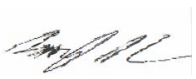
Annual Review
Rocglen Coal Mine

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 2025
Annual review end date	31 December 2025
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 2025 to 31st December 2025, 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	27/2/26

Contents

TABLES

FIGURES

1. STATEMENT OF COMPLIANCE

The compliance status of Rocglen Coal Mine (RCM) as at 31st December 2025 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	No
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
MP10_0015	Sch 5/Cn 8	Commission IEA every 3 years	Administrative Non-compliance	DPHI noted during their acceptance of the IEA Action Plan that the audit period for the 2025 IEA exceeded three years (7 April 2022 to 22 May 2025) and was therefore a non-compliance with Schedule 5, Condition 8 of MP10_0015. This was addressed by DPHI during the reporting period. No further action is required by RCM in response to this finding.	Section 11.2

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 seventeenth 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 2025 and the 31st December 2025. 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. In 2025 a further modification was approved to remove haulage conditions 6A and 6B following completion of rehabilitation of the project and the cessation of coal haulage.

2.1 Mine Contacts

The management personnel responsible for operational and environmental performance at the RCM and relevant contact details are as 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.

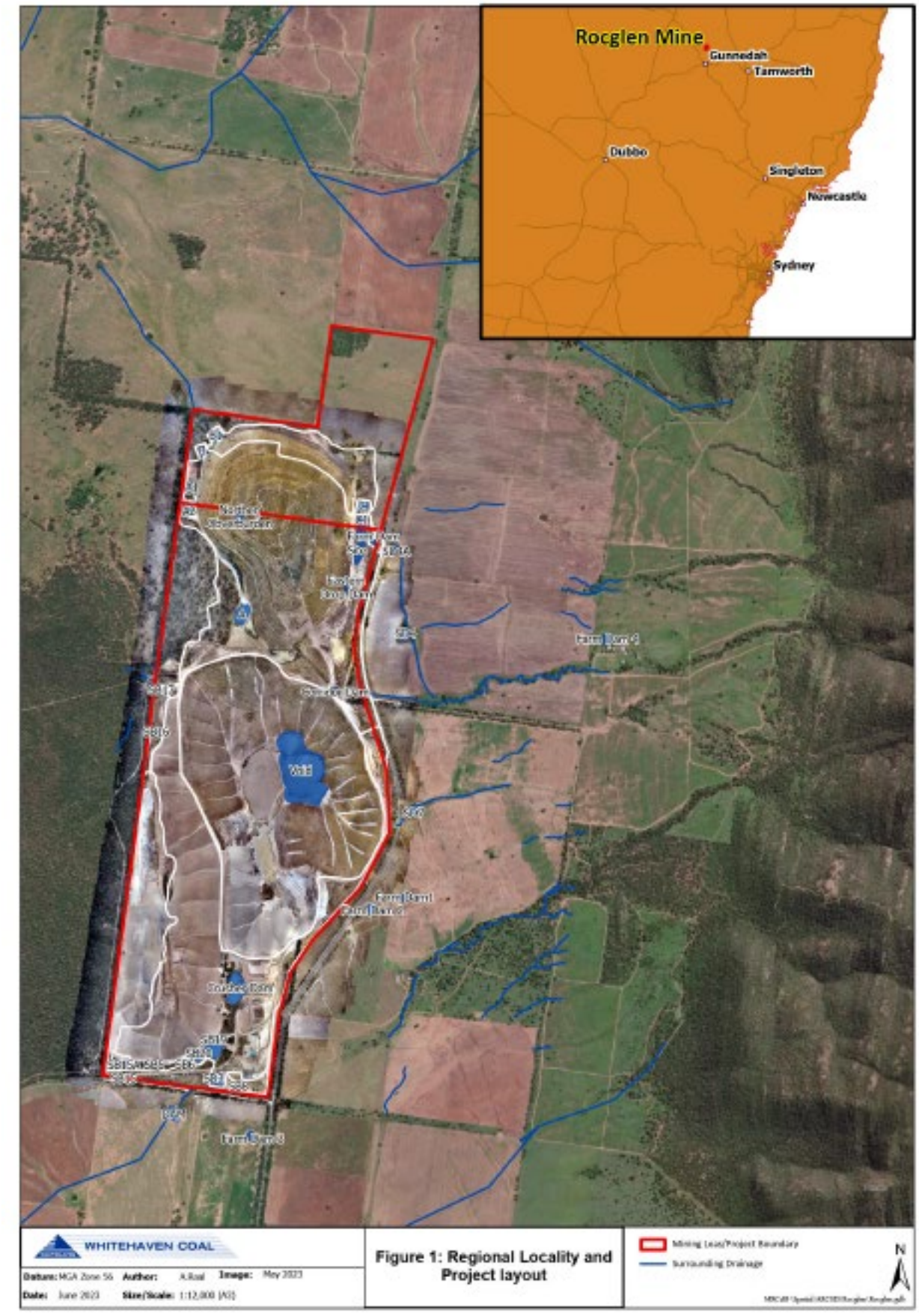


Figure 1 Site Locality and Project Layout

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	-50ML allocation

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	11,180 bcm	0	0
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, however no blasts occurred at RCM during the period. As of the first of July 2019, the shifts at Rocglen were minimised in line with the transition from coal production to rehabilitation. Rehabilitation activities were undertaken during the reporting period within permitted operating times, and not on public holidays.

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 ongoing monitoring and maintenance of rehabilitation.

5. ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

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 $\mu g/m^3$

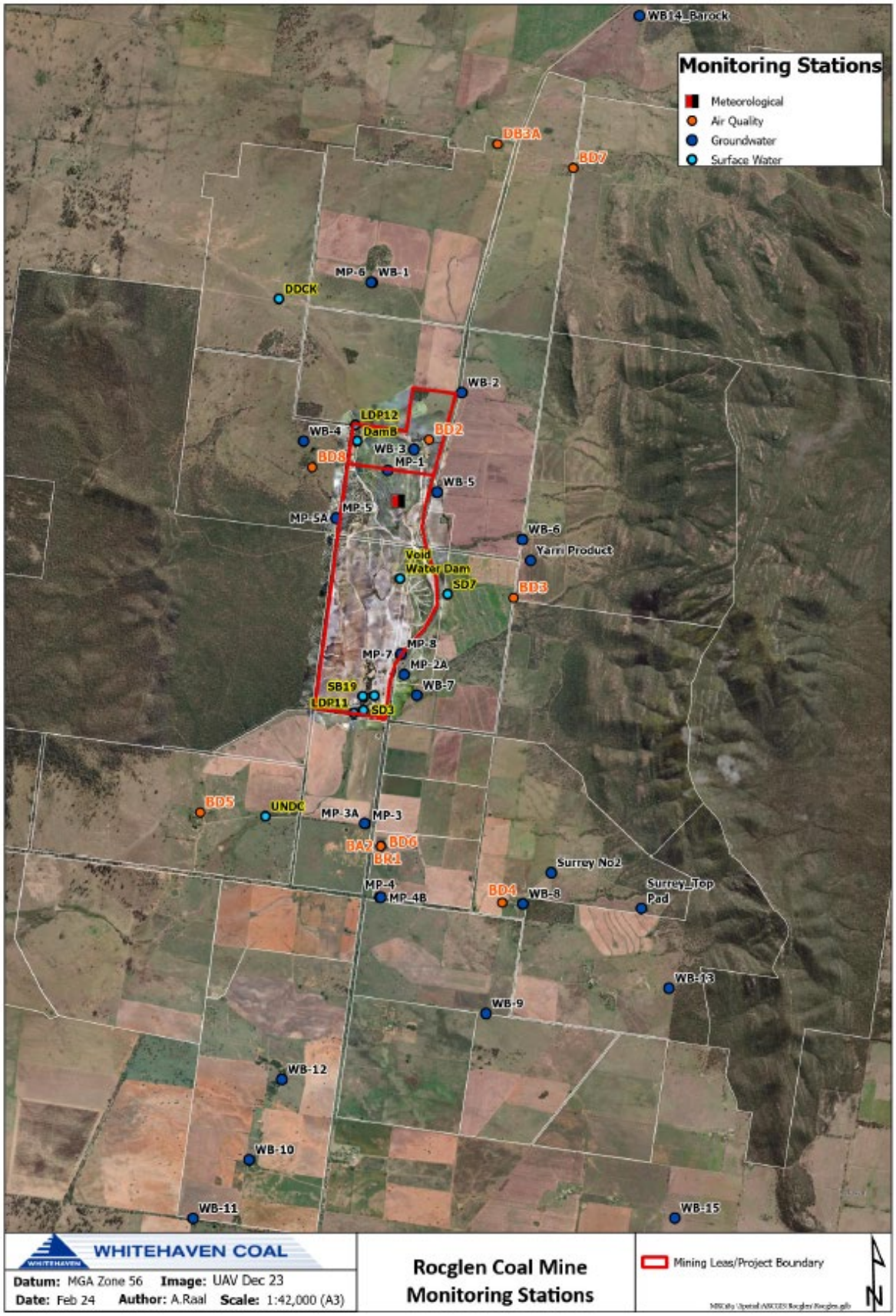


Figure 2 Monitoring Locations

6.1.2 Environmental Management Measures

Monitoring of Deposited Dust is undertaken monthly, 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	0.8	82.54%	1.1
BD4	4	Surrey	0.7	85.08%	1.0
BD5	-	Stratford	1	66.29%	1.2
BD6	6	Roseberry	1	74.70%	1.0
BD7	-	Roseglass	1.3	55.61%	1.3
BD8	-	Yarrawonga	0.7	69.72%	0.7
BD2-A	-	Penryn	1.4	71.51%	1.4

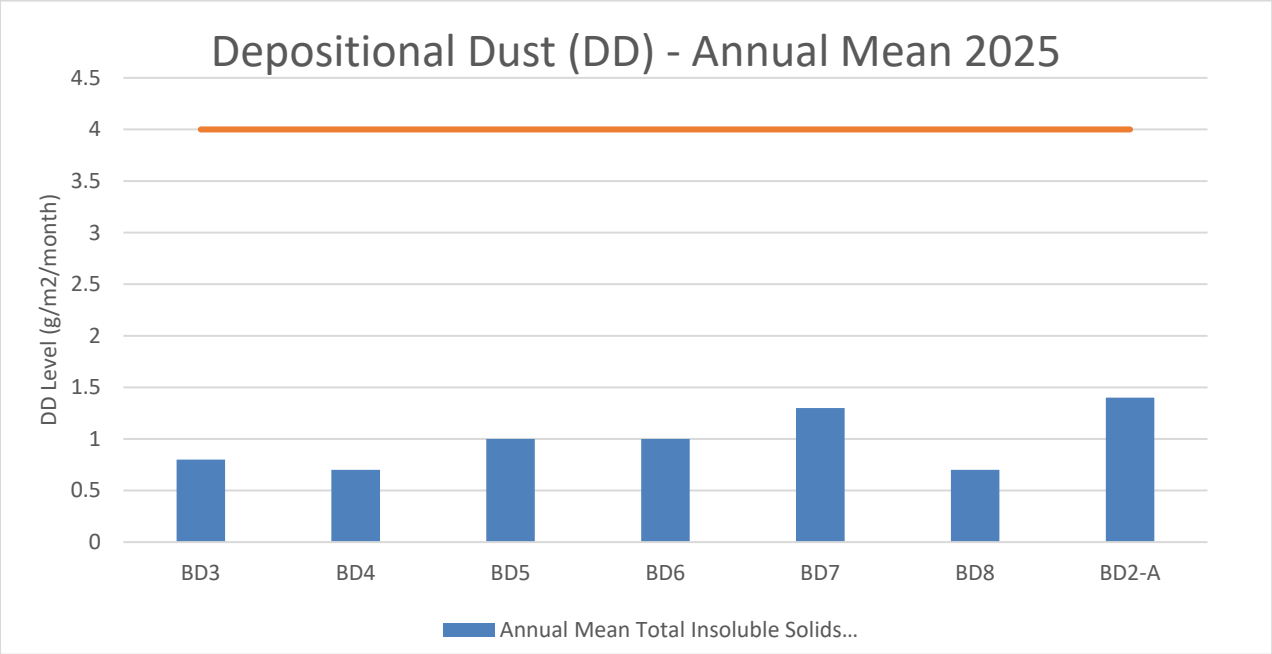


Figure 3 Annual Average of Depositional Dust across 7 monitoring sites

A review of the data shown in Figure 2 and Table 6.1.2A, shows that the annual mean limit for deposited dust was below the criteria at each monitoring site.

RCM had one licenced HVAS (EPL ID - 10) monitor which is located to the south-east of the mine on 'Roseberry' (a privately owned property under private agreement) during the reporting period. A HVAS Exceedance of 458µm was recorded on the 7th March 2025. This was reported to DPHI and was deemed to localised farming adjacent to the monitor. Rocglen had no heavy equipment operating at this time and was downwind from the monitor. This reading has been omitted from the graphs for ease of viewing, however, is included in Table 6.1.2B below.

TABLE 6.1.2B - PM10 SUMMARY DATA

HVAS PM10 Summary		
Sites	**Roseberry HVAS- Full data set**	**Roseberry HVAS- excluding extraordinary events**
No. of readings	60	59
No. days above criteria	**1**	0
Maximum	**458**	30.40
Minimum	1.20	1.20
Mean	16.54	9.06
Comment	A exceedance reading of 458µm was reported to DPHI in April and deemed to be farming activities directly adjacent to Roseberry HVAS. (Omitted from Graphs)	

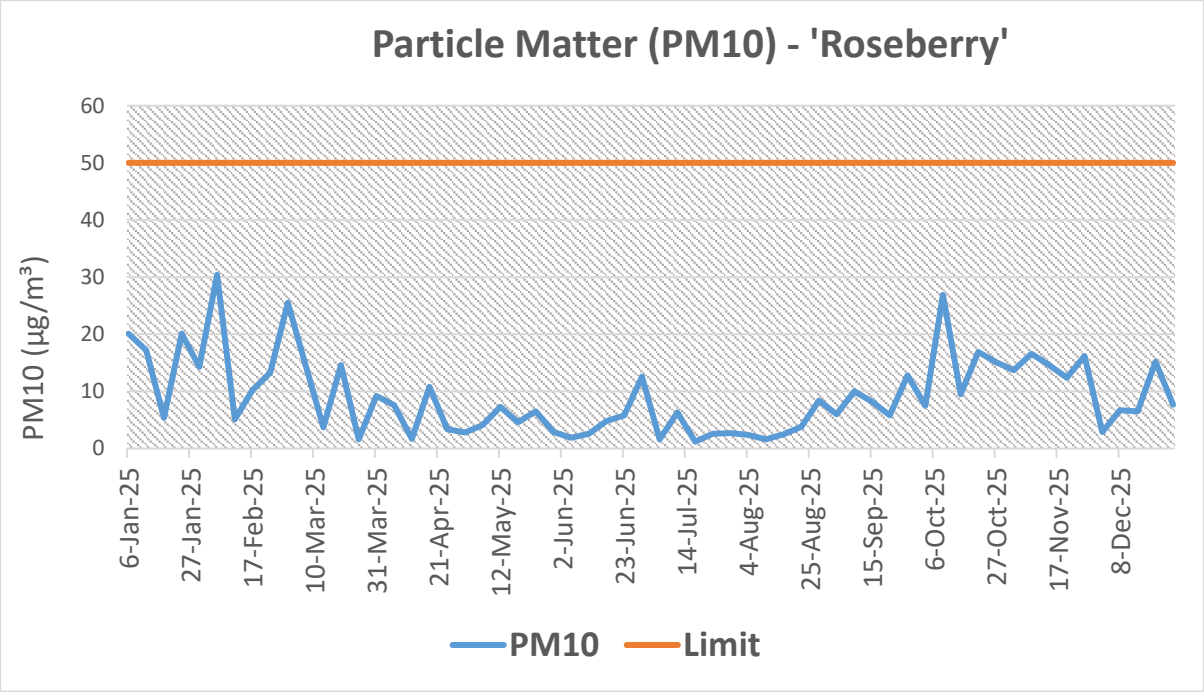


Figure 4 'Roseberry HVAS' Particulate Matter (PM10)

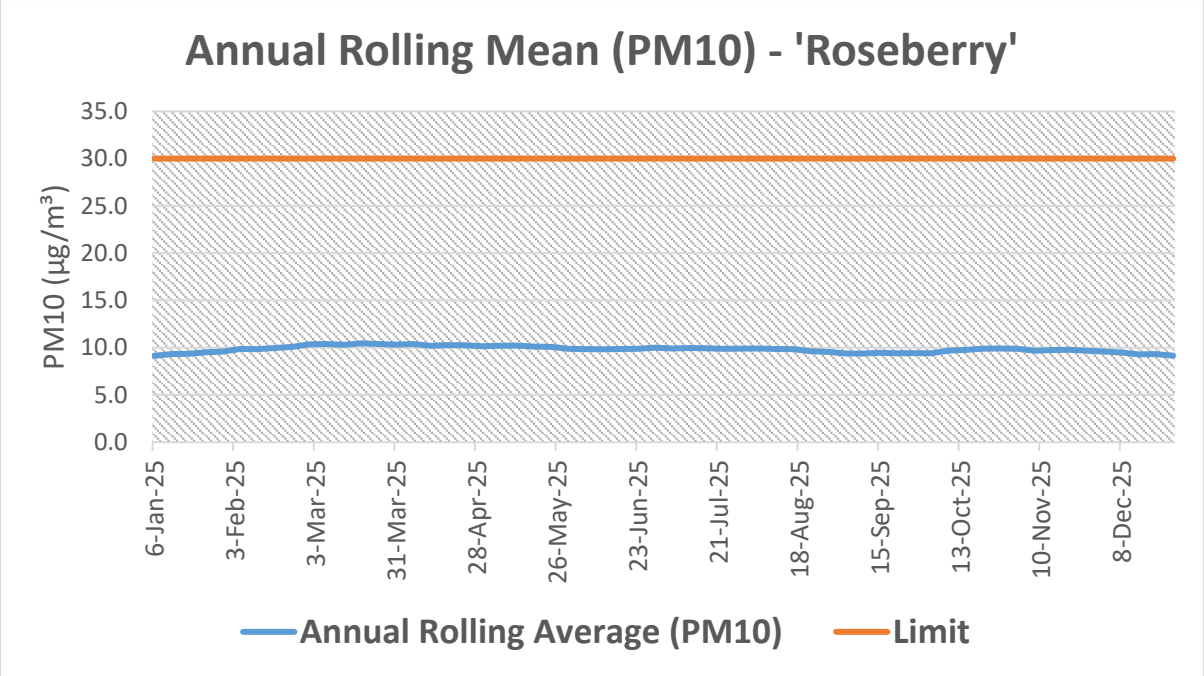


Figure 5 Annual Rolling HVAS Averages

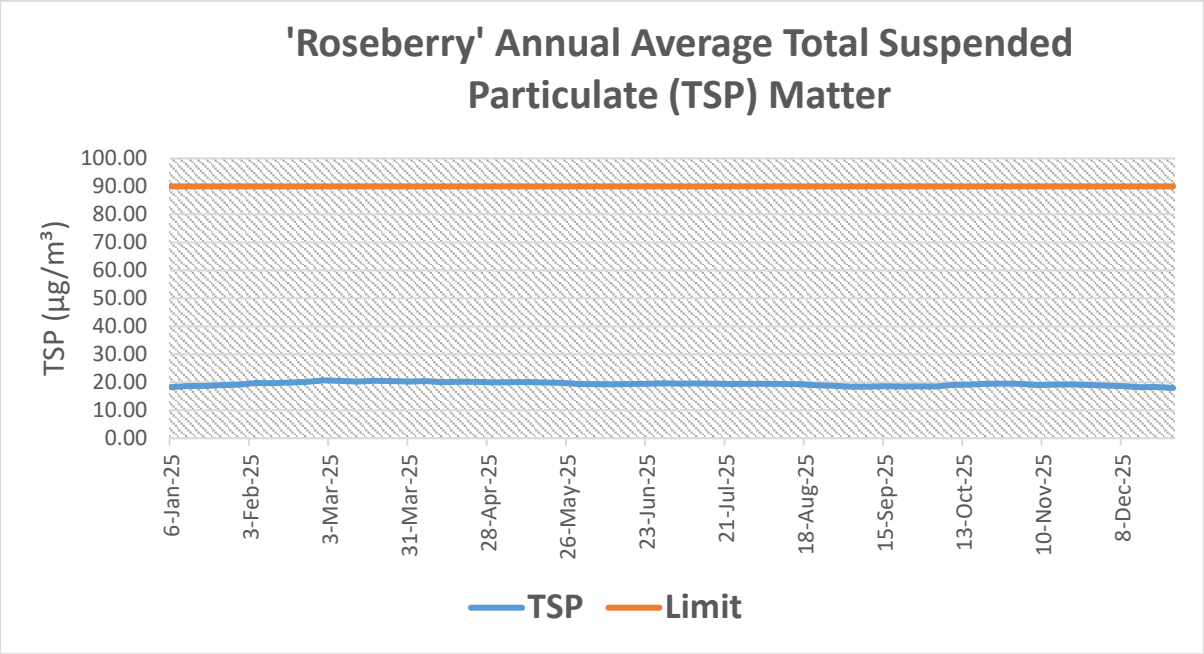


Figure 6 'Roseberry HVAS' TSP Annual Rolling Mean

As displayed in Figures 4-6 the Annual rolling mean for TSP and PM10 was below criteria and compliance 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 rehabilitation maintenance is limited to day shift only with reduced equipment on site, local contribution from mining related activities has decreased significantly. 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 good vegetation cover and the limited activities now occurring on the mine site. Bulk excavation and haulage of overburden material ceased in September 2021 and Rocglen is now in the maintenance phase of rehabilitation.

