2024 Annual Review

March 2025

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BOGGABRI COAL

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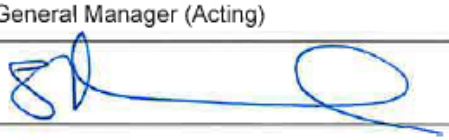
Distribution Control

Company	Position
Boggabri Coal Operation Pty Ltd (BCOPL)	Environment Superintendent
Department of Regional NSW – Mining Exploration and Geosciences	Regional Environment Officer
Department of Regional NSW – Resources Regulator	Principal Inspector Environment & Rehabilitation Operations
Department of Planning, Housing and Infrastructure	Senior Planning Officer
Department of Primary Industries – Agriculture	Area Manager North West
Department of Climate Change, Energy, the Environment and Water – Water	Water Regulation Officer
NSW Environment Protection Authority	Regional Operations Officer Armidale
Forestry Corporation of NSW	Forestry Occupancy Supervisor
Community Consultative Committee	Chairperson

Annual Review / Annual Rehabilitation Report Title Block

Field	Item
Name of Operation	Boggabri Coal Mine
Name of Operator	Boggabri Coal Operations Pty Ltd
Development Consent/Project Approval #	09_0182
Name of Holder of Project Approval	• Idemitsu Australia Pty Limited via its subsidiary company, Boggabri Coal Pty Ltd – 80%; • Chugoku Electric Power Australia Resources Pty Ltd – 10%; and • NS Boggabri Pty Limited – 10%.
Mining Lease #	CL 368, ML 1755
Name of Holder of Mining Leases	• Idemitsu Australia Pty Limited via its subsidiary company, Boggabri Coal Pty Ltd – 80%; • Chugoku Electric Power Australia Resources Pty Ltd – 10%; and • NS Boggabri Pty Limited – 10%.
Water Licence #	See **Table 3-1** below for details
Name of Holder of Water Access Licences	• Idemitsu Australia Pty Limited via its subsidiary company, Boggabri Coal Pty Ltd – 80%; • Chugoku Electric Power Australia Resources Pty Ltd – 10%; and • NS Boggabri Pty Limited – 10%.
Annual Rehabilitation Reporting Commencement Date	1 January 2024
Annual Rehabilitation Reporting Completion Date	31 December 2024
Annual Review Commencement Date	1 January 2024
Annual Review Completion Date	31 December 2024
I, Stewart Dunlop, certify that this audit report is a true and accurate record of the compliance status of Boggabri Coal Mine for the period 1 January 2024 to 31 December 2024 and that I am authorised to make this statement on behalf of Boggabri Coal Operations Pty Limited.	
Name of Authorised Reporting Officer	Stewart Dunlop
Title of Authorised Reporting Officer	General Manager (Acting)
Signature of Authorised Reporting Officer	
Date	27 March 2025

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1.0 STATEMENT OF COMPLIANCE

In accordance with the requirements of the *Post-approval requirements for State significant mining developments – Annual Review Guideline* (NSW Government, 2015), a statement of compliance has been prepared to document the status of compliance with Boggabri Coal Mine's (BCM's) planning approval State Significant Development approval (SSD) 09_0182 (including Statement of Commitments), mining leases (MLs) and other relevant approvals as at the end of the 2024 reporting period. **Table 1-1** identifies whether or not non-compliances occurred during the reporting period for each statutory approval. Where non-compliances are identified, further details are provided in **Table 1-2**. Non compliances have been colour-coded in that table, in accordance with the descriptions provided in the *Annual Review Guideline* (NSW Government, 2015).

Table 1-1: Statement of Compliance

Approval	Were all conditions of the relevant approval(s) complied with during the reporting period?
Project Approval 09_0182 (incl. Statement of Commitments)	**No**
Coal Lease 368	**No**
Authorisation 355	Yes
Authorisation 339	Yes
Environment Protection Licence (EPL) 12407	**No**
Water Access Licence (WAL) 12691	Yes
WAL 12767	Yes
WAL 15037	Yes
WAL 24103	Yes
WAL 29473	Yes
WAL 29562	Yes
WAL 2571	Yes
WAL 2572	Yes
WAL 2595	Yes
WAL 2596	Yes
WAL 36547	Yes
WAL 37519	Yes
WAL 37067	Yes
WAL 42234	Yes
WAL 44134	Yes

Table 1-2: Non-Compliances During the Reporting Period

Relevant Approval	Ref.	Condition Description	Compliance Status	Comment	Addressed in Annual Review
SSD 09_0182	Schedule 2 Condition 10	Coal Extraction and Stockpiles	Non-compliance Administrative	Coal extraction limits of 8.6 million tonnes of ROM coal was exceeded in 2024.	**Table 4-3 and Table 11-2**
SSD 09_0182	Schedule 3 Condition 10 (a)	Sound Power Level	Non-compliance low risk	Sound power screening. One unit non-compliant	**Section 6.3.2.2 and** Table 11-2
SSD 09_0182	Schedule 3 Condition 38(c)	Groundwater Management Plan (GWMP)	Non-Compliance Low Risk	The implementation of the currently approved GWMP is non-compliant as groundwater monitoring was not undertaken at all required bores during the reporting period.	**Table 11-2**
SSD 09_0182	Schedule 3 Condition 40	Leard Forest Mining Precinct Regional Biodiversity Strategy	Non-Compliance Low Risk	The non-compliance was identified during the IEA. The Auditor noted that the recommendation provided by Umwelt in the Leard Forest Regional Biodiversity Strategy in 2018 that a	**Table 11-2** and **Appendix F**

				comprehensive review of the strategy should be undertaken by 31 December 2021 has not been completed. This is considered a non-compliance against this condition.	
SSD 09_0182	Schedule 3 Condition 54	Eucalyptus Forestry Plantation Offset Strategy	Non-Compliance Low Risk	BCOPL has not prepared a Eucalyptus Forestry Plantation Offset Strategy to the satisfaction of NSW Forestry Corporation of NSW (Forestry NSW).	**Table 11-2**
Mining Act 1992	Section 378D(1)	Rehabilitation	Non-Compliance Administrative	Failure to submit the FWP, ARR and RCE before 29 February 2024.	**Table 11-2** and **Appendix F**
Mining Regulation 2016 Schedule 8A	Clause 9 (a) and (b) Schedule 8A	Rehabilitation.	Non-compliance Administrative	Failure to prepare the RMP in the 'form' approved by the Secretary.	**Table 11-2**
EPL-12407	Condition P1.1	Ambient Air Quality Monitoring	Non-Compliance Low Risk	Exceedance of the short term PM_{10} impact assessment criteria at the	**Table 11-2 and Section 6.2.2.1**

				Glenhope HVAS (High Volume Air Sampler) on the 6 and 12 March 2024.	

Table 1-3: 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-complaint	Non-compliance with: • Potential for serious environmental consequences, but is unlikely to occur; or • Potential for moderate environmental consequences, but is likely to occur
Low	Non-compliant	Non-compliance with: • Potential for moderate environmental consequences, but is unlikely to occur; or • Potential for low environmental consequences, but is likely to occur
Administrative non-compliance	Non-compliant	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions)

2.0 INTRODUCTION

2.1 Mine Operation Introduction and History

BCM is an open cut coal mine located 15 km north-east of the township of Boggabri in north-western New South Wales (NSW). BCM is managed by Boggabri Coal Operations Pty Ltd (BCOPL) on behalf of Idemitsu Australia Pty Ltd (IA) and its joint venture partners. BCOPL is owned by IA, a subsidiary of Japanese company, Idemitsu Kosan Pty Ltd. BCM is owned by the following joint venture partners:

IA via its subsidiary company, Boggabri Coal Pty Ltd – 80%;

Chugoku Electric Power Australia Resources Pty Ltd – 10%; and

NS Boggabri Pty Limited – 10%.

Environmental assessment first commenced at BCM in 1976 followed by grant of approval for the project in 1989, and the commencement of operations in 2006. Truck and excavator operations produce a crushed and screened export quality thermal coal and pulverised coal injection product, which is transported from the mine via rail to the Port of Newcastle, for export to overseas markets.

In 2009, BCOPL lodged a major project application under the former Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Project Approval (PA) 09_0182, was granted by the NSW Planning Assessment Commission (now Independent Planning Commission) in June 2012, allowing for extraction of up to 8.6 Million tonnes per annum (Mtpa) of run of mine (ROM) coal from BCM until the end of 2033 (the Project).

Under PA 09_0182, a new rail load-out facility and rail spur was constructed. Operation of this infrastructure commenced in December 2014. This has eliminated routine road transport of product coal between the mine infrastructure area (MIA) and the Boggabri Coal Terminal. All product coal is currently transported from site via rail. A new Coal Handling and Preparation Plant (CHPP) was commissioned in mid-2015, enabling beneficiation of ROM coal required for the mine to reach the approved production rates. The grant of PA 09_0182 also facilitates the upgrade of the overburden and coal production fleet and other ancillary infrastructure, as well as the option of a dragline.

Ten modifications to PA 09_0182 have been lodged since granting of the original approval. One of these modifications (Mod 1) was subsequently withdrawn. MOD 8 was most recently approved by the Department of Planning Housing and Infrastructure (DPHI) on 22 January 2024. MOD 9 was approved by DPHI (formerly the Department of Planning and Environment (DPE)) on 2 March 2023.

On 20 June 2019, a delegate of the Minister declared the PA 09_0182, as modified to be “State Significant Development” under Clause 6 of Schedule 2 of the *Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017*, for the purposes of the EP&A Act. Accordingly, from 20 June 2019, PA 09_0182 is known as SSD 09_0182.

2.2 Mine Contacts

Table 2-1 BCM Mine Contacts

General Manager Operations:	Stewart Dunlop (Acting General Manager)
Company:	Boggabri Coal Operations Pty Limited
Address:	386 Leard Forest Rd, Boggabri, NSW, 2382
Phone:	02 6749 6000

Fax:	02 6743 4496
Deputy General Manager/ Environmental Manager:	Stewart Dunlop
Company:	Boggabri Coal Operations Pty Limited
Address:	386 Leard Forest Rd, Boggabri, NSW, 2382
Phone:	02 6749 6000
Fax:	02 6743 4496
Environmental Superintendent:	Leticia Tolson
Company:	Boggabri Coal Operations Pty Limited
Address:	386 Leard Forest Rd, Boggabri, NSW, 2382
Phone:	02 6749 6000
Fax:	02 6743 4496

2.3 Purpose and Scope of Report

This Annual Review discusses the environmental performance of BCOPL and its contractors, in relation to compliance with the conditions of SSD 09_0182, and other relevant leases, licences and approvals. It provides a summary of operational and environmental management activities undertaken at the BCM during the reporting period (1 January to 31 December 2024) and provides a review against planned works, as described in the Forward Program, and predicted impacts documented in the *Continuation of Boggabri Coal Mine Environmental Assessment* (EA) (Hansen Bailey, 2010) and relevant modification documentation. The Annual Review also covers community relations and addresses mine development and rehabilitation undertaken during the reporting period.

The Annual Review has been prepared in accordance with the following:

Schedule 5, Condition 4 of SSD 09_0182;

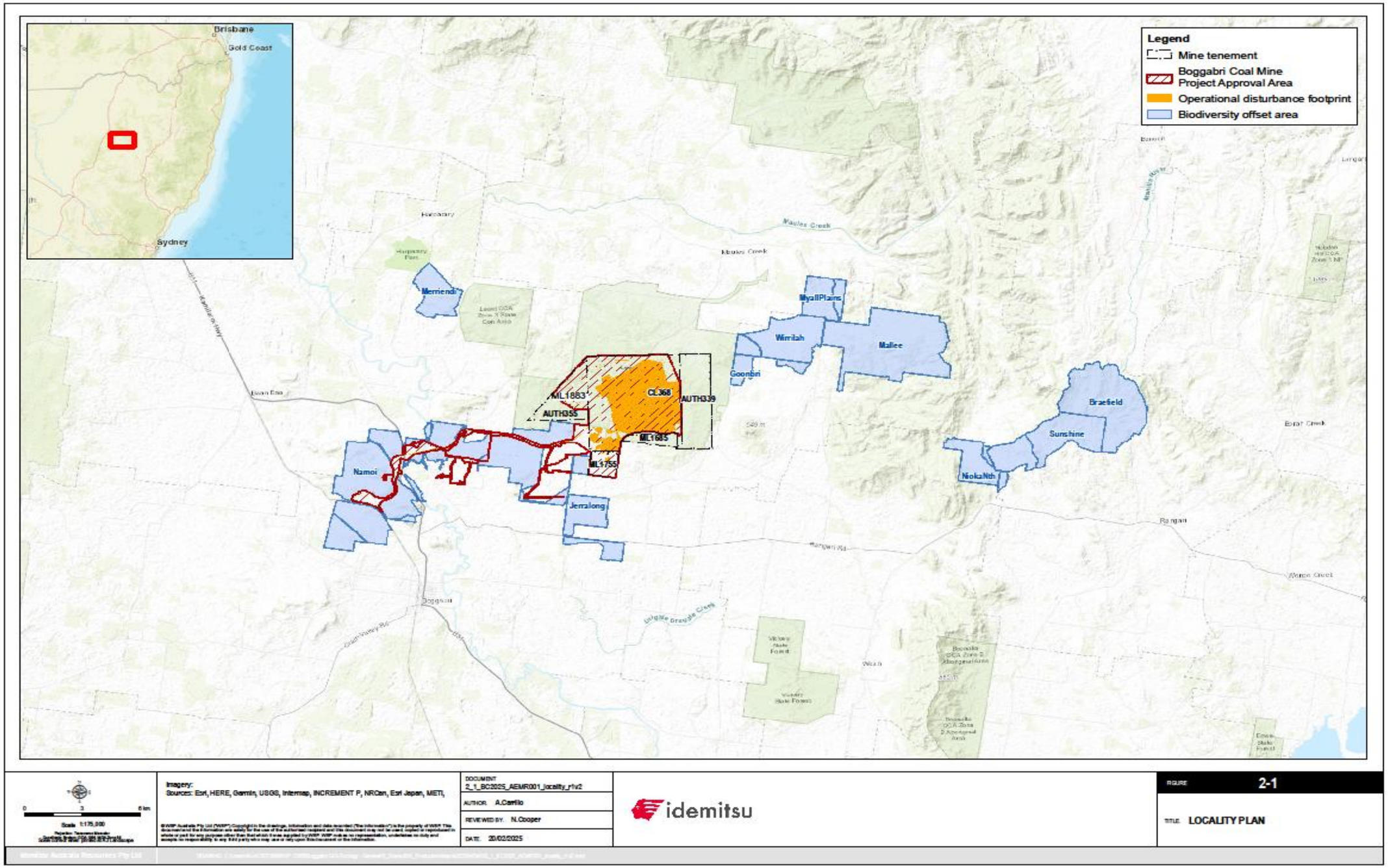
Post-approval requirements for *State significant mining developments – Annual Review Guideline* (Annual Review Guideline) (NSW Government, 2015);

Coal Lease 368 (CL 368) and Mining Lease 1755 (ML 1755); and

Rehabilitation Management Plan (RMP) and Forward Program (dated 31 March 2023).

Key requirements of these approvals are described in **Appendix A**. A map illustrating the mine locality and BCM Project Boundary is provided in **Figure 2-1**, while figures illustrating the relevant monitoring points and land ownership are included within **Appendix B**. Offset properties for BCM are identified on the figures provided in **Appendix C**.

Figure 2-1: Locality Map



3.0 APPROVALS

3.1 Approvals, Licences and Mining Leases

Table 3-1 summarises the key mining leases and approvals currently held by IA and its joint venture partners which are relevant to the operations at BCM.

Table 3-1: Key Approvals, Consents, Mining Leases and Licences

Description	Date Granted/ Commencement Date	Expiry / Duration
Project Approvals		
SSD 09_0182 (as modified)	18-Jul-12	31-Dec-36
EPBC Act Approval 2009/5256 (as varied)	11-Feb-13	31-Dec-53
EPBC Referral 2021/8875 (Regarding SSD 09_0182 (MOD 8))	19-Dec-24	31-Dec-53
Coal Leases/Mining Leases		
Coal Lease CL 368	15-Nov-90	14-Nov-32
Mining Lease ML1755	30-Jun-17	30-Jun-38
Mining Lease Application 586	Converted to ML 1883	
Mining Lease ML 1883	24-Sep-24	24-Sep-45
Mining Leases/Authorisations		
Authorisation A 355	19-Jul-84	19-07-28
Authorisation A 339	11-Apr-84	11-Apr-25
Environment Protection Licence		
EPL 12407	11-Jan-06	In perpetuity (Anniversary 11 January)
Water Licences		
WAL12691	1-Nov-06	In perpetuity
WAL12767	1-Nov-06	In perpetuity
WAL15037	1-Nov-06	In perpetuity
WAL24103	29-Jun-11	In perpetuity
WAL29473	16-Jan-12	In perpetuity
WAL29562	16-Jan-12	In perpetuity

Description	Date Granted/ Commencement Date	Expiry / Duration
WAL2571	1-Jul-04	In perpetuity
WAL2572	1-Jul-04	In perpetuity
WAL2595	1-Jul-04	In perpetuity
WAL2596	1-Jul-04	In perpetuity
WAL36547	17-Jan-14	In perpetuity
WAL37519	16-Feb-16	In perpetuity
WAL42234	9-Jan-19	In perpetuity
WAL 37067	18-Feb-15	In perpetuity
WAL44134	21-Apr-22	In perpetuity
Rehabilitation reforms		
Forward Program	31-Mar-23	31-Dec-25
Radiation Licences		
Licence No. 5083602	14-Jun-17	14-Jun-25
Council Approvals		
CC 04-04-2012 Mod1	22-Oct-12	In perpetuity
CC 02-03-2012	6-Jun-12	In perpetuity
CC 10-01-2012 Mod1	1-Jun-12	In perpetuity
OC 09-10-2013	19-Nov-13	In perpetuity
OC 02-04-2013	9-Apr-13	In perpetuity
OC 01-03-2013	28-Mar-13	In perpetuity
Part 5 Determination – Goonbri Road Upgrade	28-Mar-14	In perpetuity
Forestry Corporation of NSW Agreements/Permits		
Forestry Compensation Agreement	15-May-09	14-Nov-32
Land Access and Compensation Arrangement	15-May-09	14-Nov-32
Crown Lands Licences		
RI 507102	12-Nov-12	14-Nov-32

Description	Date Granted/ Commencement Date	Expiry / Duration
RI 533986	5-Jun-14	14-Nov-32

3.2 Rehabilitation Reforms

BCOPL have developed a 'Rehabilitation Management Plan' (BCOPL, 2024) (2024 RMP). The 2024 RMP includes a Rehabilitation Risk Assessment, Rehabilitation Objectives and Rehabilitation Completion Criteria as well as a Final Landform and Rehabilitation Plan, referred to as the 'Rehabilitation Outcome Documents', required under the Rehabilitation Reforms. In addition to this, BCOPL has prepared an Annual Rehabilitation Report (**Appendix I**) which reports on the progress of mining and rehabilitation activities against the 2023 to 2025 Forward Program (BCOPL, 2023).

BCOPL is preparing to lodge the '2024 Boggabri Coal Forward Program for the period from 2024 through until 2026' (BCOPL, 2024) to the Resources Regulator. The updated Forward Program includes a schedule of mining activities and the spatial progression of rehabilitation activities for the next three years to ensure and demonstrate that rehabilitation is occurring as soon as reasonably practicable following disturbance.

4.0 SUMMARY OF OPERATIONS

4.1 Mining Preparation

Vegetation is cleared in advance of mining activities in accordance with the following documents:

- Clearing and Fauna Management Protocol, which forms Appendix B of the approved Biodiversity Management Plan (BMP); and
- Cultural Heritage Management Plan (CHMP).

The adopted clearing protocol follows a two-stage clearing process to minimise impacts on native biodiversity. Prior to the removal of vegetation, trained ecologists survey the areas proposed for clearing (refer to **Section 6.4.2.3**). Archaeological survey and salvage are also undertaken as part of the clearing process to identify and recover artefacts within the approved disturbance limits (refer to **Section 6.8.1**).

Topsoil is then stripped in accordance with the approved Soil Management Protocol and BMP. Stripped topsoil is preferentially hauled directly to re-profiled rehabilitation areas. Where re-profiled areas are not ready to receive topsoil, the topsoil is hauled to a temporary stockpile location where it is stored for future transport to rehabilitation locations.

During 2024, 66,191 m^3 of topsoil and 36,292 m^3 of subsoil was stockpiled. As at the end of December 2024, a total of 1,440,810 m^3 of topsoil and 657,769 m^3 of subsoil materials were stored in soil stockpiles across BCM.

4.2 Mining Operations

4.2.1 Equipment

Truck and excavator operations continued to be undertaken throughout the reporting period. The mining equipment fleet as of December 2024 is listed in **Table 4-1**.

Table 4-1: Equipment Fleet as at December 2024

Equipment	Number in Fleet
Haul Truck	55
Excavators	13
Front end Loaders	2
Dozers	15
Graders	4
Water Carts	7
Service Trucks	4
Drills	5
Scraper	1
TOTAL	**106**

4.2.2 Activities

Mining activities undertaken at BCM during the reporting period included:

- Drilling and blasting of overburden;
- Overburden removal by large hydraulic excavators, front-end loaders and dozers;
- Haulage of waste to pit emplacement areas;
- Extraction of coal using large hydraulic excavators, front-end loaders, dozers and rear dump trucks;
- Movement of coal directly to a bypass crusher as product coal or stockpiled on ROM pads for further blending and crushing; and
- Coal processing through the CHPP; and
- Loading product coal to trains for transport to the Port of Newcastle for export.

Apart from the items identified within **Section 1.0**, mining activities at BCM were compliant with the requirements of SSD 09_0182, including no clearing of native vegetation within 250 m of Maules Creek Coal Mine (MCCM) lease boundary.

4.2.3 Operational Closures During 2024

Operational closures and lost production were experienced over 40.7 days in 2024 due to adverse weather conditions.

4.2.4 Pit Progression

Coal is mined from eight coal seams including the Herndale, Onavale, Teston, Thornfield, Braymont, Bollol Creek, Jeralong and basal Merriown seams. State and Federal approval of Mod 8 will see mining extended down to Templemore seam.

Pit progression continued in the Main C-Pit with mining and overburden emplacement progressing in a North-Western direction. Pit floor has been reached in the Southern and Eastern extents of the Eastern E-Pit and is being progressively backfilled in a North Westerly direction.

The Jeralong Pit, Merriown Pit (Pit 1), Bollol Creek Pits, Pit B (5), and Pit A were completed in 2009, 2010, 2013, 2014 and 2017, respectively. These pits have previously been progressively backfilled with waste in accordance with the Conceptual Final Landform design within Appendix 9 of SSD 09_0182 (as modified by MOD 8).

4.2.4.1 Pit C

Pit C is a north progressing continuation of the Bollol Creek Pit and Pit A. Operations commenced in June 2013. Progression is along the Merriown Seam in a northerly direction along 60 m wide east - west orientated mining strips, for the upper seams down to the Jeralong Seam and 60 m wide strips for the Merriown Seam. Pit C will be backfilled from the south to the north in line with pit progression.

4.2.4.2 Pit E

Pit E is a pit adjacent to the northeastern corner of Pit A. The pit floor has been reached in the Southern extent of the Eastern E-Pit and is being progressively backfilled in a Northerly direction.

4.2.4.3 Production Waste

Waste emplacement areas have been progressed by in–pit dumping to completed pits to a maximum Reduced Level (RL) of 400 m in accordance with the Conceptual Final Landform design within Appendix 9 of SSD 09_0182. The main emplacement areas are immediately bounded by the Merriown and Bollol Creek Pits to the east and southeast, the Jeralong and Bollol Creek Pits to the north and the surface mine limit to the West and South (Figure 8-2).

4.3 Production Statistics

From January to December 2024, mine production at BCM was carried out by BCOPL personnel and mine contractors. Mining was undertaken generally in accordance with the 2024 Forward Program and site work standards and procedures, which have been developed to ensure ongoing compliance with the approved management plans.

A summary of production figures for the 2024 calendar year in relation to the previous 2023 calendar year and those forecast for the 2025 calendar year is provided in **Table 4-2** below.

Table 4-2: Production and Waste Rock Summary

Material	Project Approval Limit	Reporting Period (Calendar Year)		
		2023 (actual)	2024 (actual)	2025 (predicted)
Waste Rock/ Overburden (Mbcm)	N/A	60.3	57.6	66.2
ROM Coal (Mt)	8.6	8.07	8.6	8.6
Reject Material (Mt)	N/A	1.3	1.4	1.6
Stripped Topsoil (kbcm)	N/A	91	173	457
Saleable Product (Mt)	8.6 (by rail)	6.9	7.1	7.3

Mining operations during the 2024 calendar year exceeded the ROM coal limits, railed product coal remained below the limits specified in SSD 09_0182. Specific conditions from Schedule 2 of SSD 09_0182 are presented in **Table 4-3** with responses on the compliance of each also provided.

