<0.001	<0.001
Odour	NIL		Nil	Nil	NIL
Oil & Grease	<5		<5	8	<5
pH (pH Unit)	9.		8.2	8.	8.7
pH Value (pH Unit)	8.39		7.49	7.74	8.35
Selenium-Total (mg/L)	<0.01		<0.01	<0.01	<0.01
Temperature	27.9		13.7	14.5	23.6
Total Organic Carbon	42.		12.	14.	17.
Total Suspended Solids (TSS)	44.		34.	22.	14.

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_Void (Rocglen In pit Void Dam); Northing: 243470.8552; Easting: 6617301.6235

	27-Feb-23	25-May-23	09-Aug-23	08-Nov-23
Rec ID	**89332**	**90491**	**92264**	**93732**
Lab Ref	**99023**	**100170**	**101942**	**103409**
Aluminium (total) (mg/L)		6.08		
Appearance	SLIGHT TURBID	Slight Turbid	Clear	CLEAR
Arsenic-Total (mg/L)		0.007		
Bicarbonate Alkalinity as CaCO3 (mg/L)		216.		
Carbonate Alkalinity as CaCO3 (mg/L)		<1		
Chloride (mg/L)		34.		
Colour	SLIGHT BROWN	Brown	Clear	CLEAR
EC - Field	620.	610.	680.	960.
Electrical Conductivity @ 25°C (µS/cm)	547.	599.	628.	1,100.
Hydroxide Alkalinity as CaCO3 (mg/L)		<1		
Iron-Total (mg/L)		3.9		
Manganese (total)		0.176		
Odour	NIL	Nil	Nil	NIL
Oil & Grease	<5	<5	<5	<5
pH (pH Unit)	8.4	8.	8.4	9.
pH Value (pH Unit)	8.42	8.04	8.57	9.15
Sodium		117.		
Temperature	24.3	10.	13.8	22.5
Total Alkalinity as CaCO3 (mg/L)		216.		
Total Organic Carbon	8.	6.	4.	11.
Total Suspended Solids (TSS)	30.	31.	58.	28.

Outliers: 0

Field Name	Result	Outlier Comment

Appendix 2: Groundwater

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_MP2; Northing: 239156; Easting: 6592783

	03-Apr-23	07-Jun-23	27-Sep-23	05-Dec-23
Rec ID	**90001**	**90669**	**93288**	**94509**
Lab Ref	**99682**	**100348**	**102965**	
Aluminium (total) (mg/L)	0.18		0.01	
Ammonia as Nitrogen (N)	0.1		0.07	
Appearance	Clear	Clear	Clear	Clear
Arsenic-Total (mg/L)	<0.001		<0.001	
Barium (total)	1.18		1.26	
Beryllium (total)	<0.001		<0.001	
Bicarbonate Alkalinity as CaCO3 (mg/L)	536.		536.	
Boron (total)	0.06		0.06	
Cadmium-Total (mg/L)	<0.0001		<0.0001	
Calcium-Dissolved (mg/L)	294.		310.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	1,500.		1,490.	
Chromium-Total (mg/L)	<0.001		<0.001	
Cobalt	<0.001		<0.001	
Colour	Clear	Clear	Clear	
Copper-Total (mg/L)	0.002		0.003	
EC - Field	5,410.	4,740.	5,110.	4,920.
Electrical Conductivity @ 25°C (µS/cm)	5,320.		5,870.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	2.35		3.66	
Iron-Total (mg/L)	0.26		0.33	
Lead-Total (mg/L)	<0.001		<0.001	
Magnesium-Dissolved (mg/L)	174.		179.	
Manganese (total)	0.006		0.046	
Mercury-Total (mg/L)	<0.0001		<0.0001	
Nickel-Total (mg/L)	0.001		0.001	
Nitrate as N (mg/L)	1.15		0.68	
Nitrite + Nitrate as N (mg/L)	1.15		0.68	
Nitrite as N (mg/L)	<0.01		<0.01	
Odour	Nil	Nil	Nil	
pH (pH Unit)	7.2	7.1	7.	6.9

pH Value (pH Unit)	7.46		7.8	
Potassium-Dissolved (mg/L)	7.		6.	
Purge Type	Bailer	Bail	Bailer	Bail
Selenium-Total (mg/L)	<0.01		<0.01	
Sodium-Dissolved (mg/L)	612.		613.	
Standing Water Level	4.23	6.77	7.67	8.24
Stick up	1.	1.	1.	
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	10		12	
Temperature	21.1	20.2	21.2	20.9
Total Alkalinity as CaCO3 (mg/L)	536.		536.	
Total Anions	53.2		53.	
Total Cations	55.8		57.	
Total Dissolved Solids @180°C-Total (mg/L)	4,110.		3,560.	
Vanadium	<0.01		<0.01	
Water Depth to Stand	5.23	7.77	8.67	9.24
Zinc (total)	0.013		0.02	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_MP-2a; Northing: ; Easting:

	03-Apr-23	07-Jun-23	27-Sep-23	05-Dec-23
Rec ID	**90002**	**90698**	**93291**	**94520**
Lab Ref	**99683**	**100377**	**102968**	
Aluminium (total) (mg/L)	0.07		0.03	
Ammonia as Nitrogen (N)	<0.01		<0.01	
Appearance	Clear	Clear	Clear	Clear
Arsenic-Total (mg/L)	0.005		0.006	
Barium (total)	0.33		0.357	
Beryllium (total)	<0.001		<0.001	
Bicarbonate Alkalinity as CaCO3 (mg/L)	686.		688.	
Boron (total)	0.08		0.09	
Cadmium-Total (mg/L)	<0.0001		<0.0001	
Calcium-Dissolved (mg/L)	78.		80.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	473.		481.	
Chromium-Total (mg/L)	0.001		0.001	
Cobalt	<0.001		<0.001	
Colour	Clear	Clear	Clear	Clear
Copper-Total (mg/L)	0.013		0.112	
EC - Field	2,950.	2,810.	2,650.	2,570.
Electrical Conductivity @ 25°C (µS/cm)	2,400.		2,760.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	1.35		2.32	
Iron-Total (mg/L)	0.11		<0.05	
Lead-Total (mg/L)	<0.001		<0.001	
Magnesium-Dissolved (mg/L)	31.		31.	
Manganese (total)	0.004		0.012	
Mercury-Total (mg/L)	<0.0001		<0.0001	
Nickel-Total (mg/L)	0.001		0.001	
Nitrate as N (mg/L)	5.3		5.07	
Nitrite + Nitrate as N (mg/L)	5.3		5.07	
Nitrite as N (mg/L)	<0.01		<0.01	
Odour	Nil	Nil	Nil	
pH (pH Unit)	7.8	7.2	7.3	7.3

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH Value (pH Unit)	7.83		8.13	
Potassium-Dissolved (mg/L)	2.		2.	
Purge Type	Bailer	Bail	Bailer	Bail
Selenium-Total (mg/L)	0.01		0.01	
Sodium-Dissolved (mg/L)	510.		505.	
Standing Water Level	4.47	6.72	7.93	8.53
Stick up	0.7	0.7	0.7	
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	116		125	
Temperature	21.3	20.3	21.7	20.8
Total Alkalinity as CaCO3 (mg/L)	686.		688.	
Total Anions	29.5		29.9	
Total Cations	28.7		28.6	
Total Dissolved Solids @180°C-Total (mg/L)	1,710.		1,660.	
Vanadium	0.04		0.04	
Water Depth to Stand	5.17	7.42	8.63	9.23
Zinc (total)	0.008		0.017	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_MP3; Northing: 238838; Easting: 6589909