6.1.5 Proposed Improvements to Environmental Management

No improvements are proposed for the next reporting period as dust monitors have been working correctly and site activity has ceased, with large areas rehabilitated and seeded which has further reduced the potential of dust generation.

6.2 Onsite Biodiversity

6.2.1 Introduction

Monitoring in the Woodland Domain comprised:

- thirty-three repeat monitoring woodland rehabilitation sites (**Table** 3-3);
- one repeat monitoring analogue woodland site (**Table** 3-4); and
- forty-seven categorical rehabilitation point assessments at notable locations within the Woodland rehabilitation.
-

Monitoring in the Pasture Domain comprised:

- eight repeat monitoring pasture rehabilitation sites (**Table** 3-3); and
- one repeat monitoring analogue pasture site

Woodland Domain

Surface Cover

Surface cover represents the summed groundcover components of vegetation, litter and mulch. This serves as an indicator of the rehabilitation objective for soil profile development in the RMP. To achieve the completion criterion target for this indicator, surface cover is to be greater than 85% during the Ecosystem Development Phase (RMP tbl 4-3).

In the 2025 monitoring year, both rehabilitation areas in the Ecosystem Development Phase met the phase-specific completion criterion target for surface cover, with the 2013 and 2014 areas achieving 100.0% and 90.7% cover respectively. Phase-specific targets currently do not apply to the remaining

rehabilitation areas established in 2015–2016 and 2021–2024, which are in the Ecosystem Establishment Phase.

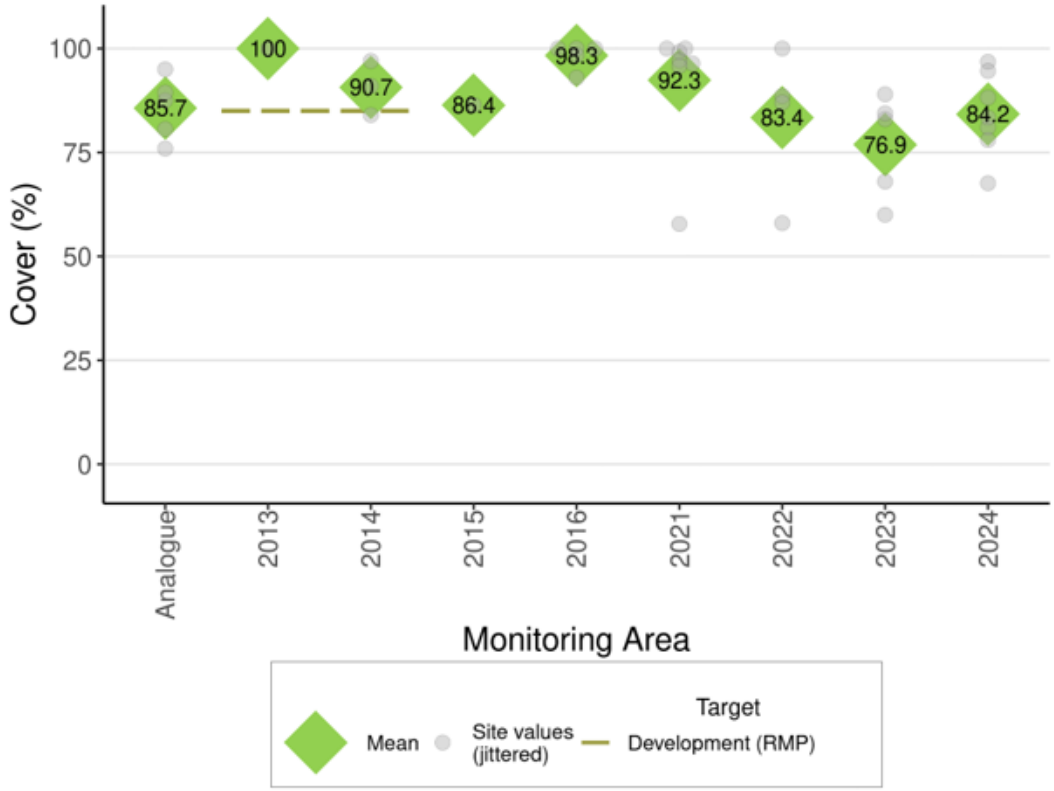


Figure 7 Woodland vegetation surface cover

Native Vegetation Groundcover

Native vegetation groundcover serves as an indicator of the rehabilitation objective for woodland re-establishment. To achieve the completion criteria targets for this indicator, the rehabilitation must fall within the 10th and 90th percentile range of analogue site values. In the 2025 monitoring year, the analogue sites' 10th–90th percentile range for native vegetation groundcover was 7.3%–66.7%.

In the 2025 monitoring year, four out of eight rehabilitation areas met the phase-specific completion criterion target for native vegetation groundcover, with the 2015, 2016, 2022 and 2023 rehabilitation areas all achieving values within the 10th–90th percentile range of analogue sites. The 2021 rehabilitation was marginally outside of the required range, with a native vegetation groundcover value of 7.1% compared to the analogue 10th percentile of 7.3%.

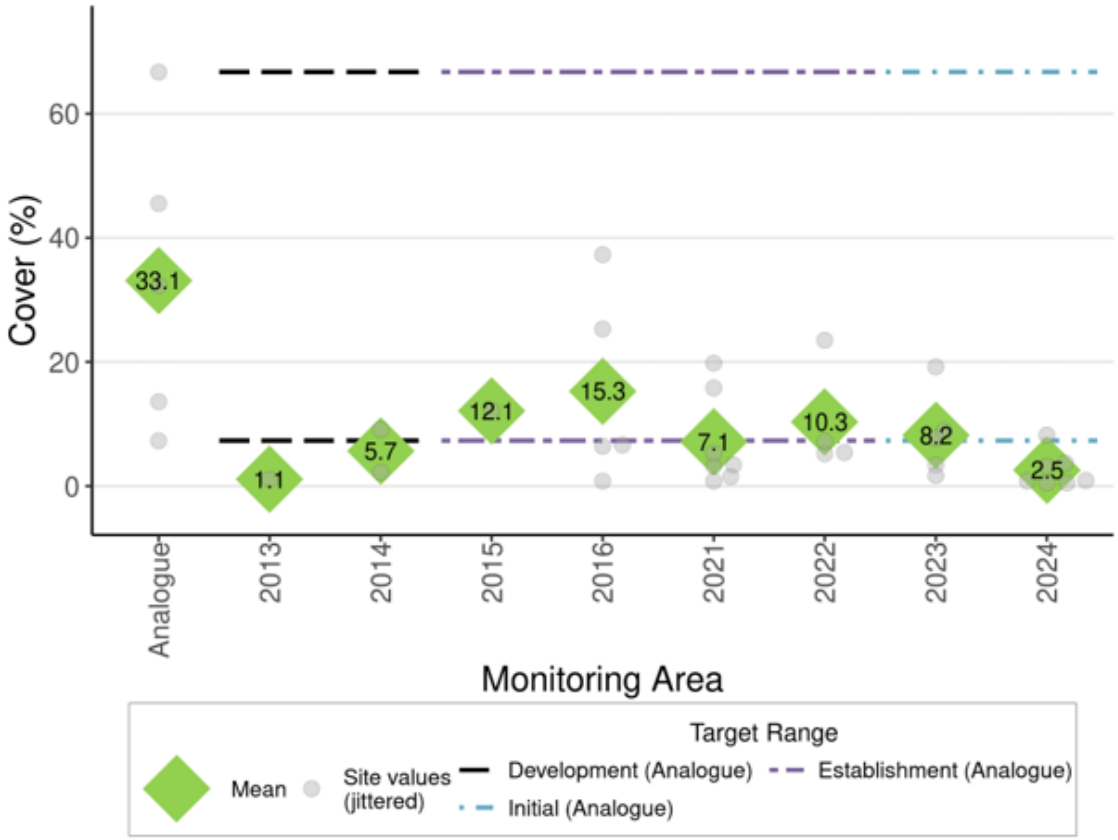


Figure 8 Woodland native vegetation groundcover at Rocglen Coal Mine and Analogue sites.

Native Grass Cover

Native grass cover serves as an indicator of the rehabilitation objective for woodland re-establishment. To achieve the completion criteria targets for this indicator, the rehabilitation must fall within the 10th and 90th percentile range of analogue site values. In the 2025 monitoring year, the analogue sites' 10th–90th percentile range for native grass cover was 4.5%–55.4%.

In the 2025 monitoring year, three out of eight rehabilitation areas met the phase-specific completion criterion target for native grass cover, with the 2015, 2016 and 2021 rehabilitation areas achieving values within the 10th–90th percentile range of analogue sites. The 2014 rehabilitation was marginally outside of the required range, with a native grass cover value of 4.4% compared to the analogue 10th percentile of 4.5%.

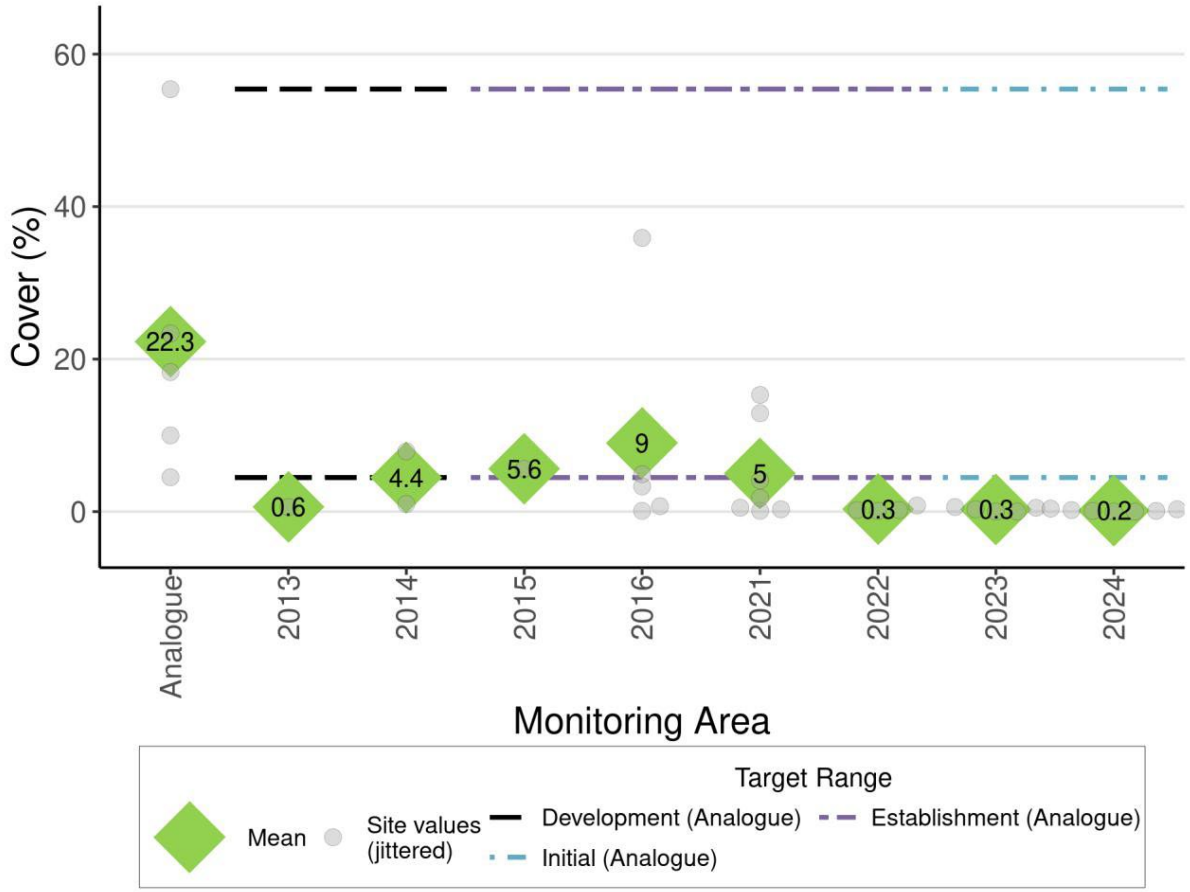


Figure 9 Woodland native grass cover at Rocglen Coal Mine and Analogue sites.

Native Mid-storey Cover

Native mid-storey cover serves as an Ecosystem and Land Use Development Phase indicator of the rehabilitation objective for woodland re-establishment. To achieve the completion criteria targets for this indicator, the rehabilitation must fall within the 10th and 90th percentile range of analogue site values. In the 2025 monitoring year, the analogue sites' 10th–90th percentile range for native mid-storey cover was 21.75%–54.1%.

In the 2025 monitoring year, the two rehabilitation areas in the Ecosystem Development Phase are yet to reach the phase-specific completion criterion target for native mid-storey cover, with both areas exhibiting values below the 10th–90th percentile range of analogue sites. Phase-specific targets currently do not apply to the remaining rehabilitation areas seeded in 2015–2016 and 2021–2024.

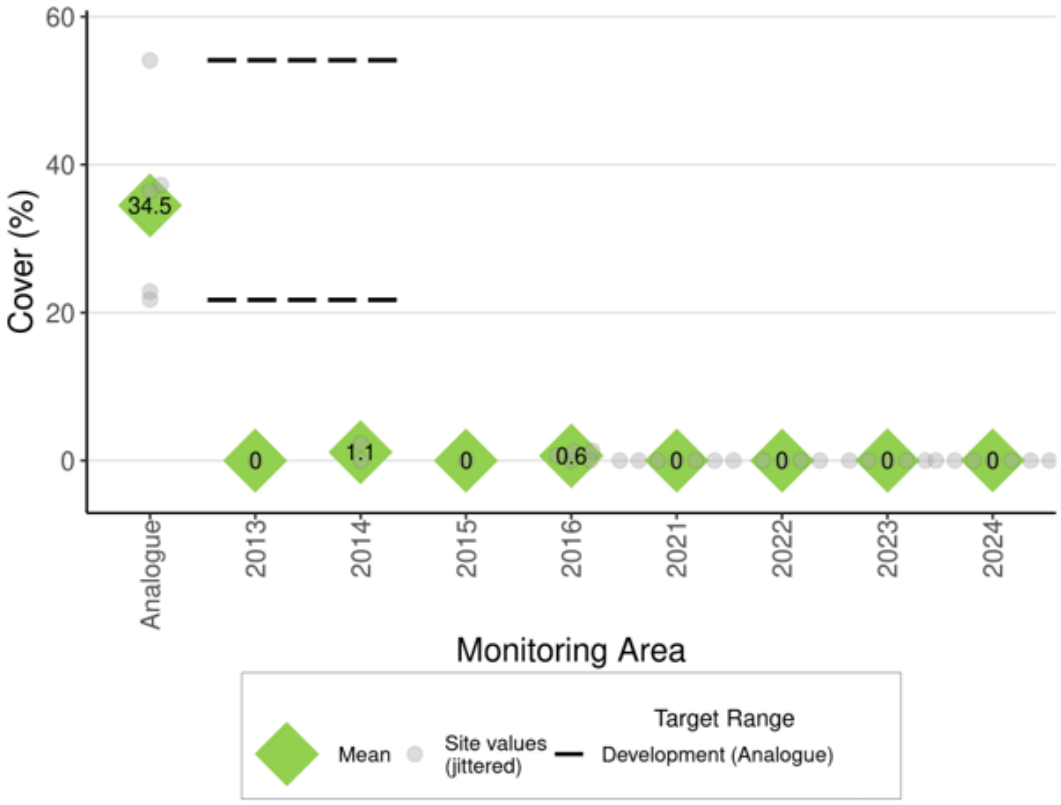


Figure 10 Woodland native mid-storey cover at Rocglen Coal Mine and Analogue sites.

Native Overstorey Cover

Native overstorey cover serves as an Ecosystem and Land Use Development Phase indicator of the rehabilitation objective for woodland re-establishment. To achieve the completion criteria targets for this indicator, the rehabilitation must fall within the 10th and 90th percentile range of analogue site values. In the 2025 monitoring year, the analogue sites' 10th–90th percentile range for native overstorey cover was 12.5%–26%.

In the 2025 monitoring year, the two rehabilitation areas in the Ecosystem Development Phase have yet to meet the phase-specific completion criterion target for native overstorey cover. Phase-specific targets currently do not apply to the rehabilitation areas seeded in 2015–2016 and 2021–2024.

Figure 11 Woodland native overstorey cover at Rocglen Coal Mine and Analogue sites.

Native Species Richness

Native species richness serves as an indicator of the rehabilitation objective for woodland re-establishment. To achieve the completion criteria targets for this indicator, the rehabilitation must fall within the 10th and 90th percentile range of analogue site values. In the 2025 monitoring year, the analogue sites' 10th–90th percentile range for native species richness was 26–50 species.

In the 2025 monitoring year, the rehabilitation is yet to achieve any of the phase-specific completion criterion targets for the indicator of native species richness, with values ranging from five species in the 2013 rehabilitation to 19 species in the 2015 rehabilitation.