Table 4-3: Compliance with SSD Conditions

SSD Condition No. and Description	Compliance Response
6. The Proponent may undertake mining operations 24 hours a day, 7 days a week.	Compliant.
8. The Proponent shall not extract more than 3.5 million tonnes of ROM coal from the site in any calendar year (on a pro rata monthly basis) while ever coal is being transported along the private haul road to the coal loader, unless a road safety audit at the intersections of Leard Forest Road and Therribri Road has been completed in consultation with Council and RMS, and any recommended actions implemented to the satisfaction of the Secretary.	Not triggered – transport of product coal by road was ceased following the completion of the Boggabri Rail Spur Line. Product coal from BCM was transported via the rail spur during 2023.
9. The Proponent shall not extract more than 4.5 million tonnes of ROM coal from the site in any calendar year (on a pro rata monthly basis) or undertake mining operations outside the disturbance area approved under DA36/88 MOD 2, unless the Biodiversity Management Plan required under condition 49 of Schedule 3 has been approved by the Secretary.	Compliant –The BMP has been approved.
10. The Proponent shall not extract more than 8.6 million tonnes of ROM coal from the site in any calendar year.	Non-Compliant – extraction limit of 8.6 Mt of ROM coal was exceeded in 2024.
11. The Proponent may process up to 4.2 million tonnes of ROM coal in the CHPP in any calendar year.	Compliant – 4.1 Mt of ROM coal was processed in the CHPP during 2024.
11A. The Proponent shall not process any coal from the Tarrawonga coal mine unless it has demonstrated that adequate water license are held to account for the required water use associated with processing this coal, to the satisfaction of the Secretary.	Not triggered – no coal was processed from the Tarrawonga Coal Mine in 2024.
12. The Proponent may transport up to 10 million tonnes of product coal via the Boggabri Rail Spur Line in any calendar year; comprising: (a) 8.6 million tonnes of product coal from the Boggabri coal mine in any calendar year. (b) 3 million tonnes of product coal from the Tarrawonga coal mine in any calendar year.	Compliant – 7.1 Mt of product coal from the BCM was transported by rail in 2024. No coal from the Tarrawonga Coal Mine was received at BCM for transport during 2024.
13. The Proponent may transport up to 200 tonnes of coal per year from the site by road for marketing and testing purposes. All other coal must be transported from the site via the Boggabri Rail Spur Line, except in exceptional circumstances as agreed with RMS and Council and approved by the Secretary.	Compliant – transport of product coal by road was ceased following the completion of the Boggabri Rail Spur Line. The Rail Spur was operational throughout 2024.

4.3.1 Saline or Potentially Acid Forming Materials

BCOPL monitors and manages the reject materials generated through its operations in accordance with the BCM Reject Potentially Acid Forming (PAF) Testing Procedure (October 2016). From CHPP build to 2020, monitoring of reject materials returned no potentially acid forming reject. In January 2020, routine monitoring identified a reject sample with potentially acid forming qualities. This result was encountered from the sampling of the reject material from a special non-product typical sample (grab sample) of BR11-12 coal. In an operational setting, this coal would typically be co-blended with other non-PAF forming feed coals and limestone to manage water quality and maintain lower product sulphur and reject acid potential. Reject materials from the processing of this coal sequence were appropriately managed and co-disposed deep within the pit void as described in the Rehabilitation Management Plan (RMP) and Forward Program.

To improve monitoring techniques, a reject sampler was installed and commissioned within the CHPP in September 2020. In line with the commissioning of this infrastructure, a static geochemical and physical testing program for fortnightly reject composites was implemented in coordination with RGS Environmental Consultants Pty Limited, to monitor the variability in reject characteristics through 2021 and 2022. Until end 2022, all data indicated that overall, there has been a low risk of oxidation of reject and therefore a low potential for acid forming conditions to be generated from bulk reject materials, if there is "*At least 5 metres of non-carbonaceous capping material (must be category 3) (…) dumped over the top of the reject emplacement cell*" (RGS 2020)

The 2023 BB8 and BB5 product trends confirmed that product sulphur was not expected to change until mid to late 2024 where it is expected to display a nominal increase. A review of the process is scheduled for Q1 2024 and intend to continue testing the method throughout 2024.

RGS has also recently completed a six-month Kinetic Leach Column test program on representative samples of non-acid forming and potentially acid forming reject materials. The results demonstrate that under freely oxidising conditions, the non-acid forming reject is likely to generate circumneutral pH conditions with low levels of acidity and salinity and low concentrations of soluble metals/metalloids in dynamic contact water.

4.4 Exploration

BCOPL continued an exploration drilling programme throughout 2024, to improve knowledge of coal quality and structure for modelling purposes.

A total of 34 exploration holes were drilled by BCOPL during the reporting period. Details of the BCM's borehole drilling during 2024 and relevant figure is provided in Appendix E.

4.5 Construction Activities During 2024

A summary of construction activities undertaken during the reporting period and their completion status is provided in **Table 4-4**.

Table 4-4: Summary of Construction Activities during the Reporting Period

Infrastructure	Commencement Date	Completion Date
Security Hut and Site Entrance	March 2024	June 2024
RL 395 Communication Tower	December 2024	February 2025
Fuel Farm Relocation	April 2024	Ongoing
Order On Demand Facility	July 2024	September 2024

Infrastructure	Commencement Date	Completion Date
Pit Edge Maintenance Bay	April 2024	Ongoing

4.6 Next Reporting Period

4.6.1 Mining

During 2025, mining activity will involve the continuation of extraction within Pits C and E. Mining will advance in a northerly direction through Pit C and easterly direction into E Pit. Mining will advance towards the north utilising 100 m wide mining strips. Backfilling of the completed mining void will continue as mining proceeds northward.

The progression of mining operations is scheduled to result in approximately 8.77 of new disturbance along the northern extents of the mine plan. The mining operations will advance into the area currently occupied by mine water dam MW5 for which a new dam is scheduled to be constructed during the reporting period.

From June 2025 mining will commence in the box cut down lower seams below Merriown seam as approved with MOD 8.

4.6.2 Exploration

Exploration proposed for 2025 includes the drilling of 31 holes. The exploration programme will continue to improve knowledge of coal quality, structure, geotechnical, geochemical and fugitive emission calculation purposes.

4.6.3 Construction

Construction activities proposed in 2025 reporting period include completion of the fuel farm and pit edge maintenance bay, extension of the HV workshop, and construction of MW11 as a replacement dam for MW5.

4.6.4 Production Waste

During 2025, coal reject materials will continue to be co-disposed within the pit void with overburden in a planned manner in accordance with the process described within the 2025 Forward Program. Trucks are loaded with reject materials at the Rejects Bin adjacent to the CHPP and transport the reject materials to the operational pit for co-disposal with overburden materials in the overburden emplacement area. A temporary reject transfer area adjacent to the ROM pad is also used to manage the relocation of coarse reject from the CHPP to the mining void. An Emergency Tailings Facility (ETF) is also available to store fine rejects; in the unlikely event this is required. All reject materials co-disposed with overburden is covered with at least 5 m of inert overburden.

Heavy earthmoving tyres are re-treaded and reused where possible. However, where these tyres are no longer able to be safely used within the operations, they will be buried in pit in accordance with site procedures and Environmental Protection Licence (EPL) 12407. Following a tyre recycling trial in 2024, BCOPL will continue to recycle tyres up to 51 inches 2025.

5.0 ACTIONS REQUIRED FROM 2023 ANNUAL REVIEW

The 2023 Annual Review was provided to the DPHI on 31 March 2024. The 2023 Annual Review was approved on 26 June 2024 and sent to the NSW Environmental Protection Authority (EPA), NSW Department of Primary Industries (DPI) - Land and Natural Resources, DCCEEW – Water (formerly DPE-Water), Department of Regional NSW – Resources Regulator (Resources Regulator), Forestry NSW and the Narrabri Shire Council (NSC). No comments were received from DPHI regarding actions to be addressed in 2024 Annual Review. Correspondence received from DPHI in June 2024 confirmed that the 2023 Annual Review satisfied the Annual Review Guideline requirements (see **Appendix A**).

6.0 ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

The Environment Management Strategy (EMS) provides the strategic framework for environmental management at BCM. The EMS:

- Outlines all relevant statutory leases, licences and approvals that apply to BCM;
- Details key plans, procedures, management plans and other documents that will be implemented to ensure compliance with all relevant leases, licences and approvals;
- Describes the key processes that will be implemented to:
- Communicate with community and government stakeholders;
- Manage community complaints;
- Resolve disputes; and
- Respond to non-compliance incidents and emergencies;
- Outlines BCM's monitoring, reporting and auditing requirements; and
- Outlines relevant roles, responsibilities and accountabilities relevant to environment management for all BCOPL employees and contractors.

A suite of environmental management plans (EMPs) has been developed to guide environmental management at BCM. They have been developed in accordance with the EMS, SSD 09_0182 and other statutory requirements. The revision status of approved key EMPs, as required by SSD 09_0182, is summarised in **Table 6-1**. Following approval of MOD 8 on the 22 January 2024, BCOPL revised and updated many of the required management plans for DPHI approval.

BCOPL maintains a register to capture and track details of when documents have been updated including the requirement for the review and revision of management plans.

Table 6-1: Key EMPs

Management Plan	DPHI Approved version	BCOPL Revision	DPHI Approval
Forward Program	**N/A**	**January 2024-December 2026**	**N/A**
Blast Management Plan (BLMP)	**March 2024 (rev 6)**		**-**
Blast Fume Management Protocol	**March 2024 (rev 4)**		**-**
Air Quality and Greenhouse Gas Management Plan (AQGHGMP)	**March 2024 (rev 8)**		**-**
Traffic Management Plan (TMP)	**August 2022 (Rev 5)**		**-**

Heritage Management Plan (HMP)	**June 2024 (rev 9)**		**-**
Environment Management Strategy (EMS)	**April 2024 (Rev 3)**		**-**
Noise Management Plan (NMP)	**March 2024 (Rev 15)**		**-**
Water Management Plan (WMP)	**May 2017 (Rev 6)**	**February 2025 (Rev 15)**	**Awaiting approval**
Surface Water Management Plan (SWMP)	**September 2024 (Rev 9)**	**March 2025 (Rev 10)**	**Awaiting approval**
Groundwater Management Plan (GWMP)	**April 2020 (Rev 9)**	**February 2025 (Rev**	
Site Water Balance (SWB)	**N/A**	**March 2025 (14)**	**-**
Social Impact Management Plan (SIMP)	**August 2021 (Rev 7)**	**March 2024 (Rev 9)**	**Awaiting Approval**
Rehabilitation Strategy	**June 2024 (Rev 2)**		**-**
Biodiversity Management Plan (BMP)	**October 2018 (Rev 12)**	**Under Review**	**-**
Biodiversity Offset Strategy	**March 2019 (Rev G)**	**Under Review**	**-**
Pollution Incident Response Management Plan	**N/A**	**September 2024 (Rev 14)**	**N/A**

* Based on internal final approval date

6.1 Meteorology

6.1.1 Environmental Management

SSD 09_0182 (Schedule 3, Condition 32) requires a permanent meteorological station to be installed and maintained for the life of the BCM. The station must comply with the requirements of the *Approved Methods for Sampling of Air Pollutants in New South Wales* Guideline (EPA, 2022).

As such, a meteorological monitoring station (MET) has been established to continuously measure and record wind speed, wind direction, temperature, solar radiation and rainfall at BCM. The location of the BCM MET is shown on the Environmental Monitoring Location Plan in **Appendix B**.

The MET provides real-time data to BCOPL employees and contractors. Meteorological data is used for assessing compliance, proactive dust and noise management, and for investigative and reporting requirements.

The parameters recorded by the BCM MET and the method are outlined in **Table 6-2**.

Table 6-2: MET Parameters

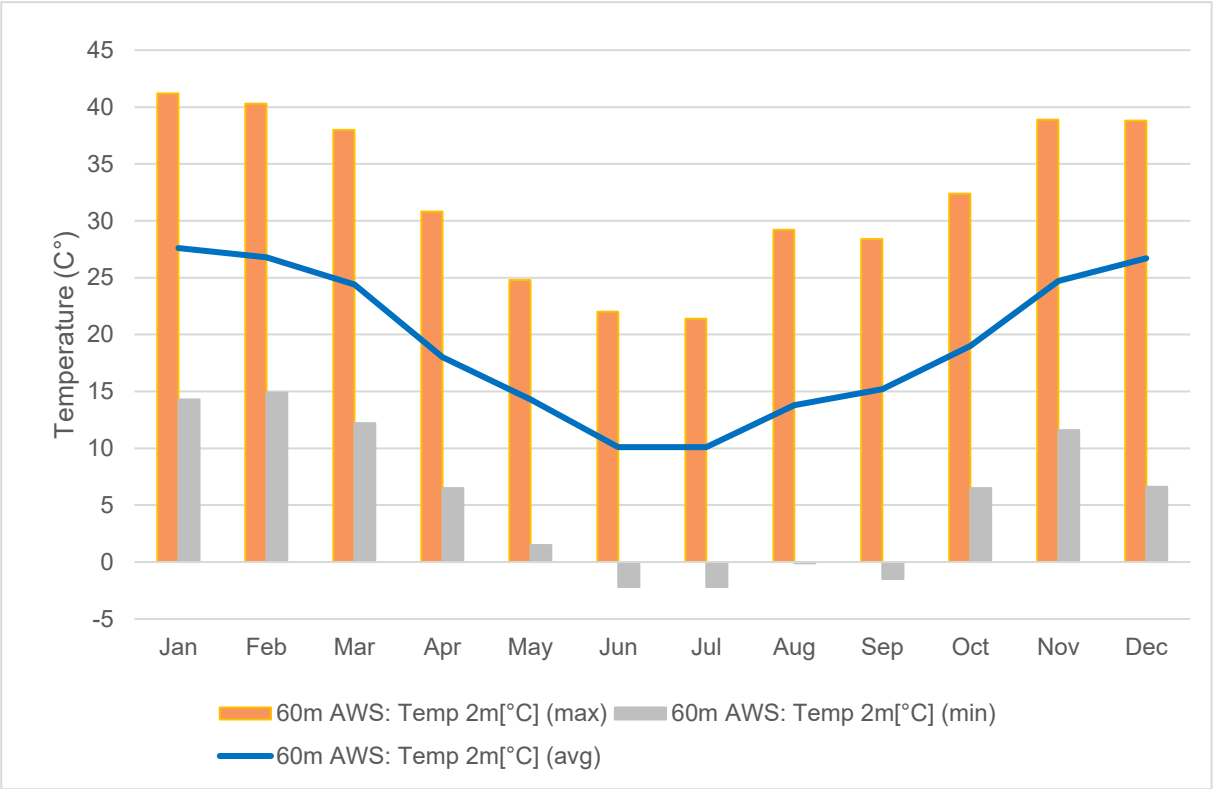
Parameter	Units	Frequency	Averaging Period
Temperature at 2 m	ºC	Continuous	15 minute
Temperature at 10 m	ºC	Continuous	15 minute
Wind direction at 10 m	º	Continuous	15 minute
Sigma theta at 10 m	º	Continuous	15 minute
Rainfall	mm/hr.	Continuous	1 hour
Solar radiation	W/m^2	Continuous	15 minute
Additional requirements: – Siting & Measurement	N/A	N/A	N/A

6.1.2 Environmental Performance

6.1.2.1 Temperature

Maximum, minimum and average temperatures are calculated daily from the 15 minute recordings. **Figure 6-1** shows average monthly temperature records for the reporting period (2 m MET recordings). Compared to the previous reporting period, the average minimum and maximum temperatures are notably higher in summer.

Figure 6-1: 2024 Monthly Temperature Records



6.1.2.2 Rainfall

Rainfall is measured using an RG5 type flow-through monitor, with a 15 minute recording interval. Monthly rainfall totals for the 2024 reporting period are presented in **Figure 6-2**. A comparison of 2023-2024 rainfall is shown in **Figure 6-3**.

Figure 6-2: 2024 Monthly Rainfall

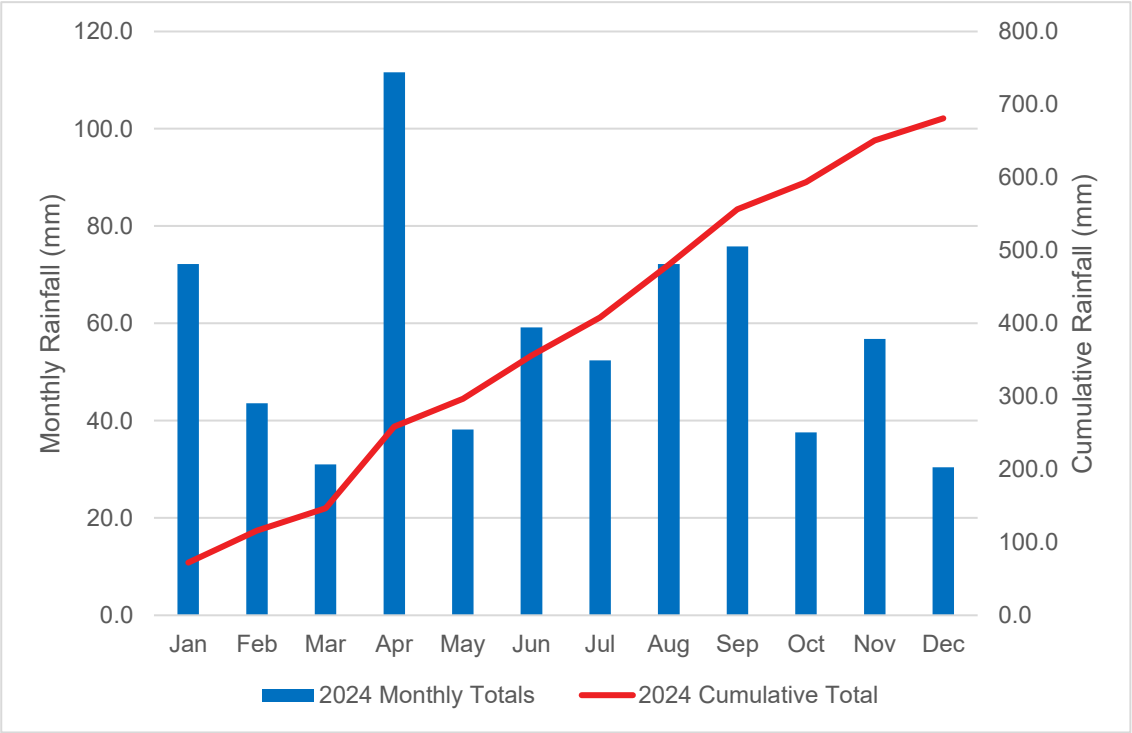
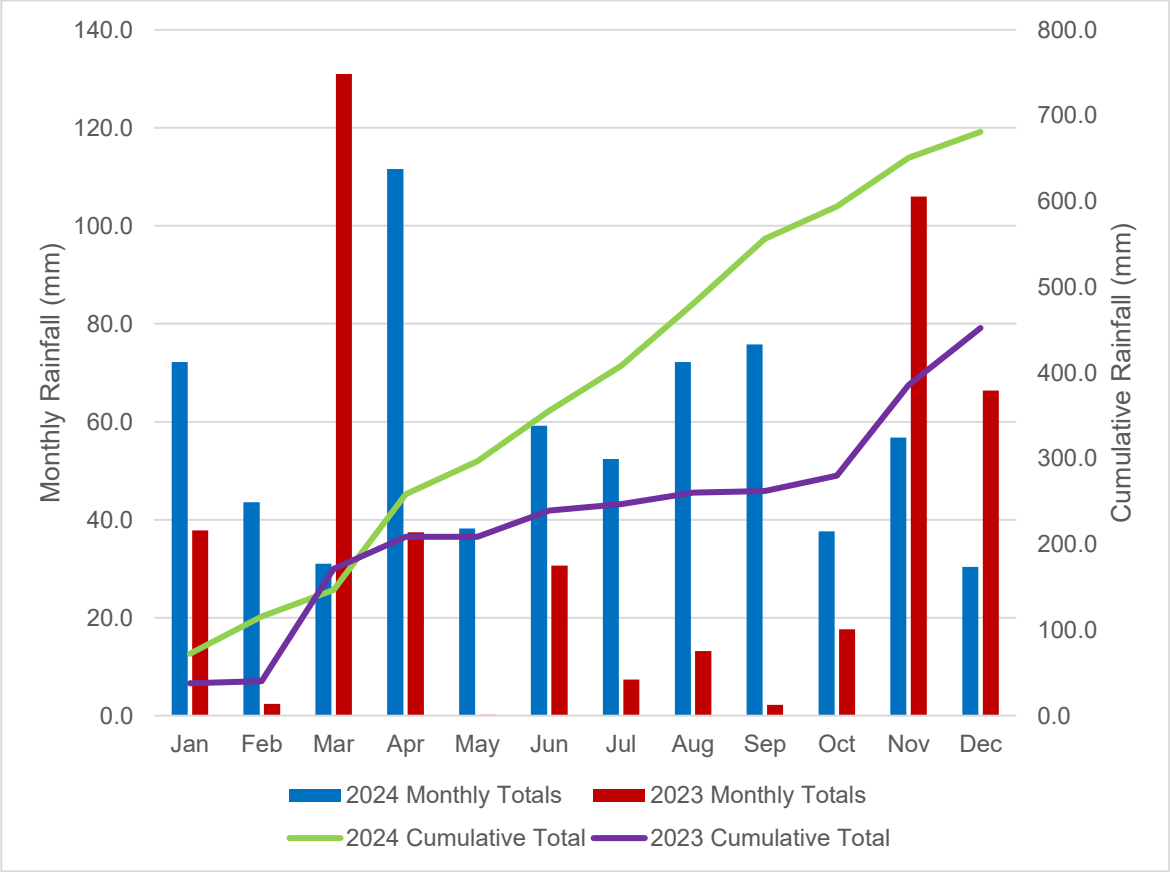


Figure 6-3: Comparison of 2023 and 2024 Rainfall



6.1.2.3 Wind

Wind speed and direction are important parameters for the planning and preparation of blasting activities, investigating noise and dust complaints, and assessing cumulative impacts as a result of other coal mines operating in the region. Wind data for the 2024 reporting period are provided in **Table 6-3**. Wind speed values are displayed as metres per second (m/s).

The prevailing wind conditions during the 2024 reporting period were relatively consistent with the historical data as presented in the 2010 EA (Hansen Bailey, 2010) which indicate BCM predominately receives wind from the south-east in summer and the north and north-west in winter. Autumn and spring months experienced a combination of these wind conditions.

The meteorological data from MET identified that average monthly wind speed generally did not exceed 3 m/s.

Table 6-3 Monthly Wind Speeds and Dominant Wind Directions (60 m AWS)

Month	Average Wind Speed (m/s)	Maximum Wind Speed Recorded (m/s)	Dominant Wind Directions
Jan-24	2.63	10.61	SSE
Feb-24	2.53	10.66	SSE
Mar-24	2.24	9.11	ESE
Apr-24	1.64	8.98	SSE
May-24	1.62	9.16	SSE
Jun-24	1.38	7.95	NNW
Jul-24	1.87	7.65	NW
Aug-24	1.49	8.46	SSE
Sep-24	1.81	8.73	SSE
Oct-24	2.01	8.39	SSE
Nov-24	2.22	8.76	S
Dec-24	2.38	11.98	SSE

6.1.3 Improvements and Initiatives

Building on the work completed during the previous reporting periods, BCOPL continued to implement and refine the real-time air quality and noise management system at the BCM. This included ongoing utilisation of real-time meteorological data and weather forecasting software to guide the day-to-day implementation of reactive and proactive noise and air quality management and mitigation measures. In 2024 BCOPL set up a maintenance schedule for monitoring equipment which saw all sensors on the 60m tower replaced.

6.2 Air Quality

6.2.1 Environmental Management

Air quality management at BCM is undertaken in accordance with the approved AQGHGMP. Through implementation of the AQGHGMP, BCOPL execute a range of mitigation measures for air quality that have proved to be effective at managing dust impacts, demonstrated by generally maintaining compliance with criteria specified in SSD 09_0182. During the reporting period, mitigation measures included the following:

- Visual assessments of mining and coal transport areas to identify dust sources and modify operations as required;
- Revegetating disturbed areas of the rail corridor;
- Implementation of product coal handling controls to minimise dust generation;
- Maintaining unsealed surfaces and trafficable areas in good condition;
- Installation and maintenance of dust suppression equipment on drill rigs;

- Implementing good practice blast design to minimise dust and plan blasting to suit meteorological conditions; and
- Monitoring meteorological conditions to plan and modify operations as required.

These mitigation measures continued to be employed during 2024.