	03-Apr-23	06-Jun-23	27-Sep-23	06-Dec-23
Rec ID	**90003**	**90671**	**93289**	**94511**
Lab Ref	**99684**	**100350**	**102966**	
Aluminium (total) (mg/L)	3.52		0.18	
Ammonia as Nitrogen (N)	<0.01		0.06	
Appearance	Turbid	Turbid	Clear	Clear
Arsenic-Total (mg/L)	0.003		0.003	
Barium (total)	0.168		0.219	
Beryllium (total)	<0.001		<0.001	
Bicarbonate Alkalinity as CaCO3 (mg/L)	518.		462.	
Boron (total)	0.09		0.09	
Cadmium-Total (mg/L)	<0.0001		<0.0001	
Calcium-Dissolved (mg/L)	83.		92.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	908.		1,080.	
Chromium-Total (mg/L)	0.003		<0.001	
Cobalt	0.001		<0.001	
Colour	Brown	Brown	Clear	
Copper-Total (mg/L)	0.001		<0.001	
EC - Field	4,250.	4,050.	4,070.	3,960.
Electrical Conductivity @ 25°C (µS/cm)	3,640.		4,530.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	0.15		0.27	
Iron-Total (mg/L)	2.95		0.24	
Lead-Total (mg/L)	0.002		<0.001	
Magnesium-Dissolved (mg/L)	47.		50.	
Manganese (total)	0.115		0.062	
Mercury-Total (mg/L)	<0.0001		<0.0001	
Nickel-Total (mg/L)	0.001		<0.001	
Nitrate as N (mg/L)	2.48		1.46	
Nitrite + Nitrate as N (mg/L)	2.48		1.46	
Nitrite as N (mg/L)	<0.01		<0.01	
Odour	Nil	Nil	Nil	
pH (pH Unit)	7.8	7.6	7.3	7.3

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH Value (pH Unit)	7.89		8.09	
Potassium-Dissolved (mg/L)	2.		2.	
Purge Type	Bailer	Bail	Bailer	Bail
Selenium-Total (mg/L)	<0.01		<0.01	
Sodium-Dissolved (mg/L)	786.		810.	
Standing Water Level	17.64	16.76	16.89	17.95
Stick up	0.93	0.93	0.93	
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	308		195	
Temperature	22.6	20.8	22.3	22.9
Total Alkalinity as CaCO3 (mg/L)	518.		462.	
Total Anions	42.4		43.8	
Total Cations	42.2		44.	
Total Dissolved Solids @180°C-Total (mg/L)	2,520.		2,530.	
Vanadium	0.02		0.01	
Water Depth to Stand	18.57	17.69	17.82	18.88
Zinc (total)	0.023		0.008	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_MP-3a; Northing: ; Easting:

	03-Apr-23	06-Jun-23	27-Sep-23	06-Dec-23
Rec ID	**90004**	**90699**	**93292**	**94521**
Lab Ref	**99685**	**100378**	**102969**	
Aluminium (total) (mg/L)	0.33		<0.01	
Ammonia as Nitrogen (N)	<0.01		<0.01	
Appearance	Clear	Clear	Clear	Clear
Arsenic-Total (mg/L)	0.004		0.005	
Barium (total)	0.085		0.088	
Beryllium (total)	<0.001		<0.001	
Bicarbonate Alkalinity as CaCO3 (mg/L)	520.		511.	
Boron (total)	<0.05		<0.05	
Cadmium-Total (mg/L)	<0.0001		0.0002	
Calcium-Dissolved (mg/L)	20.		20.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	107.		119.	
Chromium-Total (mg/L)	<0.001		<0.001	
Cobalt	<0.001		<0.001	
Colour	Clear	Clear	Clear	Clear
Copper-Total (mg/L)	<0.001		<0.001	
EC - Field	1,270.	1,215.	1,150.	1,080.
Electrical Conductivity @ 25°C (µS/cm)	1,240.		1,300.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	0.83		3.8	
Iron-Total (mg/L)	0.25		<0.05	
Lead-Total (mg/L)	<0.001		<0.001	
Magnesium-Dissolved (mg/L)	15.		14.	
Manganese (total)	0.016		0.002	
Mercury-Total (mg/L)	<0.0001		<0.0001	
Nickel-Total (mg/L)	<0.001		<0.001	
Nitrate as N (mg/L)	0.69		0.66	
Nitrite + Nitrate as N (mg/L)	0.69		0.66	
Nitrite as N (mg/L)	<0.01		<0.01	
Odour	Nil	Nil	Nil	
pH (pH Unit)	7.8	7.8	7.8	7.8

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH Value (pH Unit)	8.11		7.94	
Potassium-Dissolved (mg/L)	2.		2.	
Purge Type	Bailer	Bail	Bailer	Bail
Selenium-Total (mg/L)	<0.01		<0.01	
Sodium-Dissolved (mg/L)	276.		254.	
Standing Water Level	21.45	21.46	21.37	21.29
Stick up	0.6	0.6	0.6	
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	31		35	
Temperature	21.8	20.7	22.4	23.6
Total Alkalinity as CaCO3 (mg/L)	520.		511.	
Total Anions	14.		14.3	
Total Cations	14.3		13.2	
Total Dissolved Solids @180°C-Total (mg/L)	790.		736.	
Vanadium	0.03		0.03	
Water Depth to Stand	22.05	22.06	21.97	21.89
Zinc (total)	0.006		<0.005	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

Data Point: ROCGLEN_MP4; Northing: ; Easting:

	06-Jun-23	06-Dec-23
Rec ID	**90672**	**94512**
Lab Ref	**100351**	
Comments	Dry	DRY

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_MP4-a (Surrey New); Northing: ; Easting:

	03-Apr-23	06-Jun-23	26-Sep-23	06-Dec-23
Rec ID	**90006**	**90673**	**93281**	**94513**
Lab Ref	**99687**	**100352**	**102958**	
Aluminium (total) (mg/L)	0.02		0.05	
Ammonia as Nitrogen (N)	0.27		0.04	
Appearance	Clear	Clear	Clear	Clear
Arsenic-Total (mg/L)	<0.001		0.003	
Barium (total)	0.362		0.248	
Beryllium (total)	<0.001		<0.001	
Bicarbonate Alkalinity as CaCO3 (mg/L)	647.		607.	
Boron (total)	<0.05		<0.05	
Cadmium-Total (mg/L)	<0.0001		<0.0001	
Calcium-Dissolved (mg/L)	35.		36.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	1,370.		1,290.	
Chromium-Total (mg/L)	<0.001		<0.001	
Cobalt	<0.001		<0.001	
Colour	Clear	Clear	clear	
Copper-Total (mg/L)	<0.001		<0.001	
EC - Field	5,620.	5,280.	5,190.	4,940.
Electrical Conductivity @ 25°C (µS/cm)	5,410.		5,910.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	1.7		2.98	
Iron-Total (mg/L)	0.16		0.14	
Lead-Total (mg/L)	<0.001		<0.001	
Magnesium-Dissolved (mg/L)	30.		29.	
Manganese (total)	0.641		0.418	
Mercury-Total (mg/L)	<0.0001		<0.0001	
Nickel-Total (mg/L)	<0.001		<0.001	
Nitrate as N (mg/L)	0.02		<0.01	
Nitrite + Nitrate as N (mg/L)	0.02		<0.01	
Nitrite as N (mg/L)	<0.01		<0.01	
Odour	Nil	Nil	nil	
pH (pH Unit)	7.6	7.5	7.6	7.5

