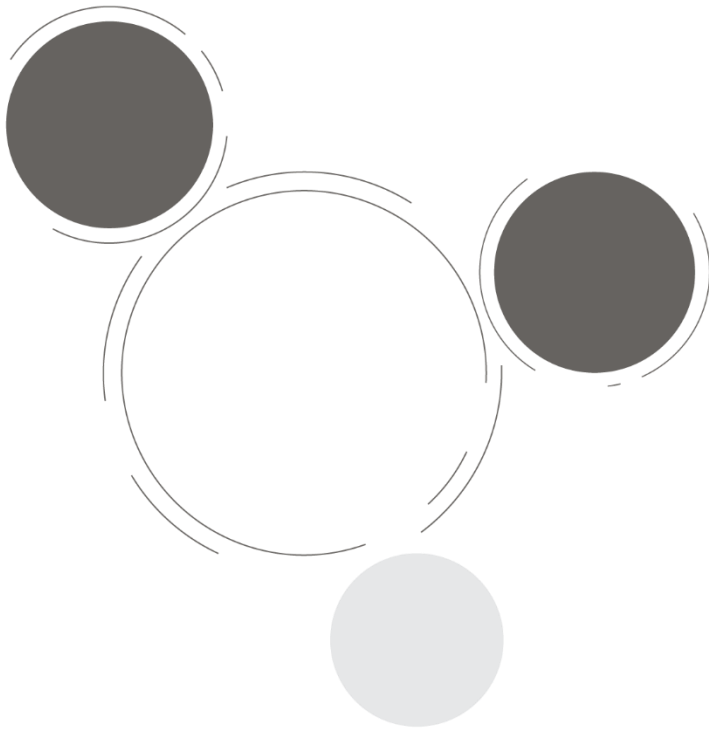


BAAL BONE UNDERGROUND

GLENCORE



Annual Review
2025

Name of Operation	Baal Bone Colliery
Name of Operator	Baal Bone Colliery
Project Approval Number	09_0178
Name of Holder of Project Approval	The Wallerawang Collieries Ltd
Mining Lease Number/s	CCL749, MPL261, CL391, ML1302, ML1389, ML1607
Name of Holder of Mining Lease/s	The Wallerawang Collieries Pty Ltd
Water Licence Number/s	WAL27887, WAL34952, 80WA706034, 80WA706035
Name of Holder of Water Licence/s	The Wallerawang Collieries Ltd
RMP Start Date	1 st August 2022
Annual Review Start Date	1 st January 2025
Annual Review End Date	31 st December 2025
I, Mark Bulkeley, certify that this audit report is a true and accurate record of the compliance status of Baal Bone Colliery for the period 1st January 2024 to 31st December 2024 and that I am authorised to make this statement on behalf of Baal Bone Colliery. <i>Note.</i> <i>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.</i> <i>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).</i>	
Name of Authorised Reporting Officer	Mark Bulkeley
Title of Authorised Reporting Officer	Operations Manager
Signature of Authorised Reporting Officer	
Date	27 March 2025

Abbreviations:

ACMA – Australian Communications and Media Authority
BOD –Biochemical Oxygen Demand
CCL – Consolidated Coal Lease
CL – Coal Lease
CMRA – Coal Mines Regulation Act 1982
DPIE – Department of Planning, Industry & Environment
DPHI -Department of Planning, Housing and Infrastructure
DPI – Department of Primary Industry
DRE - Department of Industry, Division of Resources & Energy
DRG –Department of Planning, Industry & Environment – Division of Resources and Geoscience

EC – Electrical Conductivity
EPA – Environmental Protection Authority
EPL – Environment Protection Licence
MBAS – Methylene Blue Active Substances
ML – Mining Lease
MOP – Mining Operations Plan
MPL – Mining Purposes Lease
OEH – Office of Environment and Heritage
REA - Reject Emplacement Area
TSS – Total Suspended Solids

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ELECTRONIC COPY

This report is available electronically online via the website: [Reporting documents - Baal Bone Colliery \(glencore.com.au\)](https://www.glencore.com.au).

1 Statement of Compliance

Table 1.1: Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	Yes/No*
PA 09_0178	No
EPL 765	Yes
Mining Leases	No
Water Licences	Yes

Table 1.2 Details of non-compliances in 2025.

Relevant Approval	Condition #	Condition description	Risk	Comment	Reference
Mining Act	Division 3, Condition 11	Requirements for the update and amendment of the Rehabilitation Management Plan (RMP)	Administrative non-compliance	During the 2025 IEA it was noted that the RMP was not updated after Rehabilitation Objectives (ROBJs) were approved in October 2023. The RMP has been subsequently updated in July 2025, and again in January 2026 (following the approval of the Final Landform and Rehabilitation Plan on 17 December 2025). <i>Note: Non-compliance occurred outside of 2025 reporting period.</i>	Section 10
PA 09_0178	Schedule 4, Condition 1	Notification to landowners	Administrative non-compliance	An internal review noted that while exceedances of groundwater trigger levels (within the GWMP) were being reported correctly to Department of Planning, the exceedances also require notification to landowners (NPWS) in line with Sch 4, Con. 1 of PA 09_0178. Notifications to landowners (NPWS) commenced in 2026.	Section 7.2.4

Compliance status key for Table 1.2

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)
Compliant	Compliant	Criteria met

2 Introduction

2.1 Overview

An Annual Review is prepared annually by Baal Bone Colliery (Baal Bone), to fulfil the reporting requirements of various regulatory departments. Baal Bone is operated by The Wallerawang Collieries Ltd (TWCL). The reporting period for this Annual Review is 1 January 2025 to 31 December 2025.

On 14 January 2011, Baal Bone received Project Approval (PA 09_0178) for the continuation of mining activities at Baal Bone via Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Project Approval granted approval for the continuation of mining operations at Baal Bone until 14 December 2014, and included:

- continuation of underground mining of Longwalls (LW) 29-31 in accordance with the approved Subsidence Management Plan (SMP) and Mining Operations Plan (MOP);
- continued operation of associated surface infrastructure;
- saleable coal production of 2.0 Mtpa (equating to 2.8 Mtpa run of mine (ROM) coal);
- continued transport of prepared saleable coal to markets by rail, and up to 900,000 tonnes per annum (tpa) by road; and
- mining of other isolated Remnant Areas within existing workings.

Underground mining at Baal Bone ceased on 3 September 2011, with the site entering into care and maintenance.

In February 2015, then DP&E approved amendment to the Project Approval to extend the life of mine for an additional three years until 31 December 2019 to allow the Remnant Areas to be mined.

In December 2015, DP&E approved a second modification to the Project Approval to allow Ben Bullen Creek to remain in its current alignment.

On 20 December 2019, the Resources Regulator approved the Mine Closure MOP until 31 December 2025.

In January 2020 demolition of infrastructure on the Baal Bone site commenced, which included the demolition of the Coal Handling Preparation Plant (CHPP), bathhouse and workshop, as well as all coal conveyors, reclaim tunnels, transfer towers, bins, sheds and other associated ancillary infrastructure. The rail loop linking the site to the Main Western Railway line was also decommissioned and all rail lines, ballast and sleepers were removed from the corridor.

The civil works and rehabilitation component of the closure activities commenced in September 2020, including the remediation of the CHPP and Run of Mine (ROM) areas and the former rail corridor. Activities included the addition of topsoil, fertiliser, lime and gypsum followed by the areas being ripped. The CHPP ROM area was then seeded with a pasture seed mix and the rail loop was seeded with a woodland seed mix.

During 2020, filling of voids including the Leachate Dam, REA 6 Tailings Dam, Central Void and the Southern Void were commenced. The filling of the REA 6 Tailings Dam was completed in December 2020. The remaining voids were continued to be filled throughout the 2021 reporting period.

During 2021, the filing of the Southern Void and Leachate Dam were completed. The administration and workshop buildings were demolished in October 2021. Over 42 ha of land was shaped to final landform, ameliorated and seeded – including areas of the Northern rehabilitation domain and the Southern void domain.

During 2021 rehabilitation works were completed on sections of Ben Bullen Creek where it passes through the site. Remediation works included large amounts of rock revetment along the banks of the creek (Reach 2), the installation of high and low flow channels, and highwall safety and stabilisation work. Over 10,000 tubestock plants, including the threatened Capertee Stringybark were planted along the remediated sections of Ben Bullen Creek.

During 2022, the filing of the Central Void was completed. The central void area together with the remaining sections of central pit-top area and infrastructure area were shaped to final landform, ameliorated and seeded with a pasture seed mix. The remaining areas in the southern rehabilitation area, southern void area and Ben Bullen Creek area were shaped to final landform, ameliorated and seeded with a woodland seed mix.

In accordance with the new standard conditions introduced to all mining leases, in 2022 Baal Bone Colliery prepared and submitted a Rehabilitation Management Plan (RMP) to replace the existing Mining Operations Plan. During 2023 the RMP was revised and resubmitted following comments from DPIE – Biodiversity, Conservation and Science.

During October 2022, EPL 765 was varied to add a second licensed discharge point: LDP17 at the Northern void. Two temporary steel pipelines were installed at LDP17.

During 2024 a drain was constructed near the existing Overshot Dam, and rehabilitation monitoring and maintenance continued onsite.

During early 2025 a permanent spillway was constructed from the Northern Void towards Jews Creek. The permanent spillway replaces temporary steel pipelines at LDP17.

2.2 Scope of this Annual Review

The layout of this Annual Review has been aligned to the DP&E Post- approval requirement for state significant mining developments - Annual Review Guideline (October 2015).

This Annual Review has also been prepared to address the requirements of Schedule 5, Condition 3 of Baal Bone's Project Approval (PA 09_0178), which requires a report to be submitted to the Secretary reviewing the annual environmental performance of the project. The requirements of Schedule 5, Condition 3 of the Project Approval and where these are addressed in the Annual Review are listed in **Table 2.1**.

Appendix C (A.3) contains the information prepared and submitted via the Resources Regulator Portal for the Annual Rehabilitation Report as required by Mining Amendment (Standard Conditions of Mining Leases—Rehabilitation) Regulation 2021.

Table 2.1: Requirements of Schedule 5, Condition 3 of Project Approval 09_0178

Schedule 5, Condition 3 requirement	Annual Review Section
a) describe the works that were carried out in the previous calendar year, and the works that are proposed to be carried out over the current calendar year.	Section 4 and Section 12
b) include a comprehensive review of the monitoring results and complaints records of the project over the previous calendar year, which includes a comparison of these results against: - the relevant statutory requirements, limits or performance measures/criteria; - the monitoring results of previous years; and - the relevant predictions in the EA.	Sections 6, 7, 8 and 9
c) identify any non-compliance over the previous calendar year, and describe what actions were (or are being) taken to ensure compliance;	Sections 1 and 11
d) identify any trends in the monitoring data over the life of the project;	Sections 6, 7 and 8
e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and	Sections 6, 7 and 8
f) describe what measures will be implemented over the current calendar year to improve the environmental performance of the project.	Section 12

It should be noted that this Annual Review does not necessarily provide a comprehensive description of each individual operation or environmental control that is currently employed at Baal Bone. Rather, this Annual Review focuses on providing a succinct review of the significant operational and environmental activities undertaken throughout the year. It also examines the performance of key site operations and environmental controls throughout the 2025 reporting period.

Included is a summary of monitoring data (as applicable), a discussion regarding the level of compliance achieved, together with an overview of initiatives proposed and actions planned for the 2026 reporting period.

2.3 Mine Contacts

Baal Bone Colliery can be contacted via telephone on (02) 6350 6920. The postal and street addresses are as follows:

Postal: Baal Bone Colliery
PO Box 13
Lithgow NSW 2790

Street: Baal Bone Colliery
Castlereagh Highway
Cullen Bullen NSW 2790

Personnel responsible for environmental management at Baal Bone Colliery are shown below:

Table 1.2: Mine Personnel Contact Details

Contact Person	Position	Contact Details
Mark Bulkeley	Operations Manager	Ph: (02) 6350 6943 Email: Mark.Bulkeley@Glencore.com.au
Elizabeth Fishpool	Environment and Community Coordinator	Ph: (02) 6350 6920 Email: Elizabeth.Fishpool@Glencore.com.au

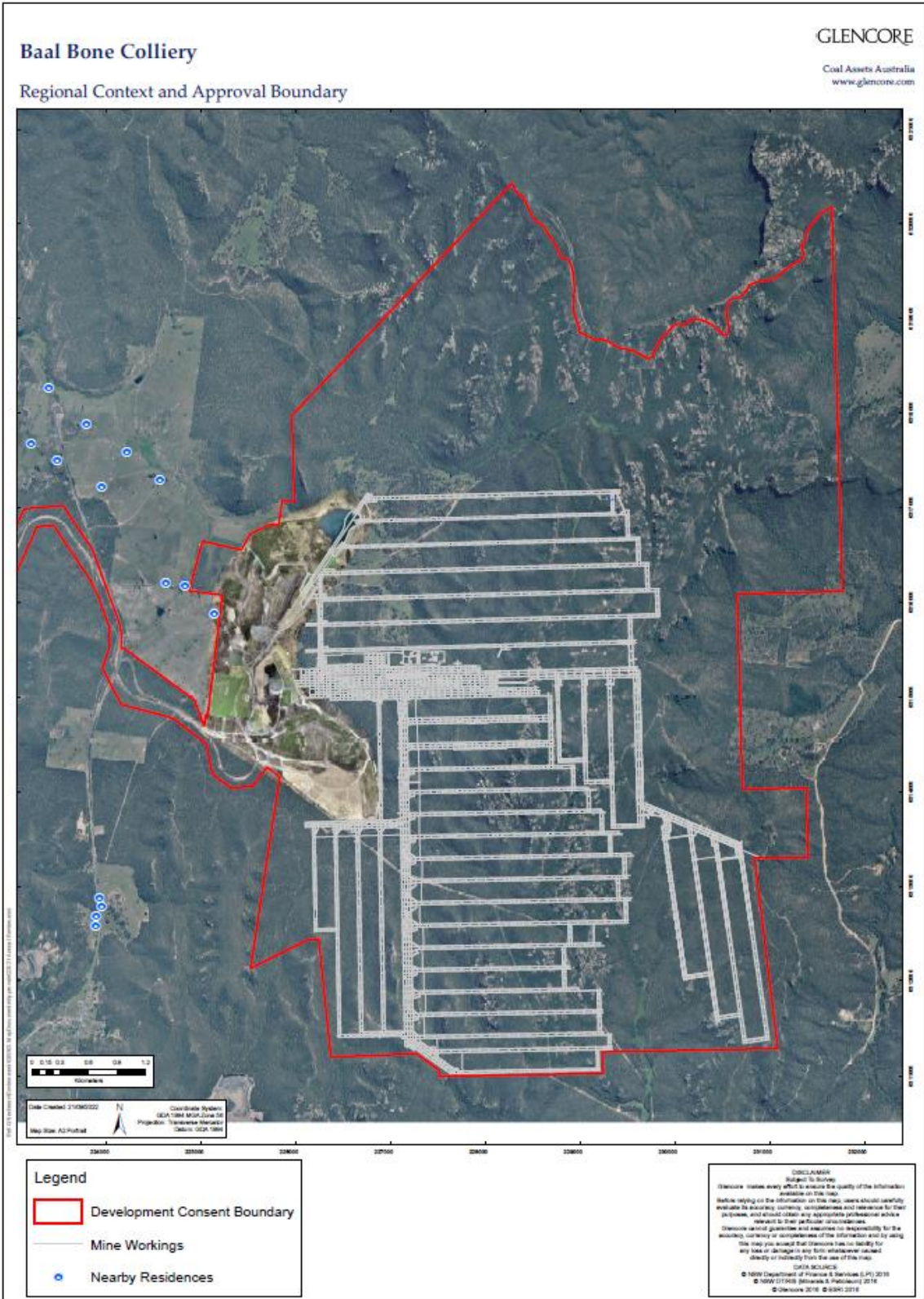


Figure 1.1: Locality plan showing approval boundary.

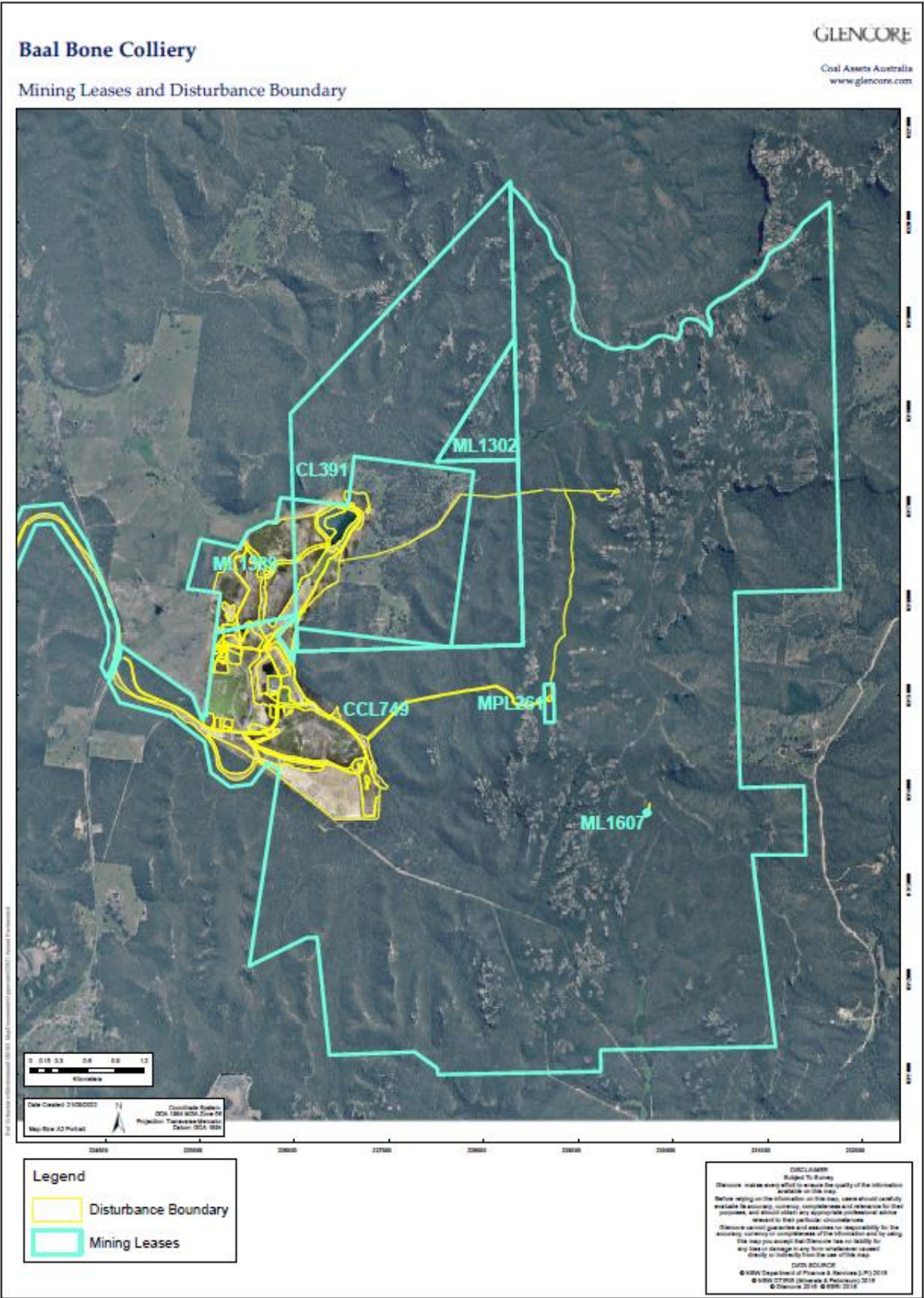


Figure 1.2: Mining lease boundaries and disturbance area.

3 Approvals

A list of all current consents, leases, licences and approvals are included below in **Table 3.1** along with their compliance status for the 2025 calendar year.

Table 3.1: Consents, Leases, Licences and Approvals.

Type	Regulatory Authority	Approval Number	Holder	Issue Date	Expiry/ Review Date	Scope	Were all Approval Conditions Complied With?
Project Approval	DPHI	07_0035	The Wallerawang Collieries Ltd	24/10/2007	Perpetuity	Part 3A Project Approval for the Ventilation Shaft and Power Line Project.	Yes
	DPHI	09_0178	The Wallerawang Collieries Ltd	14/01/2011	31/12/2014 (Mining operations)	Part 3A Project Approval for continued operations at Baal Bone Colliery.	Yes
	DPHI	09_0178 (MOD 1)	The Wallerawang Collieries Ltd	14/01/2011 Mod 1 Feb 2015	31/12/2019 (Mining operations)	Part 3A Project Approval for continued operations at Baal Bone Colliery until 31 December 2019.	Yes
	DPHI	09_0178 (MOD 2)	The Wallerawang Collieries Ltd	01/12/2015 Mod 2 Dec 2015	31/12/2019 (Mining operations) ¹	s75W modification to maintain alignment of Ben Bullen Creek.	No
Environment Protection Licence	EPA	765	The Wallerawang Collieries Pty Ltd	26/10/2023	Until surrendered, suspended or revoked.	Premises and Scheduled Activity (Coal Mining/Washery) Licence	Yes
Rehabilitation Management Plan	Resources Regulator	RMP	The Wallerawang Collieries Pty Ltd	14/01/2026	As required by clause 11, sch. 8A of Mining Reg 2016.	RMP to replace Mine Closure MOP	Yes
Mining Leases	Resources Regulator	CCL 749	The Wallerawang Collieries Pty Ltd	05/04/1990	11/03/2030	Mining Entitlement (Consolidates CL 209, CL 246, CL 329, CL 330, CL331 and CL332) Various depths	No
	Resources Regulator	MPL 261 (Act 1973)	The Wallerawang Collieries Pty Ltd	22/08/1990	22/08/2032	Mining Entitlement (Southern mine dewatering bores) Parish: Ben Bullen, Depth: Surface - 10m	Yes

¹ Expiry date relates only to mining operations. As per PA 09_0178: "Under this approval, the Proponent is required to rehabilitate the site and perform additional undertakings to the satisfaction of the Secretary and DRE. Consequently this approval will continue to apply in all other respects other than the right to conduct mining operations until the site has been properly rehabilitated".