BCOPL implements an air quality monitoring program to measure concentrations of depositional dust, Particulate Matter less than 10 microns (µm) (PM_{10}) and Particulate Matter less than 2.5 µm ($PM_{2.5}$) in the vicinity of the BCM.

Depositional dust monitoring provides an indication of levels of dust in the atmosphere measured in g/m²/month of insoluble matter using depositional dust gauges. PM_{10} monitoring utilises High Volume Air Sampler (HVAS) and tapered element oscillating microbalance (TEOM) monitoring units, whilst $PM_{2.5}$ is measured only using a TEOM monitoring unit.

The current air quality monitoring program includes 3 depositional dust gauges, two HVAS, four TEOMs, and up to four portable real-time PM_{10} monitors details of which are provided in **Table 6-4**. A figure showing the location of each air quality monitoring site is provided in **Appendix B**.

Table 6-4: Air Quality Monitoring Sites

Site ID	To be used for compliance monitoring?	Type	Units	Frequency
D4-Greenhills	Yes	Deposited dust gauge	g/m2/month	Monthly
D5-Goonbri	Yes	Deposited dust gauge	g/m2/month	Monthly
D6-Onavale	Yes	Deposited dust gauge	g/m2/month	Monthly
Glenhope	Yes	HVAS (PM_{10})	µg/m3	Every 6 days
Victoria Park	No	HVAS (PM_{10})	µg/m3	Every 6 days
Tarrawonga	No	TEOM (PM_{10})	µg/m3	Continuous
Wilberoi East	Yes	TEOM (PM_{10} and $PM_{2.5}$)	µg/m3	Continuous
Velyama	No	TEOM (PM_{10} and $PM_{2.5}$)	µg/m3	Continuous
Goonbri	No	TEOM (PM_{10} and $PM_{2.5}$)	µg/m3	Continuous
BTM Complex Portable Samplers (x4)	No	TEOM (PM_{10} and $PM_{2.5}$)	µg/m3	Continuous

Monitoring data is routinely compared to the air quality assessment criteria provided within SSD 09_0182 and the EPL. Exceedances of the relevant air quality assessment criteria is considered an 'incident' under SSD 09_0182 and the Secretary will be notified as soon as practicable after the proponent becomes aware of the incident. Exceedances of the criteria can be attributed to variations in weather conditions, these

'extraordinary events' can be justified with evidence from meteorological monitoring from the site and surrounding areas. This evidence is logged in the incident register.

6.2.2 Environmental Performance

6.2.2.1 Depositional Dust

BCM's depositional dust monitoring is undertaken monthly at three monitoring sites: D4, D5 and D6 (refer to **Appendix B**). D5 is located on land owned by BCOPL, while D4 and D6 are located on land owned by Whitehaven Coal Pty Limited. All three sites are used for compliance monitoring.

In accordance with SSD 09_0182 (Schedule 3, Condition 27), the annual average depositional dust must not exceed the limit of 4 g/m^2/month at any residence on privately owned land, or on more than 25 percent of any privately-owned land. Given that there are no criteria specified for non-privately owned land, the results have been assessed against these criteria for consistency, despite land being mine-owned.

Sampling and analysis of depositional dust data is undertaken in accordance with *AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method.*

Results

Depositional dust samples were subject to visual analysis by a NATA accredited laboratory to determine sample contamination by naturally occurring impurities. **Table 6-5** presents the corrected results following visual analysis of the three dust monitors.

The results indicate that all depositional dust gauges remained below the criterion for the annual average during 2024.

Table 6-5 Depositional Dust – Annual Average Results

Monitoring Point	Annual average limit (g/m^2/month)	Corrected annual average* (g/m^2/month)
D4	4	1.2
D5	4	1.4
D6	4	0.7

* Annual average applies to 2024 calendar year.

The results for D4 and D5 are above the predicted levels documented in the EA (i.e. 0.5 and 0.6 g/m^2/month) for the closest corresponding year of operations (Year 10). It is important to note that since the 2010 EA was prepared, further approvals for mining operations within the BCM, Tarrawonga Coal Mine (TCM) and MCCM Complex (collectively referred to as the BTM Complex) have been granted which have subsequently resulted in increased background dust deposition levels. D6 is located outside the area assessed in the EA and no predictions were provided.

All dust gauge results for the 2024 reporting period remained below the relevant assessment criteria specified in EPL12407. Further the depositional dust levels recorded during the 2024 reporting period remain within the range of historical results. The D4 November sample has been omitted from the corrected annual average due to contamination from bird droppings. Despite the contamination, the November results were within the allowable levels (4g/m^2).

6.2.2.2 PM_{10} and $PM_{2.5}$

BCM monitors PM_{10} dust compliance through one HVAS unit (Glenhope) and one TEOM (Wilberoi East) (see **Appendix B**). PM_{10} monitoring using a HVAS unit is undertaken for a period of 24 hours every 6 days. PM_{10} and $PM_{2.5}$ monitoring using a TEOM unit records continuous data and provides a 24hr average and an annual average for comparison with the relevant air quality assessment criteria. In accordance with SSD 09_0182, the short-term concentration limit for PM_{10} over each 24-hour period is 50 µg/m^3 while the long-term concentration limit for the annual average is 25 µg/m^3. Short term concentration limits for $PM_{2.5}$ are 25 µg/m^3 while annual average limits are 8µg/m^3.

Results

Figure 6-4 provides the results for the Glenhope HVAS unit whilst the PM_{10} and $PM_{2.5}$ monitoring results from the Wilberoi East TEOM unit over the reporting period are provided in **Figure 6-5** and **Figure 6-6**. In 2024 there were two potential exceedances of PM_{10} recorded at the Glenhope HVAS monitor. These results were 88.8 µg/m^3 and 64.6 µg/m^3 on 6 and 12 March 2024 respectively. These exceedances were presented to the department with photographic evidence of farming operations taking place near the monitoring unit. The department determined the exceedances were not the result of mining operations at BCM (Appendix D). In 2024 the Wilberoi East TEOM experienced three power outages over a period longer than six hours. This resulted in five days with insufficient data available to calculate a reliable 24-hour average. Despite this, the Wilberoi East TEOM captured and recorded approximately 98% of available data in 2024. During 2024 Wilberoi East did not record any exceedances of PM_{10} or $PM_{2.5}$ 24-hour averages.

Figure 6-4: Glenhope HVAS PM10 Monitoring 2024 Results

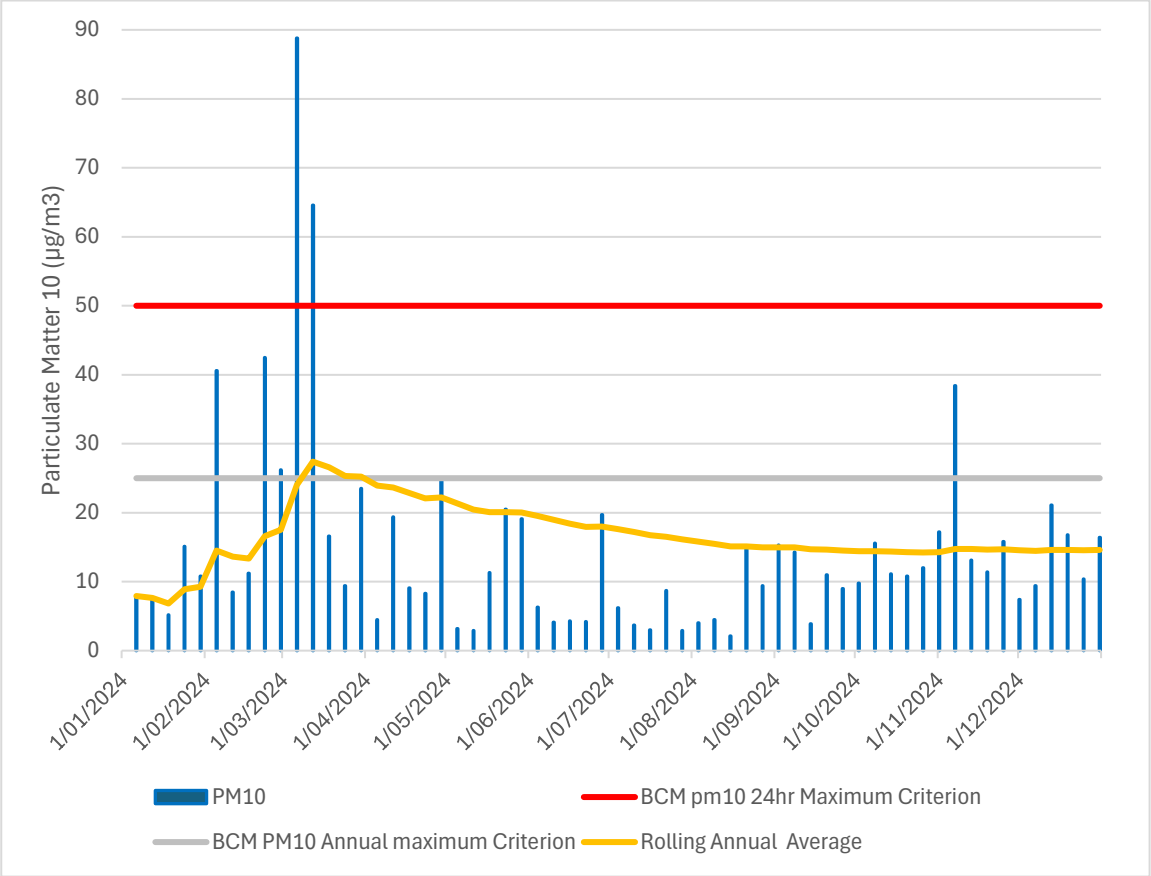


Figure 6-5: Wilberoi East PM10 TEOM Monitoring 2024 Results

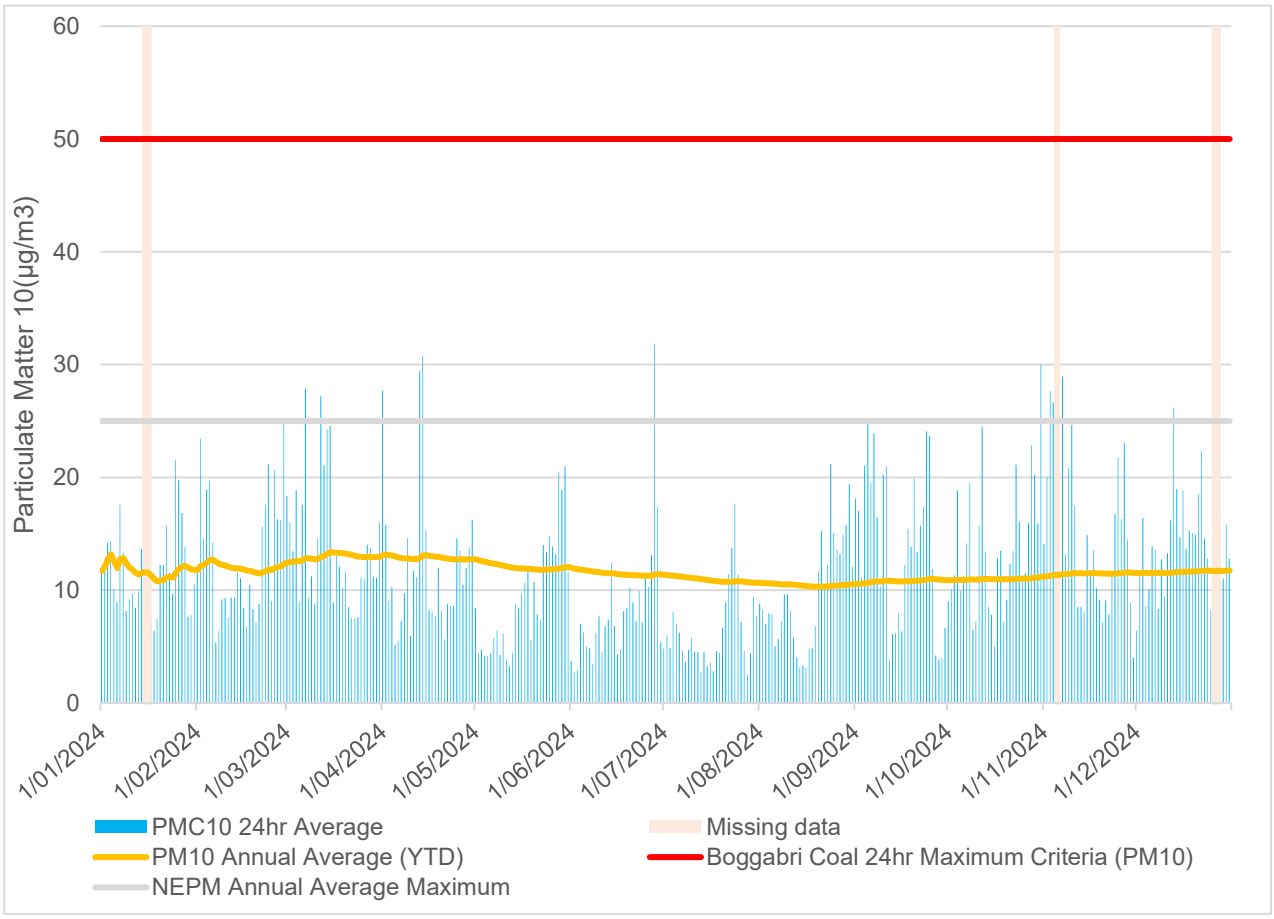
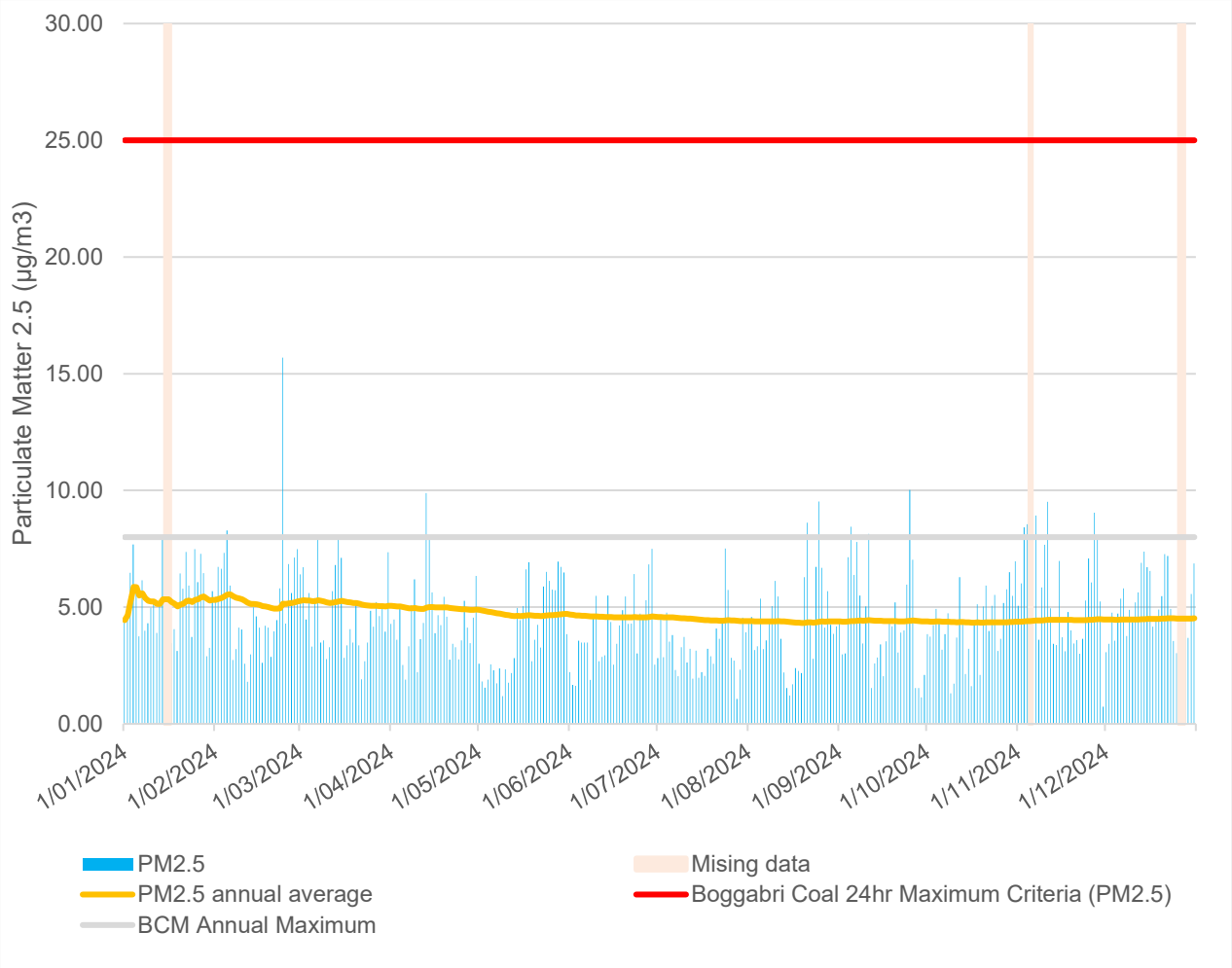


Figure 6-6 Wilberoi East PM2.5 TEOM Monitoring 2024 Results



6.2.2.3 Total Suspended Particulates

The ambient air quality criterion for Total Suspended Particulates (TSP) specified within Table 9 of SSD 09_0182 (annual average 90 µg/m^3) is based on a value derived by the National Health and Medical Research Council in 1996. There is an established relationship between TSP concentration and the concentration of PM_{10}. In areas where coal mining is a significant component of the local particulate emission inventory, PM_{10} typically comprises ~40% of the TSP (SPCC, 1986 and others).

As prior studies have confirmed that the long-term average PM_{10} to TSP ratio is close to 0.4:1, that is, 40% of TSP is comprised of PM_{10}, inversely, the relationship between TSP and PM_{10} can be written as: TSP = PM_{10} x 2.5. Due to the nature of the relationship between TSP and PM_{10} levels, the TSP criterion of 90 µg/m^3 (annual average) will always be satisfied when the long-term PM_{10} criterion of 25 µg/m^3 is satisfied.

In consideration of the historical PM_{10} monitoring undertaken for the BCM (i.e. results have historically been significantly below the PM_{10} annual average criteria), BCOPL consider that compliance with the long-term annual average TSP criteria can be demonstrated via the application of the known relationship between PM_{10} and TSP. The calculation of TSP is based on the available data at the Merriown HVAS monitoring location and Glenhope HVAS monitoring location.

The results indicate the annual average TSP at the Glenhope HVAS (20 µg/m^3) is below the TSP air quality criterion in SSD 09_0182 of 90 µg/m^3 for the reporting period.

6.2.2.4 Odour

There is no requirement to conduct odour monitoring at BCM. It is considered that there is an exceptionally low risk of odour generation as a result of BCM's operations.

6.2.2.5 Long Term Trend Analysis

It is noted that air quality results are generally higher than what was predicted within the 2010 EA (Hansen Bailey, 2010). This is due to the fact the 2010 EA was assessed prior to surrounding mines being approved (MCCM and TCM). Therefore, BCM's cumulative assessment did not take into consideration the impact these approvals would have on the surrounding air quality. Whilst the 2024 results are generally marginally higher than that predicted for Year 10 of the 2010 EA, it is noted that the monitoring results continue to comply with the required criteria at all neighbouring privately owned residences. In accordance with SSD 09_0182, a long term trend analysis of air quality monitoring results at BCM has been undertaken using data from 2015 to 2023 to identify any trends in the monitoring. The results indicate the following:

- Depositional dust monitoring results have been generally consistent since mining operations commenced. There have been no exceedances of the annual depositional dust criteria between the commencement of mining operations and as at end of 2024;
- PM_{10} concentrations were slightly higher between 2017 and 2019, coinciding with drought conditions and lower than average rainfall during this period. The drought conditions experienced between 2017 and 2019 led to increases in the number of days when the 24-hour average PM_{10} concentration exceeded 50 µg/m^3 and increased annual average PM_{10} concentrations. The elevated PM_{10} concentrations were observed across many locations in NSW and were not unique to BCM. Concentrations decreased during 2020 and 2022, coinciding with increased rainfall.
- There are seasonal variations with higher PM_{10} concentrations generally occurring in the warmer months;
- Annual average TSP concentrations were clearly higher in 2018 and 2019 than in the preceding five years. Again, this outcome was influenced by the drought conditions and lower than average rainfall. The increases in TSP concentrations were not unique to the area; and

6.2.3 Improvements and Initiatives

BCOPL continued to implement and refine the real-time air quality management system at BCM during the reporting period. In 2024 BCOPL began reporting $PM_{2.5}$ on the company website in both daily operations and monthly summaries.

The real-time air quality management system provided 36 Action' alerts in 2024, which is significantly lower than the 193 in 2023. These alarms resulted in a review of operations to appropriately manage emissions from the BCM to remain within the relevant criteria.

6.3 Operational Noise

6.3.1 Environmental Management

Operational noise is managed by BCOPL in accordance with the approved Noise Management Plan (NMP) and EPL 12407. Revision 15 of the NMP was approved by the DPHI in July 2024.

The NMP covers all operational activities with the potential to generate noise at the BCM. It details specific noise management and mitigation measures, outlines monitoring and reporting requirements and provides

clear definition of the roles and responsibilities for noise management. Blast management is detailed in **Section 0**.

BCOPL proactively implements a range of noise mitigation measures for operational activities at BCM. Mitigation measures for BCM are included in Table 5.1 of the NMP. During the reporting period, these included the following:

- Implementing an annual monitoring plan to ensure the effectiveness of attenuated plant is maintained;
- Enforcing speed limits for product trucks in accordance with the NMP;
- Progressive replacement of components of the existing fleet found to be generating excessive noise;
- Maintaining plant and equipment to manufacturer's standards;
- Placement of spoil in strategic locations to enhance noise screening;
- Scheduling noisy activities between 7 am and 6 pm where possible;
- Selecting alarms, horns and warning devices such as reverse squawkers which produce the lowest possible noise level within safety requirements;
- Monitoring weather conditions on a daily basis;
- Screening or partially enclosing conveyor belt motors at the coal handling area; and
- Ensuring train loading chute and bins are closed.

BCOPL engaged acoustic consultants to undertake attended noise monitoring in 2024 on a monthly basis at locations defined in the NMP to adequately assess the noise impacts related to BCM. Prior to 2016, this was undertaken quarterly.

In addition, Sound Power Level (SPL) monitoring is undertaken annually, in accordance with SSD 09_0182, to assess the performance of mine plant against the SPL utilised within the modelling in the 2010 EA. SPL monitoring for 2024 was conducted on 2 April, 5 June, 15-17 July, 20-21 August, 2 & 8 October, and 26-27 November. Results of this monitoring is presented in **Section 6.3.2.2**.

6.3.2 Environmental Performance

6.3.2.1 Attended Noise Monitoring

Monthly attended noise monitoring surveys were carried out during 2024. Each monthly survey was undertaken during the night-time period only. Prior to 2016, three measurements were undertaken at each location during each time period (day, evening and night) on a quarterly basis. Due to the uniformity of noise limits across day, evening and night periods, an alternative monitoring methodology involving one fifteen-minute measurement at each location during the night period, on a monthly basis, was agreed with DPHI and the EPA. This alternative method was adopted from January 2016 onwards.

The monthly monitoring was undertaken at the three locations in **Table 6-6** as per the requirements of the NMP and EPL 12407. The results are presented in the following sections.

Table 6-6: Current Attended Noise Monitoring Locations

Noise Monitoring Site ID	Current Monitoring Location
N2	Sylvania, Dripping Rock Road
N3	Picton, Dripping Rock Road
N4	Barbers Lagoon, Boggabri-Manilla Road

The conditions of SSD 09_0182 specify that BCM's operational noise limits apply to all nominated private residences, except for those that are either subject to a noise agreement with BCM, or subject to acquisition or noise mitigation upon request.

BCM's operational noise limits are 35 dB(A) $L_{Aeq\ (15\ minutes)}$ for day, evening and night time periods which are defined as follows:

- Day – 7 am to 6 pm Monday to Saturday and 8am to 6pm on Sunday and public holidays;
- Evening – 6 pm to 10 pm; and
- Night – Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays.

In addition to the above, the noise levels during the night period must not exceed the sleep disturbance level specified as 45dB(A) $L_{1\ (1\ min)}$, at any residence. Operational noise limits are specified in **Table 6-7**.

Table 6-7: Noise Limits

Location	Operational Noise Impact Criteria			Sleep Disturbance Criteria	Cumulative Noise Criteria (BTM complex)
	Day L_{Aeq} (15 min)	Evening L_{Aeq} (15 min)	Night L_{Aeq} (15 min)	Night $L_{Aeq\ (1\ min)}$	Day, Evening, Night, L_{Aeq} (15 min)
All privately-owned residences*	35 dB(A)	35 dB(A)	35 dB(A)	45 dB(A)	40 dB(A)

*Noise criteria does not apply if BCOPL has an agreement with the owner(s) of the relevant residence to generate higher noise levels

Table 5 in Schedule 3 of SSD 09_0182 also specifies long-term intrusive noise goals at all privately owned existing residences, which concur with the limits specified in **Table 6-7**.