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH Value (pH Unit)	8.01		8.07	
Potassium-Dissolved (mg/L)	4.		3.	
Purge Type	Bailer	Bail	Bailer	Bail
Selenium-Total (mg/L)	<0.01		<0.01	
Sodium-Dissolved (mg/L)	1,170.		1,150.	
Standing Water Level	28.11	28.58	28.76	28.83
Stick up	0.85	0.85	0.85	0.85
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	86		126	
Temperature	21.5	20.8	22.2	21.8
Total Alkalinity as CaCO3 (mg/L)	647.		607.	
Total Anions	53.4		51.1	
Total Cations	55.2		54.3	
Total Dissolved Solids @180°C-Total (mg/L)	3,170.		3,070.	
Vanadium	<0.01		<0.01	
Water Depth to Stand	28.96	29.43	29.61	29.68
Zinc (total)	0.012		0.006	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_MP4-b (Surrey New); Northing: ; Easting:

	03-Apr-23	06-Jun-23	27-Sep-23	06-Dec-23
Rec ID	**90007**	**90674**	**93290**	**94514**
Lab Ref	**99688**	**100353**	**102967**	
Aluminium (total) (mg/L)	0.03		0.02	
Ammonia as Nitrogen (N)	0.12		<0.01	
Appearance	Clear	Clear	Clear	Clear
Arsenic-Total (mg/L)	0.003		0.003	
Barium (total)	0.084		0.094	
Beryllium (total)	<0.001		<0.001	
Bicarbonate Alkalinity as CaCO3 (mg/L)	723.		701.	
Boron (total)	<0.05		<0.05	
Cadmium-Total (mg/L)	<0.0001		<0.0001	
Calcium-Dissolved (mg/L)	11.		12.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		28	
Chloride (mg/L)	550.		553.	
Chromium-Total (mg/L)	<0.001		<0.001	
Cobalt	<0.001		<0.001	
Colour	Clear	Clear	Clear	
Copper-Total (mg/L)	0.003		0.002	
EC - Field	3,260.	3,100.	2,860.	2,770.
Electrical Conductivity @ 25°C (µS/cm)	2,680.		3,080.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	1.69		4.78	
Iron-Total (mg/L)	0.11		0.06	
Lead-Total (mg/L)	<0.001		<0.001	
Magnesium-Dissolved (mg/L)	11.		10.	
Manganese (total)	0.154		0.084	
Mercury-Total (mg/L)	<0.0001		<0.0001	
Nickel-Total (mg/L)	0.002		<0.001	
Nitrate as N (mg/L)	0.04		0.05	
Nitrite + Nitrate as N (mg/L)	0.04		0.05	
Nitrite as N (mg/L)	<0.01		<0.01	
Odour	Nil	Nil	Nil	
pH (pH Unit)	7.8	7.7	8.	7.6

pH Value (pH Unit)	8.22		8.49	
Potassium-Dissolved (mg/L)	2.		2.	
Purge Type	Bailer		Bailer	Bail
Selenium-Total (mg/L)	<0.01		<0.01	
Sodium-Dissolved (mg/L)	690.		656.	
Standing Water Level	25.47	25.58	25.38	25.41
Stick up	0.9	0.9	0.9	0.9
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	127		138	
Temperature	21.5	21.	22.1	21.8
Total Alkalinity as CaCO3 (mg/L)	723.		728.	
Total Anions	32.6		33.	
Total Cations	31.5		30.	
Total Dissolved Solids @180°C-Total (mg/L)	1,830.		1,790.	
Vanadium	<0.01		<0.01	
Water Depth to Stand	26.37	26.48	26.28	26.31
Zinc (total)	0.01		0.005	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

Data Point: ROCGLEN_MP5; Northing: 238269; Easting: 6594817

	03-Apr-23	06-Jun-23	13-Sep-23
Rec ID	**90008**	**90665**	**92950**
Lab Ref	**99689**	**100344**	**102627**
Comments	Dry	Dry	Dry

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

Data Point: ROCGLEN_MP-5a; Northing: ; Easting:

	06-Jun-23	06-Dec-23
Rec ID	**90700**	**94522**
Lab Ref	**100379**	
Comments	No Sample: Grey Sludge in	Dry, insufficient to
Standing Water Level	74.29	
Stick up	0.8	
Water Depth to Stand	75.09	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_MP-6; Northing: ; Easting:

	03-Apr-23	07-Jun-23	27-Sep-23	06-Dec-23
Rec ID	**90010**	**90701**	**93293**	**94523**
Lab Ref	**99691**	**100380**	**102970**	
Aluminium (total) (mg/L)	0.08		0.06	
Ammonia as Nitrogen (N)	0.67		0.75	
Appearance	Clear	Clear	Clear	Clear
Arsenic-Total (mg/L)	0.005		0.004	
Barium (total)	0.288		0.189	
Beryllium (total)	<0.001		<0.001	
Bicarbonate Alkalinity as CaCO3 (mg/L)	791.		777.	
Boron (total)	0.06		0.06	
Cadmium-Total (mg/L)	<0.0001		<0.0001	
Calcium-Dissolved (mg/L)	7.		7.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	133.		148.	
Chromium-Total (mg/L)	<0.001		<0.001	
Cobalt	<0.001		<0.001	
Colour	Clear	Clear	Clear	Clear
Copper-Total (mg/L)	0.003		0.001	
EC - Field	1,600.	1,570.	1,590.	1,150.
Electrical Conductivity @ 25°C (µS/cm)	1,660.		1,780.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	0.38		0.17	
Iron-Total (mg/L)	2.52		0.61	
Lead-Total (mg/L)	<0.001		<0.001	
Magnesium-Dissolved (mg/L)	7.		6.	
Manganese (total)	0.042		0.050	
Mercury-Total (mg/L)	<0.0001		<0.0001	
Nickel-Total (mg/L)	0.002		0.002	
Nitrate as N (mg/L)	0.03		<0.01	
Nitrite + Nitrate as N (mg/L)	0.03		<0.01	
Nitrite as N (mg/L)	<0.01		<0.01	
Odour	Nil	Nil	Nil	
pH (pH Unit)	7.9	7.8	7.9	7.89

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH Value (pH Unit)	8.09		7.99	
Potassium-Dissolved (mg/L)	5.		5.	
Purge Type	Bailer	Bail	Bailer	Bail
Selenium-Total (mg/L)	<0.01		<0.01	
Sodium-Dissolved (mg/L)	422.		429.	
Standing Water Level	6.77	6.81	6.76	6.77
Stick up	0.65	0.65	0.65	0.65
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	<1		<1	
Temperature	20.6	19.1	21.9	20.5
Total Alkalinity as CaCO3 (mg/L)	791.		777.	
Total Anions	19.6		19.7	
Total Cations	19.4		19.6	
Total Dissolved Solids @180°C-Total (mg/L)	1,110.		1,050.	
Vanadium	<0.01		<0.01	
Water Depth to Stand	7.42	7.46	7.41	7.42
Zinc (total)	0.019		0.01	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_MP-7; Northing: ; Easting:

	05-Apr-23	07-Jun-23	02-Oct-23	05-Dec-23
Rec ID	**90047**	**90702**	**93427**	**94524**
Lab Ref	**99728**	**100381**	**103104**	
Aluminium (total) (mg/L)	0.02			
Ammonia as Nitrogen (N)	0.01		0.03	
Appearance	Clear	Clear	Clear	Clear
Arsenic-Total (mg/L)	0.003			
Barium (total)	0.772			
Beryllium (total)	<0.001			
Bicarbonate Alkalinity as CaCO3 (mg/L)	688.		680.	
Boron (total)	0.09			
Cadmium-Total (mg/L)	<0.0001			
Calcium-Dissolved (mg/L)	102.		100.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	776.		694.	
Chromium-Total (mg/L)	<0.001			
Cobalt	<0.001			
Colour	Clear	Clear	Clear	Clear
Copper-Total (mg/L)	0.003			
EC - Field	3,570.	3,310.	2,830.	2,740.
Electrical Conductivity @ 25°C (µS/cm)	3,180.		3,120.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	3.49		5.15	
Iron-Total (mg/L)	0.07			
Lead-Total (mg/L)	<0.001		<0.001	
Magnesium-Dissolved (mg/L)	66.		61.	
Manganese (total)	0.011			
Mercury-Total (mg/L)	<0.0001			
Nickel-Total (mg/L)	0.001			
Nitrate as N (mg/L)	1.8		5.16	
Nitrite + Nitrate as N (mg/L)	1.82		5.16	
Nitrite as N (mg/L)	0.02		<0.01	
Odour	Nil	Nil	Nil	
pH (pH Unit)	7.	7.2	7.1	7.