Type	Regulatory Authority	Approval Number	Holder	Issue Date	Expiry/ Review Date	Scope	Were all Approval Conditions Complied With?
	Resources Regulator	CL 391 (Act 1973)	The Wallerawang Collieries Pty Ltd	24/02/1992	11/03/2030	Mining Entitlement Parish: Ben Bullen Depth: > 20m	Yes
	Resources Regulator	ML 1302 (Act 1992)	The Wallerawang Collieries Pty Ltd	29/09/1992	11/03/2030	Mining Entitlement Parish: Ben Bullen Depth: >20m	Yes
	Resources Regulator	ML 1389 (Act 1992)	The Wallerawang Collieries Pty Ltd	09/05/1996	11/03/2030	Mining Entitlement Parish: Ben Bullen Depth: Surface – unlimited Surface - 20m	Yes
	Resources Regulator	ML1607	The Wallerawang Collieries Pty Ltd	08/01/2008	11/03/2030	Mining Lease (Purposes) Parish: Cox Depth: Surface – 10m	Yes
Water Access Licence	DPI Water	WAL27887 10MW119345 - 750 units	The Wallerawang Collieries Pty Ltd	17/7/2007	Perpetuity 15/01/2025	Water Access Licence (under Water Mgmt Act 2000). 10MW119345 licences the Northern Void.	Yes
	DPI Water	WAL34952 80WA716836 – 25 units	The Wallerawang Collieries Pty Ltd	27/07/2013	Perpetuity 16/07/2027	Water Management Act 2000 licence. 80WA716836 licences the Overshot Dam.	Yes
Bore Licences	DPI Water	80WA706034	The Wallerawang Collieries Pty Ltd	18/01/1995	15/01/2022	Section 115 of the Water Act 1912. Bore – Mine dewatering LW 1 (South Bore 1). Converted to monitoring bore in 2020. Sealed in 2024.	Yes
	DPI Water	80WA706035	The Wallerawang Collieries Pty Ltd	18/01/1995	Surrendered in 2022	Section 115 of the Water Act 1912. Bore – Mine dewatering LW 1 (South Bore 2). Sealed in 2020.	Yes
	DPI Water	80BL239077	The Wallerawang Collieries Pty Ltd	19/06/2006	18/06/2016 ²	Section 115 of the Water Act 1912. Bore – Mine dewatering LW 19 (North Bore). Converted to monitoring bore in 2020.	Yes

2 In correspondence dated 19/12/2017 DPI Water confirmed that licence 80BL239077 is still valid, despite it being expired. This is due to an administrative issue being addressed by DPI Water. In correspondence dated 2/7/20 DPI Water reconfirmed that the licence is still valid. Note: dewatering from this bore ceased on 17/12/2019 in accordance with EPL 765.

Refer to **Section 10** for details of findings from 2025 Independent Environmental Audit.

3.1 Amendments during the Reporting Period

Environmental Management Strategy

On 2 October 2025 Baal Bone Colliery submitted a review of the Consolidated Environmental Management Strategy to DPHI. Currently awaiting response from the Department.

Rehabilitation Management Plan

Amendments to the Rehabilitation Management Plan were submitted to the Resources Regulator in July 2025 and December 2025.

Environment Protection Licence 765

On 10 February 2025, Baal Bone Colliery submitted a licence variation application to the EPA. The licence variation sought to amend the description of Condition P1.2 from “Discharge, via **culvert**, from Northern Void Lake to Jews Creek” to “Discharge, via **spillway**, from Northern Void Lake to Jews Creek”. Currently awaiting finalisation of variation application.

4 Operations Summary

4.1 Exploration

There was no exploration activity conducted during the reporting period.

4.2 Land preparation, Mining and Mineral Processing

Mining operations at Baal Bone ceased in September 2011 and the site entered care and maintenance. Coal washing operations were completed in December 2011. Transportation of coal product ceased in April 2012.

On 20 December 2019 the Baal Bone Colliery Mine Closure Mining Operations Plan (MOP) was approved and the site entered into a mine closure execution phase.

4.3 Demolition

There was no demolition during the reporting period.

4.4 Water Balance

Due to mine closure status of BBC, the key components of water system onsite are the following:

- Groundwater inflows and outflows;
- Rainfall/runoff onsite;
- Limited potable water purchased from Water NSW and delivered via the Fish River Pipeline for the temporary administration building;
- Two licence discharge points: LDP16 (Overshot Dam) and LDP17 (Northern Void); and
- Passive take water storages onsite (Dirty Water Dam, Process Water Dam and Northern Void).

EPL 765 authorises an annual maximum volume of discharge of 100-1000ML. Table 4.1 summarises the annual discharge onsite.

Table 4.1: BBC discharge through LDPs

LDP	Volume (ML)
2025 Estimated discharge from LDP16 - Overshot Dam*	638.75 ML
2025 Total discharge from LDP17	-
2025 ANNUAL DISCHARGE (estimated)	638.75 ML
<i>EPL maximum annual volume of discharge authorised</i>	<i>1000.00 ML</i>

* 2017 GHD GW Model predicted that the average daily discharge from the Overshot Dam would be 1.2 ML/day by 2045. A graph in the 2017 GHD report suggests that the max average daily discharge would be approximately 1.75 ML/day. Aurecon (2010) predicted a daily discharge rate of approximately 2 ML/day. The 2017 GHD figure of 1.75ML/day has been used to estimate the 2025 annual total.

5 Actions Required from Previous Annual Review

The 2024 Baal Bone Annual Review was submitted on 31 March 2025. In correspondence dated 2 April 2025, the Department of Planning and Environment advised:

“NSW Planning has reviewed the Annual Review and considers it to generally satisfy the reporting requirements of the consent and the NSW Planning Annual Review Guideline (October 2015).”

“Please make publicly available a copy of the 2024 Annual Review on the company’s website within 30 days.”

A copy of the 2024 Annual Review, and previous Annual Reviews can be found on the Baal Bone webpages at: [Reporting documents - Baal Bone Colliery \(glencore.com.au\)](#).

6 Environmental Performance

6.1 Air Pollution

On 10 August 2022, EPL 765 was varied to remove conditions related to noise, dust and meteorological monitoring.

In correspondence dated 19/10/2022, the nominee of the Planning Secretary approved the cessation of depositional dust and meteorological monitoring.

Dust monitoring accordingly ceased in October 2022.

6.2 Blasting

No blasting was conducted at Baal Bone during the reporting period.

6.3 Operational Noise

Mine closure works were completed in April 2022. On 10 August 2022, EPL 765 was amended to remove dust and weather monitoring points and conditions. On 19 October 2022, Baal Bone Colliery received approval from (then) DPIE for “the cessation of the attended noise monitoring and depositional dust and meteorological monitoring at the EPL Monitoring Points No. 7, 13, 14 and 15”.

Historical noise audit reports can be accessed from the Baal Bone publications webpage at: <https://www.glencore.com.au/operations-and-projects/coal/past-operations/baal-bone-colliery/reporting-documents>.

There were no complaints regarding operational noise received during the reporting period.

6.4 Aboriginal and European Heritage

6.4.1 Aboriginal Heritage

An Aboriginal Cultural Heritage Management Plan (ACHMP) for the potential rock shelter site BBC-RS1 was developed by OzArk Environmental & Heritage Management Pty Ltd in 2008, based on the findings of the Indigenous Heritage Assessment.

6.4.2 European Heritage

No European Heritage Sites have been identified within the Baal Bone mining lease.

6.4.3 Comparison against EA

The EA predicted that, while subsidence may occur, it is unlikely to impact currently undetected Aboriginal sites such as open sites. Potential impacts to Aboriginal heritage associated with the mining of LW29-31 have been assessed in previous surveys (OzArk 2007a; 2010). No significant impacts were predicted in this area, however, subsidence monitoring was to be undertaken

during extraction. The rock shelter site BBC-RS1 was also required to be managed in accordance with an ACHMP.

Extraction of LW30 beneath BBC-RS1 occurred in July 2010. During this time, Baal Bone inspected the site twice weekly. Following extraction beneath BBC-RS1, the area was resurveyed and movement vectors were calculated. Subsidence monitoring during the reporting period has confirmed the predictions in the EA. The data showed that the rock which forms the main shelter (overhang) moved 536 mm in a westerly direction and subsided approximately 717 mm (10 mm accuracy). However, there was no visible damage caused to BBC-RS1 as a result of the extraction of LW30.

On 7 December 2020 BBC-RS1 was inspected again by Baal Bone personnel with no issues found.

6.5 Natural Heritage

No natural heritage sites have been identified within the Baal Bone mining lease.

6.6 Mine Subsidence

The SMP for development and extraction of LW 29-31 expired on 1 December 2014 with mining operations in the LW 29-31 area completed on 3 September 2011.

Historic subsidence results can be found in Subsidence Status Reports published on the Baal Bone website in the following location: <https://www.glencore.com.au/operations-and-projects/coal/past-operations/baal-bone-colliery/reporting-documents>.

During 2025 subsidence repairs were carried out at two locations within the Gardens of Stone SCA. Refer to **Section 8.1.1** for further information.

6.7 Hydrocarbon Contamination

Baal Bone Colliery conducted six-monthly testing of groundwater monitoring wells in the vicinity of the underground diesel storage tank (UST) during its operation. Refer to **Plan 3** and **Plan 4** for locations.

In February 2022 the UST was removed and contaminated material excavated from the area surrounding the UST. The contaminated material was removed to an adjacent designated area onsite (Pit top grit trap) which has been configured as a land farm for bioremediation. A number of soil samples from the excavated pit were taken and analysed to confirm that all hydrocarbon contaminated material had been removed.

Validated materials from the bioremediation areas onsite (1) Pit top grit trap, and (2) STP ponds will be re-used onsite once sampling confirms hydrocarbon levels have reached acceptable levels.

6.8 Greenhouse Gas Emissions

6.8.1 Reported greenhouse gas emissions

Baal Bone Colliery reports greenhouse gas emissions (GHG) in accordance with National Energy and Greenhouse Gases (NGER) legislation. Each financial year Baal Bone Colliery is required to submit to the federal government the emissions from their NGERs registered facility. The NGERs reporting year is based on a financial year, not a calendar year such as this Annual Review. In

order to prevent incompatible public reporting, the values in this report also cover a financial year. The following table contains the Scope 1 (direct emissions from the mining activities during the year), and Scope 2 emissions (electricity consumption by the mine during the year).

Table 6.4 Scope 1 and Scope 2 emissions for Baal Bone Colliery - FY2024

Site	Scope 1 EERS Reported Value tCO2e	Scope 2 EERS Reported Value tCO2e
Baal Bone	9	3

6.8.2 Comparison against EA

Baal Bone Colliery ceased mining in 2011, therefore there are no relevant GHG predictions for the reporting period.

6.8.3 Steps taken to improve energy efficiency and reduce GHG emissions

Baal Bone Colliery is a part of the wider coal assets held by Glencore across Australia. Glencore Coal Assets Australia (GCAA) are themselves a part of the global Glencore mining portfolio. In line with the ambitions of the 1.5°C scenarios set out by the IPCC, Glencore target a short-term reduction of 15% by 2026 and a medium-term 50% reduction of our total (Scope 1, 2 and 3) emissions by 2035 on 2019 levels. Post 2035, Glencore's ambition is to achieve, with a supportive policy environment, net zero total emissions by 2050.

Glencore incorporates energy costs and our carbon footprint into our annual planning process. Commodity departments, such as Glencore Coal Assets Australia, are required to provide energy and GHG emissions forecasts for each asset over the forward planning period and provide details of emissions reduction projects.

6.9 Public Safety

Fences are in place around the mining lease area, with all other boundary gates locked and maintained in correct working order. All access points onto the mine area are signposted to warn the public of Baal Bone Colliery's mining operations and of the risks involved. Warning signs have also been erected along public tracks in the Gardens of Stone State Conservation Area warning of mine subsidence.

6.10 Visual Amenity and Lighting

During 2020 and 2021 the majority of structures onsite were demolished as part of mine closure activities. Since 2022, one demountable office block, a small shed and two storage containers are the main infrastructure left onsite.

6.11 Weed and Pest Management

In September 2025 a fox and dog baiting program was carried out onsite in consultation with the Local Land Services.

From November – December 2025 Baal Bone Colliery carried out an extensive weed spraying program predominantly targeting Blackberry and St Johns Wort.

7 Water Management

7.1 Surface Water

EPL 765 licensed monitoring points are provided in the **Table 7.1** below. The location of monitoring points can be seen in **Plan 2**.

Note: On 5 October 2022, EPL 765 was varied to add a second licence discharge point (LDP17) at the Northern Void into Jews Creek. During early 2025 a permanent spillway was constructed from the Northern Void towards Jews Creek. The permanent spillway replaces temporary steel pipelines at LDP17.

On 26 October 2023, EPL 765 was varied to relocate LDP16 approximately 50m downstream of its previous location on Ben Bullen Creek. LDP16 was relocated to enable water from a drain near the Overshot Dam to be captured in EPL monitoring. The new drain was constructed in early 2024.

Table 7.1: EPL Licenced Monitoring Points

EPA Identification No.	Type of Monitoring Point	Description of Location
16	Discharge to waters	Ben Bullen Creek downstream of previous mining area, labelled as 'BBLDP1'
17	Discharge to waters	Discharge, via culvert, from Northern Void Lake to Jews Creek

A copy of EPL 765 can be accessed here: www.epa.nsw.gov.au/prpoeoapp

A description of discharge and monitoring sites, analyses conducted, frequency of sampling and concentration limits (where applicable) are shown below. EPL Monitoring Points are shaded in yellow.

Table 7.2: Baal Bone Colliery water monitoring locations and analysis during the reporting period.

Sample Name	Sample Location	Frequency	Pollutants Analysed	EPL Limits Apply
BBLDP16 (BBLDP1)	EPL Monitoring Pt No.16. Approx 50m below spillway of Overshot Dam (Previously BBLDP1/EPL Monitoring Pt No. 11)	Monthly during discharge	EC, O&G, sulphate, iron, TSS, pH, flow rate, hardness, MBAS, nitrogen, phosphorus	O&G, pH, dissolved iron, TSS
BBLDP17	EPL Monitoring Pt No.17. Discharge from culvert/pipeline from Northern Void.	Monthly during discharge	EC, O&G, sulphate, iron, TSS, pH, flow rate, hardness, MBAS, nitrogen, phosphorus	O&G, pH, dissolved iron, TSS
BBBC	Northern Void	Monthly (only when no flow through LDP17)	EC, O&G, sulphate, iron, TSS, pH, flow rate, hardness, MBAS, nitrogen, phosphorus	N/A
BBBCC Mid	Ben Bullen Creek mid-way through site	Monthly (during flow)	Flow rate, pH, EC, TSS, iron, sulphates, O&G, nitrogen, phosphorus	N/A

Sample Name	Sample Location	Frequency	Pollutants Analysed	EPL Limits Apply
BBJC2	Jews Creek upstream of mining operations, but below dewatering bore discharges	Monthly (during flow)	Flow rate, pH, EC, TSS, iron, sulphates, O&G, nitrogen, phosphorus	N/A
BBJCH	Jews Creek headwaters upstream of all mining operations and mine dewatering discharges	Monthly (during flow)	Flow rate, pH, EC, TSS, iron, sulphates, hardness, O&G, nitrogen, phosphorus	N/A
BBJCB	Jews Creek downstream at bridge on Castlereagh Highway.	Monthly (during flow)	EC, O&G, sulphate, iron, TSS, pH, flow rate, hardness, MBAS, nitrogen, phosphorus	N/A
BBCR	Cox's River	Monthly (during flow)	Flow rate, pH, EC, TSS, iron, sulphates, O&G, nitrogen, phosphorus, Hardness	N/A

7.1.1 Interpretation and Review of Monitoring Results

Condition L2 of EPL 765 outlines water concentration limits for oil and grease, pH, total suspended solids and dissolved iron. These limits are presented below:

Table 7.3: EPL concentration limits

Pollutant	BBLDP16/BBLDP17 (EPL Monitoring Points 16 and 17)
Oil and grease (mg/L)	10
pH	6.5-8.5
Total Suspended Solids (mg/L)	50
Iron (dissolved) (mg/L)	1.0

Monitoring results for Baal Bone's two monitoring points as required by EPL 765 are discussed in **Table 7.4**, and **Figures 7.1 to 7.4**. Samples were taken monthly during discharge in accordance with the EPL.

Table 7.4: 2025 results as required by EPL 765.

EPL Point	Month	EC	O&G	SO ₄ ²⁻	Fe	TSS	pH
		uS/cm	mg/L	mg/L	mg/L	mg/L	-
EPL Point 16 (LDP1)	Jan	1430	<5	473	<0.05	<5	6.90
	Feb	1397	<5	464	0.25	<5	7.10
	Mar	1611	<5	366	0.29	<5	7.22
	Apr	1575	<5	409	<0.05	<5	7.40
	May	1616	<5	555	<0.05	<5	7.25
	June	1663	<5	427	<0.05	6	7.40
	Jul	1527	<5	405	0.39	<5	7.30
	Aug	1593	<5	421	0.05	<5	7.40
	Sept	1270	<5	327	0.11	<5	6.90
	Oct	1416	<5	361	<0.05	<5	7.07
	Nov	1818	<5	407	<0.05	<5	6.90
	Dec	1410	<5	445	<0.05	<5	6.70
EPL Point 17 (LDP17)	No flow through LDP17 since early January 2023, therefore no results captured during monthly sample events in 2025.						