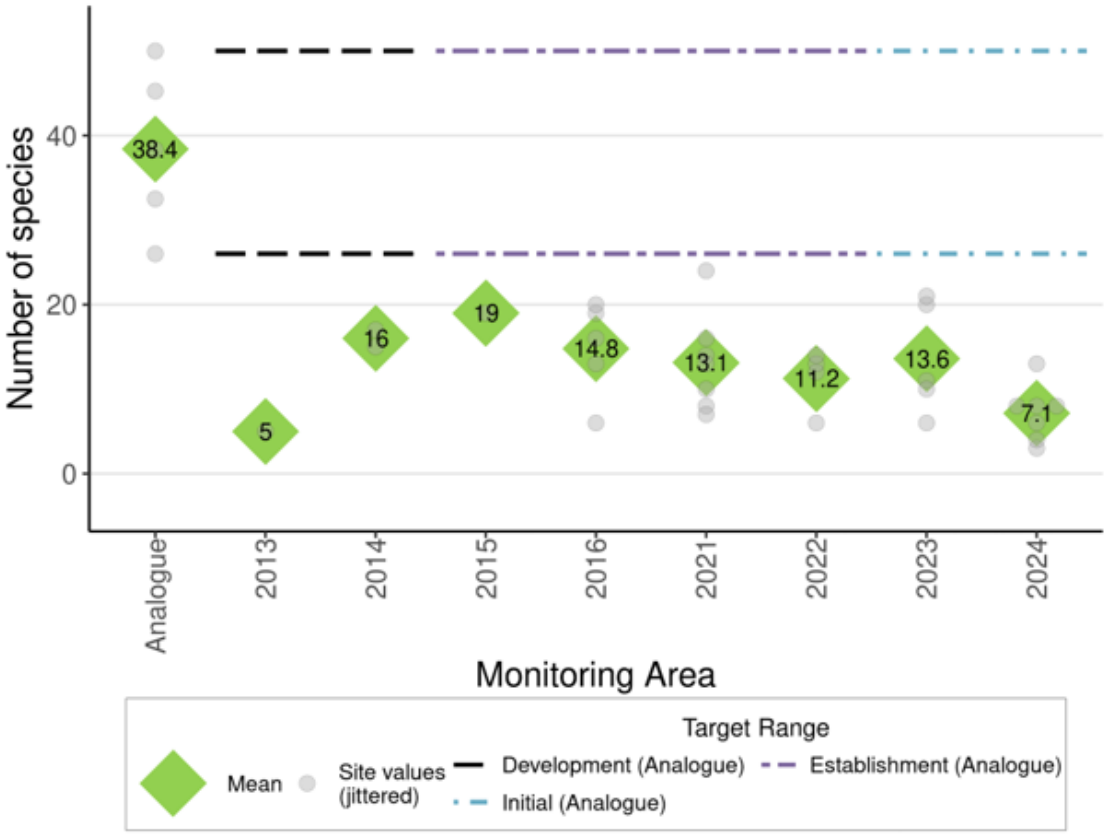


Figure 12 Woodland native species richness at Rocglen Coal Mine and Analogue sites.

Native Tree Density

Native tree density (number of individual trees, including seedlings, per 20 m x 20 m nested plot) serves as an Ecosystem and Land Use Establishment Phase indicator of the rehabilitation objective for woodland re-establishment. To achieve the completion criteria targets for this indicator, the rehabilitation must fall within the 10th and 90th percentile range of analogue site values. In the 2025 monitoring year, the analogue sites' 10th–90th percentile range for native tree density was 3–29.25 individuals/400m2.

In the 2025 monitoring year, two out of Eight rehabilitation areas met the phase-specific completion criterion target for native tree density, with the 2014 and 2016 rehabilitation achieving a density of 6.5 and 8 individuals per 400 m² both within the 10th–90th percentile range of analogue sites. The 2022 rehabilitation was marginally outside the required range, with a native tree density value of 2.8 individuals per 400 m^2

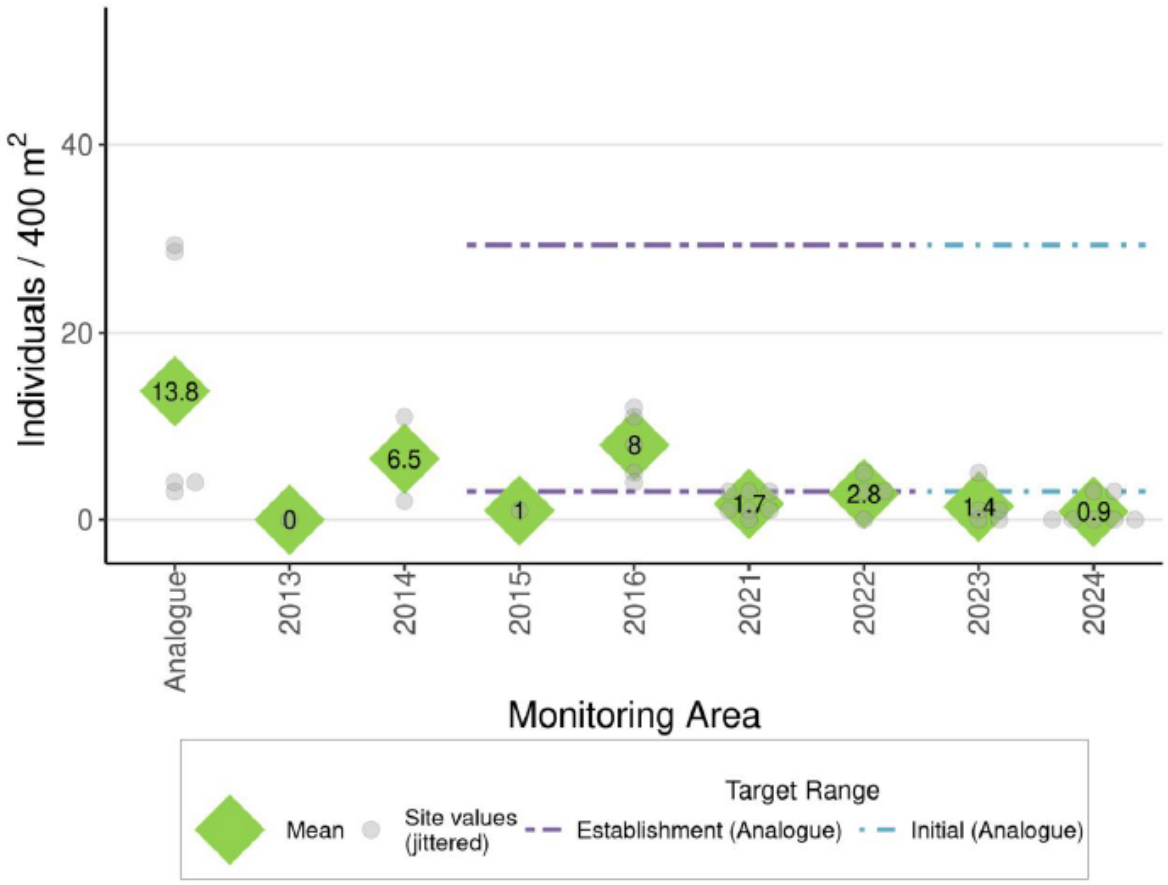


Figure 13 Woodland native Tree density at Rocglen Coal Mine and Analogue sites

Native Tree Species Richness

The number of species that will contribute to native overstorey cover serves as an indicator of the rehabilitation objective for woodland re-establishment. The metric for this indicator is native tree species richness. To achieve the completion criteria targets for this indicator, the rehabilitation must fall within the 10th and 90th percentile range of analogue site values. In the 2025 monitoring year, the analogue sites' 10th–90th percentile range for native tree species richness was 4.25–5.5 species.

In the 2025 monitoring year, the rehabilitation is yet to achieve any of the phase-specific completion criterion targets for native tree species richness. All rehabilitation areas recorded values outside of the 10th–90th percentile range of analogue sites, with the 2014 rehabilitation achieving the highest native tree species richness of 3.5 species compared to the analogue 10th percentile of 4.2 species. The 2013 rehabilitation, which is in the Ecosystem Development Phase, recorded no native tree species.

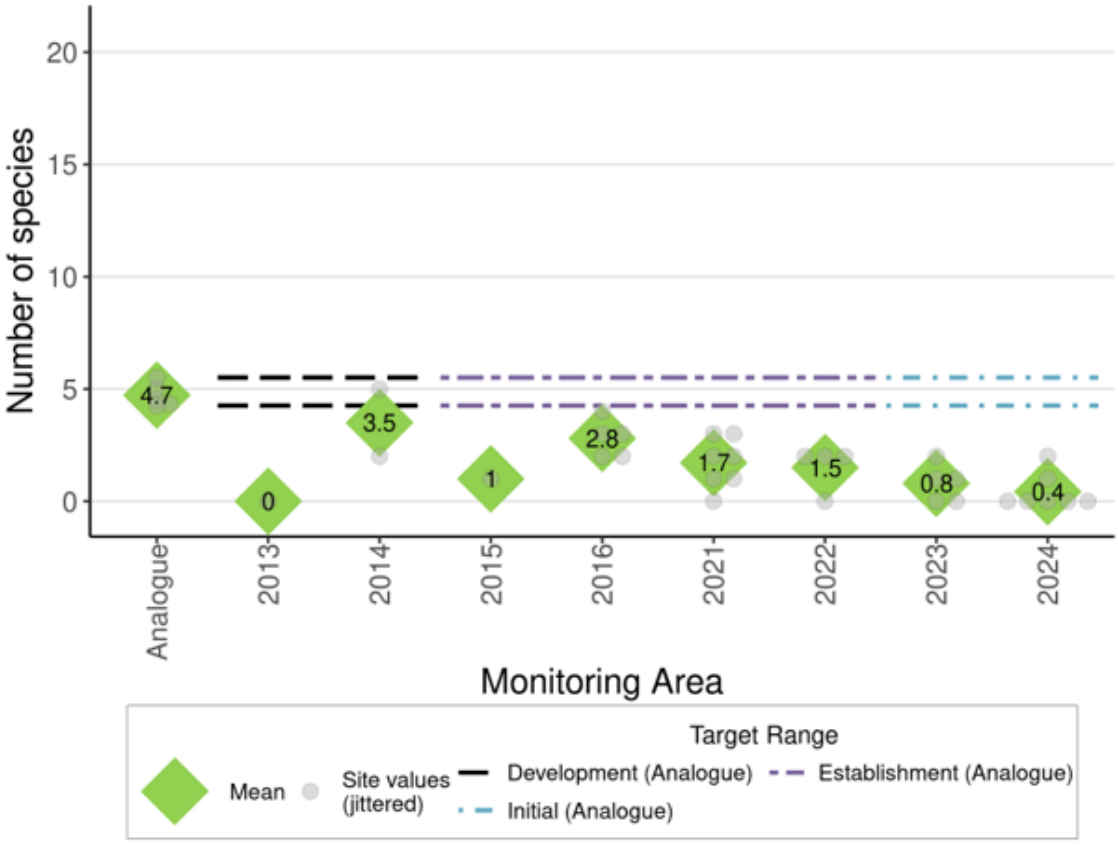


Figure 14 Woodland native tree species richness at Rocglen Coal Mine and Analogue sites

Pasture Domain

Surface Cover

Surface cover represents the summed groundcover components of vegetation, litter, and mulch. This serves as an indicator of the rehabilitation objective for soil profile development in the RMP. To achieve the completion criterion target for this indicator, surface cover is to be greater than 85% (RMP tbl 4-3). Additionally, no bare surfaces greater than 20 m x 20 m in area or greater than 10 m in length down slope are to be present at year 5 following establishment (RMP tbl 4-3).

In the 2025 monitoring year, five out of six rehabilitation areas met the phase-specific completion criterion target of greater than 85% surface cover. The 2014 rehabilitation achieved 99.8% cover, whilst the 2015, 2016 and 2021 areas recorded 93.6%, 100% and 88.4% cover respectively. Of the areas in the initial Establishment Phase, the 2024 rehabilitation achieved 93.6% cover, however the 2023 rehabilitation is yet to achieve the target with 64.5% surface cover. No large bare surfaces were observed in monitoring sites located in rehabilitation areas established prior to 2019.

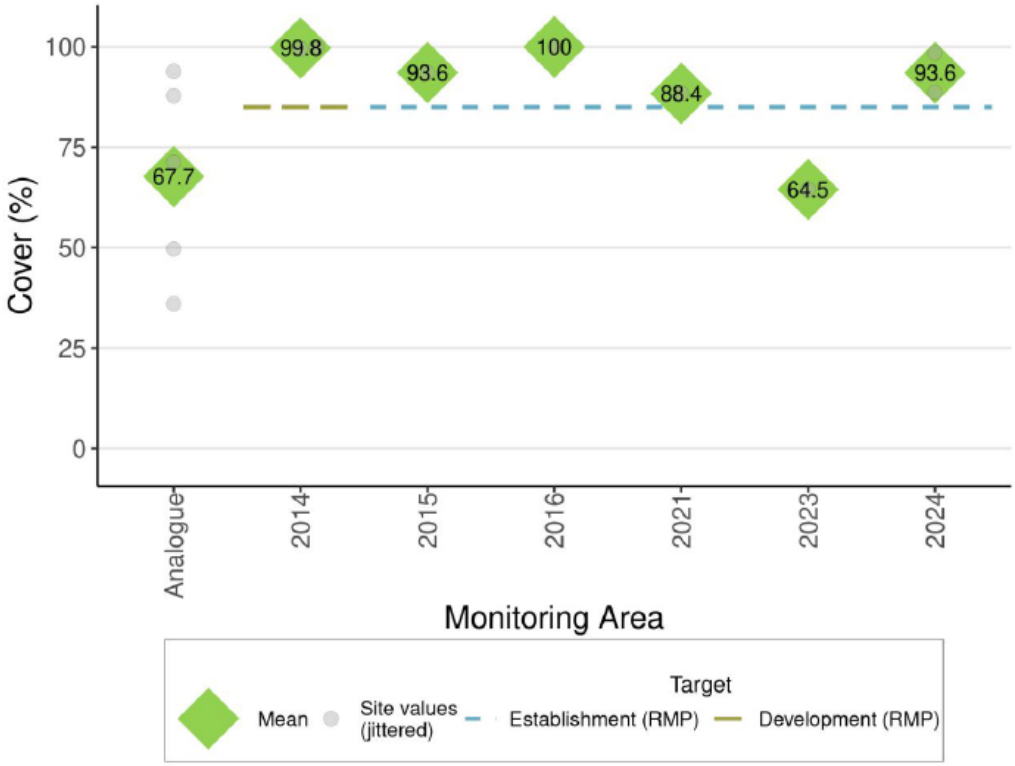


Figure 15 Pasture surface cover at Rocglen Coal Mine and Analogue sites

Recommendations

It is recommended that:

- in areas of poor establishment in younger (2021+) rehabilitation, carry out supplementary seeding using only native species that have been known to successfully establish based on monitoring data (following weed control where required);
- supplementary tube stock planting of shrubs be undertaken in Woodland rehabilitation, where this will not interfere with exotic grass removal interventions;
- attention be given to eradicating certain weeds in an effort to reduce weed species richness to target levels;
- intensive interventions be undertaken to reduce exotic cover across woodland rehabilitation;
- exotic species richness be reduced in 2021 pasture rehabilitation; and
- spot spraying be carried out in 2014 and 2016–2024 Pasture Rehabilitation, especially 2021 and 2023 areas;
- feral animal control actions targeting pigs and foxes be intensified.

6.3 Biodiversity Offset Area (BOA) Management

The revised Offset Management Plan 2025 for the Yarrari and Belah Offset Areas was approved by Commonwealth Department of Climate Change, Energy, the Environment and Water (CDCCEEW) on 18 June 2025 that outlines the Biodiversity Offset Strategy (BOS) requiring 1,500ha 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 original BOMP 2013 had the intention to transfer the property to the National Parks Estate as an addition to the Boonalla Aboriginal Area, subject to NPWS negotiation and agreement. Across 2025, WHC continued consultation with NPWS for those Offsets Areas previously shown interest in being transferred to National Park Estate.

6.3.2 Weather Summary of MCCM Offset Properties

Regionally central meteorological station to the BMA is the Gunnedah Airport site (BOM 2025) which has recorded highly variable rainfall from the driest on record of 233mm back in 2019; then 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). Subsequently 2023 and 2024, the Gunnedah Airport site (BOM 2025) recorded 496mm and 572mm closer to the annual average rainfall of 572mm. Flooding of the Namoi River was experienced again in August 2025 with a return to above average annual rainfall for 2025 of 755mm. WHC maintains a meteorological station adjacent to the Biobank BMA with a summary of weather conditions experienced at the Roseglass BMA property during the 2025 reporting period being the maximum monthly average temperature was 34°C in January 2025; Minimum monthly average temperature was 7°C in June 2025. Annual temperature ranges were 2°C to 41°C in 2025. The total annual rainfall in 2025 was 603mm with the maximum in March (110mm) and minimum in June (17mm).

6.3.3 Infrastructure Management

During the reporting period, a total of 215m fencing maintenance was undertaken on the Biobank BMA, as well as maintenance of signage and gates as required to continue to restrict unauthorised access and minimise livestock incursion. There was no fence removal required during the reporting period. Any remaining derelict assets/infrastructure items will continue to be assessed, removed, and remediated as required prior to transfer of Yarrari and Belah properties to National Park Estate. No further remediation of hazardous material sites on the Belah BMA occurred during the reporting period 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, six species were collected, resulting in 3.7kg of local provenance seed from the Belah BMA that were incorporated with other local and regionally provenance seed sourced by reputable seed collectors as part of the WHC group wide revegetation planning.

6.3.5 Revegetation Management

The Yarrari and Belah OMP revegetation strategy focuses on restoration and revegetation of cleared non-native grassland (former cultivation) and derived native grasslands and assisting natural regeneration in better quality woodland areas. During the reporting period, no specific revegetation works were undertaken. Only ongoing maintenance revegetation is required for the Existing Offset Areas having materially completed primary revegetation in 2021 towards the target Woodland PCT vegetation composition, structure and function.

6.3.6 Heritage Management

During the reporting period, annual heritage inspections were completed on the 33 known archaeological heritage sites within the Biobank BMA. The sites are maintained with 5km 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.

6.3.7 Habitat Management

During the reporting period, no specific habitat management works were undertaken on the Yarrari and Belah properties. There has been a total of 11 nest box habitats, targeted for Microbats, Turquoise Parrots, Small Gliders, and Pale-headed Snakes constructed on the Biobank BMA since 2021.

6.3.8 Weed Management

WHC coordinated routine weed monitoring and inspections being undertaken across the Biobank BMA in March, August and November/December 2025. The priority weeds identified included legacy weeds inherited from previous owners management regimes such as African/Consul Lovegrass, Buffel Grass, African Box Thorn, Bathurst Burr, Pattersons Curse, Velvet Tree Pear, Tiger Pear 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 457ha treated in January, May, June, July, September and December 2025, targeting primarily Broadleaf weeds within revegetation areas and along access tracks, as well as Buffel Grass, Turnip Weed, Cobblers Peg, Pattersons Curse and Thistles 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. Monitoring demonstrated that certain animals like Feral Pigs were highly detectable across the year, and Eastern Grey Kangaroos moderately detectable seasonally. All other pest animal species had scarce to low detection levels across 2025. 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 pest animal control program across the Biobank BMA with 32 canid pest ejectors

triggered from 144 deployed and 355 Hoggone baits consumed from 570 presented across the Biobank BMA. A further 8 Feral pigs were trapped and removed from the Biobank BMA. Open range shooting programs were implemented in conjunction with the other pest animal programs resulting in an additional 46 Feral Pigs, 6 Goats and 3 Foxes being controlled in 2025. Feral Goat mustering continued during the reporting period resulted in 113 Feral Goats being captured with 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 access 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)). There were no observations of erosion and sedimentation requiring additional track maintenance within the Biobank BMA during the reporting period. The remaining tracks/drainage structures are maintained during routine access 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 of access tracks to zero fuel across the Biobank BMA. WHC maintains regular communications throughout the reporting period with the Liverpool Range Zone RFS team around planning of ecological burn programs as well as maintaining contact points in case of emergency. WHC maintains a specialist firefighting contractor for an oncall engagement during the fire season to respond in the event of a bushfire on WHC BMAs.