Results

A summary of the attended noise monitoring results is provided in **Table 6-8**. This includes all monthly monitoring conducted in 2024.

Noise levels assessed as part of the monitoring program remained within the relevant operational noise and sleep disturbance criteria. The monitored noise levels also remained below the maximum noise levels predicted in the noise assessment completed for the 2010 EA.

Applicable meteorological conditions for "Year 10" of the EA were experienced on only 13 occasions during noise monitoring. As monitored noise was inaudible or below measured levels the data therefore is not comparable to the EA predictions.

Attended noise monitoring also considered the assessment of cumulative noise from the BTM Complex and confirmed the noise levels were within the cumulative noise criteria specified under SSD 09_0182 (refer to **Table 6-7**).

Table 6-8: Summary of Attended Noise Monitoring Results - dB(A) $L_{Aeq\ (15\ minutes)}$ & L1 $_{(1\ min)}$

	Sylvania (N2)		Picton (N3)		Barbers Lagoon (N4)	
	Criteria dB(A) Leq (15 min)@	Criteria dB(A) L1 (1 min)#	Criteria dB(A) Leq (15 min)@	Criteria dB(A) L1 (1 min)#	Criteria dB(A) Leq (15 min)@	Criteria dB(A) L1 (1 min)#
	35	45	35	45	35	45
16-Jan	^	^	^	^	^	^
27-Feb	^	^	<25	<25	26	31
13-Mar	^	^	^	^	^	^
10-Apr	^	^	^	^	^	^
8-May	^	^	^	^	^	^
12- Jun	^	^	^	^	^	^
25-Jul	^	^	^	^	^	^
21-Aug	<20	<25	^	^	^	^
23-Sep	<20	<20	<20	<20	^	^
22-Oct	^	^	^	^	^	^
5-Nov	<20	<25	<25	<28	<25	<25
19-Dec	^	^	^	^	^	^

^ BCM Inaudible
@ Operational noise impact criteria
# Sleep disturbance noise criteria

6.3.2.2 Sound Power Screening

Schedule 3, Condition 10 of SSD 09_0182 requires BCOPL to:

> *'(a) Conduct an annual testing program of the attenuated plant on site to ensure that the attenuation remains effective;*
>
> *(b) Restore the effectiveness of any attenuation if it is found to be defective; and*
>
> *(c) Report on the results of any testing and/or attenuation work within the Annual Review.'*

The annual sound power screening was undertaken throughout the 2024 reporting period and is available on BCM's website. The results of this monitoring were then compared against the SPLs used within the noise modelling for the 2010 EA. The plant assessed for sound power screening consisted of the following:

- Liebherr 9800 (EX126, EX131)
- Komatsu PC450 (EX127)
- Komatsu PC300 (EX128)
- Caterpillar 6060 (EX255, EX257)
- Caterpillar 16M (GR061)
- Caterpillar 24M (GR069)
- Komatsu WA600 (WL190)
- Komatsu D457 (TD003, TD080, TD082, TD083, TD085)
- Caterpillar D11T (TD10)
- Komatsu HD785 (WC031)
- Komatsu 930E (DT263, DT264, DT264, DT266, DT267, DT291, DT292, DT747, DT754, DT801, DT802, DT803, DT804, DT805, DT806)
- Hitachi EH3500 (DT304, DT306, DT309, DT328, DT329)

Overall sound power screening results which exceeded the relevant criterion by 2 dB or less are considered minor and not significant enough to require additional investigation. Results that exceeded the relevant criteria by 3 dB or more were considered significant. Sound power results have been assessed against sound powers used in modelling for the 2010 EA. Any difference in screening results for the same plant between consecutive years of +3 dB or more would trigger a more detailed analysis of results (third octave band results analysis) and potentially follow-up machine inspection and/or additional testing.

Methodology

The measurement and calculation methodology adopted for the 2024 sound power screening was undertaken using the methods described in AS ISO 6393 and AS ISO 6395. Haul Truck dynamic testing has been adjusted to Uphill Loaded and Downhill Unloaded. Water Cart and Service Cart dynamic testing has been adjusted to Uphill and Downhill Loaded (Thearle Engineering, 2024).

Results

EX131 exceeded 2010 modelling levels by 2dBA – 5dBA. This unit will be modified with further attenuation and re-tested within the next 12 months. All other plant tested in the annual sound power level screening for 2024 were compliant with sound power levels used in the 2010 EA (Hansen Bailey 2010). Individual results, atmospheric testing conditions and testing equipment information is available on BCM's website.

6.3.2.3 Noise Model Validation

In accordance with SSD 09_0182 Schedule 3, Condition 13 (f), BCOPL commissions an independent acoustic consultant annually to complete a validation of the noise model used in the Continuation of Boggabri Coal Mine Acoustic Impact Assessment (2010 AIA) (Bridges Acoustics, 2010). This involved comparing 2023 attended noise monitoring results with modelled noise impacts for the 2010 AIA. Predictions from Year 10[1] of the 2010 AIA were utilised, as that stage best aligns with the current operations (EMM, 2024).

[1] Predictions were made for Year 5, Year 10, Year 15 and Year 20 of operations.

Attended environmental noise monitoring was conducted in accordance with Australian Standard AS1055 *'Acoustics, Description and Measurement of Environmental Noise'*, relevant NSW EPA requirements, and the BCM NMP. Meteorological data was obtained from the BCM's automatic weather station which allowed correlation of atmospheric parameters with measured noise levels.

Meteorological conditions included in the Acoustic Impact Assessment report did not regularly occur during attended monitoring in 2024. Of the 36 measurements conducted in 2024, 13 measurements occurred during meteorological conditions corresponding with modelled meteorological conditions allowing for validation of the modelled predictions.

6.3.2.4 Long Term Trend Analysis

Attended compliance monitoring results indicate a trend towards reduced noise levels from BCM over time. Noise levels have decreased at N1 and N2 since 2016 while N3 noise levels have remained low. All attended results since September 2018 have been either inaudible, or, at levels significantly lower than criterion.

Full compliance with approved noise limits has been achieved since 2015. Further, since SSD 09_0182 was granted in 2012, there have been a total of 10 complaints requested that received relating to noise, none of which can be directly attributed to BCM's operations.

6.3.3 Improvements and Initiatives

Blasting

6.3.4 Environmental Management

Blast operations at BCM are managed in accordance with the approved Blast Management Plan (BLMP), which covers blasting activities associated with mining. The BLMP and Blast Fume Management Protocol (BFMP) was updated and approved in March 2024. Drill and blast design at BCM focuses on the following objectives:

- Control of air blast and ground vibration;
- Minimising fly-rock;
- Optimising fragmentation;
- Reducing coal seam damage; and
- Reducing blast fume.

Blast fume is managed in accordance with BCM's BFMP. The BFMP was prepared to satisfy the conditions of SSD 09_0182 in order to establish management measures for control of fume-related emissions from blasting operations. The BFMP is based on the Australian Explosive Industry and Safety Group's *Code of Good Practice: Prevention and Management of Blast Generated NOx Gases in Surface Blasting, Edition 2*. It describes site specific monitoring and rating/recording for blast fume events as well as incident response procedures.

6.3.5 Environmental Performance

6.3.5.1 Blast Events

SSD 09_0182 permits blasting to occur only between 9:00 am and 5:00 pm Monday to Saturday, at a rate of up to one blast per day and an average of up to four blasts per week (when averaged over the calendar year), unless otherwise exempted.

Results

Blasting events at BCM did not occur more than once a day at any time during the reporting period. All blasting operations were conducted between the approved times of 9:00 am – 5:00 pm Monday to Saturday. No temporary road closures were required due to proximity of blasting.

A total of 85 blasting events occurred during the 2024 reporting period, which remains within the permitted blasting limits over the calendar year.

6.3.5.2 Blast Peak Vibration

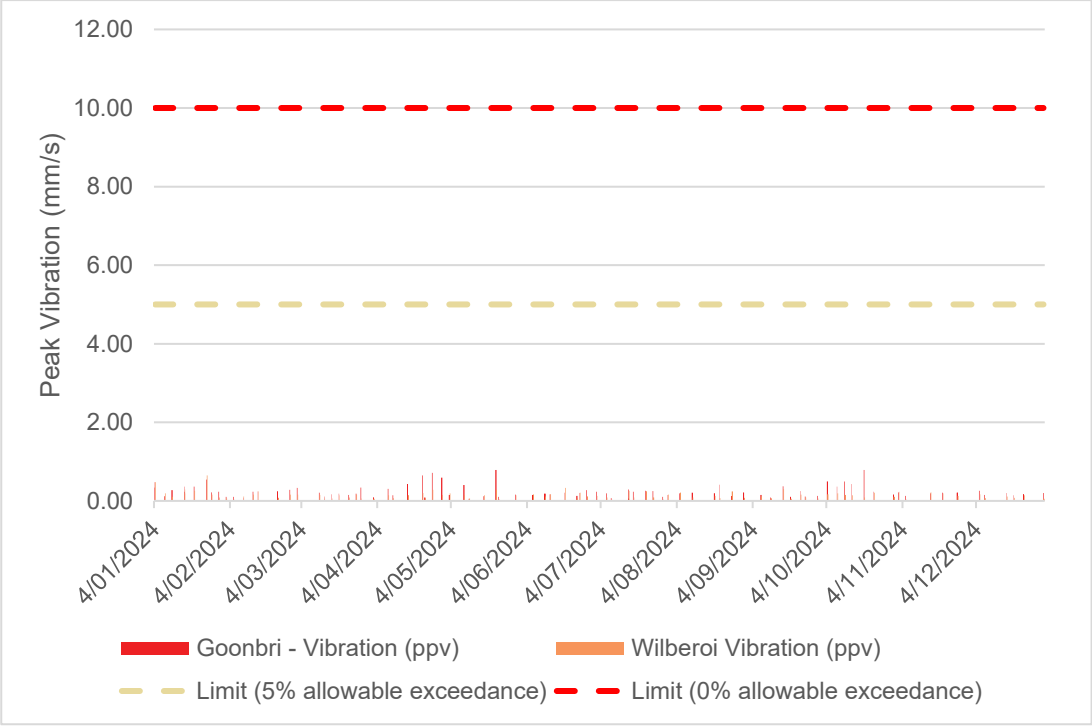
Monitoring of peak vibration was conducted at Goonbri (MP1) and Wilberoi East (MP3) during the entire 2024 reporting period (refer to **Appendix B**).

The applicable criteria within SSD 09_0182, EPL, and CL368 for peak vibration are 10 mm/second at any privately owned residence, and 5 mm/second at any noise sensitive location for up to 5 percent of all blast events occurring within the reporting period.

Results

Blast monitoring results indicate blasts complied with the vibration limits of 5 mm/second (exceedance allowed for 5% of the blasts) and peak vibration of 10 mm/second (refer to **Figure 6-7**Table 6-7). Blasting results show there were zero instances of vibration exceeding allowable or peak limits during the 2024 reporting period.

Figure 6-7: Summary of Peak Vibration Monitoring Results 2024



6.3.5.3 Blast Overpressure

Monitoring of blast overpressure was conducted at Goonbri (MP1) and Wilberoi East (MP3) during the entire 2024 reporting period (refer to **Appendix B**).

The applicable criteria for airblast overpressure under SSD 09_0182 are 120 dB(A) at any noise sensitive location (residence on privately owned land), and 115 dB(A) for up to 5 percent of all blast events conducted during the reporting period.

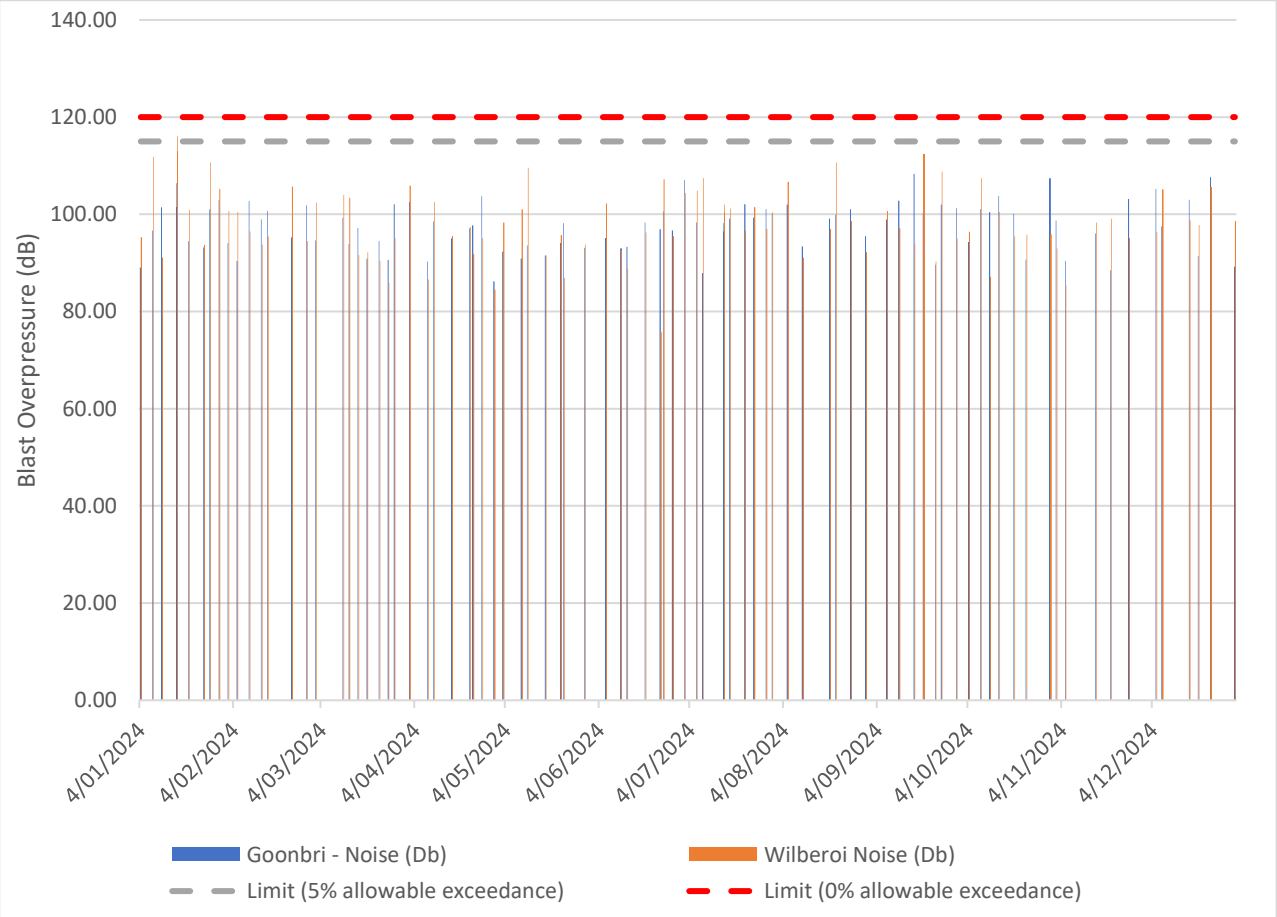
Results

Figure 6-8 illustrates the blast overpressure monitoring results for the 2024 reporting period.

The monitoring results indicate that one blast exceeded the 115 dB criteria at Wilberoi during the reporting period. This exceedance occurred on 16 January 2024 and recorded an overpressure reading of 116.1 Db. This remains within the allowable 5% limit of 115-120Db.

BCOPL complied with all its blast overpressure criteria during the 2015, 2016, 2017, 2018, 2020 2021 and 2023 reporting periods. One exceedance of the 120 dB(A) criteria occurred in the 2019 and 2022 reporting periods.

Figure 6-8: Blast Overpressure Results 2024



6.3.5.4 Blast fume

Blast fume at BCM is managed and monitored in accordance with the Blast Fume Management Protocol (2024). Blast fume was monitored by BCOPL for all blast events that occurred during the reporting period.

A fume risk rating system is utilised at BCM to categorise fume events. This is based on the fume rating system detailed in the *Code of Good Practice: Prevention and Management of Blast Generated NOx Gases in Surface Blasting, Edition 2* (AEISG, 2011).

Results

A total of 14 blast fume events were recorded during the reporting period. None of the fume events were categorised as a Level 3C fume event or higher as such no notification was required. All blast fume events recorded remained within the relevant criteria during the 2024 reporting period.

6.3.5.5 Blast Monitoring Results

All blast monitoring results are provided on BCOPL's website for the 2024 reporting period.

6.3.6 Improvements and Initiatives

During 2022, BCOPL continued the trial of an alternative emulsion product known as Fortis Clear Blue with a view to improving fume performance. The trial period was undertaken during a very wet period, which included flooding and intermittently cut access to the BCM contributing to the trial running into 2023 and 2024. While the trial showed a minor improvement in fume performance, the ongoing use of the product was not financially viable. BCOPL has continued to improve weather monitoring and loading procedures to improve fume and noise impacts.

6.4 Biodiversity

6.4.1 Environmental Management

Biodiversity at Boggabri Coal Mine (BCM) is managed in accordance with the approved Biodiversity Management Plan (BMP). The BMP provides a framework for managing biodiversity values within the Project Boundary, Biodiversity Offset Areas (BOAs) and wider locality.

The BMP guides the management of potential risks to biodiversity as a result of the BCM. Specifically, the BMP aims to:

- Provide details of the parties responsible for monitoring, reviewing, and implementing the BMP;
- Ensure compliance with all legislative requirements, statutory approvals/licences and corporate responsibilities of Boggabri Coal Operations Pty Limited (BCOPL);
- Describe the measures (short, medium and long-term) to be implemented to manage remnant vegetation and habitat within the project boundary and BOAs, including detailed performance and completion criteria;
- Describe the practical management strategies (including procedures) to be implemented to manage impacts on flora and fauna, maximising salvage and beneficial use of resources in areas to be impacted for habitat enhancement, rehabilitate creeks, drainage lines and disturbed areas, control weeds and pests; and
- Describe biodiversity monitoring and reporting requirements.

No impacts outside those predicted in the Environmental Assessment (EA) have occurred during the reporting period, indicating the management strategies specified by the BMP and implemented across the site are adequate to address potential impacts.

BCM's biodiversity offset requirements are outlined in the Boggabri Coal Mine Biodiversity Offset Strategy (WSP, 2018) (BOS). The BOS guides the implementation of BOAs. It identifies potential suitable offsets to adequately compensate the Project's impacts on local biodiversity, ensuring the Project complies with legislative and Project Approval (PA) offset requirements.

The BOS was revised in 2018 in accordance with Schedule 3, Condition 43 of the PA to incorporate an additional 1000 ha of offsets. The revised strategy also included additional offset requirements identified in Condition 39, Table 15 of the PA. This BOS was prepared to accurately reflect the final offset areas to be subject to formal in perpetuity conservation in accordance with Schedule 3 Condition 47 of the PA. In 2019, BCM commenced formal negotiations with the NSW Biodiversity Conservation Trust regarding formal in perpetuity conservation agreements for 8009.6 ha committed as biodiversity offset to meet the PA. This process was ongoing through 2024, with several site visits by representatives of the NSW Biodiversity Conservation Trust for formal commitments and approvals under the new legislative apparatus.

BCOPL has implemented a range of biodiversity monitoring activities since the commencement of operations, in addition to those studies completed for the EA. Biodiversity monitoring has included the following programs or studies undertaken by WSP:

- Vegetation clearing monitoring (undertaken in conjunction with the annual tree clearing program) – completed in 2024;
- Leard State Forest annual biodiversity monitoring (an annual program of comprehensive flora and fauna surveys) – completed in 2024;
- Leard State Forest biodiversity corridor monitoring (a program to monitor biodiversity within a vegetation corridor between BCM and Maules Creek Coal Mine) – completed in 2024;
- BOA monitoring (an annual program to assess the progress of the BOAs in achieving biodiversity targets), including autumn Box Gum Woodland monitoring – completed in 2024;
- Targeted seasonal threatened species surveys for Regent Honeyeater, Swift Parrot and Corben's Long-eared Bat – completed in 2024;
- Mine rehabilitation biodiversity monitoring (an annual program based on flora and fauna surveys to assess the progress of mine rehabilitation areas in achieving rehabilitation targets) – completed in 2024;
- Stygofauna monitoring (an annual program designed to monitor groundwater monitoring bores along the Nagero Creek and Namoi River floodplain for Stygofauna) – completed in 2024; and
- Stream and riparian vegetation health assessment and terrestrial vegetation monitoring within the locality of MOD5 (an annual program monitoring riparian vegetation health in accordance with BCM Surface Water and Groundwater Management Plans) – completed in 2024.

The following sections summarise activities related to biodiversity management, provide updates on key biodiversity studies undertaken during the reporting period, and summarises the performance of BCOPL in meeting requirements of the PA and internal management plans.

6.4.2 Environmental Performance

6.4.2.1 Environmental Management Correspondence

Correspondence with MCCM and TMC has been undertaken on a regular basis to discuss cooperative management and protection of the vegetated corridor and Leard Forest Regional Biodiversity Strategy.

The *Leard Forest Regional Biodiversity Strategy (Stage 2 – Strategy Report)* (RBS) (Umwelt, 2017) was prepared to provide a strategic framework for the management and implementation of the BTM Complex biodiversity offset programs and to provide guidance for co-ordinated management with other land managers within the region. To achieve coordinated and successful biodiversity management within the region, the RBS specifies that the BTM Complex must prepare an 'Annual Summary Report' detailing the overall biodiversity performance and outcomes of biodiversity offsets.

An Annual Summary Report would summarise activities completed across the BTM Complex as they pertained to natural regeneration, seed collection and propagation, active revegetation, pest management, mine rehabilitation, biodiversity management consultation, biodiversity offset monitoring methodologies and biodiversity offset performance and outcomes (vegetation community attributes, key weed attributes, fauna monitoring results, threatened flora and fauna monitoring results).

6.4.2.2 Commonwealth Consent Fauna Surveys

In accordance with the Commonwealth Department of Climate Change, Energy, the Environment and Water Conditions of Approval 13C and 14, BCOPL have commissioned annual surveys across BCM biodiversity offset lands for Nyctophilus corbeni (Corben's Long-eared Bat), Anthochaera phrygia (Regent Honeyeater) and Lathamus discolor (Swift Parrot).Targeted surveys for Regent Honeyeater and Swift Parrot were undertaken during July and August 2024, whilst surveys for Corben's Long-eared Bat were undertaken in late November 2024

Annual targeted threatened species surveys were undertaken for Regent Honeyeater and Swift Parrot with consideration of the Commonwealth Survey Guidelines for Australia's Threatened Birds (Department of Environment Water Heritage and the Arts 2010). Surveys were completed in Leard State Forest, the Leard State Forest biodiversity corridor and across the BOAs, extending from the Western offset (Merriendi BOA), through the Namoi offsets (Namoi BOA, Jerralong BOA), Central offsets (Goonbri BOA, Wirrilah BOA, Myall Plains BOA, Mallee BOA) and Eastern offsets (Nioka North BOA, Sunshine BOA, Braefield BOA). The key objective of these surveys is to determine if the threatened species are using winter blossom resources. Eucalyptus albens (White Box) is an important source of winter blossom resources in the western slopes region of NSW and it occurs widely across the BOAs and throughout Leard State Forest surrounding BCM.

White Box stands in Leard State Forest and across the BOAs in late June/early July and August 2024 showed little evidence of blossoming, with occasional spattering's in the canopies of some trees, but limited to small proportions of tree flowering capacities. Nectivorous bird activity was limited to resident species in normal seasonal numbers, indicating no influxes of birds from the wider regions as consequence of the limited winter nectar resources. Targeted surveys for Corben's Long-eared Bat were also undertaken within the BOAs. This species was recorded within the Eastern offset areas (Braefield BOA and Nioka North BOA), and within the Namoi Offset Area (Jerralong BOA, Daisymede BOA and Victoria Park BOA) during the monitoring period..

6.4.2.3 Vegetation Clearing

Vegetation clearing for the reporting period commenced on 15 February 2024 and ended 15 March 2024, inclusive of pre-clearing surveys, and Stage 1 and Stage 2 clearing operations. The program included the removal of vegetation from the forecasted active mining area for the 2024 period. The extent of clearing totalled 39.18 ha of vegetation, encompassing three vegetation communities, being White Box grassy

woodland of the Nandewar Bioregion and Brigalow Belt South Bioregion (PCT 1383), White Cypress Pine-Narrow-leaved Ironbark shrub/grass open forest of the western Nandewar Bioregion (PCT1313), and Barrow-leaved Ironbark shrubby woodland of the Brigalow Belt South Bioregion (PCT 1381). These vegetation communities were consistent with the White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grasslands threatened ecological community listed as Critically Endangered under the EPBC Act and BC Act.