Legend

EC = Electrical conductivity
Fe = Iron (dissolved)
TSS = Total suspended solids

O & G = Oil and Grease
SO₄²⁻ = Sulphate

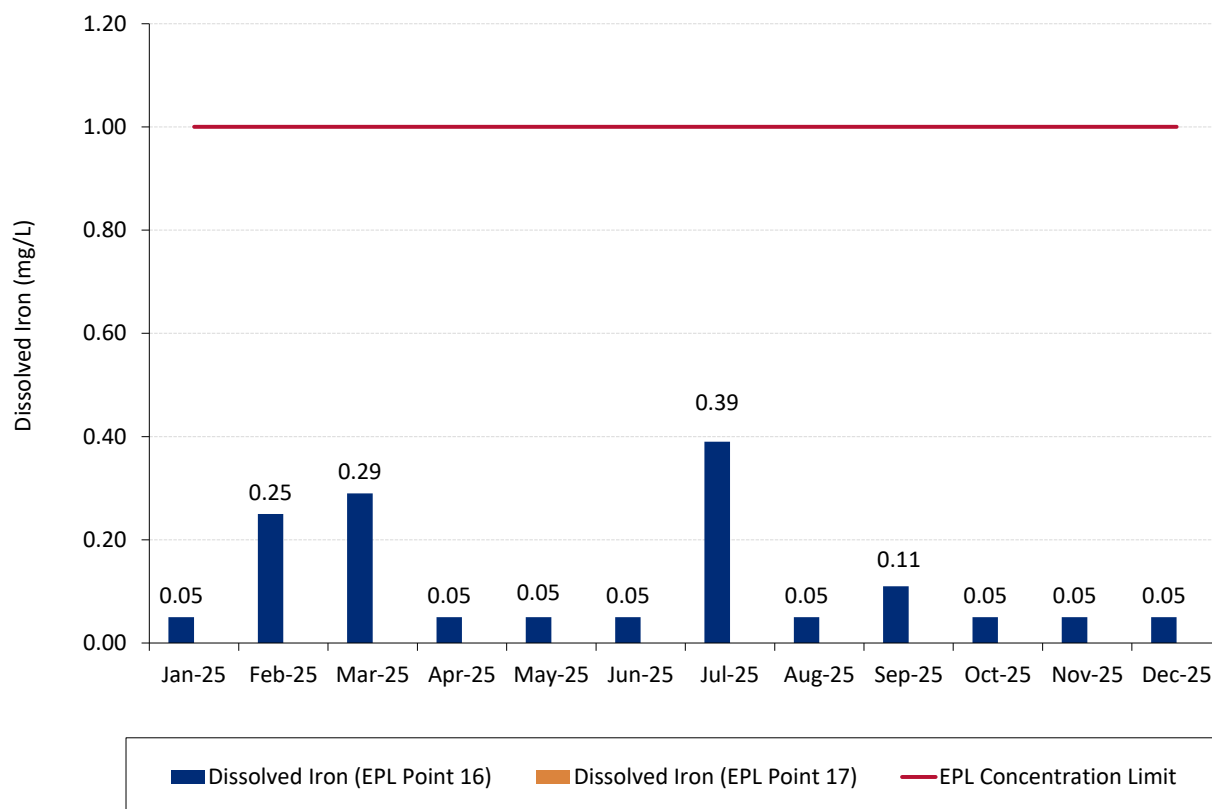


Figure 7.1: Dissolved Iron

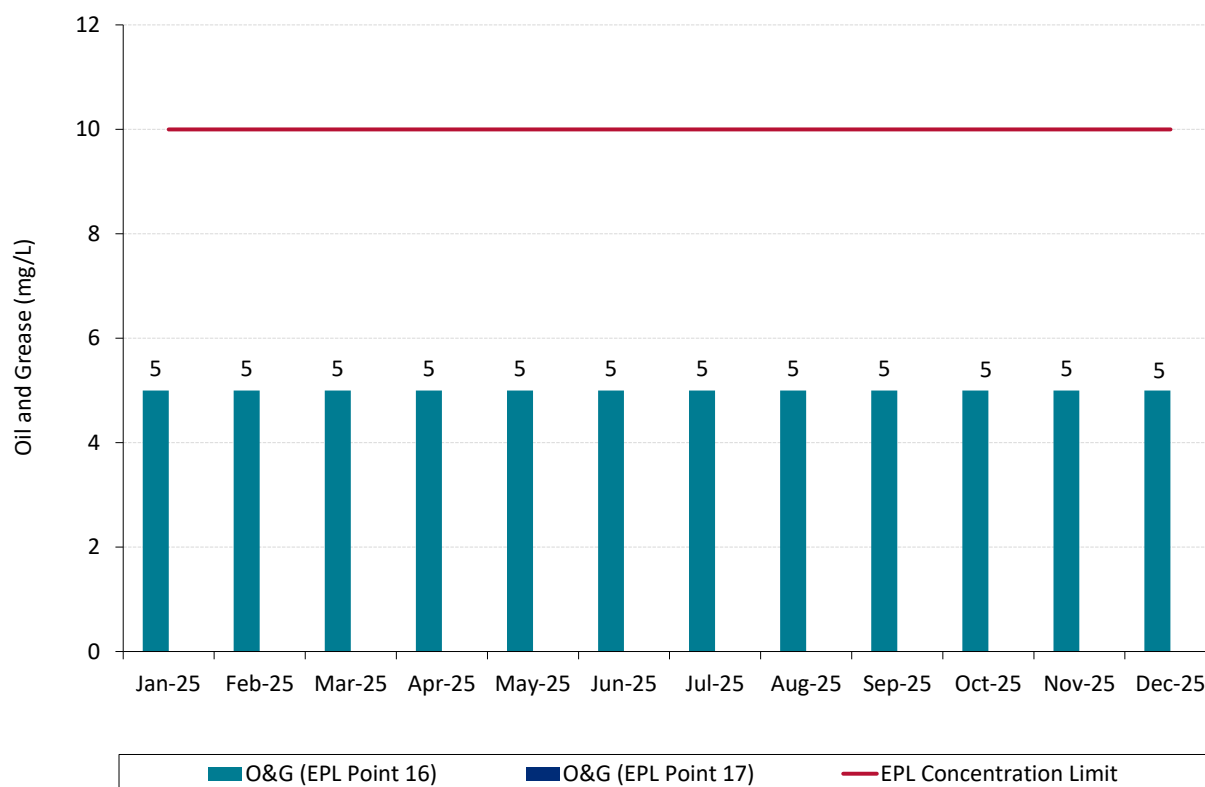


Figure 7.2: Oil & Grease

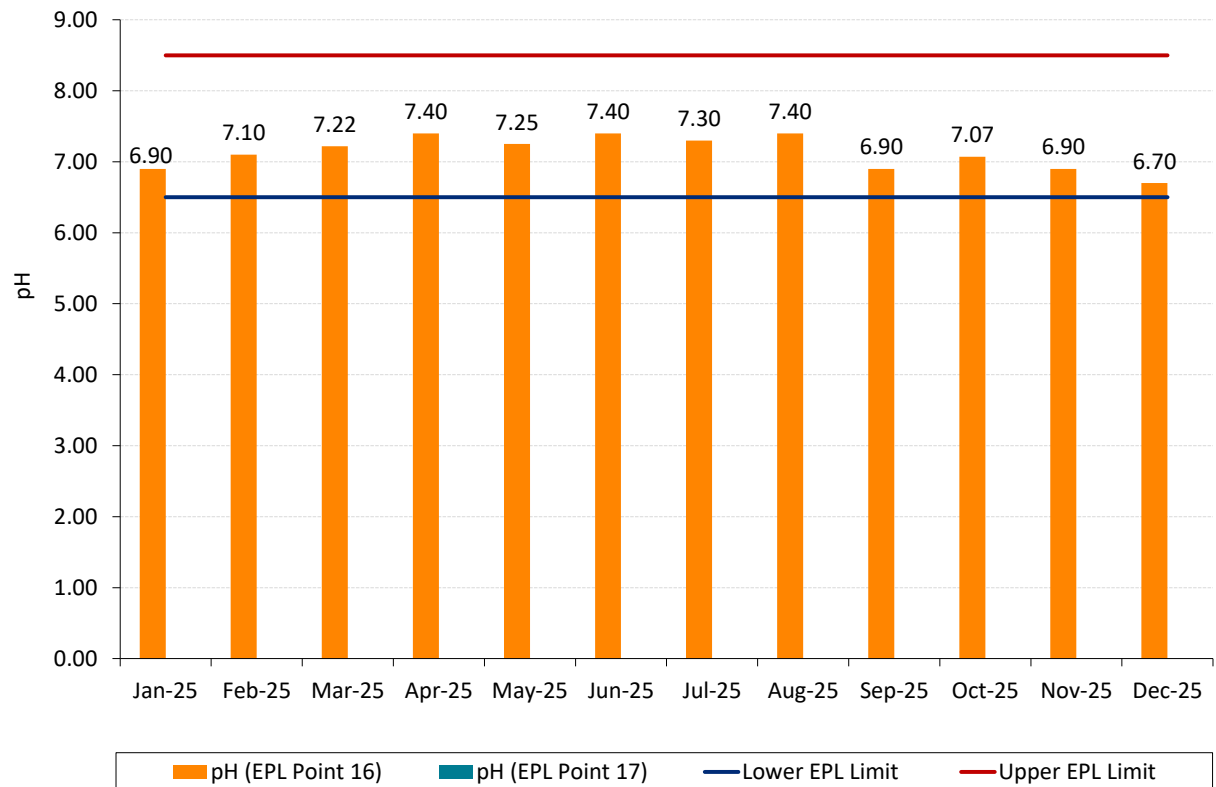


Figure 7.3: pH

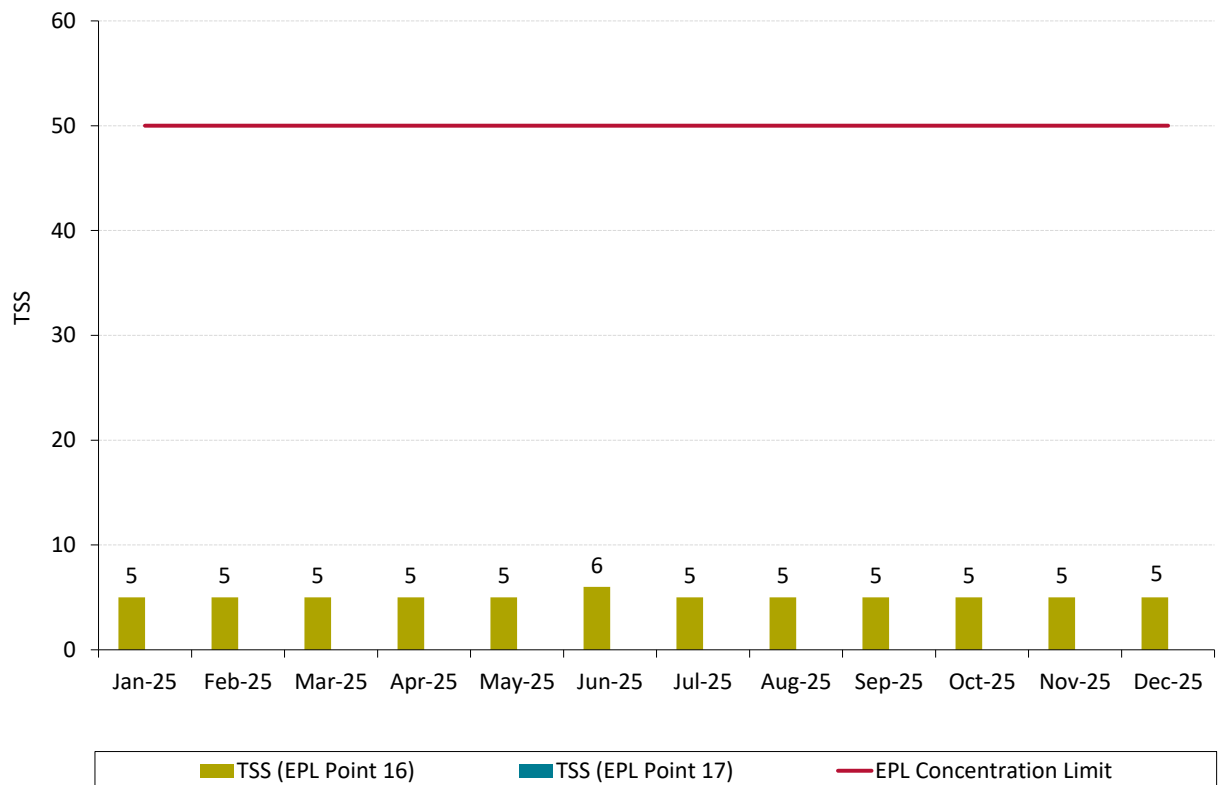


Figure 7.4: Total Suspended Solids

A summary of monitoring results for EPL discharge and monitoring points (those with specified concentration limits) can be found below for the 2025 reporting period to date:

- All monthly monitoring results for dissolved iron, pH, oil and grease, and total suspended solids were within EPL concentration limits.
- There was no discharge through LDP17 during 2025.

Monthly EPL reporting can be accessed here: <https://www.glencore.com.au/operations-and-projects/coal/past-operations/baal-bone-colliery/reporting-documents>.

7.1.2 Comparison against previous Annual Reviews

A summary of water quality results from previous Annual Reviews is provided below.

Table 7.5: Water quality results 2006 - 2025

Year	Iron	Oil and Grease	pH	TSS
2006	One minor exceedance at BBLDP16.	Compliant	Compliant	Compliant
2007	One erroneous exceedance at BBLDP16 of 5.4mg/L in August 2007 – retesting showed compliant level of 0.9mg/L	Compliant	Compliant	One erroneous exceedance at BBLDP1 of 266mg/L in August 2007 – retesting showed compliant level of 25mg/L
2008	Compliant	Compliant	Compliant	Compliant
2009	Compliant	Compliant	Compliant	Compliant
2010	1 exceedance at BBLDP16 of 2mg/L in February 2010.	Compliant	Compliant	Compliant
2011	2 exceedances at BBLD6 in April and October and 1 exceedance at BBLDP16 in June 2011 of 1.2, 1.2 and 3mg/L respectively.	Compliant	Compliant	Compliant
2012	1 exceedance at BBLD6 of 2mg/L in September 2012.	Compliant	Compliant	Compliant
2013	Compliant	Compliant	Compliant	Two Total Suspended Solids (TSS) exceedances at BBLDP3 (60mg/L) and BBLDP6 (85mg/L) in February
2014	Total iron recorded in Jan 2014 at BBLDP16 was 1.11mg/L. However note that EPL limit is for <i>dissolved iron</i> . Sampling routine changed to include dissolved iron.	Compliant	Compliant	Compliant
2015	Compliant	Compliant	Compliant	Compliant
2016	Compliant	Compliant	Compliant	Compliant
2017	Compliant	Compliant	Compliant	Compliant
2018	Compliant	Compliant	Compliant	Compliant

Year	Iron	Oil and Grease	pH	TSS
2019	Compliant	Compliant	Compliant	Compliant
2020	Dissolved iron level exceedance of 1.68mg/L in August at BBLDP16.	1 exceedance at BBLDP16 in January.	Compliant	Compliant
2021	February, March and May 2021 results at BBLDP16 for dissolved iron exceeded the EPL limit with readings of 1.65 mg/L, 3.21 mg/L and 1.32 mg/L respectively.	Compliant	March 2021 sample at BBLDP16 returned a result of 6.2	Compliant
2022	February, March and April 2022 results at BBLDP16 for dissolved iron exceeded the EPL limit with readings of 1.21 mg/L, 1.87 mg/L and 1.97 mg/L respectively.	Compliant	February and April 2022 samples at BBLDP16 returned results of 6.46 and 6.3 respectively	Compliant
2023	Compliant	Compliant	Compliant	Compliant
2024	Compliant	Compliant	Compliant	Compliant
2025	Compliant	Compliant	Compliant	Compliant

Occasional exceedances of iron have been recorded in 2006, 2010, 2011, 2012, 2014, 2020, 2021 and 2022. Note: the EPL limit of 1 mg/L is for Dissolved Iron, and the exceedances reported in previous years were Total Iron results. Monitoring was amended during 2014 to include dissolved iron at EPL monitoring points.

Figures 7.5 – 7.8 illustrate the long-term trends for dissolved iron, oil and grease, pH and total suspended solids at current EPL monitoring points

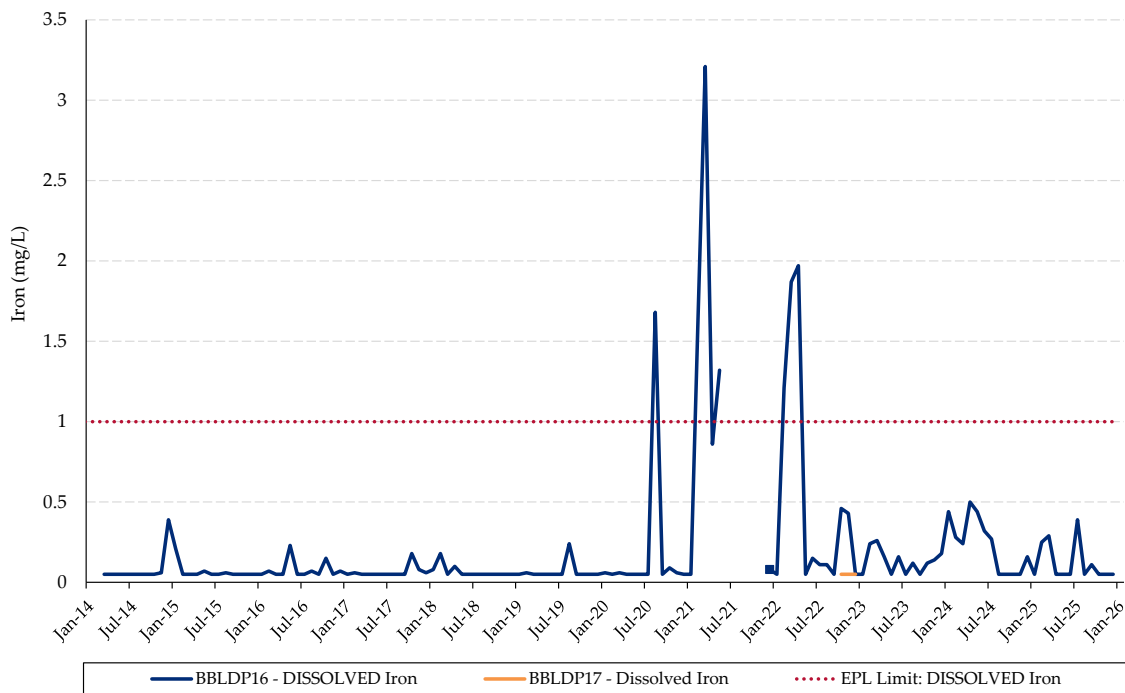


Figure 7.5: Iron Dissolved (2014 – 2025)

Figure 7.6 shows oil and grease levels for the period 2014-2025.

Note that prior to January 2014, the limit of reporting for oil and grease was < 2 mg/L. From January 2014, limit of reporting value became < 1 mg/L before increasing back to <2 mg/L in March 2016. From October 2017 the limit of reporting increased to <5 mg/L due to changing to ALS Group Environmental Division Lithgow to undertake the monthly monitoring and analysis. These changes in the limit of reporting account for the step change in reported oil and grease levels.