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH Value (pH Unit)	8.14		7.85	
Potassium-Dissolved (mg/L)	3.		3.	
Purge Type	Bailer	Bail	Bail	Bail
Selenium-Total (mg/L)	<0.01			
Sodium-Dissolved (mg/L)	536.		467.	
Standing Water Level	23.97	22.72	22.5	23.82
Stick up	0.65	0.65	0.65	0.65
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	35		26	
Temperature	21.1	20.8	21.5	21.9
Total Alkalinity as CaCO3 (mg/L)	688.		680.	
Total Anions	36.4		33.7	
Total Cations	33.9		30.4	
Total Dissolved Solids @180°C-Total (mg/L)	1,870.			
Vanadium	0.02			
Water Depth to Stand	24.62	23.37	23.15	24.47
Zinc (total)	0.053			

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_MP-8; Northing: ; Easting:

	05-Apr-23	07-Jun-23	02-Oct-23	05-Dec-23
Rec ID	**90048**	**90703**	**93428**	**94525**
Lab Ref	**99729**	**100382**	**103105**	
Aluminium (total) (mg/L)	0.01			
Ammonia as Nitrogen (N)	0.51		0.68	
Appearance	Clear	Clear	Clear	Clear
Arsenic-Total (mg/L)	<0.001			
Barium (total)	0.892			
Beryllium (total)	<0.001			
Bicarbonate Alkalinity as CaCO3 (mg/L)	658.		596.	
Boron (total)	0.08			
Cadmium-Total (mg/L)	<0.0001			
Calcium-Dissolved (mg/L)	198.		185.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	1,320.		1,260.	
Chromium-Total (mg/L)	<0.001			
Cobalt	0.002			
Colour	Clear	Clear	Clear	Clear
Copper-Total (mg/L)	0.002			
EC - Field	4,900.	4,400.	4,350.	4,220.
Electrical Conductivity @ 25°C (µS/cm)	4,720.		4,610.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	0.04		2.72	
Iron-Total (mg/L)	0.11			
Lead-Total (mg/L)	<0.001		<0.001	
Magnesium-Dissolved (mg/L)	130.		116.	
Manganese (total)	1.75			
Mercury-Total (mg/L)	<0.0001			
Nickel-Total (mg/L)	0.002			
Nitrate as N (mg/L)	0.11		0.17	
Nitrite + Nitrate as N (mg/L)	0.13		0.17	
Nitrite as N (mg/L)	0.02		<0.01	
Odour	Nil	Nil	Nil	
pH (pH Unit)	7.	7.2	7.1	7.1

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH Value (pH Unit)	7.91		7.85	
Potassium-Dissolved (mg/L)	4.		6.	
Purge Type	Bailer	Bail	Bail	
Selenium-Total (mg/L)	<0.01			
Sodium-Dissolved (mg/L)	688.		602.	
Standing Water Level	23.56	22.79	22.66	22.93
Stick up	0.65	0.65	0.65	0.65
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	9		9	
Temperature	21.1	20.7	21.2	220.2
Total Alkalinity as CaCO3 (mg/L)	658.		596.	
Total Anions	50.6		47.6	
Total Cations	50.6		45.1	
Total Dissolved Solids @180°C-Total (mg/L)	2,920.			
Vanadium	<0.01			
Water Depth to Stand	24.21	23.44	23.31	23.58
Zinc (total)	0.025			

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_Production Bore; Northing: 240803; Easting: 6594267

	04-Apr-23	06-Jun-23	26-Sep-23	05-Dec-23
Rec ID	**90041**	**90668**	**93280**	**94508**
Lab Ref	**99722**	**100347**	**102957**	
Aluminium (total) (mg/L)	<0.01		<0.01	
Ammonia as Nitrogen (N)	<0.01		<0.01	
Appearance	Clear	Clear	clear	
Arsenic-Total (mg/L)	<0.001		<0.001	
Barium (total)	0.103		0.107	
Beryllium (total)	<0.001		<0.001	
Bicarbonate Alkalinity as CaCO3 (mg/L)	137.		153.	
Boron (total)	0.10		0.14	
Cadmium-Total (mg/L)	<0.0001		<0.0001	
Calcium-Dissolved (mg/L)	115.		132.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	1,130.		1,160.	
Chromium-Total (mg/L)	<0.001		<0.001	
Cobalt	<0.001		<0.001	
Colour	Clear	Clear	clear	Clear
Comments		Pump Over Bore		Pump removed
Copper-Total (mg/L)	<0.001		0.002	
EC - Field	4,370.	4,170.	3,970.	4,610.
Electrical Conductivity @ 25°C (µS/cm)	3,920.		4,340.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	6.64		5.24	
Iron-Total (mg/L)	<0.05		0.05	
Lead-Total (mg/L)	<0.001		<0.001	
Magnesium-Dissolved (mg/L)	57.		58.	
Manganese (total)	0.004		0.001	
Mercury-Total (mg/L)	<0.0001		<0.0001	
Nickel-Total (mg/L)	<0.001		<0.001	
Nitrate as N (mg/L)	6.54		2.13	
Nitrite + Nitrate as N (mg/L)	6.54		2.13	
Nitrite as N (mg/L)	<0.01		<0.01	
Odour	Nil	Nil	nil	

pH (pH Unit)	8.	8.	8.2	7.
pH Value (pH Unit)	7.91		8.11	
Potassium-Dissolved (mg/L)	5.		5.	
Purge Type	Tank	Tank	tank	Bail
Selenium-Total (mg/L)	<0.01		<0.01	
Sodium-Dissolved (mg/L)	704.		684.	
Standing Water Level				41.81
Stick up				0.5
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	69		65	
Temperature	23.2	17.6	20.	22.1
Total Alkalinity as CaCO3 (mg/L)	137.		153.	
Total Anions	36.		37.1	
Total Cations	41.2		41.2	
Total Dissolved Solids @180°C-Total (mg/L)	2,550.		2,840.	
Vanadium	<0.01		<0.01	
Water Depth to Stand				42.31
Zinc (total)	<0.005		<0.005	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_Surrey Top Paddock; Northing: ; Easting:

	04-Apr-23	08-Jun-23	02-Oct-23	06-Dec-23
Rec ID	**90043**	**90678**	**93425**	**94517**
Lab Ref	**99724**	**100357**	**103102**	
Aluminium (total) (mg/L)	0.47			
Ammonia as Nitrogen (N)	<0.01		0.02	
Appearance	Clear	Clear	CLEAR	Clear
Arsenic-Total (mg/L)	0.002			
Barium (total)	0.125			
Beryllium (total)	<0.001			
Bicarbonate Alkalinity as CaCO3 (mg/L)	473.		523.	
Boron (total)	0.11			
Cadmium-Total (mg/L)	<0.0001			
Calcium-Dissolved (mg/L)	124.		152.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	794.		1,090.	
Chromium-Total (mg/L)	<0.001			
Cobalt	<0.001			
Colour	Clear	Clear	CLEAR	Clear
Copper-Total (mg/L)	<0.001			
EC - Field	4,010.	3,990.	4,050.	4,120.
Electrical Conductivity @ 25°C (µS/cm)	3,520.		4,610.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	4.26		3.6	
Iron-Total (mg/L)	0.57			
Lead-Total (mg/L)	<0.001		<0.001	
Magnesium-Dissolved (mg/L)	82.		107.	
Manganese (total)	0.045			
Mercury-Total (mg/L)	<0.0001			
Nickel-Total (mg/L)	0.001			
Nitrate as N (mg/L)	16.7		7.51	
Nitrite + Nitrate as N (mg/L)	16.7		7.51	
Nitrite as N (mg/L)	<0.01		<0.01	
Odour	Nil	Nil	Nil	
pH (pH Unit)	7.2	7.2	7.2	7.3

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH Value (pH Unit)	7.92		7.86	
Potassium-Dissolved (mg/L)	16.		16.	
Purge Type	Bailer	Bail	Bail	Bail
Selenium-Total (mg/L)	<0.01			
Sodium-Dissolved (mg/L)	598.		601.	
Standing Water Level	29.8	29.16	29.35	29.06
Stick up	0.31	0.31	0.31	0.31
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	206		238	
Temperature	22.	20.7	22.5	22.7
Total Alkalinity as CaCO3 (mg/L)	473.		523.	
Total Anions	36.1		46.2	
Total Cations	39.4		42.9	
Total Dissolved Solids @180°C-Total (mg/L)	2,230.			
Vanadium	0.02			
Water Depth to Stand	30.11	29.47	29.66	29.37
Zinc (total)	0.012			

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

Data Point: ROCGLEN_WB1; Northing: 238738; Easting: 6597885

	07-Jun-23	06-Dec-23
Rec ID	**90679**	**94518**
Lab Ref	**100358**	
Comments	Broken Windmill Over	Broken Windmill Over
Standing Water Level	6.52	6.69
Stick up	0.4	0.4
Water Depth to Stand	6.92	7.09

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_WB10; Northing: 237137; Easting: 6586489

	13-Apr-23	08-Jun-23	27-Sep-23	06-Dec-23
Rec ID	**90055**	**90660**	**93285**	**94500**
Lab Ref	**99736**	**100339**	**102962**	
Aluminium (total) (mg/L)			0.01	
Ammonia as Nitrogen (N)			<0.01	
Appearance		Clear	Clear	Clear
Arsenic-Total (mg/L)			<0.001	
Barium (total)			0.084	
Beryllium (total)			<0.001	
Bicarbonate Alkalinity as CaCO3 (mg/L)			437.	
Boron (total)			0.06	
Cadmium-Total (mg/L)			0.0001	
Calcium-Dissolved (mg/L)			86.	
Carbonate Alkalinity as CaCO3 (mg/L)			<1	
Chloride (mg/L)			32.	
Chromium-Total (mg/L)			0.003	
Cobalt			<0.001	
Colour		Clear	Clear	
Comments	SWL only, new pump over			
Copper-Total (mg/L)			0.242	
EC - Field		1,560.	895.	910.
Electrical Conductivity @ 25°C (µS/cm)			1,020.	
Hydroxide Alkalinity as CaCO3 (mg/L)			<1	
Ionic Balance (%)			0.23	
Iron-Total (mg/L)			1.21	
Lead-Total (mg/L)			0.013	
Magnesium-Dissolved (mg/L)			42.	
Manganese (total)			0.011	
Mercury-Total (mg/L)			<0.0001	
Nickel-Total (mg/L)			0.006	
Nitrate as N (mg/L)			0.2	
Nitrite + Nitrate as N (mg/L)			0.2	
Nitrite as N (mg/L)			<0.01	
Odour		Nil	Nil	

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH (pH Unit)		7.	7.7	7.8
pH Value (pH Unit)			8.21	
Potassium-Dissolved (mg/L)			1.	
Purge Type		Tap	Tap	
Selenium-Total (mg/L)			<0.01	
Sodium-Dissolved (mg/L)			89.	
Standing Water Level	14.2	14.17	14.08	13.95
Stick up	0.07	0.07	0.07	0.07
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)			94	
Temperature		16.5	21.1	23.6
Total Alkalinity as CaCO3 (mg/L)			437.	
Total Anions			11.6	
Total Cations			11.6	
Total Dissolved Solids @180°C-Total (mg/L)			584.	
Vanadium			<0.01	
Water Depth to Stand	14.27	14.24	14.15	14.02
Zinc (total)			0.214	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_WB11; Northing: 236405; Easting: 6585725

	13-Apr-23	08-Jun-23	27-Sep-23	06-Dec-23
Rec ID	**90056**	**90659**	**93284**	**94499**
Lab Ref	**99737**	**100338**	**102961**	
Aluminium (total) (mg/L)			0.11	
Ammonia as Nitrogen (N)			<0.01	
Appearance		Clear	Clear	
Arsenic-Total (mg/L)			<0.001	
Barium (total)			0.078	
Beryllium (total)			<0.001	
Bicarbonate Alkalinity as CaCO3 (mg/L)			427.	
Boron (total)			0.06	
Cadmium-Total (mg/L)			<0.0001	
Calcium-Dissolved (mg/L)			81.	
Carbonate Alkalinity as CaCO3 (mg/L)			<1	
Chloride (mg/L)			31.	
Chromium-Total (mg/L)			<0.001	
Cobalt			<0.001	
Colour		Clear	Clear	Clear
Comments	No access			
Copper-Total (mg/L)			0.062	
EC - Field		970.	880.	885.
Electrical Conductivity @ 25°C (µS/cm)			988.	
Hydroxide Alkalinity as CaCO3 (mg/L)			<1	
Ionic Balance (%)			1.92	
Iron-Total (mg/L)			0.27	
Lead-Total (mg/L)			0.007	
Magnesium-Dissolved (mg/L)			39.	
Manganese (total)			0.034	
Mercury-Total (mg/L)			<0.0001	
Nickel-Total (mg/L)			<0.001	
Nitrate as N (mg/L)			0.2	
Nitrite + Nitrate as N (mg/L)			0.2	
Nitrite as N (mg/L)			<0.01	
Odour		Nil	Nil	

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH (pH Unit)		7.3	7.3	7.4
pH Value (pH Unit)			8.03	
Potassium-Dissolved (mg/L)			1.	
Purge Type		Tap	Tap	
Selenium-Total (mg/L)			<0.01	
Sodium-Dissolved (mg/L)			85.	
Standing Water Level		15.94	17.04	16.51
Stick up		0.25	0.25	0.25
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)			96	
Temperature		21.5	21.9	22.4
Total Alkalinity as CaCO3 (mg/L)			427.	
Total Anions			11.4	
Total Cations			11.	
Total Dissolved Solids @180°C-Total (mg/L)			594.	
Vanadium			<0.01	
Water Depth to Stand		16.19	17.29	16.76
Zinc (total)			0.099	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_WB12; Northing: 237562; Easting: 6587535