6.4.2.4 Vegetation Clearing Ecological Monitoring

As with previous years, the 2024 tree-clearing program was undertaken in conjunction with a team of qualified ecologists to ensure, as far as practicable, the safe removal and relocation of native fauna. Pre-clearing and relocation surveys completed prior to the commencement of the clearing activities recorded 591 habitat, hollow-bearing and/or significant trees within the 2024 tree clearing area. These trees were marked with fluorescent pink paint in preparation for the two-stage clearing process.

During Stage 1 and Stage 2 clearing operations, 238 animals were successfully relocated, 471 animals were observed from habitat trees and evaded capture, and 17 animals were killed or euthanised as a result of clearing operations (**Table 6-10**). The most abundant groups of animals encountered during 2024 clearing operations were reptiles (541 individuals).

To minimise stress to displaced native animals, all individuals were appropriately retained and released into designated fauna relocations sites at the earliest practicable time following capture. It is anticipated that the number of microchiropteran bats, either relocated or evading capture, is likely to be higher, with numerous microbats observed within existing hollow-bearing trees or being present in broken hollow branches that were safely relocated to the designated fauna relocation sites.

Table 6-9: Animal Groups Encountered During Clearing Operations

Fauna Group	Number of Individuals Recorded			
	Relocated	Observed	Deceased / Euthanised	Total
Reptiles	180	352	9	541
Microchiropteran bats	49	113	8	170
Birds	0	0	0	0
Amphibians	5	0	0	5
Mammals	4	6	0	10
Total	238	471	17	726

The attendance of ecologist's supervising tree clearing greatly enhanced the likelihood of survival for the above listed species.

The rigorous fauna surveys undertaken as part of the BCM tree clearing program are regarded as a key practice in minimising harm to fauna prior to clearing activities and reducing the mine's impact on biodiversity.

The tree clearing program involved the salvage of woody debris, including fallen timber, felled hollow trees, and bush rock for later use in restoration areas in the BOAs and mine rehabilitation areas.

6.4.2.5 Stygofauna Surveys

The 2024 stygofauna sampling event was completed in March 2024 with a total of eight groundwater bores sampled. Potential Stygofauna species were detected at Belleview bore Cooboobindi bore, Cooboobindi House bore and MWP05. Bilibathynella was recorded at Cooboobindi House bore for the first time.

This increases the number of sites/bores stygofauna have been collected from and confirms the distribution across the region. Stygofauna specimens are currently undergoing taxonomic review.

6.4.2.6 Annual Leard State Forest Biological Monitoring

A tailored biological monitoring program for BCM was established in 2006, prior to mining. The annual monitoring program undertaken by qualified ecologists aims to identify and assess potential impacts to biodiversity within Leard State Forest as a result of mining activities. It focuses on native vegetation, fauna habitat, invertebrates, birds and microbats within the forest.

The monitoring program is based on the 'Beyond BACI' monitoring design, incorporating four replicate survey sites within the Leard State Forest (the potential impact location) and four survey sites in each of two reference locations (Central Offset Area and the Namoi Offset Area (Rocklea property)). The reference locations contain homogenous vegetation considered to be analogous with that of the Leard State Forest, and its relative absence of impacts associated with BCM.

Survey sites within Leard State Forest were selected where possible to represent each of the two main vegetation types likely to be impacted by mining – Ironbark Woodland and White Box Woodland. These sites were located at varying distances around the area of mining. Likewise, survey sites at the reference locations/ control sites were selected, where possible, within vegetation types like those found in Leard State Forest, or at a minimum, with similar vegetation structures. Surveys at each site would typically include:

- Two 100 m transects for vegetation cover abundance;
- Two 100 m transects for invertebrates each containing 10 pitfall traps;
- Two nights of microbat ultrasonic recordings on non-consecutive nights using ultrasonic recording units set to record from dusk;
- Two 20-minute area searches within an 80 m radius (approximately 2 ha) of fixed monitoring sites on non-consecutive mornings; and
- A reference photograph for each transect.

Results

- Vegetation across the monitoring locations retained a high level of native plant species richness and moderate to low diversity of exotic species. The Leard State Forest site showed the highest level of native plant species richness, followed by the Rocklea property and the Central Offset Area. Monitoring sites associated with the Rocklea Property recorded the highest mean exotic species richness followed by the Central Offset Area. The Leard State Forest recorded the lowest exotic species diversity.
- Although *Tylophora linearis* has previously been recorded from monitoring site LSF3 and ROC2, no threatened flora species were recorded during the field survey in September 2024. *Tylophora linearis* is listed as Endangered under both the NSW BC Act and Commonwealth EPBC Act. It is commonly recorded throughout Leard State Forest and the broader locality including some locations within the Central Offset Area and Rocklea property;
- Dry woodland habitat associated with Leard State Forest and the two reference locations provided important habitat for a variety of woodland specialists and generalist species of bird. A total of 80 species of bird were recorded during replicate monitoring surveys with Weebill, Rufous Whistler,

Grey Fantail, Eastern Yellow Robin, White-throated Treecreeper and Silvereye commonly recorded. Mean diurnal bird species richness was similar between the potential impact location (Leard State Forest) and the two control locations.

- Five threatened species of bird listed as Vulnerable under the NSW BC Act were recorded during duplicate surveys at replicate monitoring sites. These include Speckled Warbler, Dusky Woodswallow, Brown Tree creeper (eastern subspecies), Little Lorikeet and Turquoise Parrot.
- Five threatened species of insectivorous bat listed as Vulnerable under the NSW BC Act were recorded during duplicate surveys at replicate monitoring sites, including Eastern Cave Bat, Eastern Falsistrellus, Little Pied Bat, Northern Free-tailed Bat and Yellow-bellied Sheathtail-bat.

6.4.2.7 Annual Leard State Forest Biodiversity Corridor Monitoring

The Leard State Forest biodiversity corridor refers to a vegetated boundary corridor that occurs in Leard State Forest between BCM and MCCM. This corridor forms a part of the larger East-West Corridor (as detailed in the BMP) representing the vegetation corridor between the Nandewar Range, BCM BOAs, Leard State Forest and the Namoi River.

The purpose of the corridor monitoring is to gain an understanding of biodiversity values within the Leard State Forest corridor and to identify any potential changes to these values as a result of the works being undertaken at BCM.

Monitoring was completed for Swift Parrot and Regent Honeyeater in July and August, general biodiversity in September and micro-bats in November 204. Monitoring targeted native vegetation, bird and microbat assemblages with the following general survey methodologies completed at replicate monitoring sites:

- Photographic point monitoring;
- One 20-minute area search within 80 m (approximately 2 ha) of fixed monitoring sites;
- One night of microbat recordings using Anabat Express Bat Detector units;
- Two consecutive nights of passive infra-red/motion sensor camera detection; and
- One BioBanking plot (LC4 and LC6 only).

Results

A total of 121 species of plant were recorded from seven replicate monitoring sites associated with the corridor, including 113 native species (93%) and eight exotic species (7%). No threatened species of plant were recorded during the 2024 monitoring event. Despite this, Tylophora linearis (listed as Vulnerable under the BC Act and Endangered under the EPBC Act) is known to occur within the biodiversity corridor;

Photographic monitoring and BBAM vegetation plots completed at each of the monitoring sites indicate that the native vegetation structure, function, and condition within the biodiversity corridor are all high. This is supported by most vegetation attributes meeting, being within or exceeding the BBAM benchmark values in spring 2024;

A total of 44 species of bird were recorded from replicate monitoring sites, the composition of which suggest vegetation retains structural complexity capable of providing habitat to woodland and generalist species of bird common the region;

Three threatened species of bird, Speckled Warbler (LC3 and LC7), Varied Sittella (LC5) and Dusky Wood swallow (LC8) which are listed as Vulnerable under the BC Act, were recorded from the corridor. Replicate

monitoring site LC6 recorded the highest number of birds with a mean diurnal bird species richness of 18 (as averaged from two 20-minute surveys) during the 2024 monitoring period;

Targeted Swift Parrot and Regent Honeyeater surveys were conducted in the corridor (and wider Leard State Forest and BCM BOAs) over two discrete sampling periods in July and August 2024. The Swift Parrot and Regent Honeyeater where not recorded from habitats associated with the corridor during these surveys; and

A total of 14 insectivorous bats were collectively recorded across the vegetation corridor during the 2024 sampling period. Insectivorous bat species richness and species activity in 2024 saw a reduction from observations made in 2023, however both attributes remained above the Leard State Forest benchmarks. Four threatened species of insectivorous bat listed as Vulnerable under the NSW BC Act were recorded during duplicate surveys at replicate monitoring sites, including Eastern Bent-winged Bat, Eastern Cave Bat, Eastern Falsistrelle and Yellow-bellied Sheathtail-bat.

6.4.2.8 Annual Stream and Riparian Vegetation Health & Terrestrial GDE Monitoring within the Locality of MOD5

The BCM is largely contained within the catchment of an unnamed ephemeral drainage line commonly known as 'Nagero Creek'. A small area to the south of the Project is also located within the catchment of Bollol Creek. Nagero Creek and Bollol Creek are both small tributaries of the Namoi River. The Namoi River is the main watershed for the region and is part of the Murray Darling Basin system and managed under two Water Sharing Plans. BCOPL holds existing licences under the *Water Management Act 2000* for the extraction of both surface water and groundwater associated with this watershed.

The purpose of this program is to monitor stream and riparian vegetation health due to the potential for impacts on surface water and groundwater systems. Survey methodologies for the 2024 monitoring program were completed over two sessions being Autumn (6- 13 May 2024) and Spring (4-15 November 2024 and 14-12 December 2024) at five replicate monitoring sites, incorporating:

- Quantitative transect/plots (one BioBanking plot)
- Stream characteristics (for example channel size, composition, flow category, clarity etcetera – stream health monitoring locations only).
- Photographic monitoring.

Monitoring of terrestrial vegetation in the locality of MOD5 was also completed in conjunction with the stream and riparian health monitoring program in 2024. The purpose of this monitoring is to assess the impacts of the MOD5 borefield on terrestrial native vegetation health and composition within the locality of MOD5 and its proposed draw down impacts associated with groundwater extraction. Survey methodologies for the 2024 monitoring program were completed over Autumn and Spring at the 11 replicate monitoring sites (including the five stream and riparian health monitoring sites), incorporating:

- Quantitative transect/plots (one BioBanking plot).
- Photographic monitoring.

Results

The results from the 2024 monitoring program confirmed that the composition and health of riparian and terrestrial vegetation had remained relatively consistent since the 2018 baseline monitoring program. More specifically, vegetation attributes associated with floristic composition, structure and functionality monitored were consistent with or only showed slight increases/decreases in values compared to the 2018 baseline. The fluctuations in vegetation attribute values observed across the monitoring locations is likely attributable to climatic conditions experienced in the region, which has encompassed the cyclic nature from severe drought to major flood events. Nevertheless, these fluctuations were within the boundaries of the probable

mean, as predicted by the standard error. It is considered unlikely that these changes in vegetation attributes are due to impacts associated with the Project.

A substantial proportion of vegetation attributes across all sites failed to meet the BBAM benchmark values for their respective vegetation type, however this is not dissimilar to the results of the 2018 baseline data. This was largely attributed to past land uses (predominantly agriculture), which have cleared canopy and midstory components and heavily disturbed the soil profile leading to the dominance of exotic species in the groundcover.

Similarly, stream characteristics of Nagero Creek and the Namoi River were relatively consistent with the 2018 baseline monitoring results. Exceptions to these included changes in attributes that are affected by drought conditions, such as water height, flow and where water was present, turbidity.

Overall, the structure and health of Nagero Creek was in moderate condition. The stream is an ephemeral waterway with intermittent flow, which is heavily dependent on high rainfall. The autumn and spring 2024 monitoring event recorded no water within the stream aside from a single standing pool. Disturbances on this stream are likely attributed to past agricultural pressures rather than impacts associated with the Project. The creek appears, however, to be in a stable condition and consistent in health compared to previous years.

Overall, the structure and health of the Namoi River was in moderate condition. The Namoi River is a perennial waterway, which usually contains large volumes of water that flow constantly as witnessed during both the autumn and spring 2023 survey periods. Although the river is a permanent waterway with many habitat features (such as fallen timber, hollow bearing trees, debris etc.) the riverbanks appeared to be partially unstable as substantial undercutting and scourging was recorded at all sites (SM3, SM4 and SM5), most notably at SM3. The severity of erosion observed at SM4 and SM5 appears to have decreased since 2023 due to growth of groundcover vegetation which is now stabilising large areas.

6.4.2.9 Annual Biodiversity Offset Area Monitoring

Biodiversity offset area monitoring comprises annual surveys of vegetation, diurnal birds, microchiropteran bats, terrestrial mammals and vertebrate pest and biennial surveys of nocturnal mammals and birds. In addition, targeted annual seasonal surveys are undertaken for Regent Honeyeater, Swift Parrot and Corben's Long-eared Bat and autumn Box Gum Woodland monitoring was completed.

The 2024 biodiversity offset monitoring represents the tenth year of biodiversity monitoring completed on the BOAs for the Project. The 10 BOAs contain large patches of remnant vegetation and high-quality habitats adjoining existing vegetated lands and create direct linkages or key stepping-stones for a regional east-west wildlife corridor. Boggabri Coal's ten BOAs are separated into four management areas, including:

- Eastern Offset Area (Braefield BOA, Sunshine BOA, Nioka North BOA).
- Central Offset Area (Mallee BOA, Myall Plains BOA, Wirrilah BOA, Goonbri BOA).
- Namoi Offset Area (Namoi BOA, Jerralong BOA).
- Western Offset Area (Merriendi BOA).

Habitat Management Zone

Vegetation data collected and general observation made as part of the 2024 monitoring session suggests that the vegetation types within the habitat management zones across the four management areas are in good condition overall and are typical of large relatively undisturbed patches of native vegetation in the locality. Ecosystem health and ecosystem structure were observed as good. The monitoring sites established in the habitat management zones provide good analogue sites for which to compare the progress of habitat restoration zones against. Key findings identified within the habitat management zones in 2024, included:

- Native species richness has remained relatively consistent across all BOAs, showing fluctuations

over time in response to varying seasonal conditions such as extended periods of severe drought through to periods of above average rainfall and flooding. In 2024, native plant species richness and cover was comparable to other dry years;

- All Box Gum Woodland monitoring site monitored in 2024 within habitat management zones meet or are considered likely to meet the EPBC Act listing for the threatened ecological community White Box – Yellow Box – Blakely's Red Gum grassy woodland and derived native grasslands; and
- Box Gum Woodland monitoring sites surveyed in 2024 within habitat management zones largely meet, are within or exceed BBAM benchmarks. The main exceptions to this included the occasional site which did not meet fallen timber, hollow bearing tree and native groundcover (grass or other) percentage or native species richness benchmarks.

Habitat management zones across the BOAs provide habitat for a range of threatened species and the intact and semi-intact habitats remain in good condition. The association of habitat management zones with areas of high-quality extant vegetation with a diversity of woodland structural forms are key to the diversity this zone supports, as illustrated by the presence of 15 threatened species recorded in these zones. Key findings identified in habitat management zones during the 2024 monitoring event included:

- The presence of 15 threatened fauna species recorded across the habitat management zones in 2024, including Black-chinned Honeyeater, Brown Treecreeper, Diamond Firetail, Dusky Woodswallow, Grey-crowned Babbler, Hooded Robin, Little Eagle, Little Lorikeet, , Speckled Warbler, Turquoise Parrot, Varied Sittella, Eastern Cave Bat, Northern Free-tailed Bat and Yellow-bellied Sheathtail-bat.
- Diurnal bird species richness was typical of relatively undisturbed woodland and open forest habitats in the region;
- Comparatively, mean diurnal bird species richness in 2024 is like previous years for the Eastern and Central Offset Areas, whilst the Namoi and Western Offset Areas exhibit more pronounced fluctuations;
- Mean diurnal bird species richness in habitat management zones achieved between 90 % and 94 % of the Leard State Forest analogue benchmark in 2024;
- Several introduced species were recorded during the 2024 monitoring period, including Fox, Pig, Rabbit, Goat, and Brown Hare.

Restoration Zone

The habitat restoration zone was predominantly comprised of derived native grassland communities. Ecosystem health and ecosystem structure are generally poor. As such, the monitoring sites surveyed in 2024 generally fall below the BBAM vegetation type benchmarks for a range of attributes. Due to the general lack of canopy, midstorey, fallen logs and presence of grazing pressure, native grass cover is generally high and exceeds benchmark conditions. To date, restoration works are limited to revegetation activities within the Merriendi, Namoi, Jerralong, Wirrilah, Mallee, Nioka North and Braefield BOAs. Restoration activities in habitat restoration zones will result in an overall improvement in the attributes over time. Key findings identified within the habitat restoration zones in 2024 included:

- Most Box Gum Woodland monitoring sites monitored in 2024 within habitat restoration zones meet or are considered likely to meet the EPBC Act listing for the threatened ecological community White Box – Yellow Box – Blakely's Red Gum grassy woodland and derived native grasslands;
- Box Gum Woodland monitoring sites within habitat restoration zones largely fail to meet BBAM benchmark values especially for attributes relating to the number of hollow bearing trees, length of fallen timber and native overstorey percentage cover. Furthermore, most sites showed no or limited evidence of regeneration of canopy species aside from restoration tube stock planting. This is

expected given many of these areas occur as derived native grassland. Most other vegetation attributes meet the BBAM benchmarks;

- Due to the above, management within habitat restoration zones should continue to focus on tube stock planting of canopy species and monitoring the success/failure of these which will lead to the eventual increase in canopy cover and formation of habitat resources such as hollow bearing trees, fallen timber, leaf litter etc to increase connectivity. As these resources take over 50 years to form, it is recommended that in the interim fauna habitat resources such as salvaged fallen timber and nest boxes should be introduced, where possible, to encourage fauna usage. These measures will also aid in increasing other BBAM vegetation attributes which do not currently meet benchmark values;
- Native species richness has remained relatively consistent across all BOAs, showing fluctuations over time in response to varying seasonal conditions such as extended periods of severe drought through to periods of above average mean rainfall and flooding. In 2024, native plant species richness and cover was comparable to other dry years;
- One habitat restoration zone monitoring site exceeded the Cypress Pine density threshold of 650 stems per hectare (i.e. Wi3). Although most BBAM benchmark values for its corresponding vegetation type were met it failed to meet the native overstorey percentage cover and no natural regeneration was recorded suggesting that the germination and establishment of canopy species at this location may be prohibited by the high density of Cypress Pine. It is recommended that Cypress Pine thinning be considered in this area; and
- In July 2024 cattle were observed on the Wirrilah BOA during a site visit.

Generally, habitat restoration zones possessed a moderate to low fauna species assemblage during the 2-24 monitoring event This can be expected as these areas are typically disturbed areas that have long been dedicated to grazing of cattle. Such areas are structurally simplified, contain few habitat features and are generally devoid of canopy and understorey cover; attributes that may otherwise encourage a diverse woodland fauna. Key findings identified in habitat restoration zones in 2024 included:

- Despite most habitat restoration zones being disturbed, they do provide habitat (particularly foraging habitat) for threatened species, such as Dusky Woodswallow and Grey-crowned Babbler; particularly along ecotones, where regenerating shrubs provide adequate cover close to open grounds.
- Comparatively, mean diurnal bird species richness in 2024 is like previous years for the four Offset Areas. Habitat restoration zones possessed a low diurnal bird species richness, typically averaging between 24 % to 59 % of the Leard State Forest analogue benchmark in 2023 for bird species richness.
- Monitoring of salvaged woody debris in the Namoi Offset Area identified six species of reptile, including Tree Skink, Eastern Striped Skink, Tree-based Litter Skink, Bearded Dragon, Olive Delma and Boulenger's Morethia.
- Several introduced species were recorded in habitat restoration zones during the 2023 monitoring period, including Pig, Fox, Goat, Brown Hare and Rabbit.

Corridor Enhancement Zone

The corridor enhancement zone has been significantly disturbed by past land use practices, including clearing, cropping and pasture improvement and heavy grazing. The lack of canopy, midstory and altered ground layer composition recorded during baseline monitoring supports this assumption. Likewise, the paucity of fauna species demonstrates how disturbed such areas are. The planned supplementary canopy planting and targeted weed and post management activities should serve to increase woody canopy cover and build on adjoining existing wildlife corridors. A considerable improvement in habitat value should be seen

in this area over the coming years. Key findings identified within the corridor enhancement zones in 2024 included:

- Native species richness has remained relatively consistent across all BOAs, showing fluctuations over time in response to varying seasonal conditions. In 2024, native plant species richness and cover was comparable to other dry years;
- In 2024 no evidence of livestock grazing was observed;
    - Mean diurnal bird species richness was observed in 2024 to be consistent with previous monitoring events for the Eastern Offsets. Corridor enhancement zones possessed a low diurnal bird species richness, typically achieving between 7 % and 35 % of the Leard State Forest analogue benchmark for bird species richness.

6.4.2.10 Pest management activities

Seven animal pest control programs were carried out in 2024. The programs were carried out across the biodiversity offset areas including Cooboobindi, Bellevue, Merriown and Velyama (Namoi Offset Area), Wirralah, Myall Plains, Mallee and Goonbri (Central Ofset Area), and North Nioka, Sunshine and Braefield (Eastern Offset Area).

Results for each program are:

- January: 272 Pigs, 34 Goats, 48 Foxes, 40 Rabbits, 3 feral cats, 3 deer;
- April: 208 Pigs, 30 Goats, 11 foxes, 12 Rabbits, 3 feral cats;
- May-June: 265 pigs, 83 goats, 11 foxes, 1 feral cat;
- June-July: 218 pigs, 118 goats, 18 foxes, 2 rabbits, 3 feral cats;
- September: 15 pigs, 42 goats;
- October-November: 171 pigs, 204 goats, 14 foxes, 3 feral cats
- November -December: 334 pigs,21 goats, 25 foxes, 142 rabbits 4 feral cats, 2 deer and 30 Starlings.

In September a pest baiting trial was conducted across the BOAs and mine site.

6.4.3 Improvements and Initiatives

Biodiversity management initiatives implemented during the reporting period continued to include ongoing biodiversity monitoring and management in accordance with the approved BMP and revegetation activities within BCOPL's BOAs. As mentioned in **Section 6.5**, BCM commenced formal negotiations with the NSW Biodiversity Conservation Trust regarding formal in perpetuity conservation agreements for 8009.6 ha committed as biodiversity offset to meet SSD 09_0182. This process was ongoing through the 2024 reporting period, with several site visits by representatives of the NSW Biodiversity Conservation Trust for formal commitments and approvals under the new legislative apparatus.

6.5 Hazardous Materials

6.5.1 Environmental Management

The management of hazardous materials at BCM is undertaken in accordance with the following BCOPL documents:

- Waste Management Plan;
- Pollution Incident Response Management Plan; and
- Hazardous Material, Dangerous Goods Risk Assessment.

Contractors operating at the BCM also implement a range of company-specific standards and procedures to ensure alignment with BCOPL requirements and legal obligations for the management of hazardous materials.

Collectively the hazardous materials management documents:

- Set out the minimum requirements for contractors for the use, storage and control of hazardous materials;
- Provide protocols for hazardous material use, storage and clean-up response;
- Provide a mechanism for the assessment of potentially hazardous materials prior to them being delivered to site; and
- Specify design standards for which hazardous materials storage structures must comply.

Control measures implemented on site include but are not limited to the following:

- Locating spill kits in high risk areas around mine infrastructure and construction areas within the Project Boundary;
- Ensuring all BCOPL personnel and contractors are trained in incident and emergency response procedures. Specific training is also be provided to those personnel required to handle hazardous materials;
- All workshop and vehicle wash down water is directed to a sump/separator for containment and subsequent treatment or appropriate disposal;
- Vehicles, plant and equipment leaking fuel, oil coolant or any other hydrocarbons will not be operated where practicable and repaired at the earliest opportunity;
- All hazardous materials facilities on site will be designed, constructed and operated in accordance with all relevant legislation, standards and guidelines, with particular reference to *AS 1940:2004 – The Storage and Handling of Flammable and Combustible Liquids*; and
- Refuelling operations will be undertaken within areas specifically designated for that purpose, where practicable.

6.5.2 Environmental Performance

Hazardous materials used at the BCM that require licensing are listed in **Table 6-12**. Orica Australia Pty Ltd (Orica) holds the appropriate licences and notifications for the storage, handling and use of these substances. The use of hazardous materials during the 2024 reporting period was comparable with the 2023 reporting period.