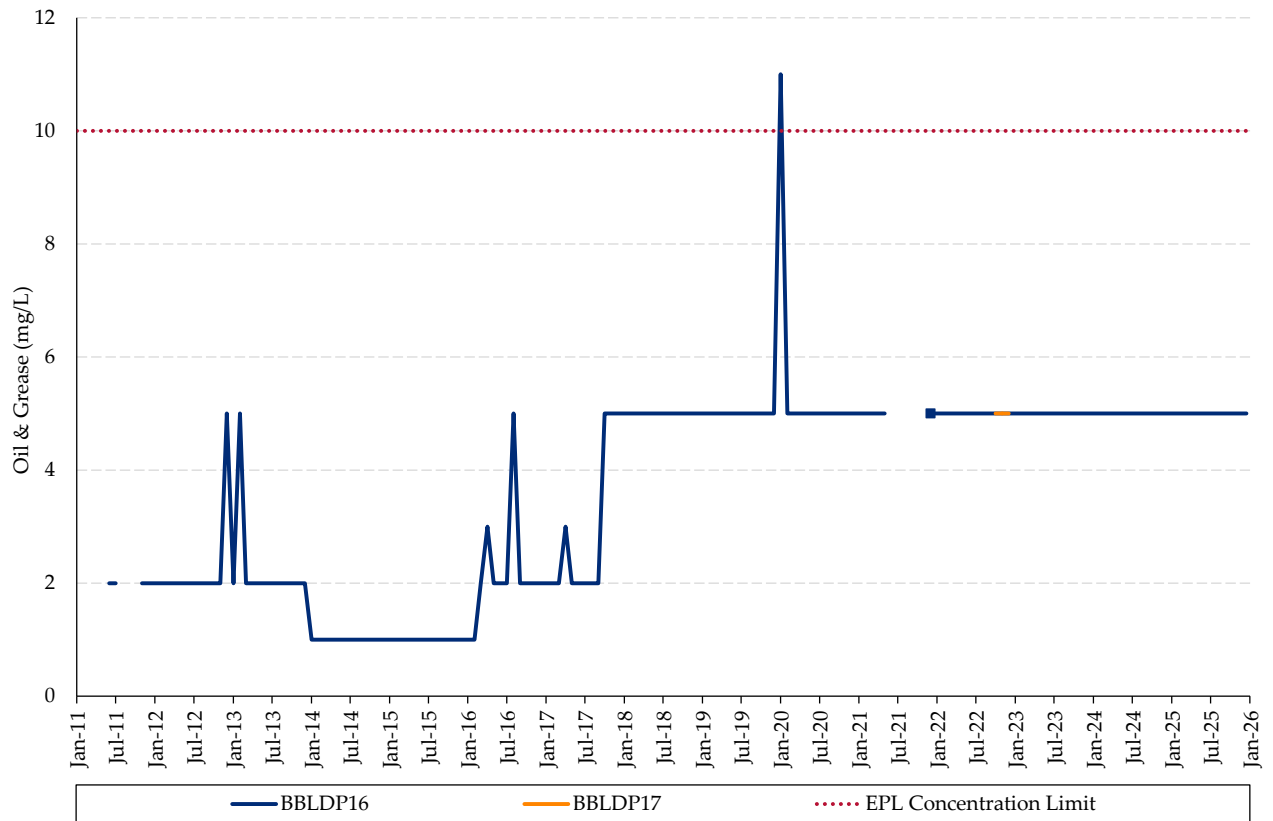


Figure 7.6: Oil and grease levels from 2011 to 2025

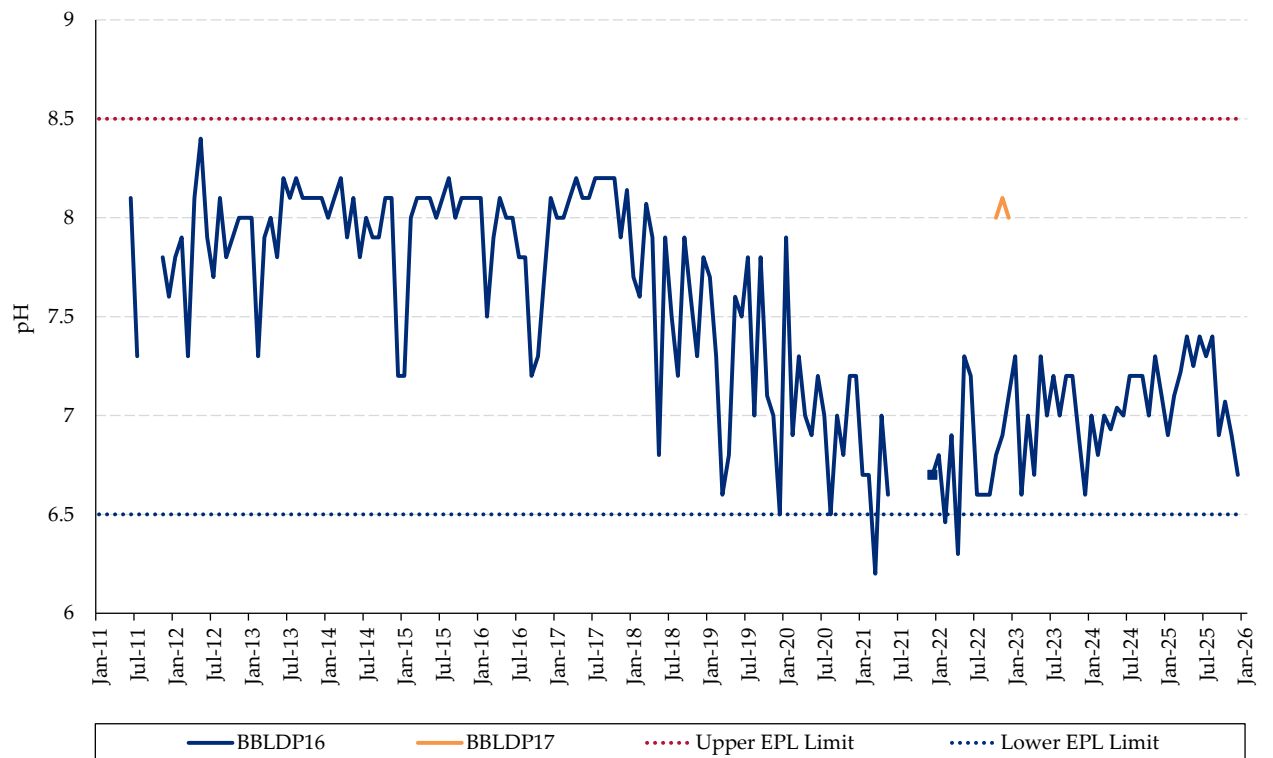


Figure 7.7: pH levels from 2011 to 2025

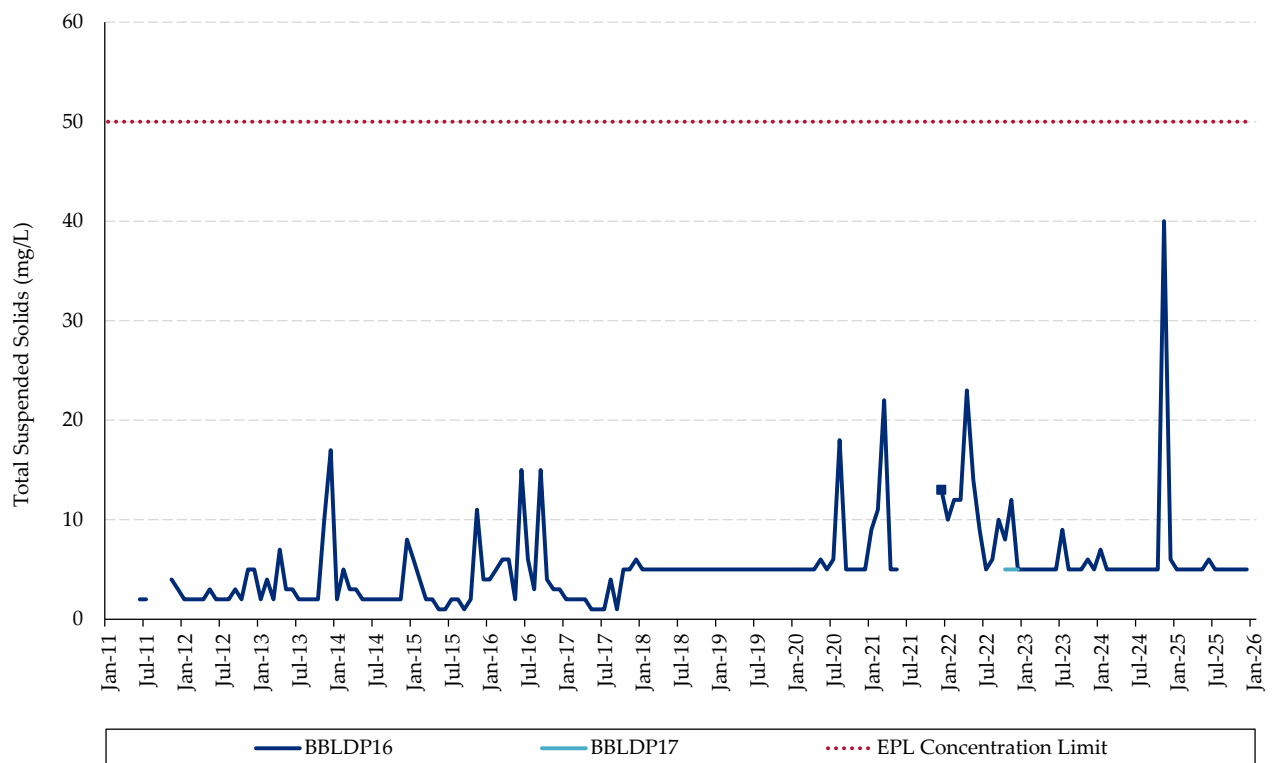


Figure 7.8: Total suspended solids levels from 2011 to 2025

7.1.3 Comparison against EA

The EA reported that, based on past monitoring results for EPL discharge and monitoring points, water quality was expected to continue to be within the EPL limits during extraction of LW29-31. This prediction is supported by the results presented in the current and past Annual Reviews.

7.2 Groundwater

Section 3 outlines the water bore and piezometer licences held by Baal Bone Colliery.

7.2.1 Groundwater Extraction

Mine water discharge from EPA Licenced Discharge Point LDP11 (now BBLDP16) ceased on 17 December 2019 in accordance with EPL Licence No. 765, Special Condition E2 which required this to occur prior to 31 December 2019.

Historical groundwater extraction is reported in previous Annual Reviews available here: <https://www.glencore.com.au/operations-and-projects/coal/past-operations/baal-bone-colliery/reporting-documents>.

Table 7.6 Groundwater Extraction

Water Licence	Water sharing plan, source and management zone	Entitlement (Unit Shares)	Water Approval Number/ Water Supply Works	TOTAL Water Pumped
WAL 27887	NSW Murray Darling Basin Porous Rock Groundwater Sources	750 units	10MW119345	Nil*
WAL 34952	Macquarie Bogan Unregulated and Alluvial Water Sources	25 units	80WA716836	Nil

*Passive take of groundwater is occurring into the Northern Void.

7.2.2 Groundwater Monitoring

Baal Bone Colliery monitors groundwater levels and groundwater chemistry in six piezometers in and around Cox's River Swamp (**Appendix A -Plan 5**).

Monitoring data in the six piezometers (four aquifer and two swamp/alluvial) are presented in **Figure 6.9 to Figure 7.5**. Piezometers BBPB1-BBPB4 monitor groundwater levels and chemistry in the deeper sandstone aquifer, while piezometers BBPB5 and BBPB6 monitor groundwater levels and chemistry in the shallower Cocks River Swamp. Note: BBPB4 is the background bore.

Note that on 24 February 2022, DPIE approved the Consolidated Environmental Management Strategy, and the frequency of groundwater monitoring at Cox's Swamp was reduced. From March 2022 onwards, bores BBPB1-2 and BBPB5-6 are sampled on a quarterly basis only. BBPB3 and BBPB4 continue to be sampled on a monthly basis. Refer to **Section 7.2.4** for more information.

Baal Bone's Surface and Groundwater Response Plan includes Trigger, Action, and Response Plans (TARP), which include triggers for assessing changes to groundwater levels and groundwater chemistry. Additionally, there are water quality trigger values for a number of water chemistry parameters contained in Baal Bone's approved Groundwater Monitoring Plan. The TARP and trigger levels are used as a measure of impacts to groundwater levels and quality in both the deep sandstone and shallower swamp groundwater aquifers. The groundwater level and quality trigger levels are presented below. Response and rehabilitation methodologies have also been included where appropriate.

Due to the relatively limited pre-mining baseline data, **Section 9.4.4.3 of the Consolidated Environmental Management Strategy** outlines a procedure for background data correction using data collected from the background bore: BBPB4.

Table 7.7: Groundwater Model TARP

Trigger	Action	Response	Plan	Timeframe
- Groundwater monitoring results deviate from predictions made in the EA; - Increased groundwater make in the underground workings compared to predictions made in the EA (AECOM, 2010); - Consecutive pressure monitoring data from the North/South piezometers, shows an adverse impact from the previous data or groundwater model predictions; or - Groundwater make in Northern Void above model predictions.	- Notify the Baal Bone Colliery ECC, or delegate; - Review all groundwater data; - Identify if the installation of additional piezometers is required; and - Investigate any external influence which may be affecting the results including climatic data.	- Review the frequency of groundwater monitoring in the affected area; - Review adequacy of current water entitlements for actual and predicated groundwater take; and - Notify and consult with relevant government agencies on investigation and outcomes (e.g. DPI Water, DPE, EPA).	- Amend the groundwater model if required; - Acquire additional water entitlements if required, and - Amend the Groundwater Monitoring Plan if required.	Notification to Secretary and any other relevant agencies (e.g. EPA, DPI Water) as soon as practicable (Schedule 5, Condition 5 of PA 07_0178).

Table 7.8: Loss of Water Quality TARP

Trigger	Action	Response	Plan	Timeframe
Monitoring results outside the relevant trigger levels in the SWMP or GWMP: ECM determines that the deviation from background trends and adopted impact assessment criteria could result in environmental harm; three (3) consecutive values are outside the adopted impact assessment criteria; or the measurement varies significantly from background water quality trends.	- Notify the Baal Bone Colliery ECM, or delegate; - Review monitoring results against historical monitoring data; - Review recent monitoring results for adjacent monitoring sites; - Review any relevant operational data (i.e. clearing activities, UG mining activities, meteorological data etc.); - Determine if an incident has potentially occurred; - Complete investigation IF Investigation reveals actual or potential material harm to the environment, the EO (together with the Ops	- A remedial action plan is developed and implemented to address the investigation findings. - Remedial action plan could include: - Increase monitoring frequency where relevant; - Undertake additional monitoring (stream health monitoring, etc.) if necessary. - Corrective/prev entative actions based on the outcomes of the investigation and/or additional monitoring;	- Follow up information is provided to regulatory agencies as /where requested; and - A summary of monitoring results, investigations and remedial actions plans are provided within the Annual Review. - Monitor the completion of actions to ensure they have been effective. - IF - Material Harm Incident occurred- Internal and External	Notification to Secretary and any other relevant agencies (e.g. EPA, DPI Water) as soon as practicable (Schedule 5, Condition 5 of PA 07_0178). Immediate reporting of material harm incident required by POEO Act.

Trigger	Action	Response	Plan	Timeframe
	Mgr) will initiate the PIRMP³ immediately. Inform regulatory agencies as required.		Reporting requirements are completed in accordance with Section 5 of Baal Bone's PIRMP, and reporting obligations detailed in EPL No. 765 and the Project Approval.	

Table 7.9: Groundwater Quality Trigger Levels

Element	Short Term Minor Change Criteria [^]	Short Term Major Change Criteria [^]	All Bore 80 th Percentile	BBP4 80 th Percentile
pH	4.6	4.2	5.0*	5.5*
Electrical Conductivity (µS/cm)	300	300	90	90
Copper (mg/L)	0.041	0.043	0.011	0.007
Iron (mg/L)	15.25	24.28	11	11
Zinc (mg/L)	0.143	0.175	0.098	0.074

Source: [^]Aurecon (2012)

Note: * 20th Percentile

Note: 300 µS/cm is ANZECC (2000) guideline

Note: Minor change criteria apply for periods of 1 or 2 consecutive months while Major Change Criteria apply for periods of more than 2 months.

7.2.3 Groundwater Levels

Rainfall deficit and groundwater levels in the six groundwater monitoring piezometers are presented in **Figure 7.9**. Long term trends of groundwater levels and daily rainfall are shown in **Figure 7.10**.

Rainfall deficit is plotted on **Figure 7.9**. The rainfall deficit uses data from the Lithgow BOM weather stations, and is calculated by accumulating monthly differences between observed and average rainfall. A negative value indicates that the month is drier than average, and a positive value indicates a wetter month. Falling legs on the deficit plot indicate a move towards drought conditions; rising legs indicate a retreat from drought.

The majority of 2025 (seven months) saw monthly rainfall totals below long-term averages. However the total rain for 2025 (859mm) was above the long-term average total rainfall of 794.3mm.

³ PIRMP- Pollution Incident Response Management Plan

As shown in **Figure 7.9** the water levels in all bores remained relatively stable during 2025.

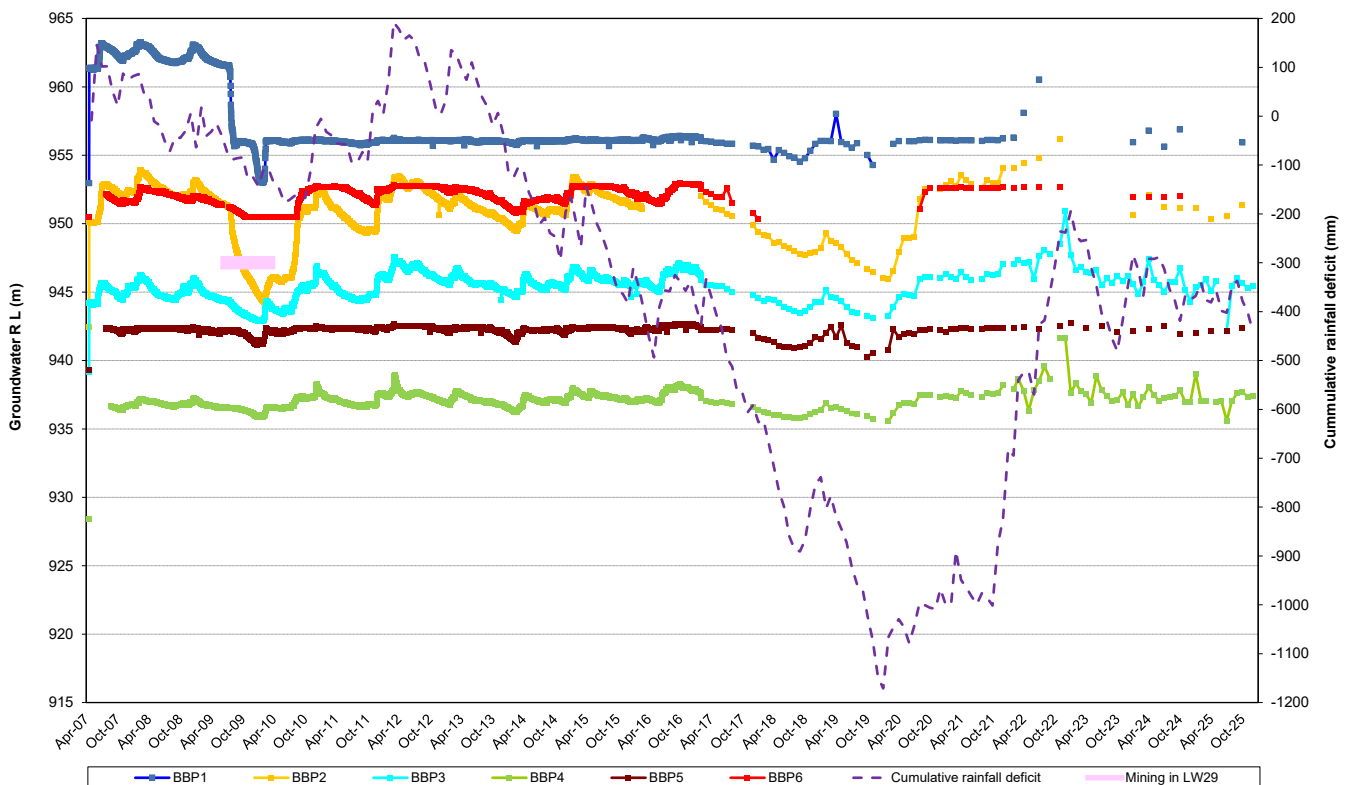


Figure 7.9: Coxs River Swamp groundwater levels and rainfall deficit

7.2.3.1 Comparison against Previous Annual Reviews

Groundwater data are plotted on **Figure 7.9** and **Figure 7.10**. The north – to – south downstream groundwater gradient has been broadly maintained (highest level observed in BBPB1 and lowest level observed in BBPB4), indicating that overall flow has been maintained down through the swamp.

All groundwater levels appear to be approximately at pre-mining levels, with the only exception being at piezometer BBP1, where a groundwater level re-stabilised at RL 956 m from 2009 to 2021 (approximately 5 m below pre-mining level). High rainfall during 2022 has seen the groundwater RL at BBP1 increase to near pre-mining levels.

All bores saw a decrease in groundwater RL corresponding to the prolonged drought period and rainfall deficit from early 2017 until end 2019. From 2020 to 2022 the higher volume of rainfall received comparative to previous years, corresponded with an increase in groundwater RLs in all bores. Groundwater levels have remained relatively stable over the 2023 to 2025 period.

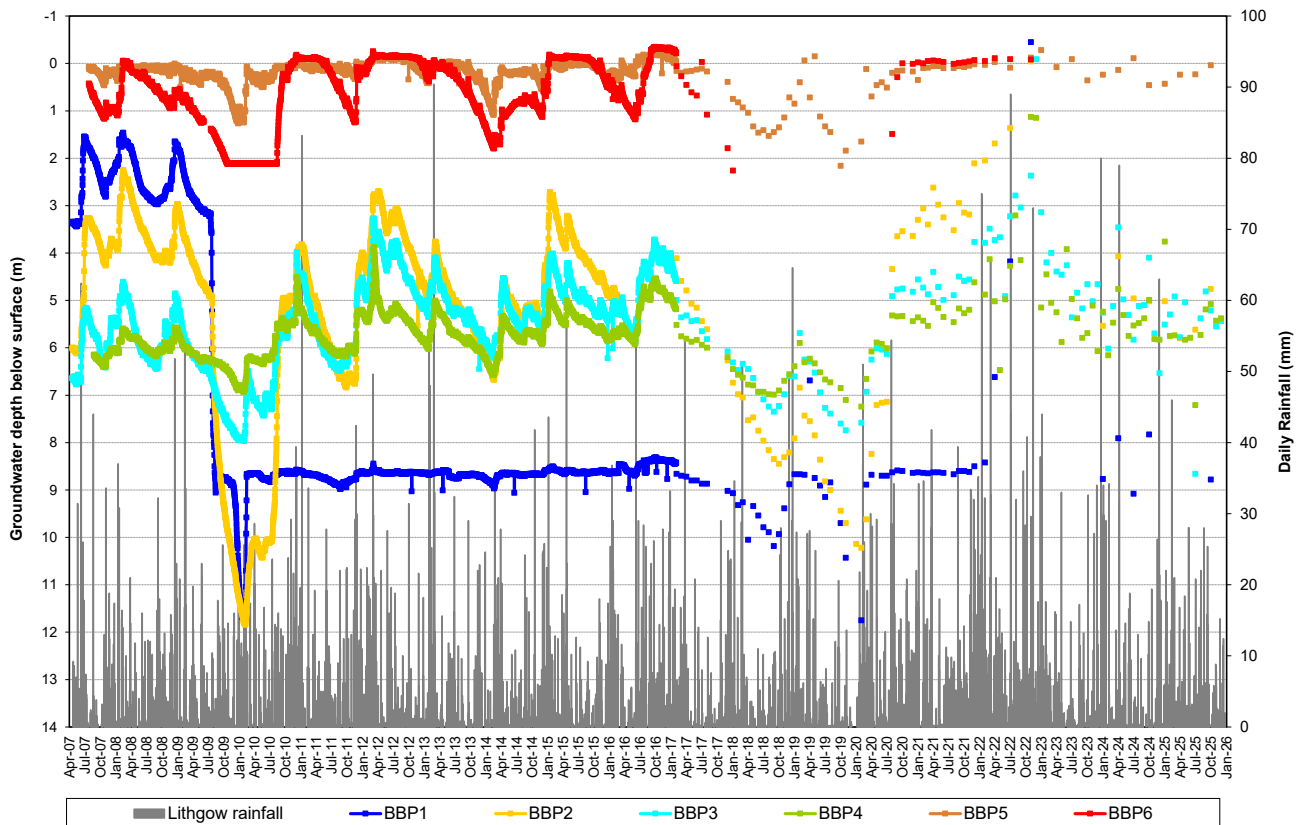


Figure 7.10: Longterm groundwater trends

7.2.3.2 Comparison against EA

The EA concluded that the likelihood of extraction of LW29-31 resulting in a significant impact on the Coxs River Swamp was considered extremely low.

All groundwater levels appear to be approximately at pre-mining levels, with the only exception being BBPB1, where groundwater has re-stabilised at RL956 (approximately 5 metres below pre-mining level).

Over the long-term, an emerging trend shows that groundwater levels in BBPB2, BBPB3 and BBPB4 all appear to correlate well with the overall cumulative rainfall deficit (difference between the monthly rainfall and the long-term average). The other remaining piezometers (BBPB5 and BBPB6), all appear resistant to short-term weather variances, due to the location of BBPB5 and BBPB6 in the centre of the swamp, which generally remains saturated. The prolonged drought period, as evidenced by the steady rainfall deficit from early 2017 until early 2020, saw all bores respond with decreasing water levels, and BBPB6 was recorded as dry from February 2018 until July 2020.

7.2.4 Groundwater Chemistry

Groundwater chemistry monitoring results for the reporting period are provided below in **Figures 7.11 to 7.15**.

Note that on 24 February 2022, DPIE approved the Consolidated Environmental Management Strategy, and the frequency of groundwater monitoring at Cox's Swamp was reduced. From

March 2022 onwards the Cox's Swamp bores (BBPB1 – BBPB6) were sampled according to schedule outlined below.