6.3.13 Monitoring Program

The 2025 ecological monitoring program of the Yarrari and Belah BMA included winter bird surveys that were undertaken in July and August 2025; fauna surveys involved 1 harp trap site, 3 pitfall/funnel trapping sites, 4 motion detection camera sites completed between January 2025 and December 2025 and annual spring flora monitoring of 27 plots across 4 vegetation zones (VZs) undertaken during October 2025. In addition, the monitoring of 5 plots across VZ 28 were discontinued as it has attained competition criteria for all key biometrics, averaged across a five-year period.

During the winter bird surveys, one threatened species (Dusky Woodswallow) was recorded. Monitoring results from microbat surveys recorded an overall 10 species (positively identified from captures) at the harp trap site including 2 species listed as threatened under the BC Act. Species richness from microbat surveys recorded 10 species in remnant woodland and 2 species in revegetated area. Monitoring results from pitfall and funnel trapping surveys recorded an overall 6 species of vertebrate fauna captured across 3 sites. Species richness from pitfall trap surveys recorded

5 species in remnant woodland sites and 3 species in revegetated woodland. A total of 18 species of animal were detected on motion detection cameras, including 5 introduced species.

During flora monitoring, VZ 25 was recorded as meeting or exceeding completion criteria for all four biometrics. Native plant species richness (NPS) completion criteria (benchmark for relevant biometric vegetation communities) was met or exceeded at 3 out of 4 VZs. Native overstorey cover (NOS) completion criteria (minimum benchmark for relevant biometric vegetation communities) was met or exceeded at 1 out of 4 VZs. Native midstorey cover (NMS) completion criteria (minimum benchmark for relevant biometric vegetation communities) was met or exceeded at 3 out of 4 VZs. Native ground cover grass (NGCG) completion criteria (minimum benchmark for relevant biometric vegetation communities) was met or exceeded at 3 out of 4 VZs. Comparison of individual plot data shows that NPS decreased from 20 out of 27 plots meeting or exceeding completion criteria in 2024, to 18 out of 27 plots in 2025. Native overstorey cover (NOS) increased from 8 out of 27 plots meeting or exceeding completion criteria in 2024, to 13 out of 27 plots in 2025. Native midstorey cover (NMS) increased from 23 out of 27 plots meeting or exceeding completion criteria in 2024, to 24 out of 27 plots in 2025. Native ground cover grass (NGCG) remained consistent between 2024 and 2025, with 21 plots meeting or exceeding completion criteria in both years.

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. Previous years of monitoring have 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 daytime only with no heavy equipment operating 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, 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.

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 2024, 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	Approval criteria met.	Nil	Nil
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 near 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 undertakes 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	645	7.79 – 9.33	47
SD3	4	<5	428	8.05 – 9.86	39
SB19	3 (Dry in Feb 2025)	<5	488	7.74 – 8.64	70
Dam B	3 (Dry in Feb 2025)	<5	368	7.79 – 9.74	15
SD7	3 (Dry in Feb 2025)	<5	128	7.22 – 8.3	13

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. The mean TSS values presented in Table 7.1.1 are noted to generally be within the discharge criteria of RCM's EPL indicating that this key water quality parameter is being managed and there are no likely impacts to downstream watercourses.

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 two (2) uncontrolled wet weather discharges from Dam SD3 through licenced discharge point LDP11 on 29 March 2025 and 2nd August 2025 with respective rainfall totals on site of 113.6mm and 45.4mm for the preceding 5 days respectively. All results met EPL criteria.

There were two (2) controlled discharges from Dam SD3 through licenced discharge point LDP11.

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

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

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 a contractor 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. One water bore, MP3, displayed a level decrease during the reporting period. Groundwater levels at WB13 increasing by 3.21m in March then returning to a regular value in June, potentially due to a transcription error. Water levels at all other sites trend in accordance with rainfall or are stable.

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." Water levels continue to return to pre mining levels (see Figure 13 and Figure 14) and fluctuate with climatic trends in rainfall.

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.

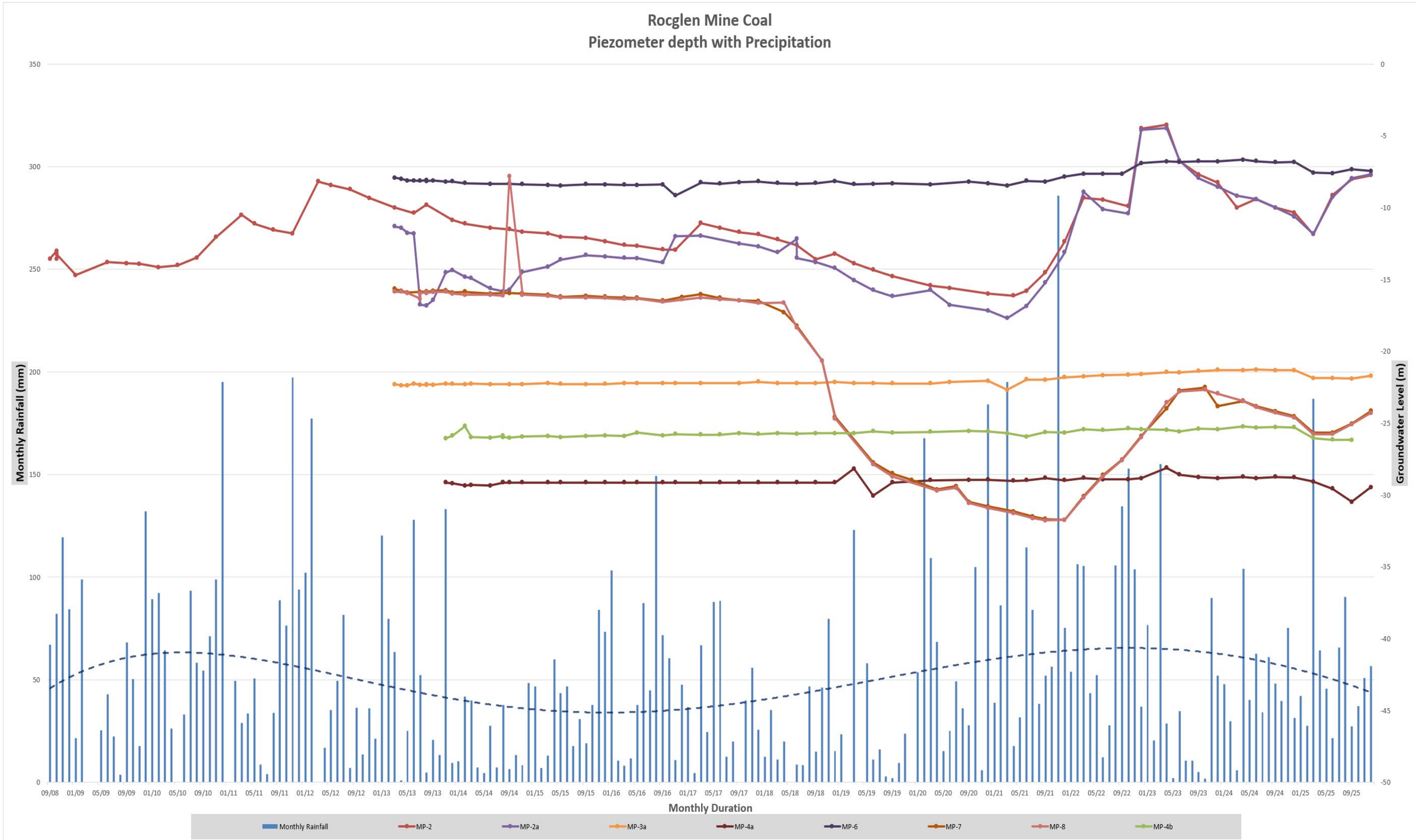


Figure 16 Rocglen Mine Groundwater Piezometer Depth

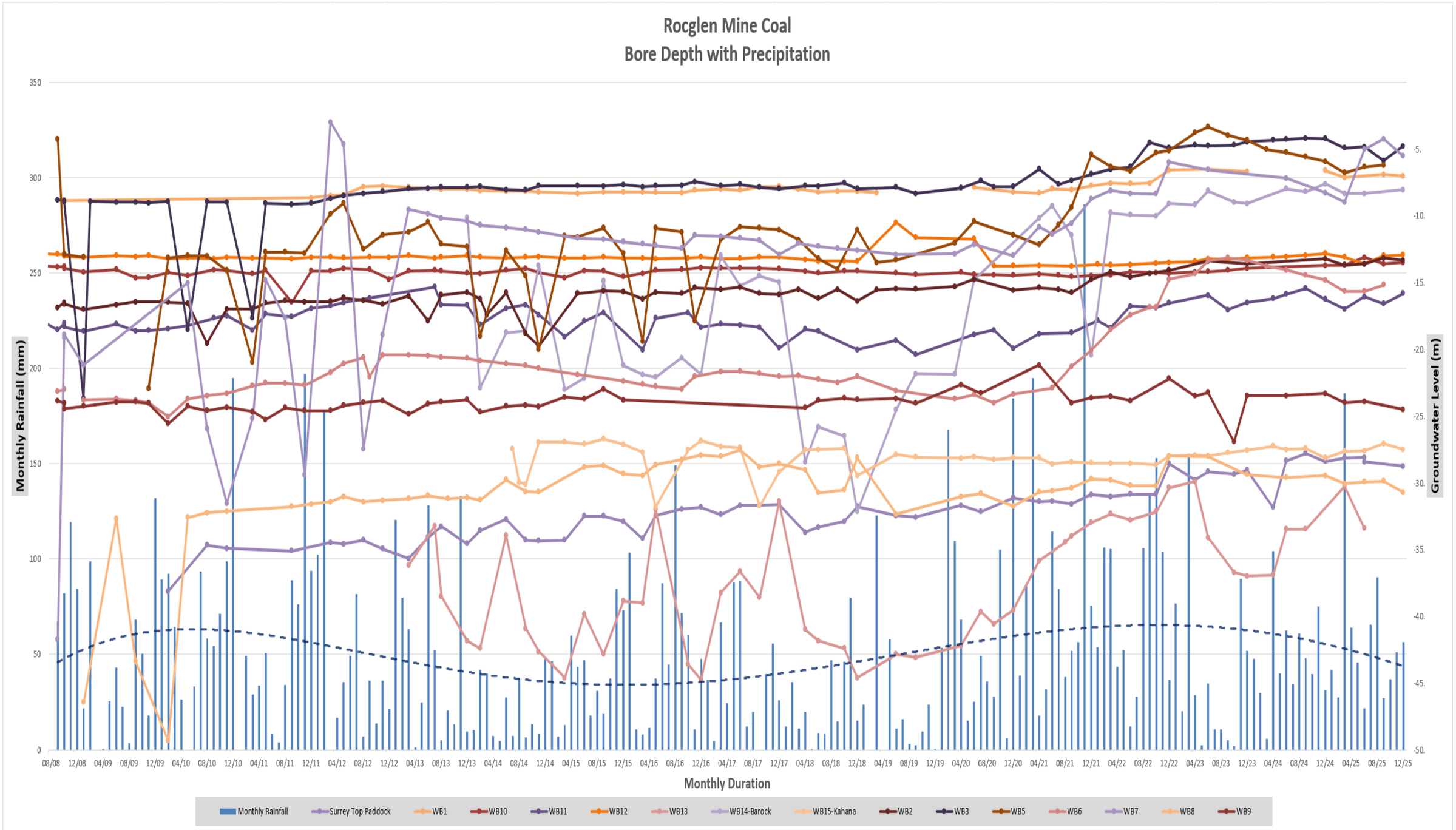


Figure 17 Rocglen Mine Groundwater Production Bore Depth

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 2025 for dust suppression was approximately 0 ML.

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 (2024 Actual)	This Reporting Period (2025 forecast)	Next Reporting Period (2026 Forecast)
	2024 (ha)	2025 (ha)	2026 (ha)
A. Total Mine Footprint	374.9	373.36	373.36
B. Total Active Disturbance	25.5	24.47	22.97
C. Land Being Prepared for Rehabilitation	1.5	2.52	1.5
D. Land Under Active Rehabilitation	347.9	346.36	348.89
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 a summary of results documented in section 6.2. Additionally, agronomist monitoring and erosion modelling was undertaken. Internal monthly rehabilitation inspections were also completed in the reporting period.

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**
Year 2024	
Western Void	**3,560**
Northern Emplacement	**4,320**
Western Emplacement	**5,780**
Year 2025	
Eastern Void	**2,880**
Northern & Western Void	**2,660**
Northern Emplacement	**4,290**
Western & Southern Emplacement	**11,040**

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

The entire mine site has been taken to final landform. All areas have been 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 a dozer and grader, area was seeded using mechanical method (tractor). This topsoil 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

- Complete erosion monitoring and maintenance as required
- Continue rehabilitation monitoring and infill planting as required.
- Ongoing seasonal weed spray as required

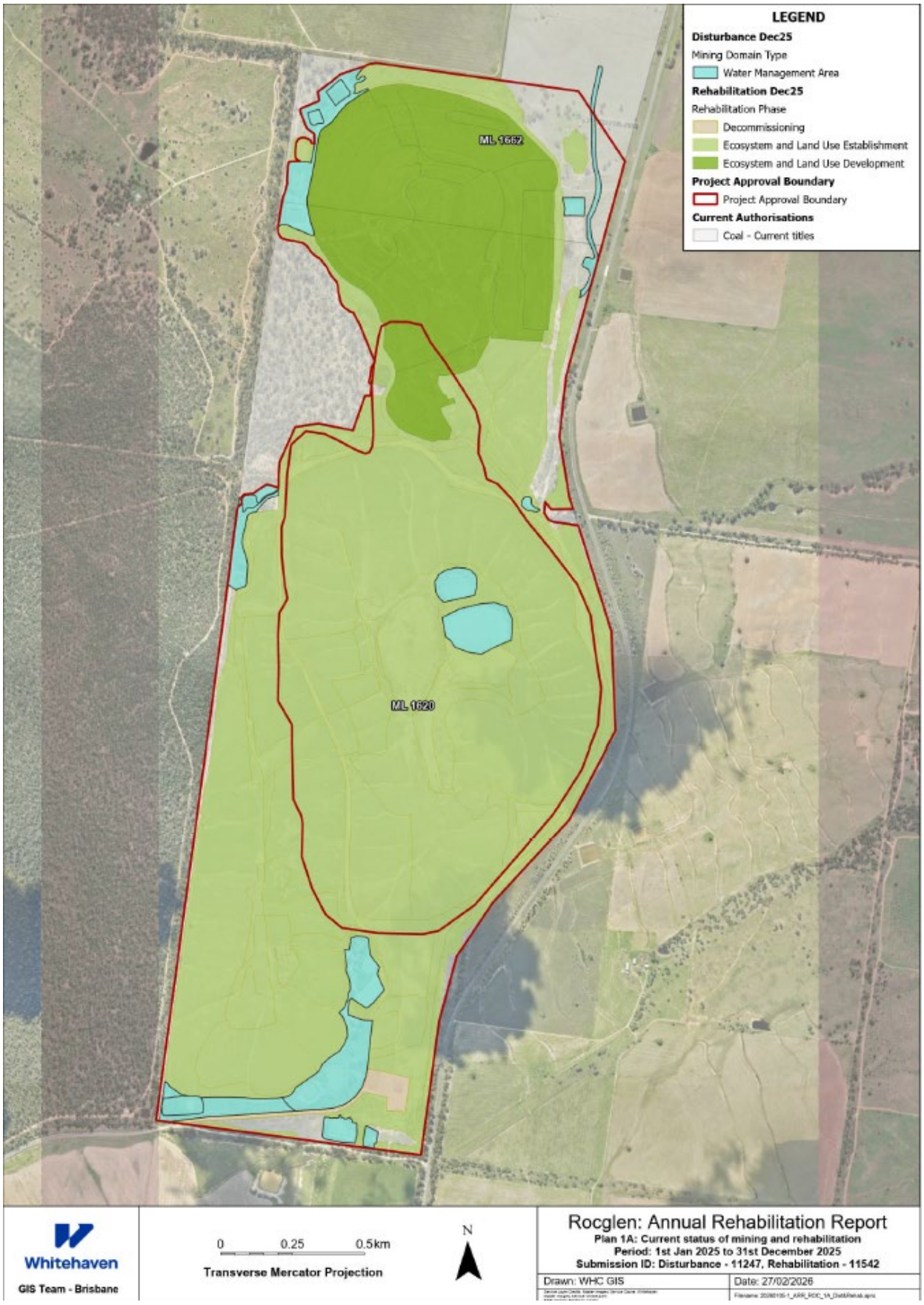


Figure 18 Annual Review Plan

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 April 2025. 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	2024	2025
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 Over 1 Million dollars to local groups, organisations and charitable organisations during the reporting period. These donations included:

- long-term community partnerships
- donations and sponsorships administered by a community-based committee
- land and environmental trusts
- other discretionary donations and assistance to local and regional organisations

10. INDEPENDENT AUDIT

The most recent Independent Environmental Audit (IEA) occurred during 2025, with submission of the final report and response to Audit Recommendations submitted to the Department in July 2025. Non-compliances identified by the IEA were risk ranked by the auditor in accordance with Table 1B. 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.

DPHI noted during their acceptance of the IEA Action Plan that the audit period for the 2025 IEA exceeded three years (7 April 2022 to 22 May 2025) and was therefore a non-compliance with Schedule 5, Condition 8 of MP10_0015. This was addressed by DPHI during the reporting period. No further action is required by RCM in relation to this finding.

The next Independent Audit is scheduled for 2028.

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 was one non-compliances during the reporting period. DPHI noted during their acceptance of the IEA Action Plan that the audit period for the 2025 IEA exceeded three years (7 April 2022 to 22 May 2025) and was therefore a non-compliance with Schedule 5, Condition 8 of MP10_0015. This was addressed by DPHI during the reporting period. No further action is required by RCM in response to this finding.

TABLE 11.2 NON-COMPLIANCES

Approval(s)	Schedule/Condition	Non-compliance	Action(s)
MP10_0015	Sch 5/Cn 8	Exceedance of audit period requirement	Commission and complete the 2028 audit prior to 22 May 2028.

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;
- Review and revise (where required) various environmental management plans, as per MP 10_0015; and
- Continue community liaison and engagement with local stakeholders.