Table 6-10: Explosives and Hazardous Materials Licence/Notification Holders

Hazardous Materials:	Licence/Notification Holder:
Acetic Acid Solution Ammonium Nitrate Ammonium Nitrate Emulsion Oxidizing Liquids	Orica
Bulk Diesel	Boggabri Coal Operations Pty Ltd

All hydrocarbons including fuels and hydraulic/lubricating oils are stored in double-skinned, above ground tanks. Waste oils are stored in a bulk oil tank, for regular collection by a licensed waste contractor.

Two minor hydrocarbon spills were recorded and managed in accordance with BCOPL and contractor-specific hazardous materials management documentation. Both spills were considered to present a low environmental risk and were promptly cleaned up. The management measures contained within relevant documentation were considered to be adequate for the prevention and clean-up of the hazardous spill. These measures will continue to be implemented in the event of future incidents.

6.5.2.1 Diesel

Diesel fuel is stored in the maintenance workshop area in nine double-skinned, aboveground tanks plumbed in series as “slave and master,” with a total nominal capacity of 766,000 litres. Bunded areas are inspected on a regular basis to ensure their integrity. These tanks are proposed to be relocated to the newly built PSI Facility with an additional capacity of 200,000 litres to be installed as part of the process.

Ultra-low sulphur diesel (ULSD) constitutes the primary fuel used on site. Diesel fuel consumption quantities for the 2020 to 2024 reporting periods are summarised in **Table 6-13**. Fuel consumption at BCM has notably increased from previous reporting periods. In previous years, BCOPL has endured periods of industrial action and flooding which stopped coal production. The increase has also been a result of the progressive increase to approved maximum production rates and longer haulage of overburden waste.

Diesel fuel consumption quantities for the 2020 to 2024 reporting periods are summarised in **Table 6-11**. Fuel consumption at BCM has notably increased during the reporting period and over time as a result of the progressive increase to approved maximum production rates.

Table 6-11: Diesel Fuel Consumption

Fuel type	Quantity (L)				
	2020 period	2021 Period	2022 Period	2023 Period	2024Period
Diesel*	69,734,267	60,559,675	64,631,567	76,833,977	77,192,384

*ULSD was used during all reporting periods

6.5.2.2 Ammonium Nitrate/Ammonium Nitrate Emulsions

Ammonium Nitrate (AN) and AN Emulsions are used in the blasting process and are stored in 1.2 tonne bulker bags and 40 tonne mobile trailers within the bunded AN storage compound. The AN storage compound is fitted with lockable access gates and is subject to daily inspections to safeguard against theft and/or spillages.

6.5.2.3 Ammonium Nitrate/Fuel Oil

Ammonium Nitrate/Fuel Oil (ANFO) is a blasting agent used at BCM. Ingredients are stored separately. ANFO is blended using mobile mixing units at blast sites.

6.5.2.4 Detonators

Detonators and other high explosives are used in the blasting process and are stored in purpose built isolated magazines, to the south-east of the AN storage compound, at the toe of south-eastern overburden emplacement area. The magazines incorporate security fencing, lockable entry points and are bunded.

6.5.2.5 Hydraulic/lubricating oils

Hydraulic/lubricating oils are stored in double-skinned above-ground tanks adjacent to the heavy vehicle workshop area. Waste oils are stored in a bunded bulk oil tank which is regularly serviced by a licensed waste contractor.

6.5.2.6 Cleaning agents

Cleaning agents are used in the equipment wash down facility for preparing the fleet of mobile equipment prior to maintenance. The cleaning agents are kept within covered stores in the maintenance workshop area, adjacent to the wash down facility.

Water collected at the bunded wash down facility is treated by an oil-water separator at the wash down bay and recycled.

6.5.2.7 Herbicides

Herbicides are used across the site for noxious weed control and are purchased on an as-needs basis. Therefore, they are not stored on-site. Application of herbicides is conducted only by suitably qualified persons and records of application areas are maintained.

6.6 Waste Management

6.6.1 Environmental Management

Condition 68, Schedule 3 of SSD 09_0182 requires the following waste management actions:

- Implement all reasonable and feasible measures to minimise waste generated by the Project;
- Ensure waste generated by the Project is appropriately stored, handled and disposed of; and
- Monitor and report on the effectiveness of waste minimisation and management measures in the Annual Review.

Waste management measures employed on site include:

- General waste from operations (food etc.) is disposed of at an appropriate licensed waste management facility;
- Recyclable wastes are separated on site and collected for recycling at an appropriate facility;
- Contaminated soil is collected and transported to the on-site bioremediation area for treatment and eventual on-site disposal. This is undertaken in accordance with the site's Bioremediation Management Procedure;
- All plant and equipment wash down areas have oil/water separating devices. Water from these areas is collected onsite; sediment, oils and grease are separated. Any sediment collected during

wash down activities is placed into the in pit bioremediation area for further treatment.

- Scrap metal materials are separated onsite and collected by a recycling contractor for off-site recycling;
- Sewage from permanent site facilities is collected onsite and treated within an aerated septic sewer system, with treated effluent being applied to a transpiration area. Sewage collected from in-pit crib hut locations is collected by a licenced waste contractor and disposed of off-site at an appropriate treatment facility;
- All waste oils and greases are segregated and stored appropriately until collection by a licensed waste contractor for appropriate offsite recycling/disposal;
- HEAVY earthmoving tyres are re-treaded and reused where possible, and smaller mining tyres were recycled off-site in 2024. Otherwise, tyres are buried in pit in accordance with site guidelines;
- Waste chemicals (including solvents) are segregated, stored appropriately and transported offsite by a licensed waste contractor for appropriate disposal;
- Concrete wash down areas are located away from surface water drains;
- Clean water surface water/runoff is diverted around mine facilities (where feasible); and
- Printer cartridges, bottles and waste collectors are all donated to PlanetArk.

Table 6-12: Waste Disposal from 2021-2024

Waste Stream	2021 Reporting Period (tonnes)	2022 Reporting Period (tonnes)	2023 Reporting Period (tonnes)	2024 Reporting Period (tonnes)
General waste – bulk waste skips	60.7	58.58	88.63	117.87
General waste – industrial bins	401.8	453.32	532.73	606.66
Oily Rags	8.99	7.34	3.09	
Oily Water - recycled	7.13	3.90	1.28	3.6
Waste Grease – recycled	5.25	5.35	7.92	7.82
Scrap metal -recycled	1,684.06	414.07	321.52	746.36
Aluminium Wire - recycled	9.02	-	-	-
Copper Wire - recycled	5.63	-	-	-
Empty Drums - recycled	0.92	1.43	-	0.8
Paper and cardboard-recycled	28.43	55.76	34.88	46.6

Waste Stream	2021 Reporting Period (tonnes)	2022 Reporting Period (tonnes)	2023 Reporting Period (tonnes)	2024 Reporting Period (tonnes)
Timber packaging and pallets -recycled	129.75	99.40	91.05	124.9
Oil filters - recycled	31.21	35.55	36.10	35.37
Hydraulic hoses	26.47	28.48	28.62	28.62
Batteries –recycled	5.79	10.92	10.06	39.65
Nicad Batteries - recycled	0.15	-	-	-
Printer cartridges	0.06	0.09	0.01	0.01
Tyres (heavy oversize vehicle) – each	174	426	300	300
Tyres (light vehicle) – each	116	366	471	474
Tyres (heavy oversize vehicle) – each recycled	-	-		60
1,000L plastic containers (IBCs)	74	25	18.55	5.2
Oil- recycled (litres)	518,740#	515,382#	590,000#	631,784#
Coolant – treatment and recycling (litres)	19,700#	21,100#	28,500#	34,500#
Effluent - offsite recycled (Litres)	807.5#	875.7#	1,773.15#	1,264.2#
TOTAL	**2,405.36**	**1,174.19***	**4,333.71***	**1763.46***
Total Recycled	**1,907.19**	**626.47***	**2,913.01***	**1005.1***

* Total applies only to waste measured in tonnes
# Total in Litres

6.6.2 Environmental Performance

This reporting period has seen an increase in several non-recyclable and recyclable waste streams compared to the 2023 reporting period. Heavy vehicle tyre recycling was introduced in 2024 to explore options into salvaging of rubber materials. Mining operation waste collection statistics for the, 2021, 2022, 2023 and 2024 reporting periods are summarised in **Table 6-13**.

The total and total recycled figures dropped in 2022 due to some amendments to the calculations used in previous years. Previously, these totals included the effluent figure despite it being in litres. The totals from 2022 on will now only be the waste measured in tonnes as stated in the table notes.

BCOPL and its contractors have continued to implement the waste management hierarchy. Wherever possible, waste materials are re-used on site in preference to direct disposal. Site induction packages include waste awareness components and waste practice is included in employee and contractor toolbox sessions. Environmental surveillance was undertaken by BCOPL throughout the reporting period, and observations and non-conformances were communicated as necessary to relevant employees and contractors.

6.7 Spontaneous Combustion

6.7.1 Environmental Management

Spontaneous combustion is controlled by avoiding the disposal of combustible material in waste emplacement areas and emplacing combustible materials in locations where oxygen ingress is minimised (i.e. deep in pit burial, away from rehabilitation areas).

Four key principles apply to the management of spontaneous combustion at BCM:

- Prevention;
- Detection;
- Control; and
- Incident management.

Due to the varied nature of spontaneous combustion, the issue is dealt with on a case-by-case basis. Measures that were implemented during the reporting period include:

- Managing spontaneous combustion in accordance with the Spontaneous Combustion Management Plan;
- Capping all areas of combustible material with inert material where possible, noting some mined areas cannot be capped. In some cases capping is not practical for areas that require re-working in the near or medium future;
- Placing any identified combustible materials deep within in pit emplacement areas;
- Monitoring coal stockpiles for signs of spontaneous combustion and responding as required; and
- Implementing Safe work method statements as required.

The 2010 EA reported that spontaneous combustion presents a low risk of causing environmental impacts at BCM. All risks to rehabilitation from spontaneous combustion are managed in accordance with the strategies outlined in the RMP.

6.7.2 Environmental Performance

BCOPL continued to apply the above principals to minimise the occurrence of spontaneous combustion onsite. Two minor Spontaneous combustion events occurred during the reporting period, in February and December 2024. The incidents were managed in accordance with the Spontaneous Combustion Management Plan.

6.8 Heritage

6.8.1 Environmental Management

The management of cultural heritage at BCM is undertaken in accordance with the HMP. A review of the HMP was commenced in late 2023 and was approved by the DPHI in June 2024. This review has resulted in a document name change, now identifying the Cultural Heritage Management Plan as the Heritage Management Plan due to the incorporation of European Heritage items.

An outline of the process and draft document was discussed at the Aboriginal Stakeholder Consultative Forum (ASCF) meetings in 2023 and 2024. Time has been allowed for review of the draft HMP by Registered Aboriginal Parties (RAPs) and Community Consultative Committee (CCC) and their feedback incorporated into the management plan. The approved HMP prescribes:

- The policies and practices for the preservation of sites during construction and operations;
- Other facets of cultural heritage practices and conservation measures including salvage of sites as required and practice of due diligence inspections; and
- Other relevant cultural heritage considerations including consultation with the Aboriginal community.

Field investigations, reporting and salvage works undertaken during 2024 focussed on BC 54 and the proposed 2025 tree clearing area which included the pit progression area of 8.77 ha on the eastern side of MW5 and 2.54 ha of exploration pads.

6.8.2 Environmental Performance

6.8.2.1 Archaeological Salvage

The aim of the archaeological salvage work was to:

- Identify and salvage Aboriginal artefacts within the 2025 tree clearing areas to mitigate harm.
- Use the artefacts salvaged and the landscape context of the area to develop a picture of prehistoric land use and Aboriginal occupation of the area;
- Engage and involve the RAPs in all phases of the archaeological and cultural salvage; and
- Comply with the HMP and thereby comply with legislative requirements.

Tree Clearing ahead of Pit Progression

An 8.77 ha area of land to the north of the pit (east of BC54 and MW5) was surveyed ahead of the planned 2025 tree clearing required for pit progression. Twelve surface artefacts were collected during the surface survey. The 2026 tree clearing area of 23.05 ha has been surveyed and numerous areas of PAD were identified based on landform context and surface evidence. Test pits totalled 60 m² by the end of the survey period with some areas of PAD remaining to be tested. One hundred artefacts were recorded during the assessment process to date. One area of testing requires further salvage and will complement the information retrieved from BC 54 in terms of spatial excavation of the broader area. A modified tree was also located within the 2026 tree clearing area, which will require salvaging. Further works will be required in 2025 to include final test pitting and archaeological survey of exploration pads.

Tree Clearing for Exploration Pads

In October 2024, areas requiring tree clearing for the 2025 exploration drilling program were inspected for artefacts. Several areas of archaeological potential were identified within the proposed tree clearing areas. Tree clearing areas were adjusted to avoid potential archaeological deposits.

Open area excavation – BC54

Salvage operations continued in areas of BC 54 using the revised technique introduced in 2023. The introduction of mechanical excavation (with Departmental approval) and the mechanical sieve processed a large quantities of soil compared to hand excavation.

6.8.3 Results to Date

- In 2024 excavations were expanded by 113 m² in February. The increase in output reflects the increased efficiency of the mechanical excavation.
- A total of 931 m² has been excavated since 2021 at BC54;
- A total of 13,786 artefacts were excavated in 2024;
- As there is no opportunity to conserve any part of BC54 and BC34 in-situ, further open area excavation was undertaken to maximise the data retrieved;

The BC 54 and BC 34 area were excised from the 2024 tree clearing area to allow for further excavation and salvage of artefacts.

6.8.3.1 Discussion

Approximately 40,000 artefacts have been salvaged since 2021 from test pits and the initial open area excavations. A substantial number of samples from sites BC 54 and BC 34 have been retrieved and form a significant representative sample on which to base the archaeological analysis of site use, raw material selection and sources and the significance of the site relative to others in the Nandewar Range.

Archaeological sites of this size and density are rare in the Leard Forest. Significant resources are being invested into maximising the salvage of the site prior to tree clearance.

6.8.3.2 Aboriginal Community Consultation

To facilitate ongoing Aboriginal stakeholder consultation, BCOPL hold Aboriginal Stakeholder Consultative Forum (ASCF) meetings, which are open to all RAPs who have registered during the BCOPL Project and any other member of the Aboriginal community who wish to attend. The ASCF provide an inclusive platform for information exchange between BCOPL and Aboriginal stakeholders and allows for continued dialogue on cultural heritage matters and their management at BCM.

Meetings were held in January and June in 2024. Issues discussed in this forum include:

- Project update (including environmental monitoring rainfall and water storage);
- Exploration update;
- Status of management plans such as the revision of the Cultural Heritage Management Plan;
- The Keeping Place; and
- Archaeological salvage update.

6.8.3.3 Historic Cultural Heritage

No historic cultural heritage works were required in 2024.

6.8.4 Improvements and Initiatives

BCOPL will continue to implement Aboriginal Cultural and Historic Heritage management and mitigation measures in accordance with the approved HMP.

6.9 Greenhouse Gases

6.9.1 Environmental Management

In accordance with the *National Greenhouse and Energy Reporting Act 2007*, and the *National Environment Protection (National Pollutant Inventory (NPI)) Measure,* IA submits mandatory National Greenhouse and Energy Reporting (NGERs) and NPI reporting on an annual basis, which includes emissions reporting on behalf of BCM.

The AQGHGMP details air quality and greenhouse gas management and mitigation measures and outlines BCM's monitoring and reporting requirements for Greenhouse Gas (GHG) emissions.

6.9.2 Environmental Performance

Key GHG and energy statistics for BCOPL as reported in the 2023-2024 NGERs submission to the Clean Energy Regulator are summarised in **Table 6-13** alongside statistics from the 2021-2022 and 2022-2023 periods. As the reporting period for NGERs ends in June, data for the current financial year is not yet available.

For reporting purposes, emissions are categorised as either direct (Scope 1) or indirect (Scope 2) emissions. Scope 1 emissions are from sources that are owned or controlled by BCOPL. Scope 2 emissions are a consequence of the activities of BCOPL but occur at external sources; e.g. emissions resulting from the purchase of electricity. Emissions are calculated as tonnes of carbon dioxide equivalent (t CO2-e).

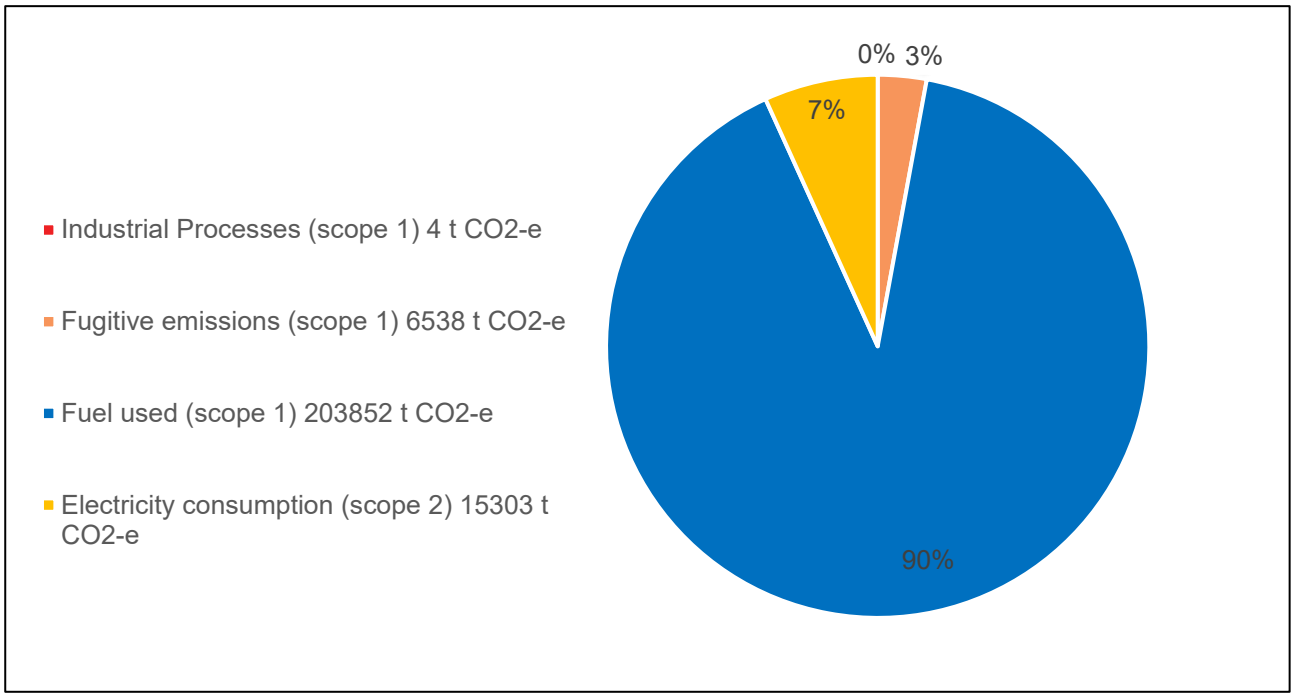
Three gasses constitute the emissions of BCOPL, being primarily carbon dioxide, in addition to methane and nitrous oxide.

Table 6-13: BCOPL GHG and Energy Statistics

GHG/ Energy	2021-2022	2022-2023	2023-2024
Scope 1 (t CO2-e)	177,437	192,864	210,390
Scope 2 (t CO2-e)	16,941	14,769	15,303
Total scope 1 and scope 2 (t CO2-e)	**194,378**	**207,633**	**225,693**
Energy Consumed (total) (Gigajoules (GJ))	2,604,679	2,832,711	3,082,591
Energy Consumed (net) (GJ)	2,604,679	2,838,711	3,082,591
Energy Produced (GJ)	168,996,402	153,752,823	203,386,518

Sources of Scope 1 and Scope 2 emissions for 2023-2024 are illustrated in **Figure 6-9**. The main contributor to Scope 1 emissions was the combustion of diesel. Scope 2 emissions are attributed to the purchase of 21,443,787 kWh of electricity from the state grid.

Figure 6-9: Sources of BCM Scope 1 and Scope 2 Emissions



Electricity use during 2023-2024 was similar to 2022-2023 due to the ongoing operation of the CHPP. Emissions from diesel combustion in the 2023-2024 reporting period increased marginally from 2022-2023. This can be attributed to the increase in ROM production across 2024.

6.9.2.1 Comparison to Predictions

The difference in emission predictions to actual can be explained by several changes from the assumptions made in the 2010 EA (Hansen Bailey, 2010). These changes include a larger equipment fleet, a higher rate of electricity usage and a change in the way in which fugitive emissions are calculated. The increase in electricity consumption compared to the 2010 predictions is the use of electricity by the CHPP. This is considered negligible as the total Scope 1 and 2 emissions are less than half what was predicted in the 2010 EA.

Table 6-14: Comparison of 2010 EA Emissions Predictions and 2023-24 NGER Report

GHG (t CO_2-e)	2023-2024 NGER Report	2010 EA Emissions Predictions
Scope 1 - Industrial Processes	4	no comparable data estimated
Scope 1 - Fugitive Emissions	6,538	329,763
Scope 1 - Fuels Usage	203,852	136,920
Scope 1 - Total	210,390	466,683
Scope 2 - Electricity Consumption	15,303	3,233

Total Scope 1 and Scope 2	**225,693**	**469,916**

6.9.3 Improvements and Initiatives

GHG emissions from the BCM are principally associated with diesel combustion and the consumption of purchased electricity. BCOPL has implemented the tracking of site-wide fuel consumption metrics including a goal of tracking 98% fuel accountability, fuel burn per BCM of material moved, and fuel burn of the 930E fleet.

BCOPL continued to target a decrease in fuel burn during 2024 through operational changes and fuel efficiency trials. Fuel chips trials from both Cummins and Komatsu have commenced across the BCM's fleet of haul trucks. Hydrogen injection systems have been fit to two heavy vehicles and trials are underway to explore increased fuel efficiency. BCOPL has also introduced a hierarchy traffic management system in pit which is focused on safety but will also increase fuel efficacy by limiting the stopping and starting of heavy vehicles at intersections.

During 2021, IA investigated in relation to the potential GHG initiatives which could potentially be implemented across its Queensland and NSW operations, including the BCM. Following on from this work, detailed site specific reviews of existing GHG measures and potential measures available to further reduce direct GHG measures are under consideration for implementation at BCM during 2024, the outcomes of which are reported in **Section 6.9.3.1**.

6.9.3.1 Solar Farm

BCOPL has commenced a project to develop a small solar farm (4.95 MW solar farm and battery) in close proximity to the BCM. The solar farm aims to provide enough energy for all mining operations at BCM to be self-sufficient and run entirely from renewable energy during daytime operations. Construction of the Solar farm was commenced in 2024 and expected to be operational in Q1 2025.

6.9.3.2 Revegetation Works

Extensive revegetation works are being completed in the biodiversity offset areas (pursuant to it the biodiversity offset strategy) and mine rehabilitation areas together with a significant native vegetation corridor which will create a future carbon sink.

6.9.3.3 Equipment and Fuel Providers

In 2023, BCOPL conducted meetings with the BCM site equipment's Original Equipment Manufacturers (OEMs) (Komatsu, Hitachi, Cummins etc) and Ampol to understand their roadmap for carbon reduction and assess potential for biodiesel and Renewable Fuel. The OEMs' noted that they are completing research and development projects regarding lower emission equipment. However, whilst these technologies are being investigated, they are not of the size and scale which are commercially available to supply vehicles at the scale required

Ampol confirmed for BCOPL that alternative fuels are not currently reasonably practicable given the limited availability, and whilst they are continuing to review supply chain options they have yet to find a cost effective solution for Australian supply.

BCOPL will be following up with the OEMs and Ampol (fuel providers) to continue discussions over the availability of new methods, equipment and fuels that can assist in reducing emissions at BCM.

BCOPL will continue to explore possible reasonable and feasible mitigation and management measures to minimise GHG emissions associated with their coal operations.

6.10 Public Safety

6.10.1 Environmental Management

The management of public safety at the BCM involves four key elements as follows:

- Traffic – to ensure a safe environment for public access to and egress from the site and movement within the site;
- Bushfire – to ensure that the public both onsite and offsite are not exposed to increased risk of bushfire as a result of the Project;
- Lighting – to ensure the provision of adequate lighting to minimise adverse risk to the public both onsite and offsite; and
- Security – to restrict public access to areas of BCM where non-inducted and non-trained members of the public may be exposed to adverse risks posed from mining and related activities.

6.10.2 Environmental Performance

6.10.2.1 Traffic

Additional detail on traffic management is detailed in **Section 6.11**.

6.10.2.2 Bushfire

BCOPL has historically worked closely with the NSW Rural Fire Service and Forestry Corporation of NSW, and will continue to do so, to ensure that bushfire risks on-site are actively identified and managed.

No bushfires or fire related incidents were recorded at BCM during the reporting period. Current management controls are considered to be appropriate.