Piezometer ID	Water Level	pH	Electrical Conductivity (µS/cm)	Copper	Zinc	Iron	Speciation
BBPB1–2, and BBPB5–6	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly
BBPB3 and BBPB4	Quarterly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly

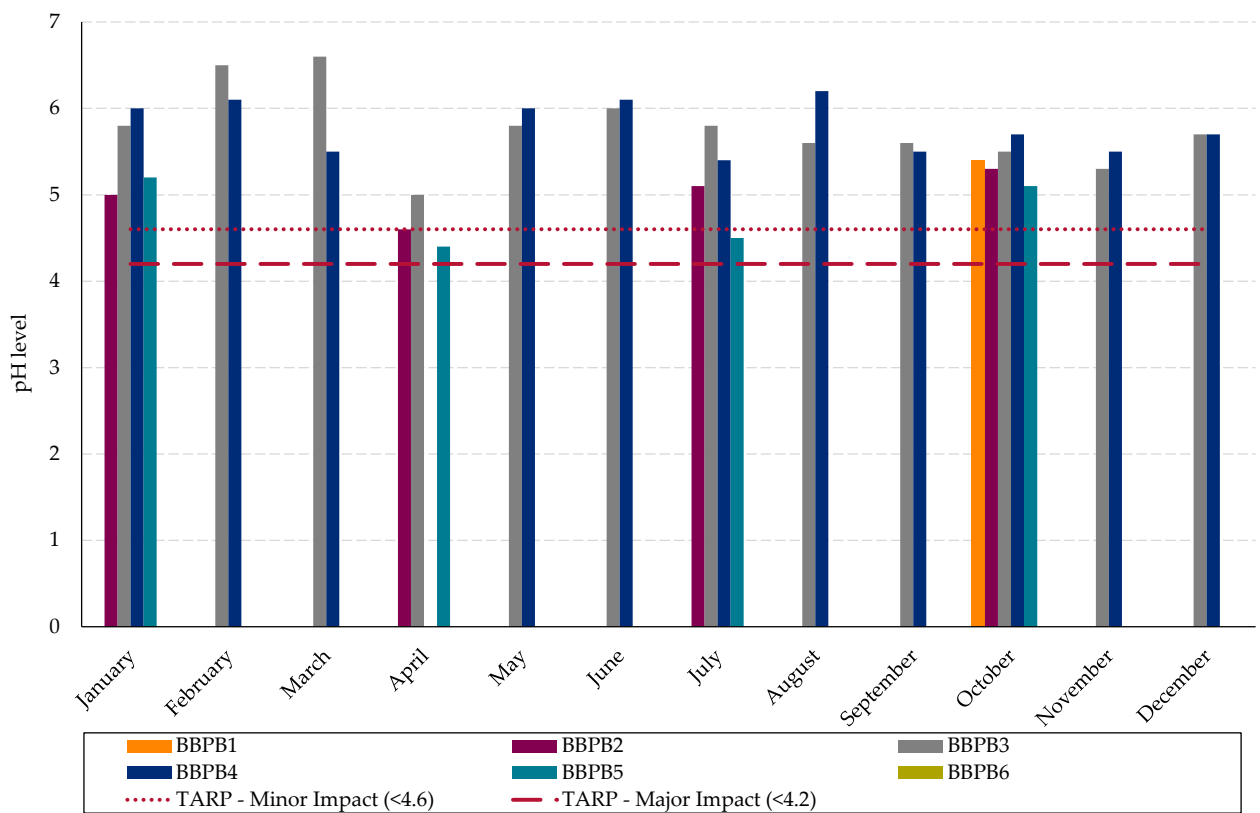


Figure 7.11: 2025 Groundwater pH levels.

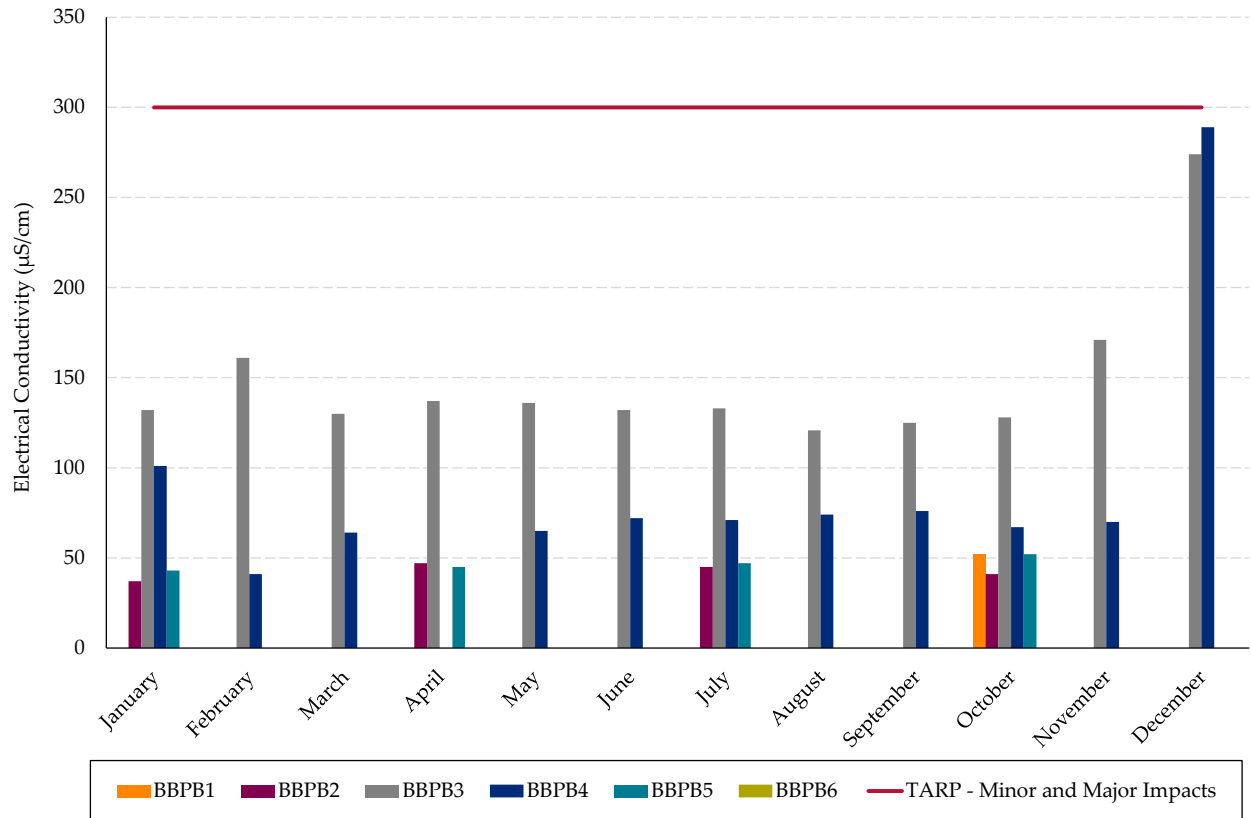


Figure 7.12: 2025 Groundwater Electrical Conductivity.

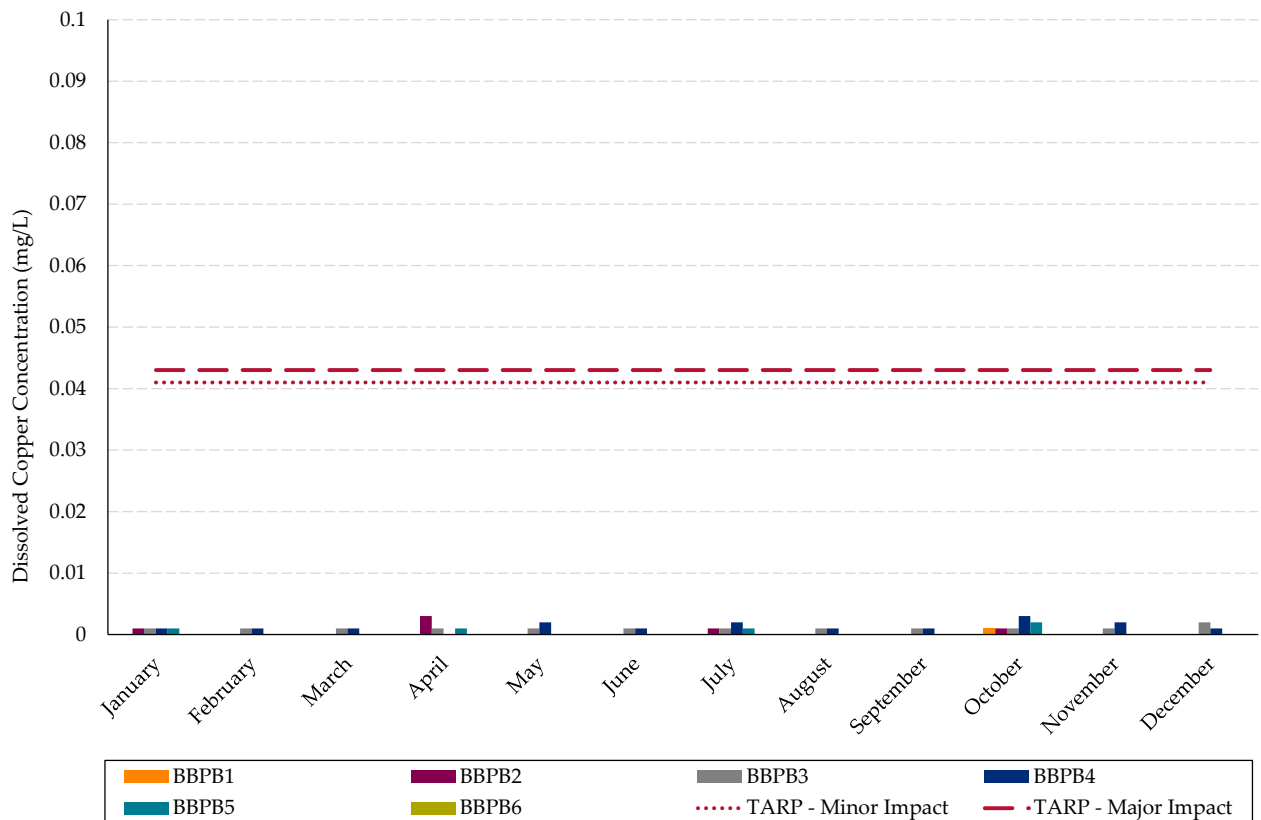


Figure 7.13: 2025 Groundwater Copper levels.

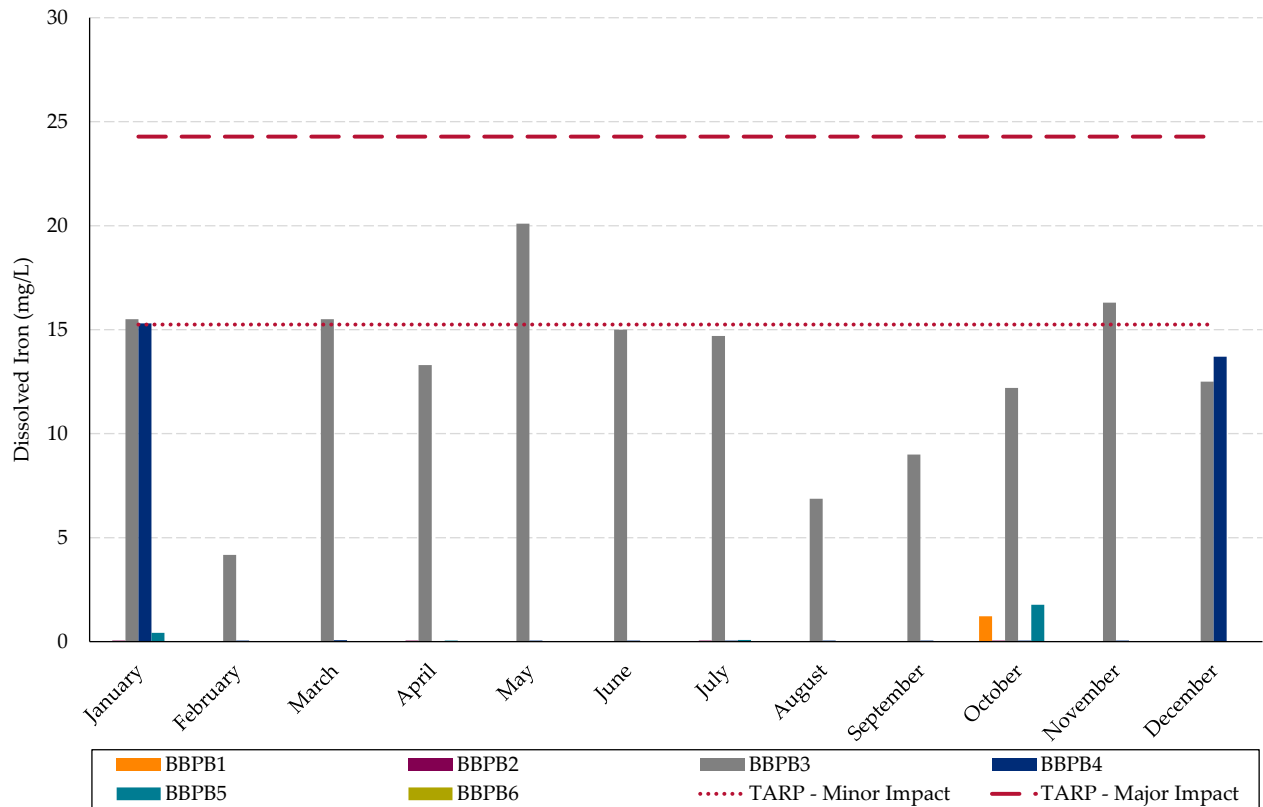


Figure 7.14: 2025 Groundwater Iron (dissolved) levels.

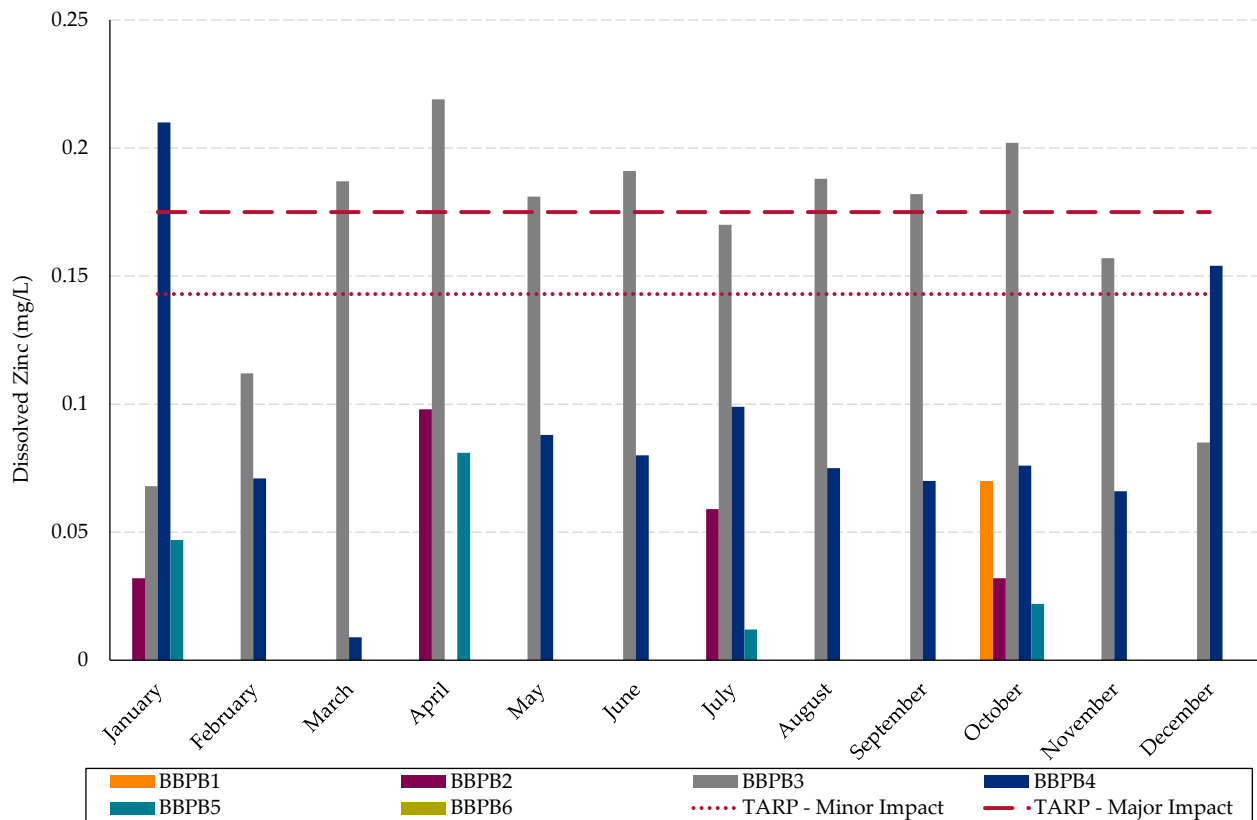


Figure 7.15: 2025 Groundwater Zinc Levels – background corrected (See Section 9.4.4.3 of the Consolidated Environmental Management Strategy for more information).

Note: BBPB1 and BBPB6 were dry for the majority of 2025 and therefore were unable to be sampled.

As shown in **Figure 7.11** above, all pH levels for all sampled bores were within both the minor and major impact criteria during 2025 with the exception of:

- BBPB5 in April and July which returned values of 4.4 and 4.5 respectively (both below the minor impact trigger level of 4.6).
- BBPB2 in April 2026 which returned a value at the minor impact trigger of 4.6.

As shown in **Figure 7.12** above: electrical conductivity (EC) levels were within both the minor and major impact criteria for all sampled groundwater monitoring bores during 2025.

As shown in **Figure 7.13**, copper levels were also within impact criteria for all sampled groundwater monitoring bores during 2025.

As shown above in **Figure 7.14**, 2025 iron levels were below the minor and major impact trigger levels for all sampled bores, with the exception of:

- BBPB3 in January, April, May and November 2025 – during which results were above the minor impact trigger level of 15.25mg/L; and
- BBPB4 in January 2025 which returned a value of 15.3mg/L (above the minor impact trigger level).

As shown above in **Figure 7.15**, 2025 zinc levels were above impact trigger level for BBPB3 and BBPB4 groundwater monitoring wells for a number of months during 2025.

After background correction BBPB3 exceeded:

- *Major* impact trigger levels in March, April, May, June, August, September and October 2025; and
- *Minor* impact trigger levels in July and November 2025.

The Loss of Water Quality TARP was therefore triggered for 2025 results. Investigations were carried out and notifications sent to DPHI on:

- 25 June 2025,
- 24 September 2025, and
- 10 December 2025.

An internal review during 2025 identified that while groundwater trigger level exceedances were being reported in DPHI in accordance with the Loss of Water Quality TARP, notifications were not being provided to landowners (NPWS) in accordance with Schedule 4, Condition 1 of Project Approval 09_0178. Accordingly from 2026 notifications are being provided to NPWS where there is any exceedance of the trigger levels (major or minor) outlined in Table 9.16 of the Groundwater Monitoring Plan.

In 2012, Baal Bone Colliery commissioned a report by Aurecon which investigated groundwater quality and the TARP trigger levels. The Aurecon report (March 2012) investigated the increases in zinc at BBPB3 however was unable to find obvious reasons for these increases. The Aurecon investigation suggested that variable rainfall and corresponding changes in groundwater levels could be contributing to changes in zinc levels.

The 2019 Independent Environmental Audit (IEA) carried out by Hansen Bailey determined that the ongoing exceedance of Water Quality Trigger Levels for dissolved zinc at BBPB3 was a low risk

non-compliance. The audit recommended that Baal Bone Colliery, “revisit the zinc trigger levels for BBP3 in consultation with DPIE for the closure stage”.

In the 2019 IEA Action Plan, Baal Bone Colliery committed that by 30 March 2021 a consultant will be engaged to further investigate the exceedance with consideration to be given to calibrating the groundwater triggers to site specific conditions if appropriate.

In 2020, Umwelt were engaged in part to determine the potential causes of elevated zinc concentrations at BBP3 and identify whether the existing groundwater minor and major change criteria (trigger values) should be updated. In relation to zinc Umwelt found that *“the peak concentrations during many of these events was recorded shortly after increased rainfall following a prolonged dry period. This suggests that rainfall-runoff infiltration has mobilised zinc from dry strata within the BBP3 catchment and that a wetting and drying process could be a significant contributor to groundwater zinc concentrations.”* Also that *“Elevated zinc concentrations were observed to occur pre-mining, during mining and post-mining. Elevated zinc concentrations at times followed a rise in groundwater level in BBP3”*.

Baal Bone Colliery provided a copy of the 2020 groundwater investigation report to DPIE in correspondence dated 17 November 2020.

7.2.4.1 Comparison against previous Annual Reviews

Table 7.10 summarises previous Annual Review results and any exceedances of TARP trigger levels (minor and major) in BBPB1 – BBPB6 during the period 2011 – 2025.