Appendix 1: Water Quality Results

CERTIFICATE OF ANALYSIS

Work Order	: **ES2509704**	Page	: 1 of 2
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR MATT STEELE	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Rocglen Discharge	Date Samples Received	: 04-Apr-2025 12:15
Order number	: RG116942/3	Date Analysis Commenced	: 04-Apr-2025
C-O-C number	: ----	Issue Date	: 10-Apr-2025 14:57
Sampler	: ALISON QUIROZ		
Site	: Rehab Sites		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	ROCGLEN_DDCK 49Q2QAC4-1	----	----	----	----
			Sampling date / time	29-Mar-2025 05:15	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2509704-001	--------	--------	--------	--------
				Result	----	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.18**	**----**	**----**	**----**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**100**	**----**	**----**	**----**	**----**
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	**28**	**----**	**----**	**----**	**----**
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	**26**	**----**	**----**	**----**	**----**
EP020: Oil and Grease (O&G)								
Oil & Grease	----	5	mg/L	<5	**----**	**----**	**----**	**----**

CERTIFICATE OF ANALYSIS

Work Order	: **ES2512265**	Page	: 1 of 2
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR MATT STEELE	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Rocglen Discharge	Date Samples Received	: 30-Apr-2025 13:00
Order number	: RG116942/3	Date Analysis Commenced	: 30-Apr-2025
C-O-C number	: ----	Issue Date	: 06-May-2025 11:53
Sampler	: Olivia Hulbert		
Site	: Rehab Sites		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ROCGLEN_LDP11 4W3YW9SF-2	----	----	----	----
				Sampling date / time	17-Apr-2025 18:50	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2512265-001	--------	--------	--------	--------
					Result	----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**8.01**	**----**	**----**	**----**	**----**
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**319**	**----**	**----**	**----**	**----**
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		**10**	**----**	**----**	**----**	**----**
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		**8**	**----**	**----**	**----**	**----**
EP020: Oil and Grease (O&G)									
Oil & Grease	----	5	mg/L		<5	**----**	**----**	**----**	**----**

CERTIFICATE OF ANALYSIS

Work Order	: **ES2517131**	Page	: 1 of 2
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR MATT STEELE	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Rocglen Discharge	Date Samples Received	: 06-Jun-2025 14:00
Order number	: RC116942/4	Date Analysis Commenced	: 11-Jun-2025
C-O-C number	: ----	Issue Date	: 16-Jun-2025 18:15
Sampler	: ALISON QUIROZ, OLIVIA HULBERT		
Site	: Rehab Sites		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ROCGLEN_LDP11 UKC57HJ9-1	----	----	----	----
				Sampling date / time	04-Jun-2025 15:26	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2517131-001	--------	--------	--------	--------
					Result	----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**7.48**	----	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**324**	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		**12**	----	----	----	----
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		**5**	----	----	----	----
EP020: Oil and Grease (O&G)									
Oil & Grease	----	5	mg/L		<5	----	----	----	----

CERTIFICATE OF ANALYSIS

Work Order	: **ES2524144**	Page	: 1 of 2
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR MATT STEELE	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Rocglen Discharge	Date Samples Received	: 07-Aug-2025 14:00
Order number	: 40201	Date Analysis Commenced	: 08-Aug-2025
C-O-C number	: ZNDFY9JG	Issue Date	: 11-Aug-2025 13:53
Sampler	: ALISON QUIROZ, HARRY MILLS		
Site	: Rehab Sites		
Quote number	: EN/222		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	ROCGLEN_DDCK 7SZXDB4X-2	ROCGLEN_UNDC 7SZXDB4X-3	ROCGLEN_LDP11 7SZXDB4X-4	----	----
			Sampling date / time	04-Aug-2025 16:26	04-Aug-2025 15:54	02-Aug-2025 17:20	----	----
Compound	CAS Number	LOR	Unit	ES2524144-001	ES2524144-002	ES2524144-003	--------	--------
				Result	Result	Result	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.30**	**6.90**	**7.83**	**----**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**185**	**153**	**402**	**----**	**----**
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	**10**	**52**	**133**	**----**	**----**
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	**22**	**15**	**16**	**----**	**----**
EP020: Oil and Grease (O&G)								
Oil & Grease	----	5	mg/L	<5	<5	<5	**----**	**----**

CERTIFICATE OF ANALYSIS

Work Order	: **ES2505073**	Page	: 1 of 4
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR MATT STEELE	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Rocglen Quarterly Surface Water (Feb)	Date Samples Received	: 21-Feb-2025 13:43
Order number	: RC116942/3	Date Analysis Commenced	: 24-Feb-2025
C-O-C number	: U5J99A	Issue Date	: 28-Feb-2025 12:04
Sampler	: Larissa Golby		
Site	: WHIACI		
Quote number	: EN/222		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ROCGLEN_DAMB XFV5GFNZ-2	ROCGLEN_Void XFV5GFNZ-6	----	----	----
				Sampling date / time	18-Feb-2025 13:37	18-Feb-2025 13:58	----	----	----
Compound	CAS Number	LOR	Unit		ES2505073-001	ES2505073-002	--------	--------	--------
					Result	Result	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**9.74**	**8.94**	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**674**	**980**	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		**36**	**21**	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		**136**	**48**	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**151**	**292**	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**287**	**340**	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**45**	**50**	----	----	----
ED093T: Total Major Cations									
Sodium	7440-23-5	1	mg/L		**145**	**220**	----	----	----
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**1.27**	**2.97**	----	----	----
Antimony	7440-36-0	0.001	mg/L		<0.001	<0.001	----	----	----
Arsenic	7440-38-2	0.001	mg/L		**0.009**	**0.009**	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.168**	**0.081**	----	----	----
Molybdenum	7439-98-7	0.001	mg/L		**0.003**	**0.009**	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	----	----	----
Iron	7439-89-6	0.05	mg/L		**1.05**	**1.85**	----	----	----
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		**8**	**40**	----	----	----
EP020: Oil and Grease (O&G)									
Oil & Grease	----	5	mg/L		<5	<5	----	----	----

CERTIFICATE OF ANALYSIS

Work Order	: **ES2516580**	Page	: 1 of 4
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR MATT STEELE	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Rocglen Quarterly Surface Water May	Date Samples Received	: 03-Jun-2025 13:00
Order number	: RC116942/4	Date Analysis Commenced	: 04-Jun-2025
C-O-C number	: ----	Issue Date	: 11-Jun-2025 11:45
Sampler	: OLIVIA HULBERT		
Site	: Rehab Sites		
Quote number	: EN/222		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EK010 LOR raised due to sample matreix.
- ED093: It is recognised that total concentration is less than dissolved for some metal analytes. However, the difference is within experimental variation of the methods.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	ROCGLEN_Void ZFXTVZ35-4	ROCGLEN_DAMB ZFXTVZ35-5	ROCGLEN_SB19 ZFXTVZ35-6	ROCGLEN_SD3 ZFXTVZ35-7	ROCGLEN_SD7 ZFXTVZ35-8
				Sampling date / time	30-May-2025 12:00	30-May-2025 12:26	30-May-2025 11:30	30-May-2025 11:09	30-May-2025 12:35
					ES2516580-001	ES2516580-002	ES2516580-003	ES2516580-004	ES2516580-005
					Result	Result	Result	Result	Result
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		7.79	7.79	7.74	8.05	7.22
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		407	258	361	288	108
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		88	13	154	92	18
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		172	124	144	110	33
Total Alkalinity as CaCO3	----	1	mg/L		172	124	144	110	33
ED093F: Dissolved Major Cations									
Sodium	7440-23-5	1	mg/L		86	49	39	58	10
ED093T: Total Major Cations									
Sodium	7440-23-5	1	mg/L		87	50	75	58	9
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		0.14	0.11	1.28	0.96	1.03
Arsenic	7440-38-2	0.001	mg/L		0.006	0.002	0.003	0.004	0.001
Manganese	7439-96-5	0.001	mg/L		0.006	0.003	0.061	0.011	0.089
Iron	7439-89-6	0.05	mg/L		0.09	0.09	0.64	0.39	0.55
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		13.1	2.05	11.2	6.87	5.43
Arsenic	7440-38-2	0.001	mg/L		0.008	0.002	0.006	0.005	0.002
Manganese	7439-96-5	0.001	mg/L		0.263	0.089	0.108	0.108	0.386
Iron	7439-89-6	0.05	mg/L		9.24	1.60	8.32	5.07	4.09
EK010-1: Chlorine									
Total Residual Chlorine	----	0.02	mg/L		0.15	0.10	<0.20	<0.10	0.14
Free Chlorine	----	0.02	mg/L		0.15	0.10	<0.20	<0.10	0.14

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ROCGLEN_Void ZFXTVZ35-4	ROCGLEN_DAMB ZFXTVZ35-5	ROCGLEN_SB19 ZFXTVZ35-6	ROCGLEN_SD3 ZFXTVZ35-7	ROCGLEN_SD7 ZFXTVZ35-8
				Sampling date / time	30-May-2025 12:00	30-May-2025 12:26	30-May-2025 11:30	30-May-2025 11:09	30-May-2025 12:35
Compound	CAS Number	LOR	Unit		ES2516580-001	ES2516580-002	ES2516580-003	ES2516580-004	ES2516580-005
					Result	Result	Result	Result	Result
EK010-1: Chlorine - Continued									
Monochloramine	10599-90-3	0.02	mg/L		<0.02	<0.02	<0.20	<0.10	<0.02
Dichloroamine	3400-09-7	0.02	mg/L		<0.02	<0.02	<0.20	<0.10	<0.02
Combined Chlorine	----	0.02	mg/L		<0.02	<0.02	<0.20	<0.10	<0.02
Free Chlorine as Sodium Hypochlorite	----	0.02	mg/L		**0.16**	**0.10**	<0.20	<0.10	**0.15**
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		**11**	**13**	**10**	**8**	**18**
EP020: Oil and Grease (O&G)									
Oil & Grease	----	5	mg/L		<5	<5	<5	<5	<5

CERTIFICATE OF ANALYSIS

Work Order	: **ES2526887**	Page	: 1 of 4
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: BILLIE-JO POWER	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Rocglen Surface Waters (Void Quarterly)	Date Samples Received	: 29-Aug-2025 15:25
Order number	: AC40201	Date Analysis Commenced	: 29-Aug-2025
C-O-C number	: 19201	Issue Date	: 03-Sep-2025 16:18
Sampler	: B. Douglas, M. Wettenhall		
Site	: Rehab Sites		
Quote number	: EN/222		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Wael Saleh	Client Services - Trade Waste Coordinator	Sydney Subcontracting (ACIRL Sampling), Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- AC03: Sampling and field tests conducted by ALS ACIRL Gunnedah 5-7 Talbot Rd Site No. 18941 and in accordance to NATA accreditation No. 15784. Approved signatory 'Matt Steele'.
- AC04: Field observations supplied by ALS ACIRL.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	ROCGLEN_Void Z92VC9PF-2	ROCGLEN_SD7 Z92VC9PF-3	ROCGLEN_DAMB Z92VC9PF-4	ROCGLEN_SB19 Z92VC9PF-5	ROCGLEN_SD3 Z92VC9PF-6
			Sampling date / time	28-Aug-2025 11:20	28-Aug-2025 11:50	28-Aug-2025 10:50	28-Aug-2025 10:20	28-Aug-2025 10:30
Compound	CAS Number	LOR	Unit	ES2526887-001	ES2526887-002	ES2526887-003	ES2526887-004	ES2526887-005
				Result	Result	Result	Result	Result
AC03: Field Tests								
ø Electrical Conductivity (Non Compensated)	----	1	µS/cm	511	137	260	416	386
ø pH	----	0.01	pH Unit	8.69	8.30	9.02	8.00	8.36
ø Temperature	----	0.1	°C	17.7	17.0	17.6	16.1	17.2
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	8.44	7.49	8.66	8.06	8.27
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	492	120	245	409	378
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	8	9	6	35	13
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	6	<1	8	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	172	36	99	172	157
Total Alkalinity as CaCO3	----	1	mg/L	179	36	107	172	157
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	23	14	12	18	18
ED093T: Total Major Cations								
Sodium	7440-23-5	1	mg/L	92	9	37	72	65
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	6.89	10.4	0.35	8.94	4.24
Arsenic	7440-38-2	0.001	mg/L	0.004	0.001	0.001	0.004	0.003
Manganese	7439-96-5	0.001	mg/L	0.039	0.292	0.045	0.173	0.104
Iron	7439-89-6	0.05	mg/L	5.31	6.26	0.38	6.15	2.93
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	8	19	11	10	12
EP020: Oil and Grease (O&G)								
Oil & Grease	----	5	mg/L	<5	<5	<5	<5	<5

Analytical Results

Descriptive Results

Sub-Matrix: **WATER**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
AC04: Field Observations		
AC04: Appearance	ROCGLEN_VoidZ92VC9PF-2 - 28-Aug-2025 11:20	Clear
AC04: Appearance	ROCGLEN_SD7Z92VC9PF-3 - 28-Aug-2025 11:50	Clear
AC04: Appearance	ROCGLEN_DAMBZ92VC9PF-4 - 28-Aug-2025 10:50	Clear
AC04: Appearance	ROCGLEN_SB19Z92VC9PF-5 - 28-Aug-2025 10:20	Slight turbid
AC04: Appearance	ROCGLEN_SD3Z92VC9PF-6 - 28-Aug-2025 10:30	Slight turbid
AC04: Odour	ROCGLEN_VoidZ92VC9PF-2 - 28-Aug-2025 11:20	Nil
AC04: Odour	ROCGLEN_SD7Z92VC9PF-3 - 28-Aug-2025 11:50	Nil
AC04: Odour	ROCGLEN_DAMBZ92VC9PF-4 - 28-Aug-2025 10:50	Nil
AC04: Odour	ROCGLEN_SB19Z92VC9PF-5 - 28-Aug-2025 10:20	Nil
AC04: Odour	ROCGLEN_SD3Z92VC9PF-6 - 28-Aug-2025 10:30	Nil
AC04: Colour	ROCGLEN_VoidZ92VC9PF-2 - 28-Aug-2025 11:20	Slight brown
AC04: Colour	ROCGLEN_SD7Z92VC9PF-3 - 28-Aug-2025 11:50	Slight brown
AC04: Colour	ROCGLEN_DAMBZ92VC9PF-4 - 28-Aug-2025 10:50	Clear
AC04: Colour	ROCGLEN_SB19Z92VC9PF-5 - 28-Aug-2025 10:20	Slight brown
AC04: Colour	ROCGLEN_SD3Z92VC9PF-6 - 28-Aug-2025 10:30	Slight brown

CERTIFICATE OF ANALYSIS

Work Order	: **ES2536004**	Page	: 1 of 4
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: ACCOUNTS ALS COAL	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: 19358 Rocglen Surface Waters (Void Quarterly)	Date Samples Received	: 14-Nov-2025 15:30
Order number	: 40201	Date Analysis Commenced	: 14-Nov-2025
C-O-C number	:	Issue Date	: 20-Nov-2025 21:37
Sampler	: B.Douglas & M.Wettenhall		
Site	: Rehab Sites		
Quote number	: EN/222		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Wael Saleh	Client Services - Trade Waste Coordinator	Sydney Subcontracting (ACIRL Sampling), Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- AC03: Sampling and field tests conducted by ALS ACIRL Gunnedah 5-7 Talbot Rd Site No. 18941 and in accordance to NATA accreditation No. 15784. Approved signatory 'Matt Steele'.
- AC04: Field observations supplied by ALS ACIRL.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	ROCGLEN_Void UYYFS2FY-2	ROCGLEN_SD7 UYYFS2FY-3	ROCGLEN_DAMB UYYFS2FY-4	ROCGLEN_SB19 UYYFS2FY-5	ROCGLEN_SD3 UYYFS2FY-6
			Sampling date / time	13-Nov-2025 10:25	13-Nov-2025 11:05	13-Nov-2025 09:50	13-Nov-2025 09:20	13-Nov-2025 09:10
Compound	CAS Number	LOR	Unit	ES2536004-001	ES2536004-002	ES2536004-003	ES2536004-004	ES2536004-005
				Result	Result	Result	Result	Result
AC03: Field Tests								
ø Electrical Conductivity (Non Compensated)	----	1	µS/cm	621	159	305	620	636
ø pH	----	0.01	pH Unit	9.33	7.90	9.57	8.64	9.58
ø Temperature	----	0.1	°C	24.3	20.8	23.0	21.5	20.8
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	8.96	7.62	9.17	8.42	9.29
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	581	138	281	586	611
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	72	12	6	20	11
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	24	<1	15	10	46
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	189	47	110	258	218
Total Alkalinity as CaCO3	----	1	mg/L	212	47	124	268	265
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	27	10	13	24	25
ED093T: Total Major Cations								
Sodium	7440-23-5	1	mg/L	114	10	49	104	115
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	3.95	8.34	0.25	1.13	1.42
Arsenic	7440-38-2	0.001	mg/L	0.005	0.002	0.001	0.006	0.005
Manganese	7439-96-5	0.001	mg/L	0.130	0.802	0.063	0.255	0.057
Iron	7439-89-6	0.05	mg/L	2.66	5.68	0.32	0.82	0.95
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	11	19	12	14	14
EP020: Oil and Grease (O&G)								
Oil & Grease	----	5	mg/L	<5	<5	<5	<5	<5

Analytical Results

Descriptive Results

Sub-Matrix: **WATER**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
AC04: Field Observations		
AC04: Appearance	ROCGLEN_VoidUYYFS2FY-2 - 13-Nov-2025 10:25	SLIGHT TURBID
AC04: Appearance	ROCGLEN_SD7UYYFS2FY-3 - 13-Nov-2025 11:05	CLEAR
AC04: Appearance	ROCGLEN_DAMBUYYFS2FY-4 - 13-Nov-2025 09:50	CLEAR
AC04: Appearance	ROCGLEN_SB19UYYFS2FY-5 - 13-Nov-2025 09:20	SLIGHT TURBID
AC04: Appearance	ROCGLEN_SD3UYYFS2FY-6 - 13-Nov-2025 09:10	SLIGHT TURBIID
AC04: Odour	ROCGLEN_VoidUYYFS2FY-2 - 13-Nov-2025 10:25	NIL
AC04: Odour	ROCGLEN_SD7UYYFS2FY-3 - 13-Nov-2025 11:05	NIL
AC04: Odour	ROCGLEN_DAMBUYYFS2FY-4 - 13-Nov-2025 09:50	NIL
AC04: Odour	ROCGLEN_SB19UYYFS2FY-5 - 13-Nov-2025 09:20	NIL
AC04: Odour	ROCGLEN_SD3UYYFS2FY-6 - 13-Nov-2025 09:10	NIL
AC04: Colour	ROCGLEN_VoidUYYFS2FY-2 - 13-Nov-2025 10:25	SLIGHT BROWN
AC04: Colour	ROCGLEN_SD7UYYFS2FY-3 - 13-Nov-2025 11:05	SLIGHT BROWN
AC04: Colour	ROCGLEN_DAMBUYYFS2FY-4 - 13-Nov-2025 09:50	CLEAR
AC04: Colour	ROCGLEN_SB19UYYFS2FY-5 - 13-Nov-2025 09:20	SLIGHT BROWN
AC04: Colour	ROCGLEN_SD3UYYFS2FY-6 - 13-Nov-2025 09:10	SLIGHT BROWN