	13-Apr-23	08-Jun-23	27-Sep-23	06-Dec-23
Rec ID	**90057**	**90661**	**93286**	**94501**
Lab Ref	**99738**	**100340**	**102963**	
Aluminium (total) (mg/L)	0.14		0.04	
Ammonia as Nitrogen (N)	4.91		<0.01	
Appearance	Clear	Clear	Clear	Clear
Arsenic-Total (mg/L)	<0.001		<0.001	
Barium (total)	0.05		0.008	
Beryllium (total)	<0.001		<0.001	
Bicarbonate Alkalinity as CaCO3 (mg/L)	741.		486.	
Boron (total)	0.08		<0.05	
Cadmium-Total (mg/L)	<0.0001		<0.0001	
Calcium-Dissolved (mg/L)	17.		9.	
Carbonate Alkalinity as CaCO3 (mg/L)	24		23	
Chloride (mg/L)	226.		92.	
Chromium-Total (mg/L)	<0.001		<0.001	
Cobalt	<0.001		<0.001	
Colour	Clear	Clear	Clear	
Copper-Total (mg/L)	<0.001		0.014	
EC - Field	1,620.	1,250.	1,030.	1,130.
Electrical Conductivity @ 25°C (µS/cm)	1,860.		1,180.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	2.56		0.44	
Iron-Total (mg/L)	3.16		0.79	
Lead-Total (mg/L)	<0.001		<0.001	
Magnesium-Dissolved (mg/L)	86.		13.	
Manganese (total)	0.276		0.043	
Mercury-Total (mg/L)	<0.0001		<0.0001	
Nickel-Total (mg/L)	<0.001		0.001	
Nitrate as N (mg/L)	<0.01		<0.01	
Nitrite + Nitrate as N (mg/L)	<0.01		<0.01	
Nitrite as N (mg/L)	<0.01		<0.01	
Odour	Nil	Nil	Nil	
pH (pH Unit)	7.8	8.3	8.3	8.4

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH Value (pH Unit)	8.32		8.72	
Potassium-Dissolved (mg/L)	3.		5.	
Purge Type	Bailer	Bail	Bailer	
Selenium-Total (mg/L)	<0.01		<0.01	
Sodium-Dissolved (mg/L)	295.		264.	
Standing Water Level	13.42	13.22	13.25	13.15
Stick up	0.22	0.22	0.22	0.22
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	12		12	
Temperature	21.8	20.5	21.7	21.9
Total Alkalinity as CaCO3 (mg/L)	766.		509.	
Total Anions	21.9		13.	
Total Cations	20.8		13.1	
Total Dissolved Solids @180°C-Total (mg/L)	1,060.		692.	
Vanadium	<0.01		<0.01	
Water Depth to Stand	13.64	13.44	13.47	13.37
Zinc (total)	0.089		0.036	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_WB13; Northing: ; Easting:

	04-Apr-23	07-Jun-23	02-Oct-23	06-Dec-23
Rec ID	**90044**	**90697**	**93426**	**94519**
Lab Ref	**99725**	**100376**	**103103**	
Aluminium (total) (mg/L)	0.03			
Ammonia as Nitrogen (N)	0.33		0.02	
Appearance	Clear	Clear	Clear	Clear
Arsenic-Total (mg/L)	<0.001			
Barium (total)	0.034			
Beryllium (total)	<0.001			
Bicarbonate Alkalinity as CaCO3 (mg/L)	380.		471.	
Boron (total)	0.07			
Cadmium-Total (mg/L)	<0.0001			
Calcium-Dissolved (mg/L)	264.		252.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	874.		936.	
Chromium-Total (mg/L)	<0.001			
Cobalt	<0.001			
Colour	Clear	Clear	Clear	Clear
Copper-Total (mg/L)	0.003			
EC - Field	3,910.	3,540.	3,420.	3,250.
Electrical Conductivity @ 25°C (µS/cm)	3,370.		3,690.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	3.89		5.23	
Iron-Total (mg/L)	0.39			
Lead-Total (mg/L)	<0.001		<0.001	
Magnesium-Dissolved (mg/L)	83.		77.	
Manganese (total)	0.010			
Mercury-Total (mg/L)	0.0004			
Nickel-Total (mg/L)	<0.001			
Nitrate as N (mg/L)	9.99		4.06	
Nitrite + Nitrate as N (mg/L)	10.		4.06	
Nitrite as N (mg/L)	0.01		<0.01	
Odour	Nil	Nil	Nil	
pH (pH Unit)	7.3	7.2	7.3	7.1

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH Value (pH Unit)	7.86		7.89	
Potassium-Dissolved (mg/L)	4.		4.	
Purge Type	Tank	Tap	Tank	Tank
Selenium-Total (mg/L)	<0.01			
Sodium-Dissolved (mg/L)	408.		366.	
Standing Water Level	29.91	34.1	36.7	36.98
Stick up	0.15	0.15	0.15	0.15
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	133		143	
Temperature	20.6	19.8	23.1	22.9
Total Alkalinity as CaCO3 (mg/L)	380.		471.	
Total Anions	35.		38.8	
Total Cations	37.8		34.9	
Total Dissolved Solids @180°C-Total (mg/L)	2,480.			
Vanadium	<0.01			
Water Depth to Stand	30.06	34.25	36.85	37.13
Zinc (total)	0.024			

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_WB-14-Barock ; Northing: ; Easting:

	04-Apr-23	07-Jun-23	02-Oct-23	06-Dec-23
Rec ID	**90045**	**90705**	**93429**	**94527**
Lab Ref	**99726**	**100384**	**103106**	
Aluminium (total) (mg/L)	0.06			
Ammonia as Nitrogen (N)	<0.01		0.03	
Appearance	Clear	Clear	Clear	Clear
Arsenic-Total (mg/L)	0.012			
Barium (total)	0.397			
Beryllium (total)	<0.001			
Bicarbonate Alkalinity as CaCO3 (mg/L)	512.		530.	
Boron (total)	0.05			
Cadmium-Total (mg/L)	<0.0001			
Calcium-Dissolved (mg/L)	45.		42.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	127.		144.	
Chromium-Total (mg/L)	0.002			
Cobalt	<0.001			
Colour	Clear	Clear	Clear	Clear
Copper-Total (mg/L)	0.05			
EC - Field	1,270.	1,210.	1,170.	1,210.
Electrical Conductivity @ 25°C (µS/cm)	1,240.		1,300.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	2.2		4.75	
Iron-Total (mg/L)	1.2			
Lead-Total (mg/L)	0.009		0.047	
Magnesium-Dissolved (mg/L)	23.		21.	
Manganese (total)	0.026			
Mercury-Total (mg/L)	<0.0001			
Nickel-Total (mg/L)	0.001			
Nitrate as N (mg/L)	1.64		0.97	
Nitrite + Nitrate as N (mg/L)	1.64		0.97	
Nitrite as N (mg/L)	<0.01		<0.01	
Odour	Nil	Nil	Nil	
pH (pH Unit)	7.4	7.5	7.6	7.6

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH Value (pH Unit)	8.07		8.2	
Potassium-Dissolved (mg/L)	2.		2.	
Purge Type	Tap	Tap	Tap	Tap
Selenium-Total (mg/L)	<0.01			
Sodium-Dissolved (mg/L)	241.		222.	
Standing Water Level	9.16	8.13	8.97	9.08
Stick up	0.3	0.3	0.3	0.3
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	11		11	
Temperature	25.1	14.8	23.1	23.3
Total Alkalinity as CaCO3 (mg/L)	512.		530.	
Total Anions	14.		14.9	
Total Cations	14.7		13.5	
Total Dissolved Solids @180°C-Total (mg/L)	762.			
Vanadium	0.07			
Water Depth to Stand	9.46	8.43	9.27	9.38
Zinc (total)	0.087			

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_WB-15 Kahana; Northing: ; Easting:

	05-Apr-23	08-Jun-23	26-Sep-23	06-Dec-23
Rec ID	**90049**	**90704**	**93282**	**94526**
Lab Ref	**99730**	**100383**	**102959**	
Aluminium (total) (mg/L)	0.2		0.56	
Ammonia as Nitrogen (N)	13.9		9.82	
Appearance	Clear	Clear	Clear	Clear
Arsenic-Total (mg/L)	0.001		<0.001	
Barium (total)	0.236		0.266	
Beryllium (total)	<0.001		<0.001	
Bicarbonate Alkalinity as CaCO3 (mg/L)	919.		888.	
Boron (total)	0.06		0.08	
Cadmium-Total (mg/L)	<0.0001		<0.0001	
Calcium-Dissolved (mg/L)	220.		231.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	237.		209.	
Chromium-Total (mg/L)	<0.001		<0.001	
Cobalt	<0.001		<0.001	
Colour	Clear	Clear	Clear	Clear
Copper-Total (mg/L)	0.009		0.012	
EC - Field	1,810.	1,760.	2,050.	2,140.
Electrical Conductivity @ 25°C (µS/cm)	1,950.		2,080.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	3.66		1.24	
Iron-Total (mg/L)	9.54		12.6	
Lead-Total (mg/L)	0.002		0.001	
Magnesium-Dissolved (mg/L)	73.		70.	
Manganese (total)	1.90		2.16	
Mercury-Total (mg/L)	<0.0001		<0.0001	
Nickel-Total (mg/L)	<0.001		0.002	
Nitrate as N (mg/L)	<0.01		0.01	
Nitrite + Nitrate as N (mg/L)	0.02		0.01	
Nitrite as N (mg/L)	0.03		<0.01	
Odour	Slight Sulfur	Nil	nil	
pH (pH Unit)	7.	7.1	7.	7.1

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH Value (pH Unit)	7.88		7.47	
Potassium-Dissolved (mg/L)	8.		8.	
Purge Type	Bailer	Bail	Bailer	Bail
Selenium-Total (mg/L)	<0.01		<0.01	
Sodium-Dissolved (mg/L)	140.		128.	
Standing Water Level	27.95	27.98	27.76	27.57
Stick up	0.28	0.28	0.28	0.28
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	<1		<1	
Temperature	21.7	20.5	22.4	23.6
Total Alkalinity as CaCO3 (mg/L)	919.		888.	
Total Anions	25.		23.6	
Total Cations	23.3		23.1	
Total Dissolved Solids @180°C-Total (mg/L)	1,130.		1,090.	
Vanadium	<0.01		<0.01	
Water Depth to Stand	28.23	28.26	28.04	27.85
Zinc (total)	0.132		0.1	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

Data Point: ROCGLEN_WB2; Northing: 239906; Easting: 6596452

	06-Jun-23	06-Dec-23
Rec ID	**90662**	**94502**
Lab Ref	**100341**	
Comments	No Sample: Tank & Trough	Tank dry no sample
Standing Water Level	13.4	13.59
Stick up	0.38	0.38
Water Depth to Stand	13.78	13.97

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_WB3; Northing: 239394; Easting: 6595776

	05-Apr-23	07-Jun-23	02-Oct-23	05-Dec-23
Rec ID	**90046**	**90663**	**93423**	**94503**
Lab Ref	**99727**	**100342**	**103100**	
Aluminium (total) (mg/L)	0.22			
Ammonia as Nitrogen (N)	1.63		0.04	
Appearance	Clear	Clear	Clear	Clear
Arsenic-Total (mg/L)	<0.001			
Barium (total)	0.023			
Beryllium (total)	<0.001			
Bicarbonate Alkalinity as CaCO3 (mg/L)	475.		459.	
Boron (total)	0.06			
Cadmium-Total (mg/L)	<0.0001			
Calcium-Dissolved (mg/L)	240.		236.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	1,170.		1,120.	
Chromium-Total (mg/L)	<0.001			
Cobalt	<0.001			
Colour	Clear	Clear	CLEAR	
Comments				Bail
Copper-Total (mg/L)	0.002			
EC - Field	4,250.	3,700.	3,820.	3,640.
Electrical Conductivity @ 25°C (µS/cm)	4,030.		4,140.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	0.81		3.03	
Iron-Total (mg/L)	0.2			
Lead-Total (mg/L)	0.002		<0.001	
Magnesium-Dissolved (mg/L)	183.		165.	
Manganese (total)	0.040			
Mercury-Total (mg/L)	<0.0001			
Nickel-Total (mg/L)	<0.001			
Nitrate as N (mg/L)	5.2		4.6	
Nitrite + Nitrate as N (mg/L)	5.28		4.6	
Nitrite as N (mg/L)	0.08		<0.01	
Odour	Nil	Nil	Nil	

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH (pH Unit)	7.	7.	7.	4.1
pH Value (pH Unit)	7.91		7.66	
Potassium-Dissolved (mg/L)	2.		2.	
Purge Type	Bailer	Bail	Bail	
Selenium-Total (mg/L)	<0.01			
Sodium-Dissolved (mg/L)	353.		311.	
Standing Water Level	4.7	4.75	4.69	4.45
Stick up	0.58	0.58	0.58	0.58
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	31		29	
Temperature	19.8	18.2	19.9	19.9
Total Alkalinity as CaCO3 (mg/L)	475.		459.	
Total Anions	43.1		41.4	
Total Cations	42.4		38.9	
Total Dissolved Solids @180°C-Total (mg/L)	2,880.			
Vanadium	0.04			
Water Depth to Stand	5.28	5.33	5.27	5.03
Zinc (total)	0.021			

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

Data Point: ROCGLEN_WB4; Northing: 237847; Easting: 6595819

	06-Jun-23	06-Dec-23
Rec ID	**90664**	**94504**
Lab Ref	**100343**	
Comments	Pump Over Bore	Broken windmill over

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_WB5; Northing: 239586; Easting: 6595157

	04-Apr-23	06-Jun-23	27-Sep-23	06-Dec-23
Rec ID	**90039**	**90666**	**93287**	**94506**
Lab Ref	**99720**	**100345**	**102964**	
Aluminium (total) (mg/L)	0.04		0.04	
Ammonia as Nitrogen (N)	1.26		1.99	
Appearance	Clear	Clear	Clear	Clear
Arsenic-Total (mg/L)	<0.001		<0.001	
Barium (total)	0.092		0.184	
Beryllium (total)	<0.001		<0.001	
Bicarbonate Alkalinity as CaCO3 (mg/L)	245.		189.	
Boron (total)	<0.05		<0.05	
Cadmium-Total (mg/L)	<0.0001		<0.0001	
Calcium-Dissolved (mg/L)	44.		52.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	445.		516.	
Chromium-Total (mg/L)	<0.001		<0.001	
Cobalt	<0.001		<0.001	
Colour	Clear	Clear	Clear	
Copper-Total (mg/L)	<0.001		<0.001	
EC - Field	1,600.	1,580.	1,760.	1,650.
Electrical Conductivity @ 25°C (µS/cm)	1,840.		2,030.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	1.46		3.28	
Iron-Total (mg/L)	2.15		5.14	
Lead-Total (mg/L)	<0.001		<0.001	
Magnesium-Dissolved (mg/L)	49.		47.	
Manganese (total)	0.521		0.734	
Mercury-Total (mg/L)	<0.0001		<0.0001	
Nickel-Total (mg/L)	<0.001		<0.001	
Nitrate as N (mg/L)	11.8		<0.01	
Nitrite + Nitrate as N (mg/L)	11.8		<0.01	
Nitrite as N (mg/L)	0.01		<0.01	
Odour	Nil	Nil	Nil	
pH (pH Unit)	8.1	7.9	7.7	7.7