Table 7.10: Summary of TARP exceedances and previous Annual Review results

	BBPB1	BBPB2	BBPB3	BBPB4	BBPB5	BBPB6
2011	No TARP exceedance	No TARP exceedance	Dissolved Iron: Feb to Dec Dissolved Zinc: Jan, Feb, Aug, Nov, Dec	Dissolved Copper: Aug – Dec	No TARP exceedance	No TARP exceedance
2012	No TARP exceedance	No TARP exceedance	Dissolved Iron: Jan Dissolved Zinc: Jan, Jun, Aug to Dec	Dissolved Copper: Jan, Jul to Oct Dissolved Zinc: Oct	No TARP exceedance	No TARP exceedance
2013	No TARP exceedance	No TARP exceedance	Dissolved Iron: Jan, May, Oct to Dec Dissolved Zinc: Jan to Dec	Dissolved Copper: Sep to Dec Dissolved Zinc: Dec	No TARP exceedance	No TARP exceedance
2014	No TARP exceedance	No TARP exceedance	Dissolved Iron: Jan to Mar, Jul Dissolved Zinc: Jan to Dec	Dissolved Copper: Jan, Sep	No TARP exceedance	No TARP exceedance
2015	No TARP exceedance	No TARP exceedance	Dissolved Iron: Jan, Feb, Apr, Jun, Dec Dissolved Zinc: Jan to Dec	No TARP exceedance	No TARP exceedance	No TARP exceedance
2016	Dissolved Copper: Feb	No TARP exceedance	Dissolved Iron: Feb, Mar Dissolved Zinc: Jan, Feb, Mar, Apr, Jun, Jul, Aug, Oct, Dec	No TARP exceedance	No TARP exceedance	No TARP exceedance
2017	No TARP exceedance	Dissolved Iron: Oct Dissolved Zinc: Oct	Dissolved Iron: Oct Dissolved Zinc: Jan, Feb, Mar, May, June, July, Aug, Sept, Nov, Dec	No TARP exceedance	No TARP exceedance	Dissolved Copper: Nov and Dec Dissolved Iron:

						Oct
2018	Dissolved Iron: July	pH: Nov	Dissolved Iron: Jan, Mar, Jun, Jul Dissolved Zinc: Jan to Jul, Sept to Dec	No TARP exceedance	Dissolved Iron: Mar, Jul Dissolved Copper: Mar, Jun, Jul	No TARP exceedance (BBPB6 dry during 2018)
2019	EC: July	No TARP exceedance	Dissolved Iron: Jun, July, Nov Dissolved Zinc: Jan to Nov	No TARP exceedance	No TARP exceedance	No TARP exceedance
2020	Dissolved Iron: April	No TARP exceedance	Dissolved Zinc: Apr to Jul, Sept to Dec Dissolved Iron: Mar, Apr, Jun, Jul, Dec	No TARP exceedance	pH: Apr to Dec EC: May	Dissolved Zinc: Aug pH: Aug to Dec EC: Aug
2021	No TARP exceedance	No TARP exceedance	Dissolved Iron: Feb, Mar, Sep Dissolved Zinc: Jan to Aug, Oct, Nov	pH: May Dissolved Zinc: Jun	Dissolved copper: Feb pH: Feb, May, Jul, Sep to Nov	Dissolved copper: Feb pH: Jan, Oct, Nov
2022	No TARP exceedance	No TARP exceedance	Dissolved Zinc: Feb, Apr, May, Jul, Aug	No TARP exceedance	No TARP exceedance	No TARP exceedance
2023	No access during 2023	No access during 2023	Dissolved Zinc: Jan, Apr-Sept, Dec	Dissolved Zinc: Feb, Mar, Jul, Oct, Nov	No TARP exceedance	No access during 2023
2024	pH: Jan	pH: July	Dissolved Iron: Jan Dissolved Zinc: Feb, Aug to Dec	Dissolved Zinc: Jan, Mar to Jun, Aug	No TARP exceedance	No TARP exceedance
2025	No TARP exceedance	pH: April	Dissolved Iron: Jan, Mar, May, Nov Dissolved Zinc: Mar to Nov	Dissolved Iron: Jan Dissolved Zinc: Jan, Dec	pH: Apr, Jul	No TARP exceedance

7.2.4.2 Comparison against EA

The EA concluded that the likelihood of extraction of LW29-31 resulting in a significant impact on the Coks River Swamp water quality and quantity (levels) is considered extremely low.

In terms of groundwater quality, minor and major changes have been noted for pH and trace metals at some bores however electrical conductivity has generally remained below its trigger level of 300 µS/cm. This indicates that the local groundwater has a very low salinity and is consistent with the local background of only 100µS/cm.

As noted in **Section 7.2.4**, there were a number of minor and major trigger level events during 2025 at BBPB3 for zinc, iron and pH. Both the 2012 Aurecon report and the 2020 Umwelt report on groundwater quality conclude that minor changes to groundwater quality can occur by chance in the variable conditions of rainfall and the resulting groundwater level changes.

In terms of both groundwater levels and quality, monitoring confirms that there has been no measurable impact from mining on the swamp.

7.2.5 Groundwater Model

As part of the mine closure planning process, a groundwater model was developed to estimate the long-term recovery of the regional groundwater table post mining (GHD, 2017). The predictions of the groundwater model informed a numerical water balance model that was used to estimate the flooding of the underground workings and the water level and quality of the Northern Void.

The Groundwater Monitoring Plan requires the validation of the groundwater model predictions of groundwater inflow into the mine workings.

In 2020 GHD was commissioned to validate and compare monitoring data to MODFLOW model predictions. The validation concluded that the model provides a reasonable representation of the current rate of recovery of the underground water level (GHD 2020).

In early 2022 GHD validated the groundwater model again, comparing the latest water level recovery monitoring data for the underground workings against model predictions. Water levels collected for the north and southern dewatering bores and the Northern Void were compared against the model predictions.

The 2022 GHD Groundwater Model validation report found that:

“Review of seam floor contours indicates that the southern area of the workings is likely spilling into the northern area of the workings and the northern void. This is causing the water level at the south dewatering bore to remain relatively constant while the water level at the north dewatering bore and northern void continues to rise. The hydrogeological model assumed that the water level in the workings and the goaf would rise relatively uniformly throughout the workings.”

The underground recovery water balance model was intended to provide a more realistic representation of water levels during the early part of the recovery, before the water level in the workings, goaf and surrounding strata equilibrated. Comparison of the observed and modelled water levels in Figure 7.16 shows that observed water levels are generally within 3 m of the predictions, although some uncertainty remains due to the partially dewatered initial conditions when dewatering ceased.”

In 2025 GHD validated the groundwater model again, and found that:

“Water levels at all monitoring locations are now similar and tracking approximately 5 m above forecasts from the recovery water balance model, however, is it similar to the forecast long term water level that is governed by the outlet level of the Northern Void. The observations are consistent with the model forecasts that the water levels in the underground workings and the Northern void would equilibrate to a steady state. Therefore, it is expected that the difference between the forecasts and observations will continue to diminish over time, with the observed water level remaining similar and the forecasts “catching up” to the long term steady state.”

The difference between the observed water levels and the predictions of the groundwater model (and as a consequence, the recovery water balance) is likely attributable to:

- Representation of the enhanced hydraulic conductivity in the goaf and fractured zone.*
- Absence of zones of enhanced rainfall recharge that may be present in the model domain.*
- Representation of the potential flow paths through the overburden around the Northern void.”*

Figure 7.16 shows observed standing water levels compared to predictions by the underground water recovery balance model.

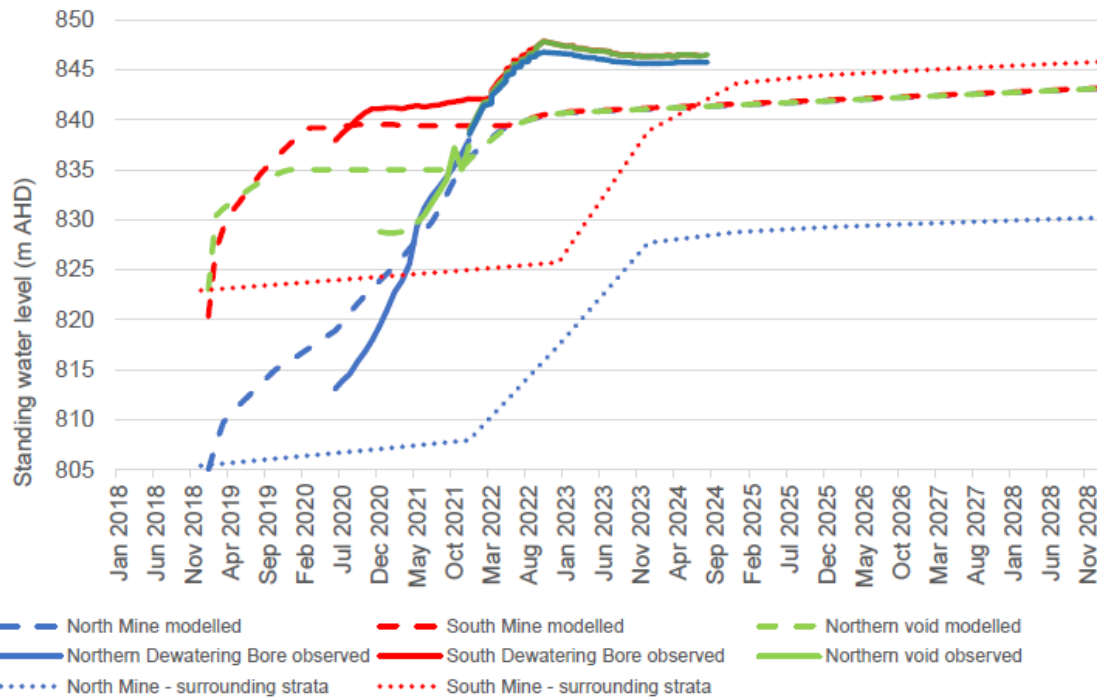


Figure 7.16: Observed and modelled post-closure groundwater level

7.3 Channel Stability Monitoring

The Surface Water Monitoring Plan requires that Channel Stability Monitoring be undertaken annually for Coxs River, Ben Bullen Creek, Baal Bone Creek and Jews Creek to assess the condition of the watercourse.

Channel Stability Monitoring was first undertaken in 2014 (mining ceased in 2011). Following the initial monitoring in 2014, the scope of the monitoring program was limited to only areas of active erosion as identified the previous monitoring program.

Therefore during 2025 only monitoring locations Co-2, Co-3 and Co-4 on Cox's Creek, Be-4, Be-5, Be-6 and Be-7 on Ben Bullen Creek, and Je-1 on Jews Creek were inspected as part of the annual monitoring program. The Channel Stability assessment also included an assessment of the drop-down structures within Reach 1 and Reach 3 of Ben Bullen Creek.

Channel Stability Monitoring was undertaken on 8th and 9th of December 2025 by Umwelt, and the report concluded:

"During the 2025 channel stability assessment, it was observed that some assessment points demonstrated differences in condition when compared to previous years. These changes are likely due to the system regressing from a combination of bushfire activity at the beginning of 2020 and fluctuations in rainfall events from 2021 to 2023 (flooding) to more dry weather in 2025.

The conclusions following the 2025 channel stability monitoring are as follows:

- *The original causes of erosion at most of the sites are varied but likely include subsidence, rainfall fluctuations with either high flow events or dry events, and other activities that expose slaking and dispersive material and/or concentrate flow paths.*

NOTE: since the cessation of underground mining almost 15 years ago (mining ceased in September 2011), no further subsidence is likely to occur that could impact or initiate the exposure of dispersive and/or slaking materials at the monitoring points.

- *Coxs Creek monitoring points Co-2 and Co-4 have exhibited potential stabilisation ranking which is an improvement from previous monitoring years.*
- *In the case of Ben Bullen Creek, the erosion is believed to be predominantly related to subsidence cracking in proximity to the watercourses.*
- *Once slaking and/or dispersive materials have been exposed in a watercourse, erosive flow events can cause the area of exposed material to increase exponentially, creating a positive feedback loop that will continue until the erosive energy is reduced or physical limits to erosion are reached, such as the removal of material back to bedrock.*
- *Dying and dry vegetation can leave wall materials more susceptible to erosion from high-energy, erosive flows, although evidence of such high flows does not appear to have occurred at the monitoring points since 2024.*
- *No visible erosion or scouring was observed surrounding drop-down structures along Reach 1 and Reach 3.*

It has been more than 10 years since the baseline data for the channel stability monitoring was completed. Mining ceased almost 15 years ago, and all closure works for the Baal Bone Colliery have been completed. Since the baseline surveys, seven assessment points have demonstrated consistent activity rankings of “stable” or “very stable” resulting in the discontinuation of monitoring these sites. It is understood that Baal Bone Colliery are seeking to alter the frequency of channel stability monitoring.

The recommendations for future management also remain consistent with recommendations presented in Umwelt (2025) and are as follows:

- *Consider reducing the frequency of monitoring sites assessed as “potentially stabilising” from annually to every two years, until a time when these sites show evidence of “stable” or “very stable”, at which point monitoring can cease; or if sites begin to demonstrate “active” or “very active” erosion, at which point monitoring frequency should increase to an annual basis.*
- *Areas of “active” to “very active” erosion, particularly those along Ben Bullen Creek and the Coxs River continue to be monitored annually, with inspections undertaken annually in accordance with the Environmental Management Strategy (Baal Bone Colliery 2024). Concentrate rehabilitation efforts in Be-6 and Be-7 to increase stability ratings.*
- *Where subsidence caused by mining has caused active erosion sites and if monitoring indicates that areas of “active” to “very active” erosion are becoming less stable, remedial works should be undertaken if required.*
- *Channel stability monitoring should continue to ensure that rehabilitation activities have been successful and to identify any future erosion so this can be addressed.*
- *Continued monitoring of the area surrounding drop down structures along Reach 1 and Reach 3 is recommended to identify potential erosion or scouring issues.”*

7.4 Stream Health Monitoring

The Surface Water Monitoring Plan required that Stream Health Monitoring be undertaken for Coss River, Ben Bullen Creek, Baal Bone Creek and Jews Creek to determine the overall health and condition of each of the four watercourses.

Stream Health Monitoring was commenced in 2014. Following the results of the 2014 monitoring and due to the care and maintenance status of Baal Bone Colliery, annual Stream Health Monitoring was suspended.

As per advice from Umwelt (Stream Health Monitoring Recommendations – Umwelt, dated 30 November 2015) and the **Surface Water Monitoring Plan**:

Prior to the commencement of Ben Bullen Creek Rehabilitation works, aquatic fauna monitoring sites will be identified in Jew's Creek and in analogue sites in order to establish baseline completion criteria. Following the completion of physical Ben Bullen Creek rehabilitation works, the monitoring will be extended to sites in the rehabilitated creek line with rehabilitation success being assessed against the analogue site(s).

Accordingly in June 2020 an aquatic fauna monitoring event was completed by Umwelt to establish analogue sites and collect baseline aquatic fauna data prior to rehabilitation works commencing in Ben Bullen Creek. Three analogue aquatic fauna monitoring sites were established in Ben Bullen Creek, Wangcol Creek and Coss River, as these are considered permanent creeks during drought conditions.

In November 2022 aquatic fauna monitoring was carried out in the three analogue sites established in 2020, as well as two monitoring sites within the rehabilitated sections of Ben Bullen Creek.

The methodology involved collecting macro-invertebrate samples at each site near edge habitats and macrophytes. Macro-invertebrates were sorted to a family or subfamily level (depending on requirements of the AUSRIVAS model). These macro-invertebrates were then used to assign a Stream Invertebrate Grade Number – Average Level version 2 (SIGNAL2) score for water quality (based upon pollution tolerance).

Table 7.11 provides the outcomes of the 2020 - 2024 Aquatic Fauna Monitoring.

Table 7.11: Outcomes of 2020 - 2024 aquatic fauna monitoring

	2020		2021		2022		2023		2024	
Site	Signal2 Grade	No. of Macro-Invertebrate Families	Signal2 Grade	No. of Macro-Invertebrate Families	Signal2 Grade	No. of Macro-Invertebrate Families	Signal2 Grade	No. of Macro-Invertebrate Families	Signal2 Grade	No. of Macro-Invertebrate Families
Analogue Sites										
BBC-AQ1	4.17	11	4.167	4	3.7	7	5.8	7	3.5	8
WC-AQ1	3.48	17	3.556	5	2.1	5	3.8	6	3.9	6
CR-AQ1	4.79	17	4.473	11	4	12	4.7	9	4.7	9
Rehabilitated Sites										
BBC-R1	-	-	2.259	9	2.9	18	3	7	3	7
BBC-R2	-	-	-	-	4	14	4.3	9	4.2	8
BBC-R3	-	-	3.375	4	2.7	14	2.6	11	3.2	11

Umwelt (2024) concluded that:

“The SIGNAL2 grades for the newly established sites within the rehabilitated creek line of Ben Bullen Creek were slightly lower than those of the analogue sites. However, this does not necessarily indicate that the water quality of these areas is impaired as the macro-invertebrate assemblages among the sites were generally comparable. As this is the fourth year of monitoring of the rehabilitated creek line for monitoring points BBC-R1 and BBC-R3 and the third year of monitoring for monitoring point BBC-R2, the similarity of aquatic fauna assemblages among rehabilitated and analogue sites is encouraging. It is expected that the aquatic fauna assemblages and respective SIGNAL2 grades of the sites within the rehabilitated creek line of Ben Bullen Creek will remain similar to the analogue sites over time.”

Given that the rehabilitation of Ben Bullen Creek was only recently completed, Umwelt (2024) did not provide any recommendations for improving current management actions, other than recommendations regarding the continuation of aquatic fauna monitoring.

In accordance with EMS Section 9.3.5.3 aquatic health monitoring will be carried out every two years. Accordingly no monitoring was carried out in 2025.

8 Rehabilitation

8.1 Status of Rehabilitation

Rehabilitation activities have been carried out in accordance with the Baal Bone Colliery Rehabilitation Management Plan. The primary objective of rehabilitation is to create a safe, stable final landform with self-sustaining native vegetation communities.

A summary of rehabilitation works for the previous, current and next reporting periods are detailed in **Table 8.1**.

Table 8.1: Summary of Rehabilitation Performance

Mine Area Type	Previous Reporting Period (Actual) (ha)	Current Reporting Period (Actual) (ha)	Next Reporting Period (Forecast) (ha)
	2024	2025	2026
A. Total surface disturbance footprint	372.3	372.3	372.3
B. Total active disturbance	0.51	0.51	0.03
C. Land prepared for rehabilitation	0	0	0.52
D. Ecosystem and land use establishment	0	0	0
E. Ecosystem and land use development	301.09	301.09	301.09
F. Completed rehabilitation	70.7	70.7	70.7

In 2007 and 2008 110ha in the Northern and Southern open cut areas were shaped to final landform, covered with clay loam free-dig material and treated with a range of structural soil conservation and stormwater management works. Soils were ameliorated with agricultural lime and gypsum and seeded with a range of native and improved pasture seed mixes.

During 2019, eleven entries into the underground mine, and the Longwall 19 ventilation shaft were filled and sealed in accordance with MDG6001 Guidelines for Permanent Filling and Capping of Surface Entries to Coal Seams. In 2020 a further eight buried adits were drilled, grouted and sealed.

In January 2020 demolition of infrastructure on the Baal Bone site commenced, which included the demolition of the Coal Handling Preparation Plant (CHPP), bathhouse and workshop, as well as all coal conveyors, reclaim tunnels, transfer towers, bins, sheds and other associated ancillary infrastructure. The rail loop linking the site to the Main Western Railway line was also decommissioned and all rail lines, ballast and sleepers were removed from the corridor. The remaining infrastructure: the administration building, workshop and other ancillary infrastructure were demolished during 2021.

The civil works and rehabilitation component of the closure activities commenced in September 2020. The remediation of the CHPP and Run of Mine (ROM) areas and the former rail corridor was undertaken over the remaining period of 2020. Activities included the addition of topsoil, fertiliser, lime and gypsum followed by the areas being ripped. The CHPP ROM area was then seeded with a pasture seed mix and the rail loop was seeded with a woodland seed mix – completing approximately 45 ha of rehabilitation during 2020.

During 2020 and 2021 filling of voids including the Leachate Dam, REA 6 Tailings Dam, Central Void and the Southern Void was also undertaken. In total over 1,000,000m³ was introduced into these areas.

In 2021 rehabilitation works commenced on sections of Ben Bullen Creek where it passes through the site. Remediation works included large amounts of rock revetment along the banks of the creek, the installation of high and low flow channels, and highwall safety and stabilisation work. Over 10,000 tubestock plants, including the threatened Capttertee Stringybark were planted along the remediated sections of Ben Bullen Creek.

During 2021, approximately 90 ha was rehabilitated and seeded including areas surrounding the Northern and Central Voids, the Southern Void and the banks of Ben Bullen Creek.

In 2022, shaping, ripping and seeding of the former pit top area, haul roads and Central Void was undertaken (approximately 49 ha). Following the completion of mine closure works in April 2022, the site entered a monitoring and maintenance phase.

During 2022 an ESF2 certification application for an area of older rehabilitation (70.7ha) that had achieved completion criteria was lodged with DPIE – Resources Regulator. In correspondence dated 4 April 2023 DPIE – Resources Regulator advised that the rehabilitation had been determined to be satisfactory.

During 2023, rehabilitation works consisted of augmentation and repairs of existing rehabilitation, including erosion repairs and works to improve groundcover.

During 2024 a drain was constructed near the existing Overshot Dam, and rehabilitation monitoring and maintenance continued onsite.

During early 2025 a permanent spillway was constructed from the Northern Void towards Jews Creek. The permanent spillway replaces temporary steel pipelines at LDP17. A number of rehabilitation maintenance activities were also carried out in 2025 – refer to **Plate 1**.