CERTIFICATE OF ANALYSIS

Work Order	: **ES2526887**	Page	: 1 of 4
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: BILLIE-JO POWER	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Rocglen Surface Waters (Void Quarterly)	Date Samples Received	: 29-Aug-2025 15:25
Order number	: AC40201	Date Analysis Commenced	: 29-Aug-2025
C-O-C number	: 19201	Issue Date	: 03-Sep-2025 16:18
Sampler	: B. Douglas, M. Wettenhall		
Site	: Rehab Sites		
Quote number	: EN/222		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Wael Saleh	Client Services - Trade Waste Coordinator	Sydney Subcontracting (ACIRL Sampling), Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- AC03: Sampling and field tests conducted by ALS ACIRL Gunnedah 5-7 Talbot Rd Site No. 18941 and in accordance to NATA accreditation No. 15784. Approved signatory 'Matt Steele'.
- AC04: Field observations supplied by ALS ACIRL.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	ROCGLEN_Void Z92VC9PF-2	ROCGLEN_SD7 Z92VC9PF-3	ROCGLEN_DAMB Z92VC9PF-4	ROCGLEN_SB19 Z92VC9PF-5	ROCGLEN_SD3 Z92VC9PF-6
			Sampling date / time	28-Aug-2025 11:20	28-Aug-2025 11:50	28-Aug-2025 10:50	28-Aug-2025 10:20	28-Aug-2025 10:30
Compound	CAS Number	LOR	Unit	ES2526887-001	ES2526887-002	ES2526887-003	ES2526887-004	ES2526887-005
				Result	Result	Result	Result	Result
AC03: Field Tests								
ø Electrical Conductivity (Non Compensated)	----	1	µS/cm	511	137	260	416	386
ø pH	----	0.01	pH Unit	8.69	8.30	9.02	8.00	8.36
ø Temperature	----	0.1	°C	17.7	17.0	17.6	16.1	17.2
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	8.44	7.49	8.66	8.06	8.27
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	492	120	245	409	378
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	8	9	6	35	13
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	6	<1	8	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	172	36	99	172	157
Total Alkalinity as CaCO3	----	1	mg/L	179	36	107	172	157
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	23	14	12	18	18
ED093T: Total Major Cations								
Sodium	7440-23-5	1	mg/L	92	9	37	72	65
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	6.89	10.4	0.35	8.94	4.24
Arsenic	7440-38-2	0.001	mg/L	0.004	0.001	0.001	0.004	0.003
Manganese	7439-96-5	0.001	mg/L	0.039	0.292	0.045	0.173	0.104
Iron	7439-89-6	0.05	mg/L	5.31	6.26	0.38	6.15	2.93
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	8	19	11	10	12
EP020: Oil and Grease (O&G)								
Oil & Grease	----	5	mg/L	<5	<5	<5	<5	<5

Analytical Results

Descriptive Results

Sub-Matrix: **WATER**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
AC04: Field Observations		
AC04: Appearance	ROCGLEN_VoidZ92VC9PF-2 - 28-Aug-2025 11:20	Clear
AC04: Appearance	ROCGLEN_SD7Z92VC9PF-3 - 28-Aug-2025 11:50	Clear
AC04: Appearance	ROCGLEN_DAMBZ92VC9PF-4 - 28-Aug-2025 10:50	Clear
AC04: Appearance	ROCGLEN_SB19Z92VC9PF-5 - 28-Aug-2025 10:20	Slight turbid
AC04: Appearance	ROCGLEN_SD3Z92VC9PF-6 - 28-Aug-2025 10:30	Slight turbid
AC04: Odour	ROCGLEN_VoidZ92VC9PF-2 - 28-Aug-2025 11:20	Nil
AC04: Odour	ROCGLEN_SD7Z92VC9PF-3 - 28-Aug-2025 11:50	Nil
AC04: Odour	ROCGLEN_DAMBZ92VC9PF-4 - 28-Aug-2025 10:50	Nil
AC04: Odour	ROCGLEN_SB19Z92VC9PF-5 - 28-Aug-2025 10:20	Nil
AC04: Odour	ROCGLEN_SD3Z92VC9PF-6 - 28-Aug-2025 10:30	Nil
AC04: Colour	ROCGLEN_VoidZ92VC9PF-2 - 28-Aug-2025 11:20	Slight brown
AC04: Colour	ROCGLEN_SD7Z92VC9PF-3 - 28-Aug-2025 11:50	Slight brown
AC04: Colour	ROCGLEN_DAMBZ92VC9PF-4 - 28-Aug-2025 10:50	Clear
AC04: Colour	ROCGLEN_SB19Z92VC9PF-5 - 28-Aug-2025 10:20	Slight brown
AC04: Colour	ROCGLEN_SD3Z92VC9PF-6 - 28-Aug-2025 10:30	Slight brown

CERTIFICATE OF ANALYSIS

Work Order	: **ES2536004**	Page	: 1 of 4
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: ACCOUNTS ALS COAL	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: 19358 Rocglen Surface Waters (Void Quarterly)	Date Samples Received	: 14-Nov-2025 15:30
Order number	: 40201	Date Analysis Commenced	: 14-Nov-2025
C-O-C number	:	Issue Date	: 20-Nov-2025 21:37
Sampler	: B.Douglas & M.Wettenhall		
Site	: Rehab Sites		
Quote number	: EN/222		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Wael Saleh	Client Services - Trade Waste Coordinator	Sydney Subcontracting (ACIRL Sampling), Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- AC03: Sampling and field tests conducted by ALS ACIRL Gunnedah 5-7 Talbot Rd Site No. 18941 and in accordance to NATA accreditation No. 15784. Approved signatory 'Matt Steele'.
- AC04: Field observations supplied by ALS ACIRL.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	ROCGLEN_Void UYYFS2FY-2	ROCGLEN_SD7 UYYFS2FY-3	ROCGLEN_DAMB UYYFS2FY-4	ROCGLEN_SB19 UYYFS2FY-5	ROCGLEN_SD3 UYYFS2FY-6
			Sampling date / time	13-Nov-2025 10:25	13-Nov-2025 11:05	13-Nov-2025 09:50	13-Nov-2025 09:20	13-Nov-2025 09:10
Compound	CAS Number	LOR	Unit	ES2536004-001	ES2536004-002	ES2536004-003	ES2536004-004	ES2536004-005
				Result	Result	Result	Result	Result
AC03: Field Tests								
ø Electrical Conductivity (Non Compensated)	----	1	µS/cm	621	159	305	620	636
ø pH	----	0.01	pH Unit	9.33	7.90	9.57	8.64	9.58
ø Temperature	----	0.1	°C	24.3	20.8	23.0	21.5	20.8
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	8.96	7.62	9.17	8.42	9.29
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	581	138	281	586	611
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	72	12	6	20	11
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	24	<1	15	10	46
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	189	47	110	258	218
Total Alkalinity as CaCO3	----	1	mg/L	212	47	124	268	265
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	27	10	13	24	25
ED093T: Total Major Cations								
Sodium	7440-23-5	1	mg/L	114	10	49	104	115
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	3.95	8.34	0.25	1.13	1.42
Arsenic	7440-38-2	0.001	mg/L	0.005	0.002	0.001	0.006	0.005
Manganese	7439-96-5	0.001	mg/L	0.130	0.802	0.063	0.255	0.057
Iron	7439-89-6	0.05	mg/L	2.66	5.68	0.32	0.82	0.95
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	11	19	12	14	14
EP020: Oil and Grease (O&G)								
Oil & Grease	----	5	mg/L	<5	<5	<5	<5	<5

Analytical Results

Descriptive Results

Sub-Matrix: **WATER**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
AC04: Field Observations		
AC04: Appearance	ROCGLEN_VoidUYYFS2FY-2 - 13-Nov-2025 10:25	SLIGHT TURBID
AC04: Appearance	ROCGLEN_SD7UYYFS2FY-3 - 13-Nov-2025 11:05	CLEAR
AC04: Appearance	ROCGLEN_DAMBUYYFS2FY-4 - 13-Nov-2025 09:50	CLEAR
AC04: Appearance	ROCGLEN_SB19UYYFS2FY-5 - 13-Nov-2025 09:20	SLIGHT TURBID
AC04: Appearance	ROCGLEN_SD3UYYFS2FY-6 - 13-Nov-2025 09:10	SLIGHT TURBIID
AC04: Odour	ROCGLEN_VoidUYYFS2FY-2 - 13-Nov-2025 10:25	NIL
AC04: Odour	ROCGLEN_SD7UYYFS2FY-3 - 13-Nov-2025 11:05	NIL
AC04: Odour	ROCGLEN_DAMBUYYFS2FY-4 - 13-Nov-2025 09:50	NIL
AC04: Odour	ROCGLEN_SB19UYYFS2FY-5 - 13-Nov-2025 09:20	NIL
AC04: Odour	ROCGLEN_SD3UYYFS2FY-6 - 13-Nov-2025 09:10	NIL
AC04: Colour	ROCGLEN_VoidUYYFS2FY-2 - 13-Nov-2025 10:25	SLIGHT BROWN
AC04: Colour	ROCGLEN_SD7UYYFS2FY-3 - 13-Nov-2025 11:05	SLIGHT BROWN
AC04: Colour	ROCGLEN_DAMBUYYFS2FY-4 - 13-Nov-2025 09:50	CLEAR
AC04: Colour	ROCGLEN_SB19UYYFS2FY-5 - 13-Nov-2025 09:20	SLIGHT BROWN
AC04: Colour	ROCGLEN_SD3UYYFS2FY-6 - 13-Nov-2025 09:10	SLIGHT BROWN

CERTIFICATE OF ANALYSIS

Work Order	: **EN2504622**	Page	: 1 of 2
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Newcastle
Contact	: MR MATT STEELE	Contact	:
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: ----	Telephone	: +61 2 4014 2500
Project	: Rocglen HVAS	Date Samples Received	: 18-Mar-2025 09:00
Order number	: ----	Date Analysis Commenced	: 21-Mar-2025
C-O-C number	: ----	Issue Date	: 25-Mar-2025 09:07
Sampler	: M Wettenhall		
Site	: Rehab Sites		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Zoran Grozdanovski	Team Leader - Chemistry	Newcastle - Inorganics, Mayfield West, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- NATA accreditation is not held for results reported in µg/m³. Concentration in µg/m³ is calculated from air volume data provided by the client.

Analytical Results

Sub-Matrix: **FILTER** (Matrix: **AIR**)				Sample ID	**ROCGLEN_Roseberry PM10 BA-2 MGE2C59T-1**	----	----	----	----
				Sampling date / time	13-Mar-2025 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*		**EN2504622-001**	--------	--------	--------	--------
					Result	----	----	----	----
EA143: Particulates in Air - HVAFs									
ø PM10	----	0.1	µg/m³		**3.7**	**----**	**----**	**----**	**----**
PM10 (mass per filter)	----	0.1	mg/filter		**6.0**	**----**	**----**	**----**	**----**

CERTIFICATE OF ANALYSIS

Work Order	: **ES2507982**	Page	: 1 of 6
Amendment	: **1**		
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR MATT STEELE	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Rocglen 6-monthly GW	Date Samples Received	: 20-Mar-2025 12:25
Order number	: ----	Date Analysis Commenced	: 21-Mar-2025
C-O-C number	: ZGMCY2WG	Issue Date	: 31-Mar-2025 13:05
Sampler	: LAUREN MAY, M Wettenhall		
Site	: Rehab Sites		
Quote number	: EN/222		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Wael Saleh	Client Services - Trade Waste Coordinator	Sydney Subcontracting (ACIRL Sampling), Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- AC03: Sampling and field tests conducted by ALS ACIRL Gunnedah 5-7 Talbot Rd Site No. 18941 and in accordance to NATA accreditation No. 15784. Approved signatory 'Matt Steele'.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EG035: Positive Mercury results for have been confirmed by redigestion and reanalysis.
- Amendment (31/03/2025): This report has been amended to alter the sampler name. All analysis results are as per the previous report.
- AC02: Sampling data supplied by ALS ACIRL. NATA Accreditation No.15784.
- AC04: Field observations supplied by ALS ACIRL.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

			Sample ID	ROCGLEN_MP3 TQKSDN5V-2	ROCGLEN_MP4-a (Surrey New) TQKSDN5V-4	ROCGLEN_MP4-b (Surrey New TQKSDN5V-5	ROCGLEN_MP-3a TQKSDN5V-7	ROCGLEN_MP-6 TQKSDN5V-9
			Sampling date / time	19-Mar-2025 11:20	19-Mar-2025 11:50	19-Mar-2025 11:40	19-Mar-2025 11:00	19-Mar-2025 10:20
Compound	CAS Number	LOR	Unit	ES2507982-001	ES2507982-002	ES2507982-003	ES2507982-004	ES2507982-005
				Result	Result	Result	Result	Result
AC02: Sampling Data								
ø Purge Type	----	1	--	BAIL	BAIL	BAIL	BAIL	BAIL
AC03: Field Tests								
ø Electrical Conductivity (Non Compensated)	----	1	µS/cm	4540	6040	3340	1320	1810
ø pH	----	0.01	pH Unit	7.29	7.58	7.94	7.75	7.82
ø Temperature	----	0.1	°C	24.7	22.9	23.1	24.5	21.9
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.65	7.87	8.04	8.00	7.96
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	4020	5600	2860	1270	1760
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	2300	2800	1780	775	1040
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	575	610	725	520	777
Total Alkalinity as CaCO3	----	1	mg/L	575	610	725	520	777
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	322	121	125	34	3
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	980	1520	562	92	135
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	92	33	13	19	6
Magnesium	7439-95-4	1	mg/L	53	30	10	14	8
Sodium	7440-23-5	1	mg/L	765	1180	678	255	387
Potassium	7440-09-7	1	mg/L	4	6	3	3	7
EG020T: Total Metals by ICP-MS								

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	ROCGLEN_MP3 TQKSDN5V-2	ROCGLEN_MP4-a (Surrey New) TQKSDN5V-4	ROCGLEN_MP4-b (Surrey New TQKSDN5V-5	ROCGLEN_MP-3a TQKSDN5V-7	ROCGLEN_MP-6 TQKSDN5V-9
				Sampling date / time	19-Mar-2025 11:20	19-Mar-2025 11:50	19-Mar-2025 11:40	19-Mar-2025 11:00	19-Mar-2025 10:20
					ES2507982-001	ES2507982-002	ES2507982-003	ES2507982-004	ES2507982-005
					Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS - Continued									
Aluminium	7429-90-5	0.01	mg/L		**2.45**	**0.32**	**2.14**	**0.05**	**0.06**
Arsenic	7440-38-2	0.001	mg/L		**0.003**	**0.006**	**0.003**	**0.005**	**0.004**
Boron	7440-42-8	0.05	mg/L		**0.10**	<0.05	<0.05	<0.05	**0.06**
Barium	7440-39-3	0.001	mg/L		**0.296**	**0.265**	**0.188**	**0.089**	**0.237**
Beryllium	7440-41-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cobalt	7440-48-4	0.001	mg/L		**0.006**	**0.003**	**0.006**	<0.001	<0.001
Chromium	7440-47-3	0.001	mg/L		**0.002**	<0.001	**0.002**	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		**0.005**	**0.005**	**0.010**	**0.001**	**0.007**
Manganese	7439-96-5	0.001	mg/L		**0.569**	**0.446**	**0.505**	**0.006**	**0.047**
Nickel	7440-02-0	0.001	mg/L		**0.006**	**0.010**	**0.005**	<0.001	**0.003**
Lead	7439-92-1	0.001	mg/L		**0.012**	**0.002**	**0.008**	<0.001	<0.001
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	7440-62-2	0.01	mg/L		**0.01**	<0.01	<0.01	**0.03**	<0.01
Zinc	7440-66-6	0.005	mg/L		**0.062**	**0.106**	**0.062**	**0.018**	**0.030**
Iron	7439-89-6	0.05	mg/L		**1.10**	**0.28**	**0.85**	**0.06**	**1.29**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	**0.0003**	<0.0001	<0.0001	<0.0001
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.05**	<0.01	**0.05**	**0.04**	**0.77**
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.01**	<0.01	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**6.73**	**0.04**	**0.12**	**0.70**	**0.06**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**6.74**	**0.04**	**0.12**	**0.70**	**0.06**

Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	ROCGLEN_MP3 TQKSDN5V-2	ROCGLEN_MP4-a (Surrey New) TQKSDN5V-4	ROCGLEN_MP4-b (Surrey New TQKSDN5V-5	ROCGLEN_MP-3a TQKSDN5V-7	ROCGLEN_MP-6 TQKSDN5V-9
				Sampling date / time	19-Mar-2025 11:20	19-Mar-2025 11:50	19-Mar-2025 11:40	19-Mar-2025 11:00	19-Mar-2025 10:20
					ES2507982-001	ES2507982-002	ES2507982-003	ES2507982-004	ES2507982-005
					Result	Result	Result	Result	Result
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**45.8**	**57.6**	**32.9**	**13.7**	**19.4**
ø Total Cations	----	0.01	meq/L		**42.3**	**55.6**	**31.0**	**13.3**	**18.0**
ø Ionic Balance	----	0.01	%		**3.98**	**1.76**	**2.97**	**1.57**	**3.81**

Analytical Results

Descriptive Results

Sub-Matrix: **WATER**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
AC04: Field Observations		
AC04: Appearance	ROCGLEN_MP3TQKSDN5V-2 - 19-Mar-2025 11:20	TURBID
AC04: Appearance	ROCGLEN_MP4-a (Surrey New)TQKSDN5V-4 - 19-Mar-2025 11:50	CLEAR
AC04: Appearance	ROCGLEN_MP4-b (Surrey NewTQKSDN5V-5 - 19-Mar-2025 11:40	TURBID
AC04: Appearance	ROCGLEN_MP-3aTQKSDN5V-7 - 19-Mar-2025 11:00	SLIGHT TURBID
AC04: Appearance	ROCGLEN_MP-6TQKSDN5V-9 - 19-Mar-2025 10:20	SLIGHT TURBID
AC04: Odour	ROCGLEN_MP3TQKSDN5V-2 - 19-Mar-2025 11:20	NIL
AC04: Odour	ROCGLEN_MP4-a (Surrey New)TQKSDN5V-4 - 19-Mar-2025 11:50	NIL
AC04: Odour	ROCGLEN_MP4-b (Surrey NewTQKSDN5V-5 - 19-Mar-2025 11:40	NIL
AC04: Odour	ROCGLEN_MP-3aTQKSDN5V-7 - 19-Mar-2025 11:00	NIL
AC04: Odour	ROCGLEN_MP-6TQKSDN5V-9 - 19-Mar-2025 10:20	NIL
AC04: Colour	ROCGLEN_MP3TQKSDN5V-2 - 19-Mar-2025 11:20	BROWN
AC04: Colour	ROCGLEN_MP4-a (Surrey New)TQKSDN5V-4 - 19-Mar-2025 11:50	CLEAR
AC04: Colour	ROCGLEN_MP4-b (Surrey NewTQKSDN5V-5 - 19-Mar-2025 11:40	SLIGHT BROWN
AC04: Colour	ROCGLEN_MP-3aTQKSDN5V-7 - 19-Mar-2025 11:00	CLEAR
AC04: Colour	ROCGLEN_MP-6TQKSDN5V-9 - 19-Mar-2025 10:20	SLIGHT BROWN