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH Value (pH Unit)	7.91		8.12	
Potassium-Dissolved (mg/L)	15.		12.	
Purge Type	Bailer	Bail	Bailer	
Selenium-Total (mg/L)	<0.01		<0.01	
Sodium-Dissolved (mg/L)	261.		239.	
Standing Water Level	3.77	3.35	3.96	4.31
Stick up	0.4	0.4	0.4	0.4
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	<1		<1	
Temperature	22.8	20.1	21.6	21.
Total Alkalinity as CaCO3 (mg/L)	245.		189.	
Total Anions	17.4		18.3	
Total Cations	18.		17.2	
Total Dissolved Solids @180°C-Total (mg/L)	968.		982.	
Vanadium	<0.01		<0.01	
Water Depth to Stand	4.17	3.75	4.36	4.71
Zinc (total)	0.012		0.013	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_WB6; Northing: 240696; Easting: 6594539

	04-Apr-23	06-Jun-23	26-Sep-23	05-Dec-23
Rec ID	**90040**	**90667**	**93279**	**94507**
Lab Ref	**99721**	**100346**	**102956**	
Aluminium (total) (mg/L)	0.11		0.53	
Ammonia as Nitrogen (N)	11.2		10.5	
Appearance	Clear	Clear	clear	Clear
Arsenic-Total (mg/L)	<0.001		<0.001	
Barium (total)	0.182		0.173	
Beryllium (total)	<0.001		<0.001	
Bicarbonate Alkalinity as CaCO3 (mg/L)	276.		204.	
Boron (total)	<0.05		<0.05	
Cadmium-Total (mg/L)	<0.0001		<0.0001	
Calcium-Dissolved (mg/L)	41.		31.	
Carbonate Alkalinity as CaCO3 (mg/L)	<1		<1	
Chloride (mg/L)	772.		771.	
Chromium-Total (mg/L)	<0.001		<0.001	
Cobalt	<0.001		<0.001	
Colour	Clear	Clear	clear	
Copper-Total (mg/L)	0.008		0.009	
EC - Field	3,310.	3,090.	2,740.	2,670.
Electrical Conductivity @ 25°C (µS/cm)	2,840.		2,890.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	1.69		0.33	
Iron-Total (mg/L)	1.4		3.19	
Lead-Total (mg/L)	<0.001		<0.001	
Magnesium-Dissolved (mg/L)	66.		57.	
Manganese (total)	1.40		0.641	
Mercury-Total (mg/L)	<0.0001		<0.0001	
Nickel-Total (mg/L)	0.002		0.002	
Nitrate as N (mg/L)	2.37		0.05	
Nitrite + Nitrate as N (mg/L)	2.41		0.09	
Nitrite as N (mg/L)	0.04		0.04	
Odour	Nil	Nil	nil	
pH (pH Unit)	7.9	8.	8.3	8.2

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH Value (pH Unit)	8.15		8.27	
Potassium-Dissolved (mg/L)	23.		23.	
Purge Type	Bailer	Bail	Bailer	Bail
Selenium-Total (mg/L)	<0.01		<0.01	
Sodium-Dissolved (mg/L)	470.		446.	
Standing Water Level	14.35	13.37	13.14	13.35
Stick up	0.49	0.49	0.49	0.49
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	13		11	
Temperature	22.2	21.	22.6	22.
Total Alkalinity as CaCO3 (mg/L)	276.		204.	
Total Anions	27.6		26.	
Total Cations	28.5		26.2	
Total Dissolved Solids @180°C-Total (mg/L)	1,660.		1,630.	
Vanadium	<0.01		<0.01	
Water Depth to Stand	14.84	13.86	13.63	13.84
Zinc (total)	0.068		0.079	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

Data Point: ROCGLEN_WB7; Northing: 239321; Easting: 6592514

	07-Jun-23
Rec ID	**90670**
Lab Ref	**100349**
Comments	Windmill Over Bore
Standing Water Level	6.55
Stick up	0.27
Water Depth to Stand	6.82

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

Data Point: ROCGLEN_WB8; Northing: 240654; Easting: 6589786

	08-Jun-23	06-Dec-23
Rec ID	**90676**	**94515**
Lab Ref	**100355**	
Comments	Pump Over Bore	Pump Over Bore
Standing Water Level	28.01	29.39
Stick up	0.5	0.5
Water Depth to Stand	28.51	29.89

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site: *Rocglen*
From Date: *01-Jan-2023* **To Date:** *31-Dec-2023*
Standard: *<Blank>*

Data Point: ROCGLEN_WB9; Northing: 240222; Easting: 6588393

	04-Apr-23	07-Jun-23	02-Oct-23	06-Dec-23
Rec ID	**90042**	**90677**	**93424**	**94516**
Lab Ref	**99723**	**100356**	**103101**	
Aluminium (total) (mg/L)	<0.01			
Ammonia as Nitrogen (N)	0.04		0.02	
Appearance	Clear	Clear	Clear	Clear
Arsenic-Total (mg/L)	0.002			
Barium (total)	0.127			
Beryllium (total)	<0.001			
Bicarbonate Alkalinity as CaCO3 (mg/L)	465.		553.	
Boron (total)	0.05			
Cadmium-Total (mg/L)	<0.0001			
Calcium-Dissolved (mg/L)	87.		96.	
Carbonate Alkalinity as CaCO3 (mg/L)	17		<1	
Chloride (mg/L)	79.		96.	
Chromium-Total (mg/L)	<0.001			
Cobalt	<0.001			
Colour	Clear	Clear	CLEAR	
Copper-Total (mg/L)	0.002			
EC - Field	1,180.	1,200.	1,120.	1,000.
Electrical Conductivity @ 25°C (µS/cm)	1,130.		1,260.	
Hydroxide Alkalinity as CaCO3 (mg/L)	<1		<1	
Ionic Balance (%)	1.86		5.76	
Iron-Total (mg/L)	0.08			
Lead-Total (mg/L)	<0.001		<0.001	
Magnesium-Dissolved (mg/L)	49.		46.	
Manganese (total)	0.005			
Mercury-Total (mg/L)	<0.0001			
Nickel-Total (mg/L)	<0.001			
Nitrate as N (mg/L)	0.84		0.26	
Nitrite + Nitrate as N (mg/L)	0.86		0.26	
Nitrite as N (mg/L)	0.02		<0.01	
Odour	Nil	Nil	Nil	
pH (pH Unit)	7.9	7.8	7.2	7.9

WHITEHAVEN COAL

Area/Site: ***Rocglen***
From Date: ***01-Jan-2023*** **To Date:** ***31-Dec-2023***
Standard: ***<Blank>***

pH Value (pH Unit)	8.29		7.91	
Potassium-Dissolved (mg/L)	2.		2.	
Purge Type	Tank	Tank	Tank	Tank
Selenium-Total (mg/L)	<0.01			
Sodium-Dissolved (mg/L)	127.		118.	
Standing Water Level	23.49	23.22	26.94	23.46
Stick up	0.31	0.31	0.31	0.31
Sulfate as SO4 - Turbidimetric-Dissolved (mg/L)	76		81	
Temperature	22.2	20.9	23.3	26.4
Total Alkalinity as CaCO3 (mg/L)	482.		553.	
Total Anions	13.4		15.4	
Total Cations	13.9		13.8	
Total Dissolved Solids @180°C-Total (mg/L)	727.			
Vanadium	0.02			
Water Depth to Stand	23.8	23.53	27.25	23.77
Zinc (total)	0.016			

Outliers: 0

Field Name	Result	Outlier Comment