Plate 1 provides photos showing examples of rehabilitation works completed in 2025.

Northern Void Spillway DIRECTION33.252057°S150.061725°EACCURACY 3 mDATUM GDA94  Northern Void Spillway20/1/2025, 1:03:09 pm	Thistle Hill reseed DIRECTION33.260685°S150.055577°EACCURACY 4 mDATUM GDA94  Western side Thistle hillReseed by hand7/4/2025, 1:30:30 pm
Pine tree removal DIRECTION33.262446°S150.052244°EACCURACY 5 mDATUM GDA94  Pine removal4/8/2025, 1:11:58 pm	Erosion and sediment repairs DIRECTION33.270095°S150.059450°EACCURACY 5 mDATUM GDA94  HelipadESC works23/6/2025, 11:10:22 am

8.1.1 Subsidence Remediation

During 2025 subsidence repairs were carried out in two areas in the Gardens of Stone State Conservation Area, following consultation with NPWS. **Plate 2** provides photos showing before and after the subsidence repairs.

Plate 2 provides photos showing subsidence repairs completed in 2025.



During 2025 subsidence inspections were carried out in March and September 2025. The assessment and remediation criteria set out the **Rehabilitation Management Plan** will be used as a guide for future remediation activities. Remediation activities will be undertaken in response to monitoring until rehabilitation has been achieved.

8.2 Performance Indicators and Completion Criteria

The Baal Bone Colliery RMP divides the lease area into different domains. **Section 4 of the Baal Bone Colliery Rehabilitation Management Plan** outlines the rehabilitation performance indicators and closure criteria that must be met to demonstrate that the rehabilitation objectives for each domain have been achieved over the six different rehabilitation phases (i.e. (1) Decommissioning, (2) Landform Establishment, (3) Growth Medium Development, (4) Ecosystem and Land Use Establishment, (5) Ecosystem and Land Use Sustainability, and (6) Relinquished Lands).

A range of different environmental monitoring and inspections are used to measure progress towards the rehabilitation completion criteria for each phase, including; landform surveys and inspections, water monitoring, soil tests, flora and fauna monitoring. In particular the completion criteria outlined in the Ecosystem and Land Use Establishment phase, and Ecosystem and Land Use Sustainability phase are tracked via the Annual Ecological Rehabilitation Monitoring outlined below at **Section 8.3.2**.

8.3 Rehabilitation Inspections and Monitoring

Three types of rehabilitation monitoring/inspections are undertaken at Baal Bone. These include;

- Regular inspections by site personnel,
- Annual rehabilitation inspection and
- Annual Rehabilitation Monitoring.

8.3.1 Annual Environmental Rehabilitation Inspection

The 2025 Annual Environmental Rehabilitation Inspection was conducted by DnA Environmental on 17 November 2025.

The inspection report recommended the following management actions:

- addressing Northern rehab pasture area that has become overgrazed by macropods and has a high percentage of weeds;
- addressing lack of groundcover and resulting erosion in Ben Bullen Creek rehabilitation areas;
- weed control and increasing eucalypts at SOC5;
- application of weed free hay in areas with limited groundcover and/or erosion;
- targeting weeds onsite including Blackberry, St John's Wort, Sweet Briar and pine wildings; and
- feral animal inspections and control.

8.3.2 Annual Ecological Rehabilitation Monitoring

The annual rehabilitation monitoring program evaluates the progress of mine rehabilitation sites towards fulfilling long-term land use objectives by comparing a selection of ecological targets or

completion criteria against reference sites that are representative of the final land use, landform and vegetation assemblage.

Annual Rehabilitation Monitoring at Baal Bone Colliery commenced in 2009 and incorporates a combination of photo-point monitoring, Landscape Function Analyses (LFA), and vegetation composition, structure and function (BioBanking/Biodiversity Assessment Method (BAM)). Soil analyses are undertaken across monitoring sites during early establishment phases, and as required thereafter.

At Baal Bone final land uses for rehabilitation areas primarily include:

- Mixed eucalypt woodland;
- Grasslands with grazing potential i.e. perennial pastures;
- Sandstone Dry Ridgetop Woodland; and
- Ecotones of sedges and shrubs (Sedgeland), depending on the level of waterlogging within the Ben Bullen Creek riparian zone.

Data obtained from reference/analogue sites quantify the range of ecological performance indicators and provide completion criteria targets. Completion criteria are considered to be met when primary performance indicators are within 30% or more of the required ecological target (with the exception of the Vent Shaft site where 100% performance indicators are applied).

Annual rehabilitation monitoring is undertaken from the year of establishment until the rehabilitation reaches ten years old. After a rehabilitation area is 10 years old, monitoring frequency will be reduced if monitoring reports confirm that the vegetation is well established.

Locations of reference sites and rehabilitation monitoring sites are provided in (**Appendix A – Plan 6**).

2025 Annual Ecological Rehabilitation Monitoring Results

The results and conclusions from the 2025 monitoring, undertaken by DnA Environmental from the 27th October – 17th November 2025 are reproduced below:

“Summary of results

Despite extreme climatic conditions, there has overall been successful establishment of native tree and shrub seedlings across most woodland rehabilitation areas. Older woodland rehabilitation areas have developed into mixed eucalypt woodland with many ecological attributes similar to woodland reference sites. While many acacias have become senescent, there has been a simultaneous increase in native grass cover, with increasing diversity of a range of other ground covers and volunteer species, including a variety of native terrestrial orchids. During 2023 – 2024 large patches of woodland rehabilitation with semi-mature eucalypts were significantly stressed and/or had died due to sudden and prolonged dry conditions, however, most areas of woodland rehabilitation appear to have recovered. No confirmed effects of soil contamination have yet been observed in new woodland rehabilitation areas, however “hotspots” are known to occur in older woodland rehabilitation.

Results from 2025 rapid assessments indicated that in woodland rehabilitation areas:

- *Relatively large areas of bare ground and/or active erosion occur in parts of the SVD including monitoring site SVD01, as well as the eastern side of Ben Bullen Creek;*
- *Seedling establishment has been patchy across the SVD, however extensive seedling mortalities were recorded in monitoring sites SVD02 and SVD03;*

- *Exotic ground covers such as Trifolium and Medicago species were also relatively abundant across the SVD, with increasing abundance of Cineraria lyratiformis (African Marigold) especially in and along drainage channels;*
- *Priority weeds Blackberry and St John's Wort (and occasional Nassella trichotoma (Serrated Tussock)) were also recorded in varying densities in older areas of rehabilitation including SOC, REA5 and weed seedlings were establishing in woodland rehabilitation on batters along Ben Bullen Creek;*
- *Acacia baileyana (Cootamundra Wattle) seedlings were also establishing in woodland rehabilitation on batters along Ben Bullen creek and have spread into adjacent bushland (e.g. RWood01);*
- *Results from one soil sample (SVD02) indicated increasing trends in Electrical Conductivity (EC) and sulfur (S) and decreasing trends in pH, with soils having become slightly saline, strongly acidic with excessively high concentrations of sulfur.*

Results from 2025 BAM (2020) monitoring indicated that:

- *New areas of pasture rehabilitation areas had low diversity and cover of native grasses and forbs and several sites (NOC3, DWD01 and NVD01) had a higher diversity and/or cover of exotic species. Many pasture areas had increasing shrub cover;*
- *The dry sandstone woodland ventilation shaft rehabilitation area had an adequate diversity and cover of native trees, shrubs, grasses/grass-like, forbs, ferns and other species, however there was a higher diversity and cover of exotic species. Litter development was low and there was limited log cover; and*
- *Sedgeland rehabilitation areas had comparable diversity of native trees, shrubs, grasses and grass-like, forbs, ferns and other species in both rehabilitation areas, although they also had a higher diversity and cover of exotic species.*

In older pasture rehabilitation sites on the NOC there continued to be heavy grazing by macropods resulting in a decline in perennial grasses and an increased abundance of exotic annuals and weeds. In older NOC pasture rehabilitation, soil analyses in 2025 indicate soil characteristics are within acceptable limits and there has been a gradual increase in organic matter (OM) however the soils continue to be low nutrients (N, P).

Extensive areas of new pasture rehabilitation have very rough soil surface, with soils being very hard and compacted (e.g. ROM) however, successful establishment of Trifolium species (Clovers) has been recorded following rehabilitation in 2022. Drier conditions and increased grazing by macropods have resulted in a decline in active plant growth and biomass across most pasture rehabilitation, however relatively high levels of plant-litter cover have been retained, except in CVD. Soil analyses indicate soils were slightly to moderately saline, slightly to moderately alkaline and have extremely high levels of sulfur and Iron. In most cases nutrient levels (N, P and OM) were similar to pasture reference sites.

The Ventilation shaft was rehabilitated in 2014, with rehabilitation of sandstone dry woodland vegetation initially developing adequately, however the open rehabilitation clearing continues to be regularly used and disturbed by campers. A new monitoring plot (Vent Rehab 24) was established in less disturbed areas of rehabilitation, with increasing levels of ground cover and the area contained a high diversity of regenerating trees and shrubs. Densities of trees and shrubs were currently low compared to the reference site, although the reference site was also in a regeneration phase after bushfire.

Significant amounts of small hard plastics were also observed scattered across the surface of most new pasture rehabilitation areas, introduced via the application of OGM used for growth medium development.

Cassinia sifton (Sifton Bush), a native shrub continues to colonise significant areas of new disturbance including new pasture and woodland rehabilitation, areas affected by bushfire areas, as well as areas subjected to overgrazing including local farmland.

Conclusion

Most monitoring sites have endured the impacts of drought, severe frosts, waterlogging and continue to be subject to heavy macropod grazing which are exacerbated during prolonged dry conditions, including 2023 - 2024. All reference sites also were affected by bushfire during summer 2019/2020, while pasture and sedgeland reference sites have suffered extensive damage by feral pigs over the past few years.

Despite extreme climatic conditions, there has overall been successful establishment of native tree and shrub seedlings across most woodland rehabilitation areas. Older areas of mixed eucalypt woodland rehabilitation have sufficiently developed, with many ecological attributes similar to woodland reference sites.

There continues to be “hotspots” of limited ground over establishment and stunting and chlorosis of trees and shrubs in some older woodland rehab areas. Numerous hotspots were treated with weed free hay (2021 – 2024) and have demonstrated improvement in ground cover and stability. Remaining hotspots and sites slow to develop would also benefit from the addition of weed-free pasture hay and some areas require re-application.

Results of long-term soil analyses across older areas of woodland rehabilitation indicate that most adverse soil characteristics have declined to levels similar to local woodland. In some new woodland areas, increased seedling mortalities and the development of large bare scalded areas across the SVD may be associated with adverse soils chemistry and additional soil testing across SVD is advised.

Rehabilitation areas that continue to have low seedling densities and large areas of limited ground cover, such as SVD, may also require additional rehabilitation, including re-seeding and/or tubestock planting. Conversely, very high densities of eucalypts in areas along Ben Bullen Creek may limit ground cover establishment resulting in bank erosion in the medium to longer-term and selective thinning of eucalypt seedlings may be required.

Perennial pastures suitable for grazing by livestock are required in all pasture rehabilitation areas as per Baal Bone’s RMP. Repeated overgrazing by macropods has resulted in degradation of sown perennial pastures with pastures having become degraded, dominated by weeds and have very low herbage biomass currently unable to support livestock grazing. Ongoing maintenance will be required, however given the locality of pasture rehabilitation in close proximity to, and surrounded by large tracts of bushland, altering the final land use to woodland rehabilitation should be considered.

Protective ground cover and/or amelioration is required in areas of active erosion and may be achieved using weed free hay treatments in areas with minor erosion. Areas with more severe erosion may require earthworks, additional topsoil application, slope stabilisation using logs and branches and/or seeding with native woodland mixes.

Many areas of woodland rehabilitation had a high abundance of exotic annual weeds, including volunteer clovers and medics, however they have been providing important ground cover and are contributing to the development of the soil profile. OGM has also contributed to soil profile/development however weeds and small, hard plastics have contaminated the product.

Rehabilitation around the ventilation shaft had been establishing satisfactorily however it continues to be subjected to ongoing disturbance by campers. Public access to the ventilation shaft was restricted in late 2025 with the installation of boulders.

The colonisation of Cassinia sifton is a natural successional process and is beneficial in woodland rehabilitation areas, thus no treatment of Cassinia is required in most cases. Repeated overgrazing and disturbance by macropods are likely to perpetuate Cassinia recolonisation, and in open grazing pastures control of Cassinia may be required.

*Large infestations of Blackberry (*Rubus fruticosus*) and St John's Wort (*Hypericum perforatum*) have now become established across the mine site. Continued and vigilant follow up control programs need to be undertaken ensuring small satellite populations and individual Blackberry and St. John's Wort plants are controlled, before they also develop large patches. There has also been an increasing abundance of Cineraria lyratiformis (African Marigold) across the mine site and is thought to have been introduced via OGM.*

Seedlings and/or suckers of exotic tree species (Poplars, Cottonwoods) and Pinus radiata (Radiata Pine), as well as Environmental Weeds such as Acacia baileyana (Cootamundra Wattle) require ongoing monitoring and control.

Feral pigs have caused extensive damage in swamps and wetlands areas, including sedgeland reference sites and moist depression/wetland areas in pasture and woodland rehabilitation. Feral pig control is urgently required in conjunction with adjacent landowners, National Parks and Wildlife Service and other local authorities. There have also been previous sightings of goats, deer and wild dogs.

Continued monitoring will identify potential shortfalls and provide guidance on the need for further management intervention, in order to trend towards and to meet completion criteria targets.

Rehabilitation monitoring and maintenance work will continue during 2026.

8.4 Ben Bullen Creek Rehabilitation Project

From 2007 to 2009 stabilisation and restoration works were completed along two sections (Reach 1 and 3) of the Ben Bullen Creek including riparian vegetation (tube stock) planting in upper and lower reaches.

Under Project Approval 09_0178, Baal Bone was required to review its water management systems which included a review of the Ben Bullen Creek Natural Channel Design and Restoration Plan, originally prepared in 2007.

A review of the Ben Bullen Creek Natural Channel Design and Restoration Plan during 2012/2013 indicated that remediation of the current Ben Bullen Creek diversion through the pit top area may

be optimal to the reinstatement of the creek to its pre-disturbance pathway (approximately pathway post Ben Bullen Mine 1952).

URS were commissioned in 2013 to carry out a Phase 1 assessment of Ben Bullen Creek. Findings from the assessment recommended that the existing diversion be maintained for Ben Bullen Creek.

Following discussions held with DP&E in 2014, a modification was sought by Baal Bone to modify the approved final landform plan and associated conditions for the Baal Bone Coal Project under Project Approval 09_0178. The modification was sought under Section 75W of the Environmental Planning and Assessment Act 1979 (EP&A Act), and will facilitate the changes to final alignment and rehabilitation of Ben Bullen Creek. In December 2015, DP&E approved the modification to allow Ben Bullen Creek to remain in its current alignment.

On the 13 December 2016, the Ben Bullen Creek Rehabilitation Plan was submitted to DP&E for review and approval. It was also sent to OEH, Fisheries NSW, DRE and DPI Water for consultation purposes as required by PA 09_0178. The Ben Bullen Creek Rehabilitation Plan was approved by the DP&E on 13 December 2017.

In 2021 and 2022 rehabilitation works were completed on Reach 2 of Ben Bullen Creek. Works included large amounts of rock revetment along the banks of the creek, the installation of high and low flow channels, and highwall safety and stabilisation work. Over 10,000 tubestock plants, including the threatened Captertee Stringybark were planted along the remediated sections of Ben Bullen Creek, and the creek banks direct seeded with a woodland mix.

9 Community

9.1 Community Consultative Committee

The Baal Bone Colliery Community Consultative Committee (CCC) was established to provide a formal conduit for exchange of information and views between the local community and Baal Bone's Management Team.

The final CCC meeting was held on 7 December 2021. No further CCC meetings are planned given mine closure works were completed in early 2022.

9.2 Community Complaints

There were no community complaints received during the 2025 reporting period.

A community complaint summary is available from the Baal Bone website: <https://www.glencore.com.au/operations-and-projects/coal/past-operations/baal-bone-colliery/community-documents>.

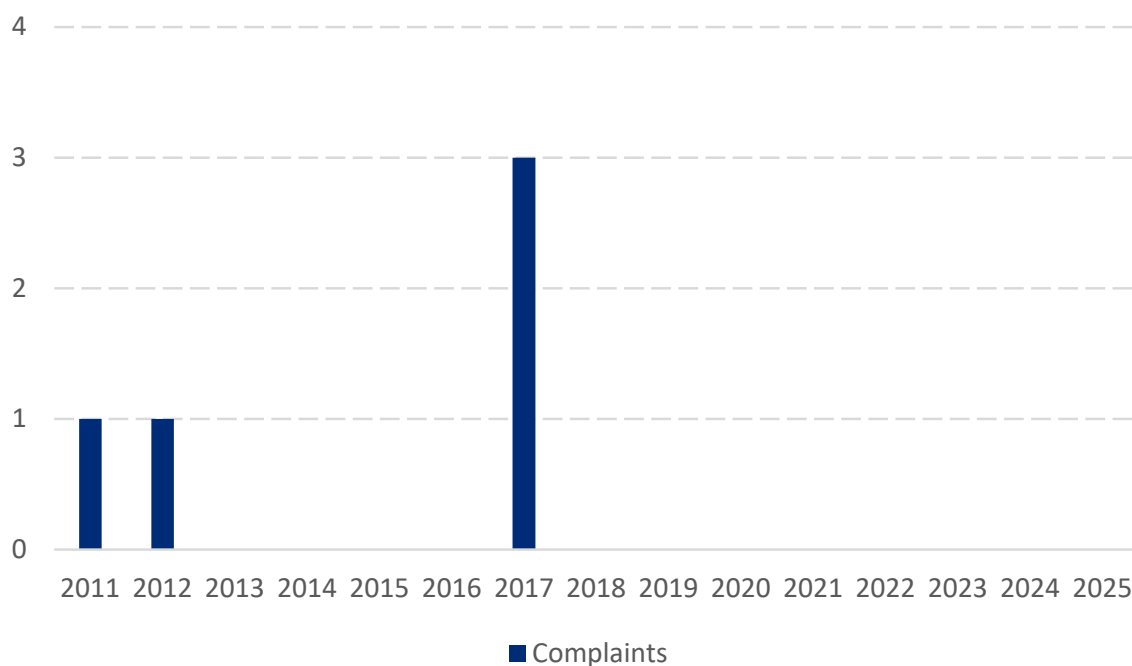


Figure 9.1: Community complaints by year

9.3 Community Sponsorship

Glencore invests in Health, Arts and Culture, Education and Enterprise, Environment and the Community, including, as an example, education grants to NSW Government Schools.

10 Independent Audit

Baal Bone Colliery underwent an Independent Environmental Audit (IEA), as per Schedule 5, Condition 7 of PA 09_0178 in December 2025. The site component of the audit was conducted on 2 and 3 December 2025 by IEMA. Baal Bone Colliery received the final audit report from IEMA on 23 February 2025. Baal Bone Colliery submitted the IEA report to DPHI, together with a response to audit recommendations on 26 February 2026.

A copy of the most recent as well as previous audit reports, and responses to audit recommendations can be found on the Baal Bone Colliery website. Audit actions have been entered into CMO - Baal Bone's compliance tracking system.

The next Independent Environmental Audit of Baal Bone Colliery will occur in 2028.

Tables 10.1 and 10.2 outline the actions arising from the 2025 Audit.

Table 10.1: Status of actions arising from non-compliances identified during 2025 Independent Environmental Audit

Sch and Cond Number	Audit Recommendation	Response/Action Plan	Proposed Action Due Date or Status
Division 3, Condition 11	BBC RMP was not updated after Rehabilitation Objectives were approved in October 2023. Therefore not meeting Division 3, Condition 11 (Part (a)) of the Mining Act. No recommendation provided by IEMA.	No recommendation provided by IEMA. Note: The Final Landform and Rehabilitation Plan for BBC was updated and approved by the Secretary on 17 December 2025. The BBC RMP was updated on 14 January 2026 and uploaded to public webpage.	NA

Table 10.2: Status of ongoing continual improvement actions from IEA.