6.10.2.3 Lighting

BCOPL and its subcontractors ensure the careful positioning of on-site light sources to actively minimise associated impacts on surrounding receivers, while maintaining adequate illumination levels for operational activities to be carried out safely. This is particularly the case for the lighting sets at the waste emplacement areas. Lighting is provided and maintained in accordance with *AS/NZS 1158.0:2005 Lighting for roads and public spaces* and *AS 1680.1-1990 Interior lighting – General principles for recommendations*.

The control strategies implemented during the reporting period are considered appropriate and will be continued.

6.10.2.4 Security

BCOPL implements a Site Access and Security Procedure which defines the conditions under which employees, contractors and visitors can access BCM. It outlines policies and strategies for limiting unauthorised access by members of the public with no commercial cause to be on the site, with a view to limiting the risk of personal harm, theft or damage of assets or personal property.

6.11 Traffic

6.11.1 Environmental Management

Traffic generated by construction and operation activities at BCM is managed in accordance with the approved Traffic Management Plan (TMP). The TMP focuses on the broader issues of traffic management at BCM and prescribes the overall requirements of the contractors associated with the BCM. It details

management strategies that address environmental and safety risks associated with traffic generated from construction and operation activities to mitigate potential impacts and to satisfy the requirements of SSD 09_0182 and other statutory obligations. The TMP also considers traffic associated with the TCM and MCCM.

The TMP describes forecast operational traffic volumes, site access arrangements, safety improvements, monitoring requirements and control measures to ensure the safe movement of pedestrians and vehicles, and to ensure roads are maintained in a 'fit for purpose' state.

Traffic counts were undertaken at six monthly intervals during the construction phase (2012 – 2015) and at 12 monthly intervals post- construction (mid-2015 onwards); to ensure actual traffic volumes are consistent with the TMP. Where there are significant variations in the traffic volumes on a given road because of BCM's operation, amendments to the TMP shall be considered. Internal and external audits of the implementation of the TMP are undertaken periodically.

6.11.2 Environmental Performance

6.11.2.1 Traffic Monitoring

Traffic incidents, monitoring of road conditions and roadkill observations are recorded in weekly inspections and incident reports, where relevant. There were seven BCM personnel traffic-related incidents recorded on roads in the vicinity of the BCM during the 2024 reporting period.

6.11.2.2 Inspections and Audits

A traffic count audit was completed during the reporting period over a 2-week period between 28 of February and 12 March 2024 to investigate traffic flows on the key routes and to quantify the number of vehicles entering the BCM via each access routes.

Data from the 2024 traffic survey has been averaged out to produce daily traffic flows (DTF) which incorporates each way traffic past each monitoring point. The former BCM haul road monitoring point recorded a DTF of 656 while the Leard Forest Rd monitoring point recoded a DTF of 143. This equates to approximately 89.8% (up from 85% in 2023) via the former haul road and 10.2% (down from 15% in 2023) using Leard Forest Rd.

Analysis of the traffic counts indicates that 6% of vehicles travelling to BCM (via the mine access rd) were heavy vehicles (Class 4-12 vehicles). It is important to note that whilst Class 3 vehicles are also typically grouped as heavy vehicles, it was observed that a significant proportion of Class 3 vehicles are small vehicles with a wheelbase over 3.1m. This includes small busses, large utes and 4x4 vehicles often driven by workers involved in construction and mining projects.

Over the two-week traffic count period, the survey indicated a total average DTF of 799 (heavy and light vehicles) this figure is much lower than the predicted estimated daily traffic volume outlined in the Traffic Management Plan, which predicted a total of 1,174 vehicle trips per day.

6.12 Socio-economic

6.12.1 Socio-economic Management

Socio-economic matters at the BCM are managed via implementation of the Social Impact Management Plan (SIMP). The approved SIMP contains a commitment to undertake a major review of the document every three years. The revised SIMP was approved by the then DPHI in August 2021. BCOPL reviewed the SIMP

in 2023 regarding the local community and regulatory requirements. This was submitted to DPHI for review and approval in 2024.

The approved SIMP summarises the findings of the Social Impact Assessment completed as part of the 2010 EA. It outlines BCOPL's commitments to the mitigation and management of social impacts throughout the life of the Project. This includes implementing adaptive management in response to impacts on:

- Housing affordability;
- Local employment;
- Local businesses;
- Social and community infrastructure;
- Community cohesion;
- Farming communities;
- Indigenous communities; and
- Traffic.

The SIMP also outlines strategies for the management of cumulative social impacts from BCM and other mines in the region.

6.12.2 Environmental Performance

Section 7.1 of the approved SIMP outlines a range of measures to be used to monitor the social impact of the BCM. BCOPL's performance against each of the monitoring mechanisms outlined in the SIMP has been assessed as part of the annual review process. The findings of that review are presented in **Table 6-15**.

Table 6-15: Social Impact Monitoring Summary

Monitoring Mechanism	Type	Frequency	Purpose	Status (2023 Reporting Period)
Employment records	Quantitative	Quarterly	Monitor employment diversity (gender, Indigenous status), local residency, journey to work.	Details of the profile of the BCM workforce are provided in **Section 9.4**.
Procurement records	Quantitative	Six monthly	Monitor project spend on goods and services with local and regional business, including sub-contractors.	Approximately $59,338,489 was spent on goods and services procured from the business within Narrabri, Gunnedah and Tamworth local government areas.
Housing data	Quantitative	Quarterly	Monitor changes in house prices and rentals, vacancy rates, motels and temporary accommodation.	A summary of housing data monitoring is provided in **Section 6.12.2.1**.
Land use data	Quantitative	Annual	Monitor availability of zoned and serviced residential land and supply of new housing.	Refer to **Section 6.12.2.2** for a summary of key land availability and housing supply data for the Narrabri and Gunnedah LGAs.
Social statistics	Quantitative	Six monthly	Monitor changes in service provider statistics (hospital admission rates, GP attendance, school enrolments, emergency response, reported crime).	Refer to **Section 6.13** for a summary of key social statistics.
Attendance Records	Quantitative	Annual	Monitor workforce and community participation in education and training programs, induction programs, local sports events, local business forums and business events.	Details of workforce participation are provided in **Section 9.0**.

Monitoring Mechanism	Type	Frequency	Purpose	Status (2023 Reporting Period)
Workforce Survey	Qualitative	Annual	Record workforce perceptions about general wellbeing, family functioning, and community issues	In November 2024, the workforce was invited to participate in Idemitsu Australia's annual workforce survey. From the feedback captured in this survey elements of the BCO business that are going well and where improvement is required have been identified. The site leadership team is working through a program to provide the workforce with feedback from the survey, combined with proposed action plans to introduce constructive change through a continuous improvement process.
Community Survey	Qualitative	Annual	Record community perceptions about company reputation, workforce integration into the community, access to local services, and specific project impacts.	Community is regularly engaged through the CCC meetings. Meetings discuss various topics on how the company is interacting with the community and any specific impacts that are viewed by the local community.
Local business survey	Qualitative	Annual	Record perceptions about access to the supply chain, tender opportunities, and business engagement and support programs.	BCOPL is a member of the Boggabri Business Chamber. Meetings were attended throughout the reporting period to provide the local business with updates on upcoming events and engage in local business issues. BCOPL's involvement in Boggabri's business community provides a mechanism for the company to gauge business perceptions about the BCM within the local community.
Indigenous engagement	Qualitative	Annual	Monitor labour demographics in local area	BCOPL facilitates an ASCF. The ASCF provides a forum for raising general issues by

Monitoring Mechanism	Type	Frequency	Purpose	Status (2023 Reporting Period)
				stakeholders or BCOPL. The forum met twice during the reporting period and discussed matters including Keeping Place for Aboriginal salvage items, results of environmental monitoring on site, consultation for upcoming modifications and consultation for the review of the CHMP and SIMP. As of 2021, upon employment BCOPL employees can choose to indicate whether they identify as an Aboriginal or Torres Strait Islander person. During the reporting period 11 percent of employees identified as a First Nations person.
Community complaints	Qualitative	Annual	Record workforce perceptions about general wellbeing, family functioning, and community issues	Nil community complaints were made in 2024 which is outlined in **Section 9.3.**

6.12.2.1 Housing

During 2021, BCOPL commissioned an SQM Research report on the Narrabri, Gunnedah and Boggabri area completed in December 2021. An additional housing survey was conducted in November. No housing surveys were completed in 2024. BCOPL will commission a housing report for Narrabri, Gunnedah and Boggabri in 2025.

Housing vacancy data indicated there have been substantial changes in residential vacancy rates over the past 11 years. Between 2009 and 2022, residential vacancy rates in Narrabri fluctuated significantly from less than 1% (two vacancies) in 2009, to a peak of around 5% (55 properties) in December 2015 and a vacancy rate of less than 1% (ten vacancies) in 2022 (SQM 2022).

Between 2009 and 2020, vacancy rates in Boggabri peaked in September 2013 at around 14% (25 vacancies) before dropping to a ten-year low of around 2% (4 vacancies) in September 2014. Between 2014 and 2019, vacancy rates in Boggabri fluctuated with another low of 2% in May 2018 before increasing to 4.6% in April 2019, and then decreasing to a current rate in 2022 of 2.6% (five vacancies) (SQM 2022).

Between 2009 and 2022, vacancy rates in Gunnedah peaked in both May 2013 and August 2015 at around 6% (more than 75 vacancies and more than 80 vacancies respectively). Over the 12-year period, vacancy rates dropped to a low of around 1% in September 2014 before increasing through to the August 2015 high. The residential vacancy rate in Gunnedah during 2022 increased slightly from 2021 to 1% (14 vacancies) (SQM 2022) from 0.7% (12 vacancies) (SQM 2021).

The DPHI predicts in their Draft Narrabri Place Strategy the Narrabri Shire will see an increase in population from 14,500 to 16,900 by 2041. In the NSC's Draft Place Strategy (2024), a new Residential precinct has been proposed, which has potential for 2.100 dwellings on flood-free land, to ensure housing availability for predicted future population growth (DPHI 2024).

Gunnedah Shire Council in the Gunnedah Shire Local Housing Strategy (2024) have finalised three rezoning applications to rezone land for larger lots, which could add 110 residential allotments. In 2016 there were 801 lots available for development and a predicted decrease in population from 12,900 people to 12,600 in 2041 (Gunnedah Shire Council 2024).

6.12.2.2 Social Statistics

Health

In 2024 BCOPL met with a Boggabri Ochre Health representative to discuss potential social impacts felt by local healthcare service providers. Feedback from this consultation highlighted the need for more resourcing at Boggabri Hospital for aged-care beds. The impacts from BCOPL were found to be minimal, as Boggabri Hospital occasionally receive patients from BCOPL who are involved in incidents.

Schools

As part of the social impact monitoring required under the SIMP, BCOPL completed a review of school enrolment records for all public schools in Gunnedah, Narrabri, Maules Creek and Boggabri between 2011 and 2022. 2023 enrolment data is released Mid-to-late 2024 which will be reported in the 2024 Annual Review.

Enrolment records indicate there have been gradual increases and decreases in student numbers amongst schools, with no significant trends observed between different years. Gunnedah High School has experienced a decline in enrolment numbers since 2011, though recent enrolments at Narrabri High School

have slightly increased. The declining enrolment at Gunnedah High School may be attributed to a growing trend of boarding school education or a shift to accessible private education options such as St Xavier's Christian School and Saint Mary's College whose enrolments increased to 396 and 445 in 2022. A summary of annual enrolments for local schools between 2011 and 2024 is provided in **Table 6-16.**

Table 6-16: Local School Enrolments 2011 - 2023

School	Annual Enrolments												
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Boggabri													
Boggabri Public School	98	101	105	123	117	117	113	88	83	69	77	86	86
Sacred Heart Boggabri	37	32	33	34	23	24	37	43	39	43	38	40	38
Narrabri													
Narrabri Public School	≈ 400	≈ 395	≈ 400	≈ 410	≈ 410	406	403	399	394	353	329	298	256
Narrabri West Public School	≈ 230	≈ 240	≈ 280	≈ 280	≈ 300	370	348	327	330	325	313	301	292
Narrabri High School	568	589	588	614	587	540	508	488	489	504	521	511	517
St Xavier's Narrabri	240	224	113	171	195	178	188	189	187	212	235	237	279
Fairfax Public School	8	8	13	10	10	12	14	11	11	8	6	3	3

School	Annual Enrolments												
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Gunnedah													
Carinya Christian School – Gunnedah	37	43	6	17	42	69	89	99	155	186	220	211	217
Saint Mary's College Gunnedah	-	-	379	408	401	379	357	364	379	370	421	445	435
St Xavier's Gunnedah	-	-	350	350	358	350	371	381	365	382	374	396	596
G S Kidd Memorial School	45	49	32	33	40	40	40	36	36	33	33	35	31
Gunnedah Public School	≈ 135	≈ 130	≈ 120	≈ 122	≈ 122	≈ 122	156	155	156	164	154	172	182
Gunnedah South Public School	≈ 480	≈ 520	≈ 570	599	616	620	634	629	636	614	607	571	589
Gunnedah High School	≈ 550	≈ 550	≈ 500	≈ 450	≈ 430	430	391	414	426	432	399	357	389

7.0 WATER MANAGEMENT

Water management at BCM is undertaken in accordance with the approved water management plans, prepared in accordance with SSD 09_0182. The Water Management Plan (WMP) acts as the overarching document governing water management at BCM. Approved subordinate plans supporting water management include:

- Surface Water Management Plan (SWMP);
- Groundwater Management Plan (GWMP);
- Site Water Balance (SWB) report; and
- BTM Complex Water Management Strategy (WMS).

The water management system operates across four key elements as defined below:

- **Clean water** is defined as runoff from catchments that are not disturbed by mining operations;
- **Dirty water** is defined as runoff from disturbed areas within the mine site and includes runoff from spoil dumps, haul roads and parts of the mine infrastructure area. This water contains high levels of suspended solids;
- **Contaminated water** is defined as runoff generated from coal stockpiles, the CHPP, parts of the MIA and the mining void, as well as groundwater inflows to the mining void. This water contains high levels of suspended solids and is mildly saline; and
- **Erosion and sediment control** is defined as the suite of management and physical measures available to minimise the generation of soil erosion and to prevent soil and sediment entering the receiving water systems (i.e. 'Nagero Creek' and the Namoi River).

7.1 Surface Water

Surface water is managed in accordance with BCM's SWMP and associated water management plans which conform to the approvals, licences and other regulatory requirements of BCM. The key objectives of the surface water management system are to:

- Segregate clean runoff, dirty runoff, and contaminated water generated from rainfall events and mining operations;
- Minimise the volume of contaminated mine water (surface runoff draining to the pit and groundwater seepage) generated by BCM;
- Preferentially reuse contaminated water for dust suppression and coal washing;
- Provide sufficient on-site storage to avoid releases of contaminated water that could affect the quality of downstream watercourses;
- Treat all dirty runoff from un-rehabilitated overburden areas to settle coarse suspended solids; and
- Where practicable, divert 'clean' runoff to downstream creeks.
- Prioritise the use of contaminated and dirty water where reasonable and feasible in preference to imported water

Erosion and sediment control measures are used to supplement the water management system

In accordance with SSD 09_0182, BCM maintains a SWB for effective management of water resources. The SWB details water use, water demand and water management at BCM, as well as the sources and security of water supply, including contingency for future reporting periods.

7.1.1 Surface Water Quality Monitoring

BCOPL undertakes 'ambient,' 'event' and 'frequency' based water quality monitoring in accordance with the SWMP and EPL12407.

Ambient monitoring measures the surface water quality of the receiving environment surrounding BCM (i.e. outside the site water management system). Ambient monitoring is triggered by an event such as a 'wet weather discharge' rather than as part of a set sampling regime.

Mine site event-based monitoring is undertaken within the site water management system and includes monitoring of sediment dams and mine water dams (MWD) in response to controlled discharges (i.e. release from a sediment dam), uncontrolled discharges (i.e. spillage from a dam during wet weather) or emergency discharges (i.e. an emergency discharge due to wet weather).

Frequency based monitoring is undertaken within the site water management system on a quarterly basis to assess the condition of site water quality and inform ongoing management.

Details of BCM's surface water quality monitoring program including monitoring locations, trigger events and sampling methods, are outlined in **Table 7-1**.

Table 7-1: Surface Water Quality Monitoring Regime

EPL ID	Location	Location description	*Trigger event/ Type of monitoring	Frequency	Sampling method
Ambient and Event Based Monitoring					
1	SD6	Nagero Dam	Wet weather discharge Controlled discharge water quality	As soon as practicable at the commencement of a wet weather discharge	Grab sample with conductivity and pH in situ
3	SD3	Southwest corner of spoil dump	Wet weather discharge Controlled discharge water quality	As soon as practicable at the commencement of a wet weather discharge	Grab sample with conductivity and pH in situ
4	SD4	Sediment dam at rail load out area, west of mine site	Wet weather discharge Controlled discharge water quality	As soon as practicable at the commencement of a wet weather discharge	Grab sample with conductivity and pH in situ
5	SW1 'Nagero Creek'	Downstream of mining	Discharge water quality (from EPL points 1,3 & 4)	As soon as practicable during a discharge event from EPL discharge points 1, 3 & 4	Grab sample with conductivity and pH in situ

EPL ID	Location	Location description	*Trigger event/ Type of monitoring	Frequency	Sampling method
6	SW2 'Nagero Creek'	Upstream of mining	Discharge water quality (from EPL points 1,3 & 4)	As soon as practicable during a discharge event from EPL discharge points 1, 3 & 4	Grab sample with conductivity and pH in situ
48	SW3 'Nagero Creek'	Downstream of mining and SW1	Discharge water quality (from EPL points 1,3 & 4)	As soon as practicable during a discharge event from EPL discharge points 1, 3 & 4	Grab sample with conductivity and pH in situ
Frequency Based Monitoring					
36	SD6^	Nagero Dam	Surface water quality	Quarterly	In situ
37	SD10 & SD12	Near CHPP	Surface water quality	Quarterly	In situ
38	SD3^	Southwest corner of spoil dump	Surface water quality	Quarterly	In situ
41	MW3	South of MIA	Surface water quality	Quarterly	In situ

Notes:
* Wet weather discharge: An overtopping event from a dam as a result of excessive rainfall (i.e. typically via the emergency spillway)
* Controlled discharge water quality: a controlled discharge event from a dam (i.e. drawdown of a dam after adequate sediment settlement has occurred)
^ EPL Point – Licensed discharge point

Surface water quality testing parameters from the SWMP are specified in **Table 7-2**.

Table 7-2: Surface Water Quality Testing Parameters

Monitoring Type	Determinants
Ambient and event based	Conductivity, nitrate, nitrogen (total), oil and grease, pH, phosphorus (total), reactive phosphorus, total suspended solids, dissolved metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc, iron)
Frequency based (quarterly)	Conductivity, pH, Temp

BCOPL uses a handheld multi-parameter water quality probe (pH, EC, temperature) for field checks. All water quality samples requiring lab analysis are sent to a NATA-accredited laboratory for processing.

7.1.1.1 Water Storage and Usage Monitoring

Water storage levels of all active sediment dams and mine water dams are monitored and recorded on a weekly basis. This allows for effective management of stored volumes in terms of consumption, potential discharges and infrastructure planning in accordance with the SWMP.

7.1.2 Environmental Performance

7.1.2.1 Surface Water Quality Criteria

Default guideline values

The SWMP specifies interim trigger levels for ambient monitoring, i.e. water quality of Nagero Creek when a discharge event occurs at BCM. Sufficient baseline data for the formation of statistically sound trigger levels is not available for Nagero Creek and the ANZECC (2000) default guidelines are considered to be unsuitable, as the ambient water quality has historically exceeded some of the criteria. The SWMP therefore assigns interim trigger levels based on the ANZECC *guideline values for the protection of Environmental Values* (2010) and the 80th percentile value of the limited ambient monitoring results historically collected from SW2.

7.1.2.2 ANZG (2018) provides DGVs for many of the various toxicants sampled through the monitoring program. Where ANZG (2018) did not provide guideline values, ANZECC (2000) was used instead. DGVs for the protection of aquatic ecosystems were taken where possible and are presented in the SWMP. Results of Event Based Monitoring

The approved SWMP requires BCOPL to undertake surface water quality monitoring in Nagero Creek upstream (SW2) and downstream (SW1 & SW3) of the BCM as soon as possible at the commencement of discharge.

No discharge events occurred during the reporting period as such no event-based sampling was undertaken.

7.1.2.3 Results of Frequency Based Monitoring

Frequency based monitoring was undertaken on the following dates:

- 5 March 2024
- 17 June 2024
- 3 September 2024
- 2 December 2024

The in-situ results for quarterly monitoring are provided in **Table 7-3**, with the laboratory results indicated in brackets.

Table 7-3: Summary of Frequency Based Monitoring Results

	MW3	SD3	SD4	SD6	SD10	SD12	SD23
pH							
Q1	8.75	8.51	-	8.49	8.01	8.37	8.49
Q2	8.45	8.34	8.24	8.22	7.7	8.23	8.57

Q3	8.63	8.72	8.55	8.04	8.55	8.27	8.29
Q4	8.8	8.98	7.3	8.51	8.15	8.55	8.43
Average	8.66	8.64	8.03	8.32	8.10	8.36	8.45
Conductivity (µS/cm)							
Q1	1137	768	-	799	1671	1521	1661
Q2	936	637	1780	527	1151	1245	1566
Q3	881	606	163.2	326	1365	1191	2147
Q4	1083	639	126	534	1755	1378	1581
Average	1009	663	690	547	1486	1334	1739

- no results recorded

Long Term Trend Analysis

In accordance with SSD 09_0182, a long-term trend analysis of surface water monitoring results at BCM has been undertaken using data from 2019 to 2024 to identify any trends in the monitoring. The results indicate the following:

- The pH of surface monitoring results stayed relatively stable between 2019 and 2024 with values ranging between 7.07 and 9.24 (**Figure 7-1**). In 2023 and increasing trends was exhibited, likely due to the decrease in rainfall when compared to 2022 (**Section 6.1**).
- Historical trends show fluctuations in EC between 2019 and 2024. EC Since mid-2022, EC largely influenced by water storage volumes and rainfall and consistently slightly higher in contaminated mine water storages.
- There were no discharges from BCOPL in 2024.