CERTIFICATE OF ANALYSIS

Work Order	: **ES2508488**	Page	: 1 of 9
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR MATT STEELE	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Rocglen 6-monthly GW	Date Samples Received	: 25-Mar-2025 14:09
Order number	: ----	Date Analysis Commenced	: 25-Mar-2025
C-O-C number	: ----	Issue Date	: 31-Mar-2025 15:16
Sampler	: B.Douglas & M.Wettenhall		
Site	: Rehab Sites		
Quote number	: EN/222		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Wael Saleh	Client Services - Trade Waste Coordinator	Sydney Subcontracting (ACIRL Sampling), Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- AC03: Sampling and field tests conducted by ALS ACIRL Gunnedah 5-7 Talbot Rd Site No. 18941 and in accordance to NATA accreditation No. 15784. Approved signatory 'Matt Steele'.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- TDS by method EA-015 sample 1 and 2 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- AC02: Sampling data supplied by ALS ACIRL. NATA Accreditation No.15784.
- AC04: Field observations supplied by ALS ACIRL.
- AC01: Bore data supplied by ALS ACIRL. NATA Accreditation No.15784.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	ROCGLEN_WB3 NVRUGCUK-1	ROCGLEN_WB5 NVRUGCUK-2	ROCGLEN_WB6 NVRUGCUK-3	ROCGLEN_Production Bore NVRUGCUK-4	ROCGLEN_MP-7 NVRUGCUK-6
				Sampling date / time	24-Mar-2025 13:00	24-Mar-2025 13:15	24-Mar-2025 12:15	24-Mar-2025 12:00	24-Mar-2025 11:40
					ES2508488-001	ES2508488-002	ES2508488-003	ES2508488-004	ES2508488-005
					Result	Result	Result	Result	Result
AC01: Bore Data									
ø Standing Water Level	----	0.01	m		4.91	6.76	15.66	37.59	25.66
ø Stick up	----	0.01	m		0.58	0.4	0.49	----	0.65
AC02: Sampling Data									
ø Purge Type	----	1	--		Bailer	Bailer	Bailer	Bailer	Bailer
AC03: Field Tests									
ø Electrical Conductivity (Non Compensated)	----	1	µS/cm		4020	2350	3310	5120	3120
ø pH	----	0.01	pH Unit		7.22	7.62	7.24	7.01	7.29
ø Temperature	----	0.1	°C		21.1	20.5	21.6	21.8	21.8
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		7.57	7.58	7.44	7.51	7.73
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		3730	2150	3000	5010	2880
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		3540	1700	2070	3730	1870
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		444	127	198	548	646
Total Alkalinity as CaCO3	----	1	mg/L		444	127	198	548	646
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		29	<1	<1	78	28
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		1050	652	846	1270	622
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		245	72	50	319	106
Magnesium	7439-95-4	1	mg/L		165	52	61	113	62

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	ROCGLEN_WB3 NVRUGCUK-1	ROCGLEN_WB5 NVRUGCUK-2	ROCGLEN_WB6 NVRUGCUK-3	ROCGLEN_Production Bore NVRUGCUK-4	ROCGLEN_MP-7 NVRUGCUK-6
				Sampling date / time	24-Mar-2025 13:00	24-Mar-2025 13:15	24-Mar-2025 12:15	24-Mar-2025 12:00	24-Mar-2025 11:40
					ES2508488-001	ES2508488-002	ES2508488-003	ES2508488-004	ES2508488-005
					Result	Result	Result	Result	Result
ED093F: Dissolved Major Cations - Continued									
Sodium	7440-23-5	1	mg/L		**312**	**278**	**482**	**570**	**475**
Potassium	7440-09-7	1	mg/L		**4**	**15**	**26**	**10**	**4**
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.07**	**0.23**	**0.09**	**0.04**	**0.12**
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	**0.004**
Boron	7440-42-8	0.05	mg/L		**0.05**	<0.05	<0.05	<0.05	**0.08**
Barium	7440-39-3	0.001	mg/L		**0.024**	**0.272**	**0.622**	**0.658**	**0.527**
Beryllium	7440-41-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	**0.003**	<0.001
Copper	7440-50-8	0.001	mg/L		**0.003**	**0.002**	**0.018**	**0.021**	**0.007**
Manganese	7439-96-5	0.001	mg/L		**0.131**	**0.462**	**2.61**	**0.008**	**0.081**
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	<0.001	**0.001**	<0.001
Lead	7439-92-1	0.001	mg/L		**0.001**	**0.001**	**0.002**	**0.010**	**0.002**
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	7440-62-2	0.01	mg/L		**0.02**	<0.01	<0.01	<0.01	**0.03**
Zinc	7440-66-6	0.005	mg/L		**0.032**	**0.055**	**0.142**	**0.050**	**0.055**
Iron	7439-89-6	0.05	mg/L		**0.26**	**14.5**	**16.2**	**0.13**	**0.46**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	**0.0001**	<0.0001
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.02**	<0.01	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**0.64**	<0.01	**0.06**	**5.69**	**3.06**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									

Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	ROCGLEN_WB3 NVRUGCUK-1	ROCGLEN_WB5 NVRUGCUK-2	ROCGLEN_WB6 NVRUGCUK-3	ROCGLEN_Production Bore NVRUGCUK-4	ROCGLEN_MP-7 NVRUGCUK-6
				Sampling date / time	24-Mar-2025 13:00	24-Mar-2025 13:15	24-Mar-2025 12:15	24-Mar-2025 12:00	24-Mar-2025 11:40
					ES2508488-001	ES2508488-002	ES2508488-003	ES2508488-004	ES2508488-005
					Result	Result	Result	Result	Result
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser - Continued									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.66**	<0.01	**0.06**	**5.69**	**3.06**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**39.1**	**20.9**	**27.8**	**48.4**	**31.0**
ø Total Cations	----	0.01	meq/L		**39.5**	**20.3**	**29.1**	**50.3**	**31.2**
ø Ionic Balance	----	0.01	%		**0.49**	**1.41**	**2.33**	**1.89**	**0.19**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ROCGLEN_MP-8 NVRUGCUK-7	----	----	----	----
				Sampling date / time	24-Mar-2025 11:30	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2508488-006	--------	--------	--------	--------
					Result	----	----	----	----
AC01: Bore Data									
ø Standing Water Level	----	0.01	m		**25.76**	----	----	----	----
ø Stick up	----	0.01	m		**0.65**	----	----	----	----
AC02: Sampling Data									
ø Purge Type	----	1	--		**Bailer**	----	----	----	----
AC03: Field Tests									
ø Electrical Conductivity (Non Compensated)	----	1	µS/cm		**5290**	----	----	----	----
ø pH	----	0.01	pH Unit		**7.08**	----	----	----	----
ø Temperature	----	0.1	°C		**22.1**	----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**7.50**	----	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**5220**	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		**3760**	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**537**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**537**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**26**	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**1390**	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**235**	----	----	----	----
Magnesium	7439-95-4	1	mg/L		**135**	----	----	----	----
Sodium	7440-23-5	1	mg/L		**652**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ROCGLEN_MP-8 NVRUGCUK-7	----	----	----	----
				Sampling date / time	24-Mar-2025 11:30	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2508488-006	--------	--------	--------	--------
					Result	----	----	----	----
ED093F: Dissolved Major Cations - Continued									
Potassium	7440-09-7	1	mg/L		**5**	----	----	----	----
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.07**	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		**0.002**	----	----	----	----
Boron	7440-42-8	0.05	mg/L		**0.07**	----	----	----	----
Barium	7440-39-3	0.001	mg/L		**0.954**	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.007**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.068**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.004**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		**0.01**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.118**	----	----	----	----
Iron	7439-89-6	0.05	mg/L		**0.21**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**0.56**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.56**	----	----	----	----
EN055: Ionic Balance									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ROCGLEN_MP-8 NVRUGCUK-7	----	----	----	----
				Sampling date / time	24-Mar-2025 11:30	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2508488-006	--------	--------	--------	--------
					Result	----	----	----	----
EN055: Ionic Balance - Continued									
ø Total Anions	----	0.01	meq/L		**50.5**	**----**	**----**	**----**	**----**
ø Total Cations	----	0.01	meq/L		**51.3**	**----**	**----**	**----**	**----**
ø Ionic Balance	----	0.01	%		**0.83**	**----**	**----**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **WATER**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
AC04: Field Observations		
AC04: Appearance	ROCGLEN_WB3NVRUGCUK-1 - 24-Mar-2025 13:00	Clear
AC04: Appearance	ROCGLEN_WB5NVRUGCUK-2 - 24-Mar-2025 13:15	Turbid
AC04: Appearance	ROCGLEN_WB6NVRUGCUK-3 - 24-Mar-2025 12:15	Slight turbid
AC04: Appearance	ROCGLEN_Production BoreNVRUGCUK-4 - 24-Mar-2025 12:00	Turbid
AC04: Appearance	ROCGLEN_MP-7NVRUGCUK-6 - 24-Mar-2025 11:40	Slught turbid
AC04: Appearance	ROCGLEN_MP-8NVRUGCUK-7 - 24-Mar-2025 11:30	Slight turbid
AC04: Odour	ROCGLEN_WB3NVRUGCUK-1 - 24-Mar-2025 13:00	Nil
AC04: Odour	ROCGLEN_WB5NVRUGCUK-2 - 24-Mar-2025 13:15	Sulfur
AC04: Odour	ROCGLEN_WB6NVRUGCUK-3 - 24-Mar-2025 12:15	Nil
AC04: Odour	ROCGLEN_Production BoreNVRUGCUK-4 - 24-Mar-2025 12:00	Nil
AC04: Odour	ROCGLEN_MP-7NVRUGCUK-6 - 24-Mar-2025 11:40	Nil
AC04: Odour	ROCGLEN_MP-8NVRUGCUK-7 - 24-Mar-2025 11:30	Nil
AC04: Colour	ROCGLEN_WB3NVRUGCUK-1 - 24-Mar-2025 13:00	Clear
AC04: Colour	ROCGLEN_WB5NVRUGCUK-2 - 24-Mar-2025 13:15	Brown
AC04: Colour	ROCGLEN_WB6NVRUGCUK-3 - 24-Mar-2025 12:15	Light brown
AC04: Colour	ROCGLEN_Production BoreNVRUGCUK-4 - 24-Mar-2025 12:00	Clear
AC04: Colour	ROCGLEN_MP-7NVRUGCUK-6 - 24-Mar-2025 11:40	Clear
AC04: Colour	ROCGLEN_MP-8NVRUGCUK-7 - 24-Mar-2025 11:30	Clear

CERTIFICATE OF ANALYSIS

Work Order	: **ES2508673**	Page	: 1 of 6
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: GUNNEDAH ENVIRO	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Rocglen 6-monthly GW	Date Samples Received	: 26-Mar-2025 14:13
Order number	: ----	Date Analysis Commenced	: 27-Mar-2025
C-O-C number	: ----	Issue Date	: 02-Apr-2025 14:06
Sampler	: B.Douglas & M. Wettenhall		
Site	: WHIACI		
Quote number	: EN/222		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Wael Saleh	Client Services - Trade Waste Coordinator	Sydney Subcontracting (ACIRL Sampling), Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- AC03: Sampling and field tests conducted by ALS ACIRL Gunnedah 5-7 Talbot Rd Site No. 18941 and in accordance to NATA accreditation No. 15784. Approved signatory 'Matt Steele'.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- AC02: Sampling data supplied by ALS ACIRL. NATA Accreditation No.15784.
- AC04: Field observations supplied by ALS ACIRL.
- AC01: Bore data supplied by ALS ACIRL. NATA Accreditation No.15784.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	ROCGLEN_WB2 9VMB6QYH-1	ROCGLEN_Surrey Top Paddock 9VMB6QYH-4	ROCGLEN_WB13 9VMB6QYH-5	ROCGLEN_WB-15 Kahana 9VMB6QYH-6	ROCGLEN_WB-14-Barock 9VMB6QYH-7
				Sampling date / time	25-Mar-2025 12:50	25-Mar-2025 10:05	25-Mar-2025 10:45	25-Mar-2025 13:20	25-Mar-2025 09:30
					ES2508673-001	ES2508673-002	ES2508673-003	ES2508673-004	ES2508673-005
					Result	Result	Result	Result	Result
AC01: Bore Data									
ø Standing Water Level	----	0.01	m		13.68	28.12	30.26	27.65	8.33
ø Stick up	----	0.01	m		0.38	0.31	----	0.28	0.30
AC02: Sampling Data									
ø Purge Type	----	1	--		BAIL	BAIL	TAP	BAIL	TAP
AC03: Field Tests									
ø Electrical Conductivity (Non Compensated)	----	1	µS/cm		1390	4530	3570	482	1350
ø pH	----	0.01	pH Unit		7.95	7.22	7.30	7.16	7.48
ø Temperature	----	0.1	°C		21.7	21.5	21.5	22.7	22.6
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		7.81	7.50	7.50	7.21	7.76
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		1340	4540	3550	447	1310
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		734	2940	2570	235	802
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		310	509	470	176	510
Total Alkalinity as CaCO3	----	1	mg/L		310	509	470	176	510
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		2	182	226	2	10
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		274	1050	800	21	141
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		47	184	263	22	46
Magnesium	7439-95-4	1	mg/L		38	137	89	13	24

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	ROCGLEN_WB2 9VMB6QYH-1	ROCGLEN_Surrey Top Paddock 9VMB6QYH-4	ROCGLEN_WB13 9VMB6QYH-5	ROCGLEN_WB-15 Kahana 9VMB6QYH-6	ROCGLEN_WB-14-Barock 9VMB6QYH-7
				Sampling date / time	25-Mar-2025 12:50	25-Mar-2025 10:05	25-Mar-2025 10:45	25-Mar-2025 13:20	25-Mar-2025 09:30
					ES2508673-001	ES2508673-002	ES2508673-003	ES2508673-004	ES2508673-005
					Result	Result	Result	Result	Result
ED093F: Dissolved Major Cations - Continued									
Sodium	7440-23-5	1	mg/L		**174**	**671**	**428**	**12**	**259**
Potassium	7440-09-7	1	mg/L		**30**	**16**	**4**	**16**	**2**
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.38**	**0.15**	**0.01**	**0.08**	<0.01
Arsenic	7440-38-2	0.001	mg/L		**0.002**	**0.002**	<0.001	<0.001	**0.010**
Boron	7440-42-8	0.05	mg/L		<0.05	**0.16**	**0.11**	<0.05	**0.09**
Barium	7440-39-3	0.001	mg/L		**0.120**	**0.161**	**0.016**	**0.075**	**0.401**
Beryllium	7440-41-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L		**0.0003**	**0.0001**	<0.0001	<0.0001	<0.0001
Cobalt	7440-48-4	0.001	mg/L		**0.001**	<0.001	<0.001	<0.001	<0.001
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		**0.076**	**0.004**	**0.039**	**0.002**	**0.014**
Manganese	7439-96-5	0.001	mg/L		**1.22**	**0.010**	**0.005**	**0.165**	**0.006**
Nickel	7440-02-0	0.001	mg/L		**0.002**	<0.001	**0.002**	**0.003**	<0.001
Lead	7439-92-1	0.001	mg/L		**0.007**	<0.001	**0.004**	<0.001	**0.001**
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	7440-62-2	0.01	mg/L		**0.03**	**0.02**	<0.01	<0.01	**0.06**
Zinc	7440-66-6	0.005	mg/L		**0.867**	**0.016**	**0.040**	**0.374**	**0.027**
Iron	7439-89-6	0.05	mg/L		**23.0**	**0.25**	<0.05	**0.89**	**0.08**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**7.24**	<0.01	**0.01**	**19.2**	**0.01**
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.08**	<0.01	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser									

Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	ROCGLEN_WB2 9VMB6QYH-1	ROCGLEN_Surrey Top Paddock 9VMB6QYH-4	ROCGLEN_WB13 9VMB6QYH-5	ROCGLEN_WB-15 Kahana 9VMB6QYH-6	ROCGLEN_WB-14-Barock 9VMB6QYH-7
				Sampling date / time	25-Mar-2025 12:50	25-Mar-2025 10:05	25-Mar-2025 10:45	25-Mar-2025 13:20	25-Mar-2025 09:30
					ES2508673-001	ES2508673-002	ES2508673-003	ES2508673-004	ES2508673-005
					Result	Result	Result	Result	Result
EK058G: Nitrate as N by Discrete Analyser - Continued									
Nitrate as N	14797-55-8	0.01	mg/L		**0.08**	**5.01**	**3.00**	<0.01	**0.88**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.16**	**5.01**	**3.00**	<0.01	**0.88**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**14.0**	**43.6**	**36.7**	**4.15**	**14.4**
ø Total Cations	----	0.01	meq/L		**----**	**----**	**----**	**4.47**	**----**
ø Total Cations	----	0.01	meq/L		**13.8**	**50.0**	**39.2**	**----**	**15.6**
ø Ionic Balance	----	0.01	%		**----**	**----**	**----**	**3.67**	**----**
ø Ionic Balance	----	0.01	%		**0.56**	**6.92**	**3.30**	**----**	**4.04**

Analytical Results

Descriptive Results

Sub-Matrix: **WATER**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
AC04: Field Observations		
AC04: Appearance	ROCGLEN_WB29VMB6QYH-1 - 25-Mar-2025 12:50	TURBID
AC04: Appearance	ROCGLEN_Surrey Top Paddock9VMB6QYH-4 - 25-Mar-2025 10:05	SLIGHT TURBID
AC04: Appearance	ROCGLEN_WB139VMB6QYH-5 - 25-Mar-2025 10:45	CLEAR
AC04: Appearance	ROCGLEN_WB-15 Kahana9VMB6QYH-6 - 25-Mar-2025 13:20	SLIGHT TURBID
AC04: Appearance	ROCGLEN_WB-14-Barock9VMB6QYH-7 - 25-Mar-2025 09:30	CLEAR
AC04: Odour	ROCGLEN_WB29VMB6QYH-1 - 25-Mar-2025 12:50	NIL
AC04: Odour	ROCGLEN_Surrey Top Paddock9VMB6QYH-4 - 25-Mar-2025 10:05	NIL
AC04: Odour	ROCGLEN_WB139VMB6QYH-5 - 25-Mar-2025 10:45	NIL
AC04: Odour	ROCGLEN_WB-15 Kahana9VMB6QYH-6 - 25-Mar-2025 13:20	SULFUR
AC04: Odour	ROCGLEN_WB-14-Barock9VMB6QYH-7 - 25-Mar-2025 09:30	NIL
AC04: Colour	ROCGLEN_WB29VMB6QYH-1 - 25-Mar-2025 12:50	SLIGHT BROWN
AC04: Colour	ROCGLEN_Surrey Top Paddock9VMB6QYH-4 - 25-Mar-2025 10:05	CLEAR
AC04: Colour	ROCGLEN_WB139VMB6QYH-5 - 25-Mar-2025 10:45	CLEAR
AC04: Colour	ROCGLEN_WB-15 Kahana9VMB6QYH-6 - 25-Mar-2025 13:20	SLIGHT BROWN
AC04: Colour	ROCGLEN_WB-14-Barock9VMB6QYH-7 - 25-Mar-2025 09:30	CLEAR