Sch and Cond Number	Audit Improvement Recommendation	Response/Action Plan	Proposed Action Due Date
Project Approval 09_0178			
Sch 3 Cond 1	Engage a specialist to assess the underground area within the ML's. This is to assess against the S3 C1 Subsidence Performance Measures. The specialist report should be based on a traffic light system and compare against something similar to Table 6.3 Subsidence assessment and remediation of the RMP. Some initial mapping of potential higher risk areas could be completed prior to any fieldwork in consultation with NPWS. This will allow the site to obtain an idea on the current status and assist with future consultation with DPHI and NPWS.	Specialist to be engaged to assess performance against Subsidence Performance Measures in Schedule 3, Condition 1.	31 December 2026

Sch and Cond Number	Audit Improvement Recommendation	Response/Action Plan	Proposed Action Due Date
Project Approval 09_0178			
Sch 3 Con 19	Look at erosion repair options in the middle leachate batters. Previously filling eroded areas with rock and use of hay and hydromulching has been used.	Erosion repairs to be completed in middle leachate batter (Southern Void).	31 March 2027
Sch 3 Con 19	Look at erosion options for the Reach 1 highwall area as there are areas of gully erosion, in particular adjacent and parallel to a rock structure. Consider repairing areas and linking up to the rock drain through a small contour drain. Other options such as grass reseeding and stabilisation through haybales.	Erosion repairs to be carried out in Reach 1 high wall area.	31 December 2026
Sch 3 Con 20	The site is to look into the reasons for the change in water colour to the Northern Void. This would initially be a comparison of existing data.	A review of existing data has already been completed, and did not identify any metals results outside of the expected range. Initial investigations suggest that the change in water colour in the Northern Void is due to a natural colloidal suspension of carbonate precipitates and these sub-micron particles scatter short-wavelength (blue) light more strongly – making the water appear milky-blue. The above investigation will be reviewed by a water specialist. Monitoring of Northern Void is ongoing.	30 June 2026
Sch 3 Con 23	Additional weed spraying is required with this also recommended by DNA. Implement ongoing weed control program targeting Blackberry and St John's Wort (Sweet Briar) as a high priority. Also, there are large areas of scotch thistle near the Northern Void overflow point.	Areas at BBC requiring weed spraying are identified during monthly rehabilitation inspections completed by site personnel; and annual rehabilitation monitoring and annual rehabilitation inspection completed by a third party. These areas are input into an annual Weed Management Plan. The 2025/26 Weed Management Plan has been implemented, with a particular focus on St Johns Wort. To date over 4,600L of herbicide has been applied to BBC property during the 2025/26 weed spraying campaign. The large area of scotch thistle near the Northern Void overflow point was sprayed in December 2025.	Ongoing
Sch 3 Con 23	Undertake periodic feral and pest animal monitoring and control. Consult with National Parks	Engage specialist to conduct feral and pest animal control.	31 December 2026

Sch and Cond Number	Audit Improvement Recommendation	Response/Action Plan	Proposed Action Due Date
Project Approval 09_0178			
	(formerly State Forests) and local authorities.		
Sch 3 Con 25	Review completion criteria once you receive comments from the RR. This may include updating ecological criteria (it currently references incorrect PCT's), consider criteria such as the 10th to 90th percentiles that are more consistent with the RR guidance.	Completion criteria to be reviewed once comments are received from the Resources Regulator.	31 December 2026
Sch 3 Con 25	Obtain a series of soil samples on site in the existing rehabilitation areas including the former REA. This would be for areas of stable rehabilitation, average areas (minimal trees but good grass cover) and the mostly bare areas. Compare these results to soil sampling of stockpiles prior to seeding and some of the stockpiles remaining onsite. We recommend engaging an external specialist for sampling and advisory for rehabilitation improvements.	Engage external specialist to sample and report on rehabilitation areas in Southern REA that are not tracking towards achieving completion criteria.	31 December 2026
Sch 3 Con 30	When finalised, implement the remediation action plan from AECOM and provide updates in the Annual Review.	Remediation sampling completed in January 2026, awaiting final report. Remediation Action Plan to be implemented, and update provided in 2026 Annual Review.	31 March 2027
Mining Act			
Division 1, Condition 6	The site should continue liaise with the DPHI and Resources Regulator regarding the landform type within the Northern Void rehabilitation area as it currently does not match the RMP Final Landform Plan. The FLRP has the landform as pasture with the area now covered with mostly trees.	Continue consultation with Regulators regarding altering final landuse of sections of the Northern Void Rehabilitation Area.	Ongoing

11 Incidents and Non-Compliances during the Reporting Period

Incidents are notified to the EPA, DPI&E and other relevant agencies immediately on becoming aware of a notifiable incident.⁴

11.1 Reportable Incidents

There were no reportable incidents during the 2025 reporting period.

11.2 Non-Compliances

There was one non-compliance that occurred during the 2025 reporting period. Another non-compliance was identified during the 2025 IEA however the non-compliance occurred during a previous reporting period (see below).

As detailed in **Section 7.2.4** an internal review noted that while exceedances of groundwater trigger levels (within the GWMP) were being reported correctly to Department of Planning, the exceedances also require notification to landowners (NPWS) in line with Sch 4, Con. 1 of PA 09_0178. Notifications to landowners (NPWS) commenced in 2026.

As detailed in **Section 10** the 2025 Independent Environment Audit found that an administrative non-compliance had occurred in 2023 when the Rehabilitation Management Plan was not updated in accordance with Mining Act Division 3, Condition 11 following the approval of updated Rehabilitation Objectives in October 2023. The RMP has been subsequently updated in July 2025, and again in January 2026 (following the approval of the Final Landform and Rehabilitation Plan on 17 December 2025).

⁴ PA09_0178 Schedule 5, Condition 5 and Condition 6 and Protection of the Environment Operations Act 1997, Section 153 - Pollution Incident Response Management Plan (PIRMP, BBNUG-882012935-2894).

12 **Activities to be completed in the Next Reporting Period**

Activities to be completed during the 2026 reporting period include:

Demolition

- Nil

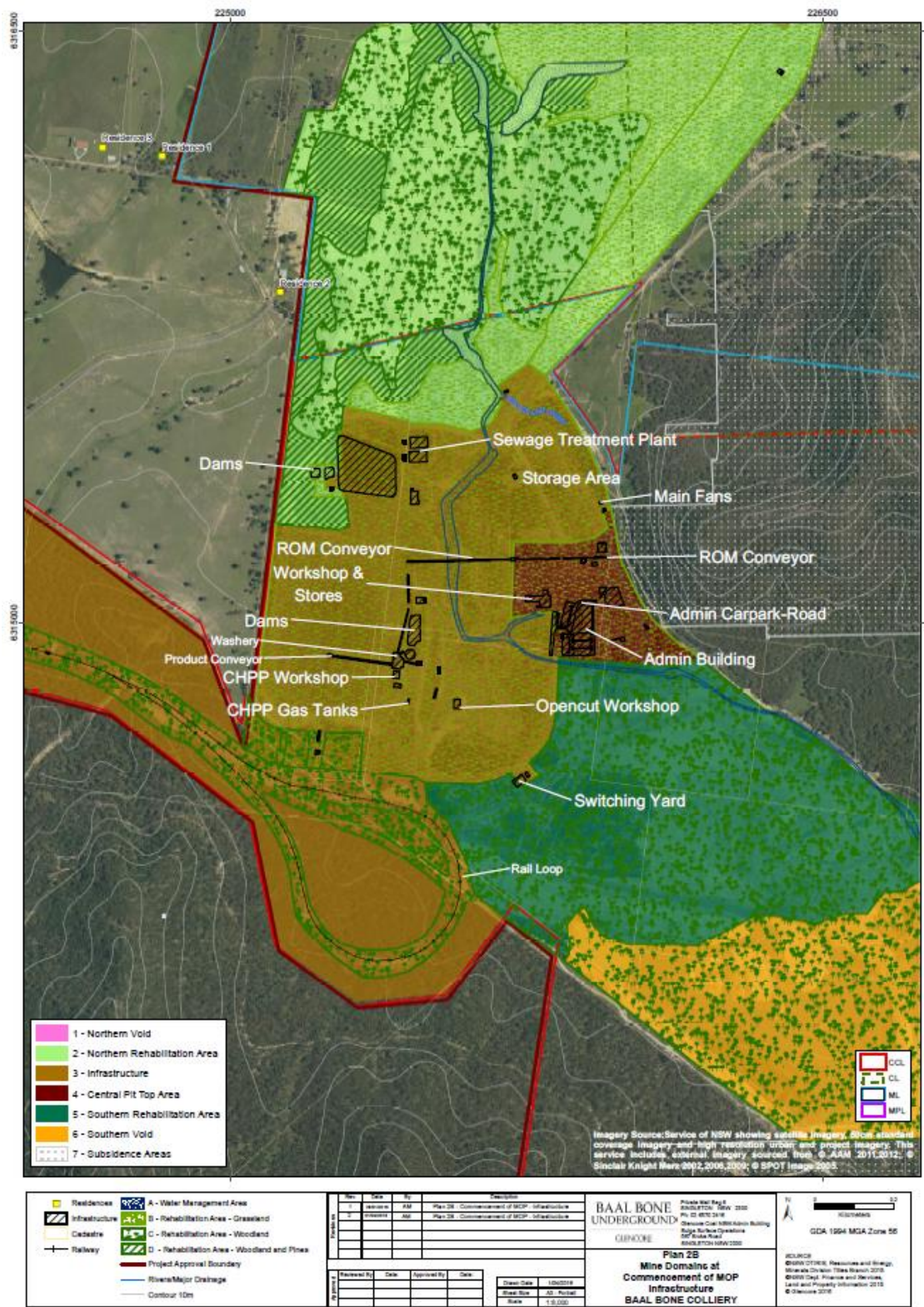
Rehabilitation

- Remediation Action Plan for bioremediation areas to be implemented. One area is ready to cap, a second area requires further amelioration.
- Maintenance and monitoring of rehabilitation as per recommendations of Annual Rehabilitation Monitoring Report and IEA.
- Erosion and sediment control repairs as per recommendations of Annual Rehabilitation Inspection and IEA.
- Spraying of priority weeds including blackberry and St Johns Wort.
- Feral and pest animal control.

Management Systems

- Review of completion criteria as per IEA recommendations.
- Review of performance against Subsidence Performance Measures in Schedule 3, Condition 1 of PA 09_0178.

A.1 Appendix A – Plans

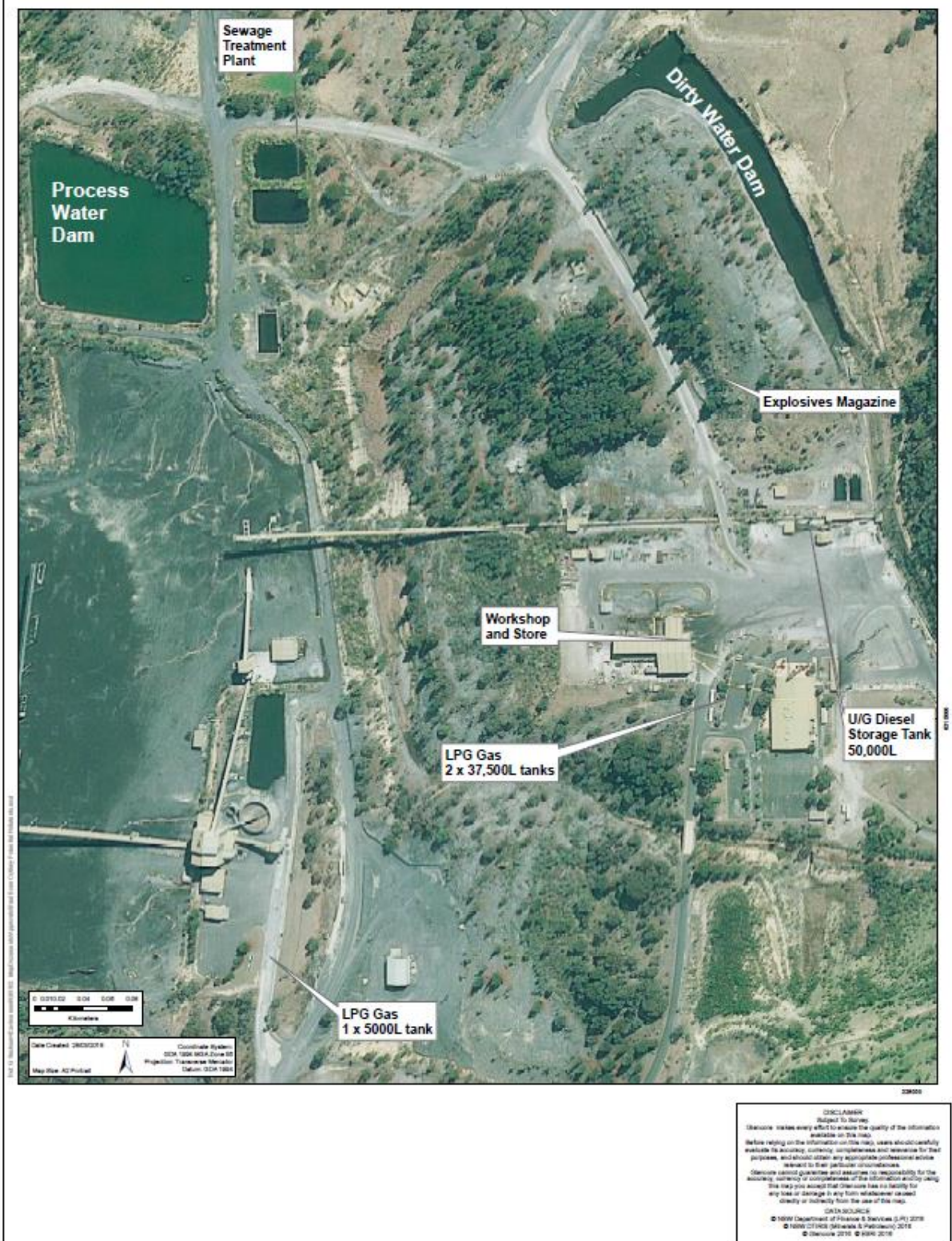




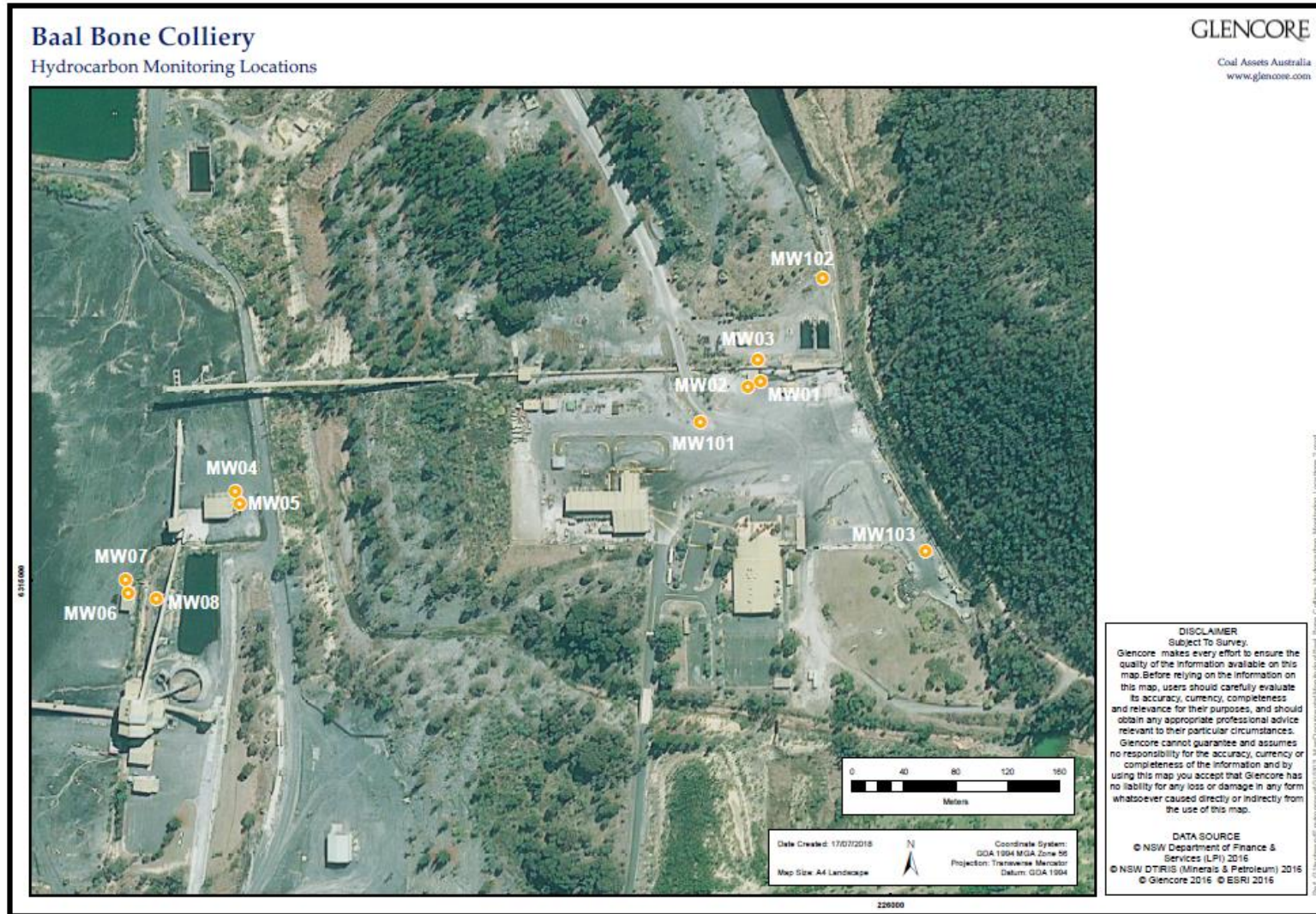
Plan 2 – Licensed Monitoring Locations

Baal Bone Colliery

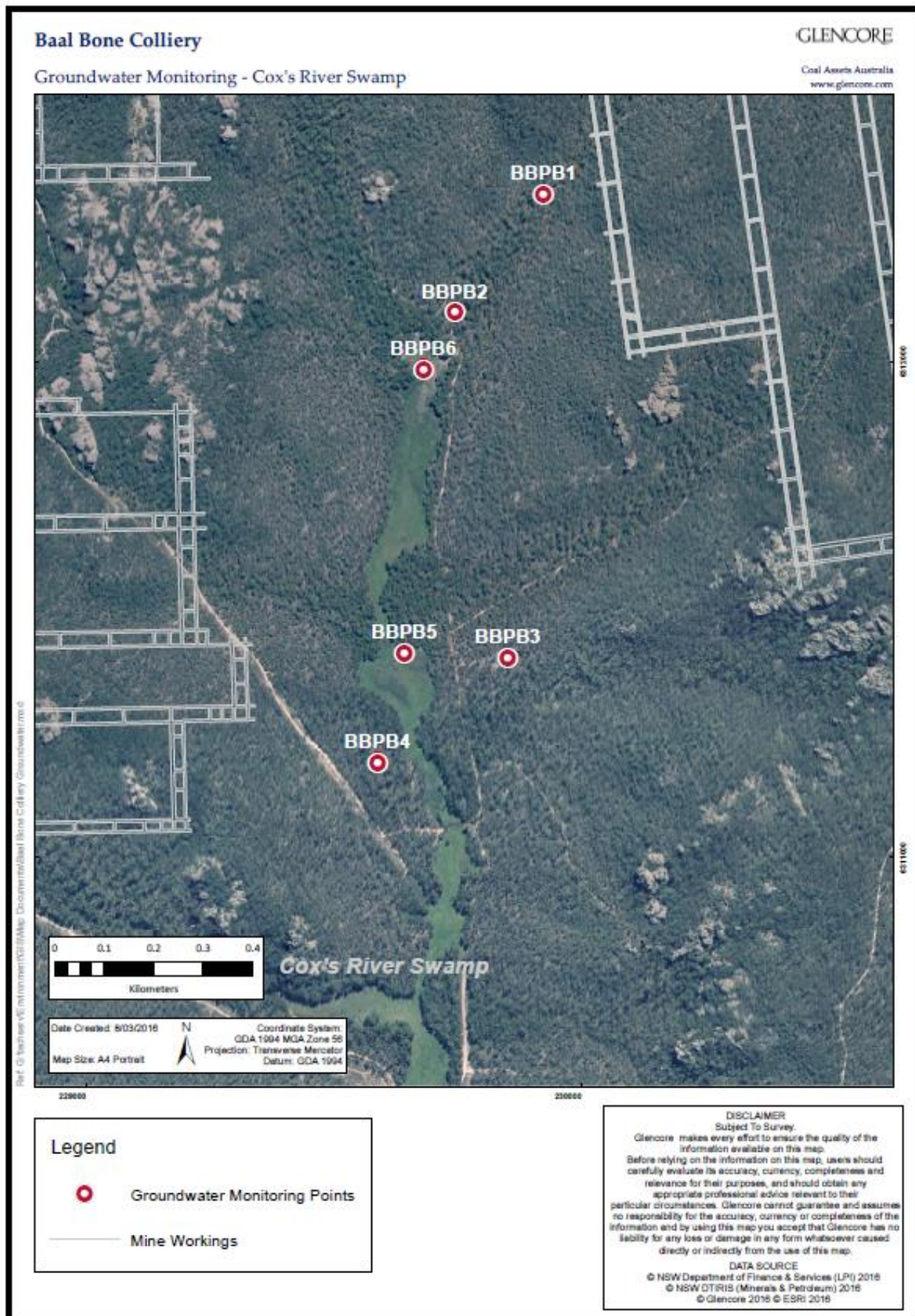
Hazardous Materials



Plan 3 – Hazardous Materials (prior to demolition and closure activities)



Plan 4 – Hydrocarbon Monitoring Locations



Plan 5 – Groundwater Monitoring Cox's River Swamp



Plan 6 – Ecological Rehabilitation Monitoring Points

A.1 Appendix B – Approval

To be updated once approval letter received from DPIE.

A.2 Appendix C – 2025 Annual Rehabilitation Report for Resources Regulator Portal

As per clause 9 in Schedule 8A of the Mining Regulation 2016, Baal Bone Colliery is required to prepare and submit an Annual Rehabilitation Report. The Annual Rehabilitation Report must be submitted via a form on the Resources Regulator Portal.

Note – The Annual Rehabilitation Report will be appended to the Annual Review following submission to the NSW Resources Regulator. The Annual Rehabilitation Report and Forward Program will also be available on the Baal Bone Colliery website here: [Reporting documents - Baal Bone Colliery](#).