CERTIFICATE OF ANALYSIS

Work Order	: **ES2508934**	Page	: 1 of 5
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR MATT STEELE	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Rocglen 6-monthly GW	Date Samples Received	: 28-Mar-2025 12:15
Order number	: ----	Date Analysis Commenced	: 28-Mar-2025
C-O-C number	: ----	Issue Date	: 07-Apr-2025 12:08
Sampler	: B.Douglas & M.Wettenhall		
Site	: WHIACI		
Quote number	: EN/222		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Wael Saleh	Client Services - Trade Waste Coordinator	Sydney Subcontracting (ACIRL Sampling), Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- AC03: Sampling and field tests conducted by ALS ACIRL Gunnedah 5-7 Talbot Rd Site No. 18941 and in accordance to NATA accreditation No. 15784. Approved signatory 'Matt Steele'.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- AC02: Sampling data supplied by ALS ACIRL. NATA Accreditation No.15784.
- AC04: Field observations supplied by ALS ACIRL.
- AC01: Bore data supplied by ALS ACIRL. NATA Accreditation No.15784.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	ROCGLEN_WB11 4PM3JFFC-1	ROCGLEN_WB12 4PM3JFFC-3	ROCGLEN_MP2 4PM3JFFC-4	ROCGLEN_MP-2a 4PM3JFFC-5	----
			Sampling date / time	27-Mar-2025 10:20	27-Mar-2025 10:50	27-Mar-2025 08:55	27-Mar-2025 09:10	----
Compound	CAS Number	LOR	Unit	ES2508934-001	ES2508934-002	ES2508934-003	ES2508934-004	--------
				Result	Result	Result	Result	----
AC01: Bore Data								
ø Standing Water Level	----	0.01	m	**16.98**	**13.10**	**11.85**	**11.81**	**----**
ø Stick up	----	0.01	m	**0.25**	**0.22**	**1.00**	**0.70**	**----**
AC02: Sampling Data								
ø Purge Type	----	1	--	**TAP**	**BAIL**	**BAIL**	**BAIL**	**----**
AC03: Field Tests								
ø Electrical Conductivity (Non Compensated)	----	1	µS/cm	**1180**	**1270**	**6400**	**3230**	**----**
ø pH	----	0.01	pH Unit	**7.53**	**9.71**	**6.88**	**7.45**	**----**
ø Temperature	----	0.1	°C	**21.9**	**21.3**	**20.5**	**20.5**	**----**
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.75**	**9.54**	**7.26**	**7.79**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**954**	**1070**	**5770**	**2640**	**----**
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**647**	**640**	**4310**	**1840**	**----**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	**----**
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	**151**	<1	<1	**----**
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**430**	**354**	**528**	**661**	**----**
Total Alkalinity as CaCO3	----	1	mg/L	**430**	**505**	**528**	**661**	**----**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**98**	**10**	**11**	**127**	**----**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**30**	**42**	**1540**	**496**	**----**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**82**	<1	**321**	**83**	**----**
Magnesium	7439-95-4	1	mg/L	**39**	**1**	**177**	**33**	**----**
Sodium	7440-23-5	1	mg/L	**89**	**266**	**632**	**524**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ROCGLEN_WB11 4PM3JFFC-1	ROCGLEN_WB12 4PM3JFFC-3	ROCGLEN_MP2 4PM3JFFC-4	ROCGLEN_MP-2a 4PM3JFFC-5	----
				Sampling date / time	27-Mar-2025 10:20	27-Mar-2025 10:50	27-Mar-2025 08:55	27-Mar-2025 09:10	----
Compound	CAS Number	LOR	Unit		ES2508934-001	ES2508934-002	ES2508934-003	ES2508934-004	--------
					Result	Result	Result	Result	----
ED093F: Dissolved Major Cations - Continued									
Potassium	7440-09-7	1	mg/L		1	4	6	2	----
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		<0.01	0.04	0.23	0.06	----
Arsenic	7440-38-2	0.001	mg/L		<0.001	0.002	<0.001	0.006	----
Boron	7440-42-8	0.05	mg/L		0.09	<0.05	0.10	0.12	----
Barium	7440-39-3	0.001	mg/L		0.073	0.003	1.18	0.350	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	0.003	----
Copper	7440-50-8	0.001	mg/L		0.004	0.002	0.007	0.249	----
Manganese	7439-96-5	0.001	mg/L		<0.001	0.019	0.023	0.009	----
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	0.002	0.002	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	0.01	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	0.03	----
Zinc	7440-66-6	0.005	mg/L		0.007	0.010	0.043	0.044	----
Iron	7439-89-6	0.05	mg/L		<0.05	0.11	0.40	0.15	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		<0.01	0.08	0.02	0.01	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	0.04	<0.01	<0.01	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		0.20	0.44	0.71	4.66	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ROCGLEN_WB11 4PM3JFFC-1	ROCGLEN_WB12 4PM3JFFC-3	ROCGLEN_MP2 4PM3JFFC-4	ROCGLEN_MP-2a 4PM3JFFC-5	----
				Sampling date / time	27-Mar-2025 10:20	27-Mar-2025 10:50	27-Mar-2025 08:55	27-Mar-2025 09:10	----
Compound	CAS Number	LOR	Unit		ES2508934-001	ES2508934-002	ES2508934-003	ES2508934-004	--------
					Result	Result	Result	Result	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser - Continued									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.20**	**0.48**	**0.71**	**4.66**	**----**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**11.5**	**11.5**	**54.2**	**29.8**	**----**
ø Total Cations	----	0.01	meq/L		**11.2**	**11.8**	**58.2**	**29.7**	**----**
ø Ionic Balance	----	0.01	%		**1.23**	**1.17**	**3.56**	**0.24**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **WATER**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
AC04: Field Observations		
AC04: Appearance	ROCGLEN_WB114PM3JFFC-1 - 27-Mar-2025 10:20	CLEAR
AC04: Appearance	ROCGLEN_WB124PM3JFFC-3 - 27-Mar-2025 10:50	SLIGHT TURBID
AC04: Appearance	ROCGLEN_MP24PM3JFFC-4 - 27-Mar-2025 08:55	SLIGHT TURBID
AC04: Appearance	ROCGLEN_MP-2a4PM3JFFC-5 - 27-Mar-2025 09:10	SLIGHT TURBID
AC04: Odour	ROCGLEN_WB114PM3JFFC-1 - 27-Mar-2025 10:20	NIL
AC04: Odour	ROCGLEN_WB124PM3JFFC-3 - 27-Mar-2025 10:50	NIL
AC04: Odour	ROCGLEN_MP24PM3JFFC-4 - 27-Mar-2025 08:55	NIL
AC04: Odour	ROCGLEN_MP-2a4PM3JFFC-5 - 27-Mar-2025 09:10	NIL
AC04: Colour	ROCGLEN_WB114PM3JFFC-1 - 27-Mar-2025 10:20	CLEAR
AC04: Colour	ROCGLEN_WB124PM3JFFC-3 - 27-Mar-2025 10:50	CLEAR
AC04: Colour	ROCGLEN_MP24PM3JFFC-4 - 27-Mar-2025 08:55	CLEAR
AC04: Colour	ROCGLEN_MP-2a4PM3JFFC-5 - 27-Mar-2025 09:10	CLEAR

CERTIFICATE OF ANALYSIS

Work Order	: **ES2529373**	Page	: 1 of 5
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: B POWER	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Rocglen 6-monthly GW	Date Samples Received	: 19-Sep-2025 15:40
Order number	: 40201	Date Analysis Commenced	: 20-Sep-2025
C-O-C number	: B4KDM59X	Issue Date	: 25-Sep-2025 16:43
Sampler	: M Wettenhall		
Site	: WHIACI		
Quote number	: EN/222		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Wael Saleh	Client Services - Trade Waste Coordinator	Sydney Subcontracting (ACIRL Sampling), Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- AC03: Sampling and field tests conducted by ALS ACIRL Gunnedah 5-7 Talbot Rd Site No. 18941 and in accordance to NATA accreditation No. 15784. Approved signatory 'Matt Steele'.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- AC02: Sampling data supplied by ALS ACIRL. NATA Accreditation No.15784.
- AC04: Field observations supplied by ALS ACIRL.
- AC01: Bore data supplied by ALS ACIRL. NATA Accreditation No.15784.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	ROCGLEN_Surrey Top Paddock CJCN5279-2	ROCGLEN_WB-15 Kahana CJCN5279-3	----	----	----
			Sampling date / time	18-Sep-2025 10:15	18-Sep-2025 11:30	----	----	----
Compound	CAS Number	LOR	Unit	ES2529373-001	ES2529373-002	--------	--------	--------
				Result	Result	----	----	----
AC01: Bore Data								
ø Standing Water Level	----	0.01	m	**28.44**	**27.07**	----	----	----
ø Stick up	----	0.01	m	**0.31**	**0.28**	----	----	----
AC02: Sampling Data								
ø Purge Type	----	1	--	**Bailer**	**Bailer**	----	----	----
AC03: Field Tests								
ø Electrical Conductivity (Non Compensated)	----	1	µS/cm	**3710**	**1989**	----	----	----
ø pH	----	0.01	pH Unit	**7.65**	**7.26**	----	----	----
ø Temperature	----	0.1	°C	**21.6**	**22.5**	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.95**	**7.63**	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**3610**	**1970**	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**1780**	**1020**	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**487**	**849**	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	**487**	**849**	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**168**	<1	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**830**	**188**	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**104**	**174**	----	----	----
Magnesium	7439-95-4	1	mg/L	**80**	**70**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ROCGLEN_Surrey Top Paddock CJCN5279-2	ROCGLEN_WB-15 Kahana CJCN5279-3	----	----	----
				Sampling date / time	18-Sep-2025 10:15	18-Sep-2025 11:30	----	----	----
Compound	CAS Number	LOR	Unit		ES2529373-001	ES2529373-002	--------	--------	--------
					Result	Result	----	----	----
ED093F: Dissolved Major Cations - Continued									
Sodium	7440-23-5	1	mg/L		**575**	**125**	----	----	----
Potassium	7440-09-7	1	mg/L		**17**	**4**	----	----	----
ED093T: Total Major Cations									
Calcium	7440-70-2	1	mg/L		**126**	**234**	----	----	----
Magnesium	7439-95-4	1	mg/L		**81**	**70**	----	----	----
Sodium	7440-23-5	1	mg/L		**588**	**126**	----	----	----
Potassium	7440-09-7	1	mg/L		**20**	**5**	----	----	----
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**1.26**	**0.12**	----	----	----
Arsenic	7440-38-2	0.001	mg/L		**0.005**	**0.002**	----	----	----
Boron	7440-42-8	0.05	mg/L		**0.13**	**0.08**	----	----	----
Barium	7440-39-3	0.001	mg/L		**0.142**	**0.247**	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	----	----	----
Chromium	7440-47-3	0.001	mg/L		**0.002**	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.006**	**0.002**	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.052**	**1.95**	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.002**	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	----	----	----
Vanadium	7440-62-2	0.01	mg/L		**0.02**	<0.01	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.045**	**0.039**	----	----	----
Iron	7439-89-6	0.05	mg/L		**2.03**	**12.9**	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	----	----	----

Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	ROCGLEN_Surrey Top Paddock CJCN5279-2	ROCGLEN_WB-15 Kahana CJCN5279-3	----	----	----
				Sampling date / time	18-Sep-2025 10:15	18-Sep-2025 11:30	----	----	----
					ES2529373-001	ES2529373-002	--------	--------	--------
					Result	Result	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.01**	**4.52**	**----**	**----**	**----**
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	<0.01	**----**	**----**	**----**
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**5.89**	<0.01	**----**	**----**	**----**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**5.89**	<0.01	**----**	**----**	**----**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**36.6**	**22.3**	**----**	**----**	**----**
ø Total Cations	----	0.01	meq/L		**37.2**	**20.0**	**----**	**----**	**----**
ø Ionic Balance	----	0.01	%		**0.78**	**5.40**	**----**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **WATER**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
AC04: Field Observations		
AC04: Appearance	ROCGLEN_Surrey Top PaddockCJCN5279-2 - 18-Sep-2025 10:15	CLEAR
AC04: Appearance	ROCGLEN_WB-15 KahanaCJCN5279-3 - 18-Sep-2025 11:30	SLIGHT TURBID
AC04: Odour	ROCGLEN_Surrey Top PaddockCJCN5279-2 - 18-Sep-2025 10:15	NIL
AC04: Odour	ROCGLEN_WB-15 KahanaCJCN5279-3 - 18-Sep-2025 11:30	NIL
AC04: Colour	ROCGLEN_Surrey Top PaddockCJCN5279-2 - 18-Sep-2025 10:15	CLEAR
AC04: Colour	ROCGLEN_WB-15 KahanaCJCN5279-3 - 18-Sep-2025 11:30	CLEAR

CERTIFICATE OF ANALYSIS

Work Order	: **ES2529641**	Page	: 1 of 6
Client	: **WHITEHAVEN PTY LTD C/O ACIRL PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: BILLIE-JO POWER	Contact	: Customer Services ES
Address	: 5-7 Talbot Road GUNNEDAH QLD 2380	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Rocglen 6-monthly GW	Date Samples Received	: 23-Sep-2025 14:45
Order number	: 40201	Date Analysis Commenced	: 23-Sep-2025
C-O-C number	: 24RVX6WF	Issue Date	: 29-Sep-2025 15:59
Sampler	: B.Douglas		
Site	: Rehab Sites		
Quote number	: EN/222		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Wael Saleh	Client Services - Trade Waste Coordinator	Sydney Subcontracting (ACIRL Sampling), Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- AC03: Sampling and field tests conducted by ALS ACIRL Gunnedah 5-7 Talbot Rd Site No. 18941 and in accordance to NATA accreditation No. 15784. Approved signatory 'Matt Steele'.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EK057G, EK059G: NOx and Nitrite on sample no.4 confirmed by re-analysis.
- AC02: Sampling data supplied by ALS ACIRL. NATA Accreditation No.15784.
- AC04: Field observations supplied by ALS ACIRL.
- AC01: Bore data supplied by ALS ACIRL. NATA Accreditation No.15784.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	ROCGLEN_WB11 G8E3SWAV-1	ROCGLEN_WB12 G8E3SWAV-3	ROCGLEN_WB2 G8E3SWAV-4	ROCGLEN_WB5 G8E3SWAV-5	----
			Sampling date / time	19-Sep-2025 08:30	19-Sep-2025 09:00	19-Sep-2025 11:00	19-Sep-2025 10:50	----
Compound	CAS Number	LOR	Unit	ES2529641-001	ES2529641-002	ES2529641-003	ES2529641-004	--------
				Result	Result	Result	Result	----
AC01: Bore Data								
ø Standing Water Level	----	0.01	m	**16.58**	**12.97**	**13.16**	**6.21**	**----**
ø Stick up	----	0.01	m	**0.25**	**0.22**	**0.38**	**0.4**	**----**
AC02: Sampling Data								
ø Purge Type	----	1	--	**TAP**	**Bailer**	**Bailer**	**Bailer**	**----**
AC03: Field Tests								
ø Electrical Conductivity (Non Compensated)	----	1	µS/cm	**1009**	**1212**	**1013**	**1115**	**----**
ø pH	----	0.01	pH Unit	**7.63**	**9.27**	**8.25**	**8.37**	**----**
ø Temperature	----	0.1	°C	**21.3**	**21.6**	**20.8**	**21.3**	**----**
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**8.35**	**9.07**	**8.42**	**8.29**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**999**	**1280**	**1060**	**1140**	**----**
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**569**	**676**	**605**	**553**	**----**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	**----**
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	**9**	**87**	**11**	**2**	**----**
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**418**	**478**	**284**	**243**	**----**
Total Alkalinity as CaCO3	----	1	mg/L	**426**	**565**	**295**	**246**	**----**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**89**	**14**	**6**	**13**	**----**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**32**	**69**	**160**	**230**	**----**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**80**	**1**	**23**	**20**	**----**
Magnesium	7439-95-4	1	mg/L	**40**	**2**	**16**	**20**	**----**
Sodium	7440-23-5	1	mg/L	**88**	**279**	**126**	**160**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ROCGLEN_WB11 G8E3SWAV-1	ROCGLEN_WB12 G8E3SWAV-3	ROCGLEN_WB2 G8E3SWAV-4	ROCGLEN_WB5 G8E3SWAV-5	----
				Sampling date / time	19-Sep-2025 08:30	19-Sep-2025 09:00	19-Sep-2025 11:00	19-Sep-2025 10:50	----
Compound	CAS Number	LOR	Unit		ES2529641-001	ES2529641-002	ES2529641-003	ES2529641-004	--------
					Result	Result	Result	Result	----
ED093F: Dissolved Major Cations - Continued									
Potassium	7440-09-7	1	mg/L		**1**	**4**	**38**	**10**	----
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.01**	**0.25**	**0.09**	**0.10**	----
Arsenic	7440-38-2	0.001	mg/L		<0.001	**0.002**	<0.001	<0.001	----
Boron	7440-42-8	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	----
Barium	7440-39-3	0.001	mg/L		**0.075**	**0.029**	**0.062**	**0.092**	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L		**0.003**	**0.001**	**0.013**	**0.003**	----
Manganese	7439-96-5	0.001	mg/L		**0.001**	**0.024**	**0.532**	**0.150**	----
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	**0.001**	**0.001**	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	**0.001**	**0.002**	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	----
Zinc	7440-66-6	0.005	mg/L		**0.006**	**0.015**	**0.304**	**0.022**	----
Iron	7439-89-6	0.05	mg/L		<0.05	**0.59**	**18.5**	**5.94**	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.02**	**0.70**	**3.06**	**3.79**	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	**0.01**	**0.02**	**0.13**	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**0.21**	**0.15**	**0.01**	<0.01	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ROCGLEN_WB11 G8E3SWAV-1	ROCGLEN_WB12 G8E3SWAV-3	ROCGLEN_WB2 G8E3SWAV-4	ROCGLEN_WB5 G8E3SWAV-5	----
				Sampling date / time	19-Sep-2025 08:30	19-Sep-2025 09:00	19-Sep-2025 11:00	19-Sep-2025 10:50	----
Compound	CAS Number	LOR	Unit		ES2529641-001	ES2529641-002	ES2529641-003	ES2529641-004	--------
					Result	Result	Result	Result	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser - Continued									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.21**	**0.16**	**0.03**	**0.01**	**----**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**11.3**	**13.5**	**10.5**	**11.7**	**----**
ø Total Cations	----	0.01	meq/L		**----**	**----**	**9.14**	**10.2**	**----**
ø Total Cations	----	0.01	meq/L		**11.1**	**12.4**	**----**	**----**	**----**
ø Ionic Balance	----	0.01	%		**----**	**----**	**7.13**	**6.89**	**----**
ø Ionic Balance	----	0.01	%		**0.58**	**4.13**	**----**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **WATER**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
AC04: Field Observations		
AC04: Appearance	ROCGLEN_WB11G8E3SWAV-1 - 19-Sep-2025 08:30	Clear
AC04: Appearance	ROCGLEN_WB12G8E3SWAV-3 - 19-Sep-2025 09:00	Turbid
AC04: Appearance	ROCGLEN_WB2G8E3SWAV-4 - 19-Sep-2025 11:00	Turbid
AC04: Appearance	ROCGLEN_WB5G8E3SWAV-5 - 19-Sep-2025 10:50	Turbid
AC04: Odour	ROCGLEN_WB11G8E3SWAV-1 - 19-Sep-2025 08:30	Nil
AC04: Odour	ROCGLEN_WB12G8E3SWAV-3 - 19-Sep-2025 09:00	Nil
AC04: Odour	ROCGLEN_WB2G8E3SWAV-4 - 19-Sep-2025 11:00	Nil
AC04: Odour	ROCGLEN_WB5G8E3SWAV-5 - 19-Sep-2025 10:50	Nil
AC04: Colour	ROCGLEN_WB11G8E3SWAV-1 - 19-Sep-2025 08:30	Clear
AC04: Colour	ROCGLEN_WB12G8E3SWAV-3 - 19-Sep-2025 09:00	Light Brown
AC04: Colour	ROCGLEN_WB2G8E3SWAV-4 - 19-Sep-2025 11:00	Light Brown
AC04: Colour	ROCGLEN_WB5G8E3SWAV-5 - 19-Sep-2025 10:50	Slight Brown