Figure 7-1: Long Term Surface Water Monitoring Results for pH

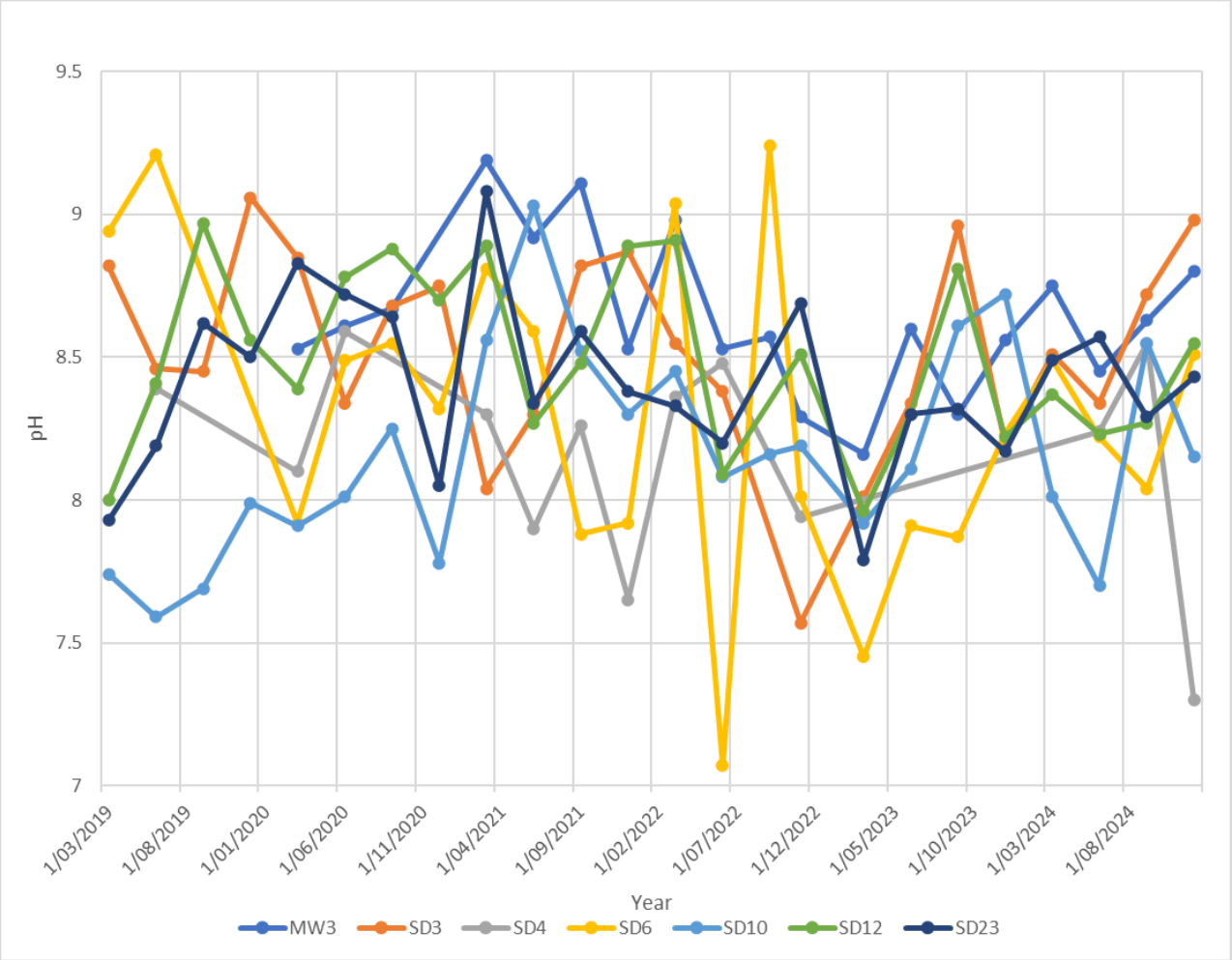
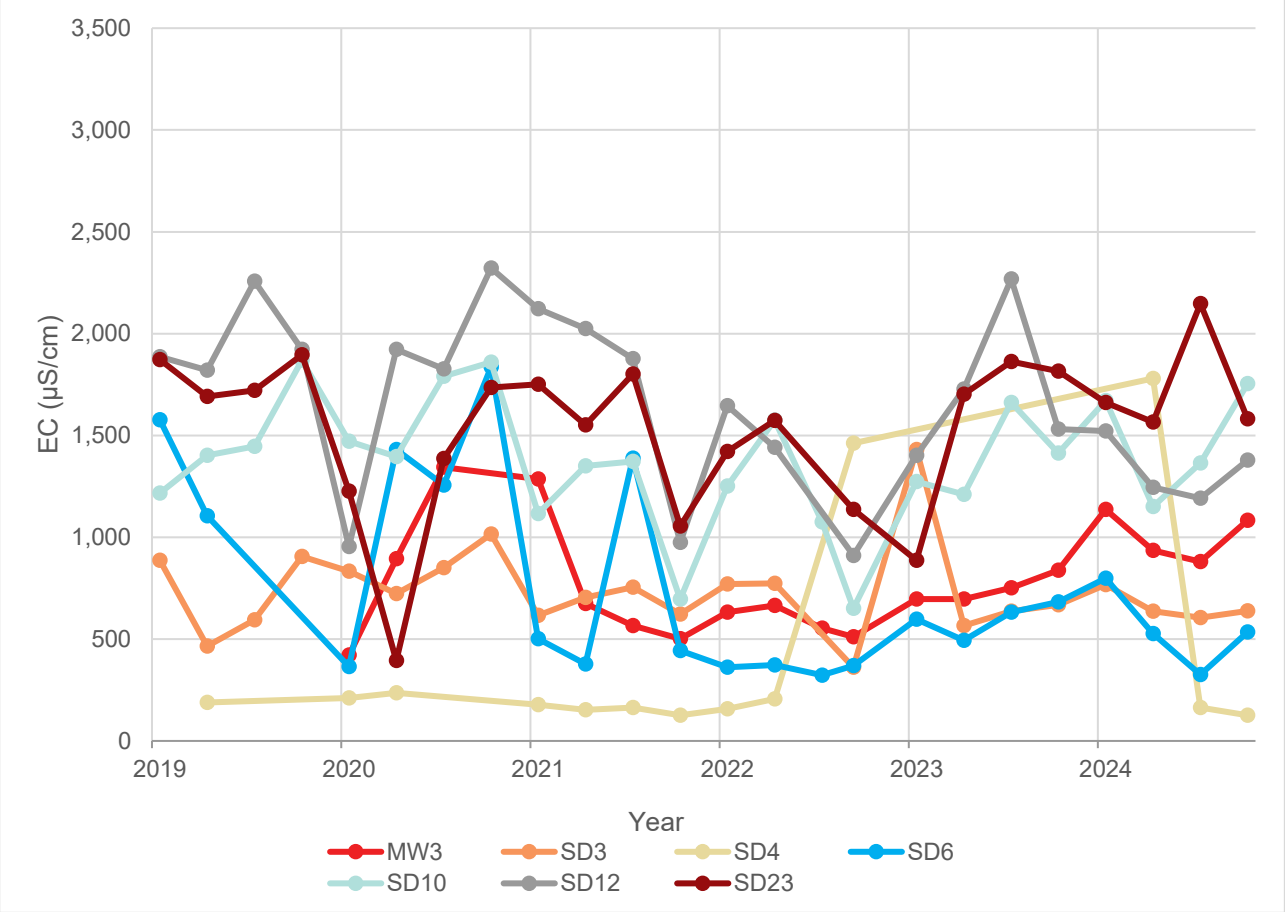


Figure 7-2: Long Term Surface Water Monitoring Results for EC



7.1.2.4 Demand, Take and Usage

In accordance with its surface water licences and SSD 09_0182, BCOPL accesses surface water from the Namoi River from time to time. BCOPL also holds water entitlements for groundwater extraction from the Namoi River alluvium. Furthermore, BCOPL can trade additional water to make up shortfalls. Where necessary, BCM uses existing water entitlements to supplement demand. The water taken from the existing licenses as at the end of the water year (1 July 2023 to 30 June 2024) is detailed in **Table 7-4**.

Table 7-4: Water Take

Water Access Licence No.	Water Source and Water Sharing Plan (WSP)	Allocation (ML)	Carryover from Previous Water Year	Temporary Transfers (ML)	Passive Take / Inflows (ML)	Active Pumping (ML)	TOTAL (ML)*
15037	Upper Namoi Zone 4 Namoi Valley (Keepit Dam to Gin's Leap),	1,028	2,056	518	32	170.3	202.3
12767							

Water Access Licence No.	Water Source and Water Sharing Plan (WSP)	Allocation (ML)	Carryover from Previous Water Year	Temporary Transfers (ML)	Passive Take / Inflows (ML)	Active Pumping (ML)	TOTAL (ML)*
24103 12691 36547 37519	Upper and Lower Namoi Groundwater Sources WSP						
29473 29562	Gunnedah Oxley Basin Murray Darling Basin Groundwater Source, NSW Murray Darling Basin Porous Rock Groundwater Sources WSP	842	210.5	0	229	6.2	235.2
44134	Bluevale Water Source, Namoi and Peel Unregulated Rivers Water Sources 2012	93	93	400	88	0	88
2571 2572 2595 2596	Lower Namoi Regulated River, Upper Namoi and Lower Namoi Regulated River WSP	864.4	538.4	322	0	0	0
37067	Upper Namoi Regulated River, Upper Namoi and Lower Namoi Regulated River WSP	128	64	128	0	0	0
42234	Upper Namoi Zone 11 Maules Creek Groundwater source. Purchased 9/1/2019	20	40	0	1	0	1

Water Demand

Core water demands during the 'water year' reporting period (1 July 2023 to 30 June 2024) were for coal processing in the CHPP and dust suppression. Quantities of water were also required for vehicle washdown and potable water uses. **Table 7-5** outlines future estimated water volumes for key water demands as described in the SWB.

Water demand predictions were initially provided in the 2010 EA; however, these have been updated a number of times since to account for changes to water demand and usage in light of approved changes to the operations.

Table 7-5: Predicted Water Demand

	Dust suppression (haul roads)	CHPP	MIA and Potable water
Period	Jan 2017 to 2033	Jan 2017 to 2033	Jan 2017 to 2033
Demand	1,460 Megalitres (ML)/yr	1,460 ML/yr	365 ML/yr

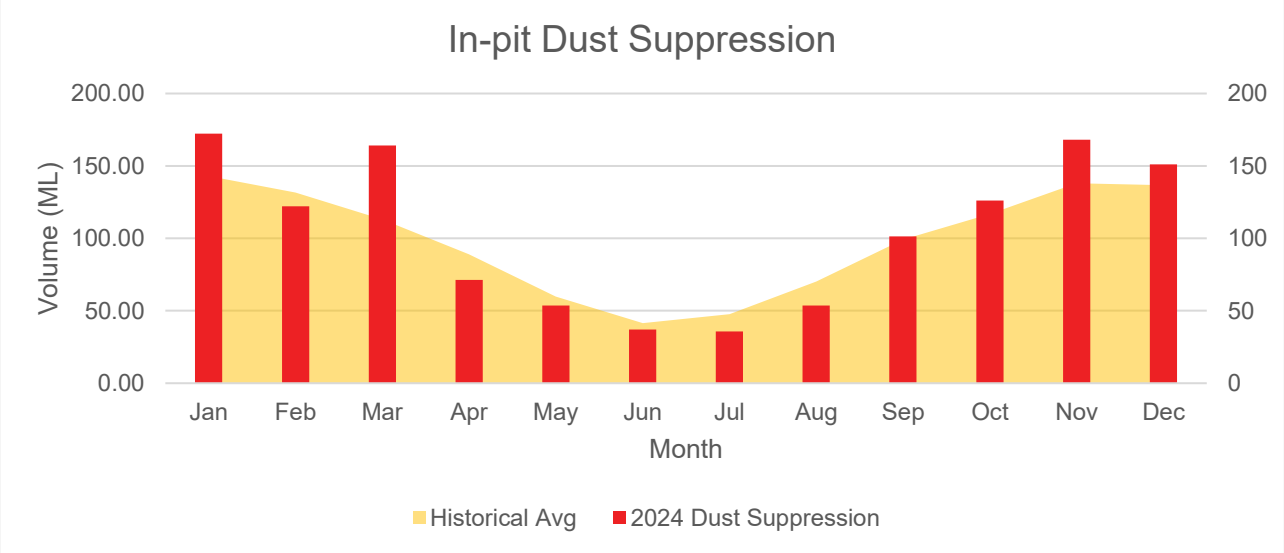
Water Usage

Dust suppression accounts for the majority of water usage at BCM and involves application by water cart to unsealed roads, trafficable areas, windrows, stockpiles and batters.

During the reporting period, 1256.59 ML of water was used for dust suppression. This represents an decrease in water use from the previous reporting period, when 1416.8 ML of water was used. The increase in water used is most likely due to the increased rainfall experienced when compared to 2023, see **Section 6.1**.

In addition, a total of 237ML of water was used in the CHPP during the reporting period. This includes water used in the coal bypass, processing plant and train load out. The total water usage for dust suppression and the CHPP is below the predicted demand as detailed in **Table 7-5**.

Figure 7-3: 2024 Monthly Dust Suppression Water Usage (ML)



Water Storage

Details of BCM's water storage dams including their design capacity and storage at the beginning (as at 3 January 2024) and end of the reporting period (as at 29 December 2024), are outlined in **Table 7-6**.

Table 7-6: Water Storage Summary

Storage	Location/ description	Stored water	Catchment area (ha)	Required minimum capacity (ML)	Design capacity (ML)	Water stored start of period (ML)	Water stored end of period (ML)
Dirty Water							
SD3	West of spoil dump	Dirty Water: runoff from partially rehabilitated spoil dump	194.2	92.1	102.3	36.1	33.98
SD6	Downstream of Mine Infrastructure Area (MIA) (referred to as Nagero Dam)	Dirty Water: Runoff from grassed areas near MIA, and overflows from SD10 and SD8	64.3	14.6	55.9	5.9	5.95
SD7	Eastern spoil dump	Dirty Water: runoff from spoil dump and clean runoff from undisturbed catchment	207.8	57.5	95.1	64.5	56.41
SD8	In MIA	Dirty Water: runoff from MIA	10.9	5.6	13.4	2.3	-
					Dirty water total	**108.8**	**96.34**
Contaminated Water							
SD10	CHPP	Contaminated Water: runoff from product coal stockpile	31.8	92.1	102.3	59.22	57.25
SD11	At rail loop	Contaminated Water: runoff from rail loop	3.9	10	16.4	3.3	4.95
SD12	CHPP	Contaminated Water: runoff from ROM coal stockpile	45.7	136.6	206.6	48.6	58.60
SD23	Near topsoil stockpile	Dirty Water: runoff from topsoil stockpile	56.5	8.7	17	14.8	16.60

Storage	Location/ description	Stored water	Catchment area (ha)	Required minimum capacity (ML)	Design capacity (ML)	Water stored start of period (ML)	Water stored end of period (ML)
SD28	Train loads out facility (**TLO**)	Contaminated Water: Runoff from TLO	0.7	2.6	3.5	3.4	3.39
MW3	South of MIA	Contaminated Water: surplus pumped from SD2 and clean runoff from small, grassed catchment	10.7	22.5	153.5	44.0	8.07
MW5	In pit	Contaminated Water Storage Dam	208.1	40	2,200	855.7	486.0
MW9[a]	In pit	Contaminated Water: surplus mine water from pit	-	-	31.2	-	-
MW10[b]	In pit	Contaminated Water: surplus mine water from pit	-	-	7.1	4.22	5.93
					Contaminated water total	**1033.1**	**640.79**

a MW9 Decommissioned 25 November 2023
b MW10 commissioned 12 November 2023

7.1.2.5 Water Balance Modelling

The site water balance model was reviewed and recalibrated for 2024, see **Appendix H** (EMM 2024) by comparing the observed and modelled site water Inventory (**Figure 7-4**). The calibrated site water balance model was considered to provide a reasonable fit to the observed site water inventory and is therefore expected to continue to provide reasonable estimates of future water demands, inventories, and discharges.

Figure 7-4: Modelled vs Observed Site Water Inventory

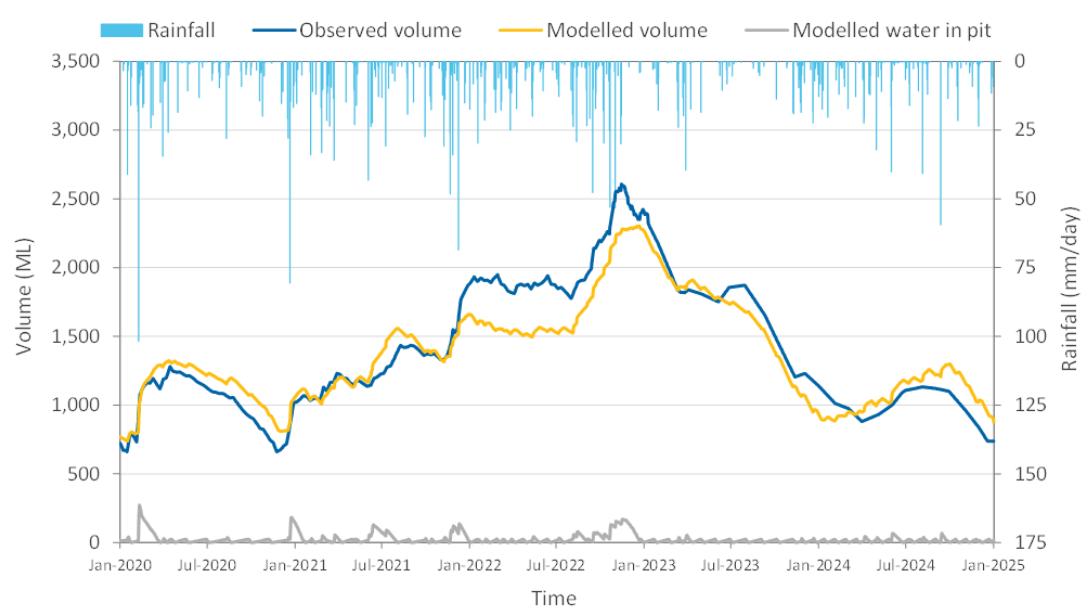


Figure 7-5: Long Term Surface Water Monitoring Results for pH

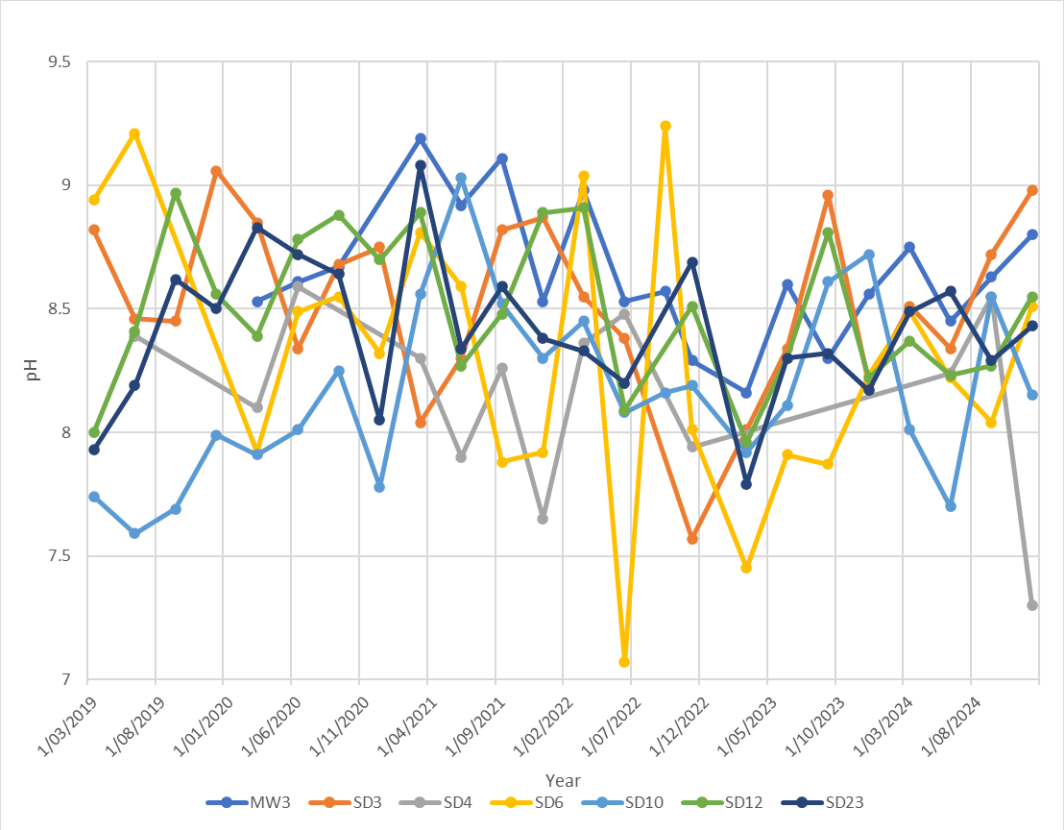
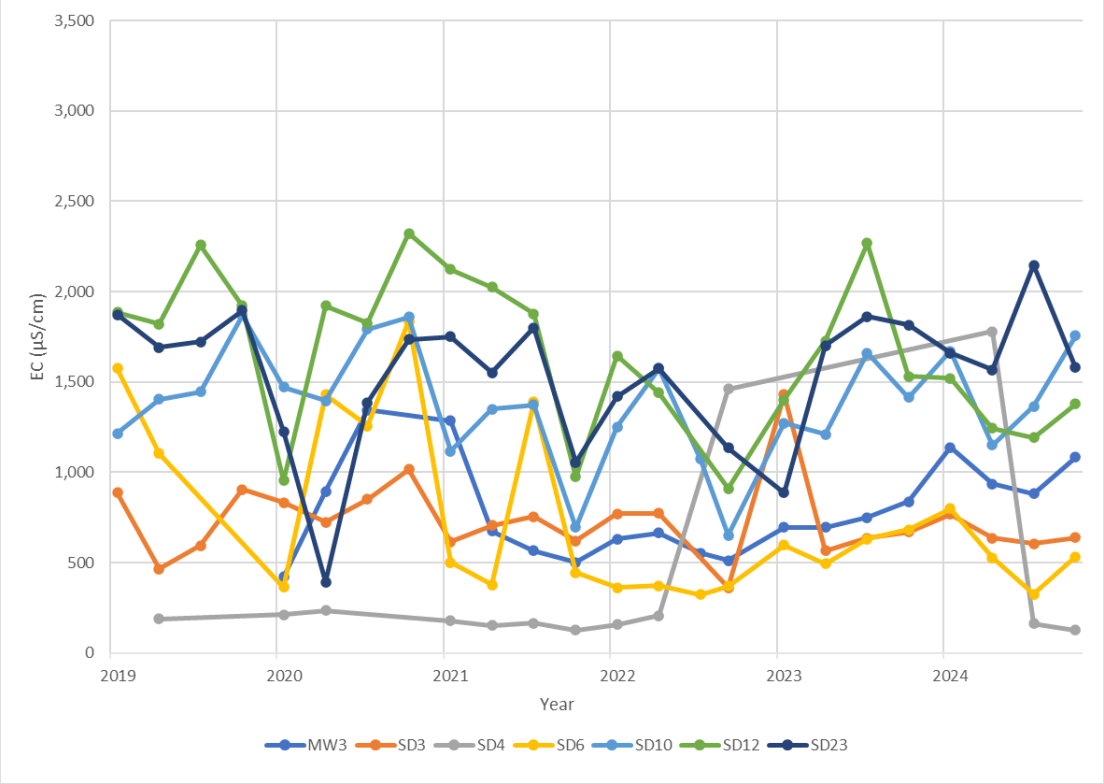


Figure 7-6: Long Term Surface Water Monitoring Results for EC



7.1.3 Improvements and Initiatives

Control strategies implemented under relevant management plans and strategies are considered to be adequate to manage and mitigate impacts to surface water downstream of the BCM. These will continue to be implemented throughout future reporting periods and updated where deemed necessary. Impacts to the downstream environment during the current reporting period are considered negligible.

7.2 Groundwater

7.2.1 Environmental Management

Groundwater is managed in accordance with BCM's approved water management plans, specifically the GWMP. A general overview of water management at BCM is provided in **Section 7.1**.

The GWMP provides a framework defining how BCOPL will assess, manage, and mitigate impacts to the groundwater system. This particularly focuses on impacts to the shallow alluvial aquifer attributable to mining activities such as dewatering the open pit void. The GWMP specifies impact assessment criteria and trigger levels to identify groundwater level and quality changes, and outlines BCOPL's monitoring and reporting requirements for groundwater management.

BCOPL holds licences for extraction from several groundwater bores. The amount of water extracted from groundwater sources and corresponding entitlements are identified in **Table 7-4**.

7.2.1.1 Groundwater Monitoring Program

BCOPL's groundwater monitoring program focuses on potential impacts to environmental assets and groundwater users in the area surrounding BCM, and aims to:

- Identify changes to the natural groundwater system attributable to mining operations; and
- Demonstrate compliance with the SSD 09_0182.

Groundwater monitoring during 2024 at BCM consisted of monitoring of groundwater levels and sampling of groundwater quality. Groundwater monitoring was undertaken in accordance with the requirements of EPL 12407 and the GWMP. Groundwater levels were monitored manually on a quarterly basis (March, June, September, and December 2024), as listed in **Table 7-7**.

Table 7-7: Groundwater Quality Testing Parameters

Monitoring type	Determinants
Six-monthly laboratory analysis (June and December)	Sulphate as SO_4^{2-} , chloride, calcium, magnesium, sodium, potassium, dissolved arsenic, dissolved cadmium, dissolved chromium, dissolved copper, dissolved lead, dissolved manganese, dissolved nickel, dissolved zinc, dissolved iron, ammonia as N, nitrite as N, nitrate as N, nitrite + nitrate as N, total nitrogen as N, total phosphorus as P, reactive phosphorus as P, hydroxide alkalinity, carbonate alkalinity, bicarbonate alkalinity and total alkalinity.
Quarterly field parameters (March, June, September, and December)	Electrical Conductivity (EC), pH, temperature, groundwater level

Groundwater quality field parameters (EC, pH and temperature) were measured quarterly, while sampling for major ions, dissolved metals and nutrients was undertaken in June and December 2024.

Groundwater sampling was undertaken using a groundwater pump and a minimum of three well volumes were purged or until the field parameters stabilised prior to sample collection. Samples were filtered onsite for the dissolved metal suite.

During the reporting period the active groundwater monitoring network comprised four monitoring bores screened across different geological units. Details of these bores are listed in **Table**.

Table 7-8: Groundwater Monitoring Bores

EPL ID	Bore	Licence	Depth (mBGL [A])	Screen interval (mbtoc [B])	Geological Unit	Screened geology	Notes for reporting period
7	GW3115	90BL253832	32	0-42	Colluvial Aquifer	Boggabri Volcanics (weathered)	Water level and quality data collected as per groundwater management plan.

EPL ID	Bore	Licence	Depth (mBGL [A])	Screen interval (mbtoc [B])	Geological Unit	Screened geology	Notes for reporting period
12	IBC2110	90BL253841	100	91-97	Colluvial Aquifer	Boggabri Volcanics	Water level and quality data collected as per groundwater management plan.
13	IBC2111	90BL253840	45	36-42	Colluvial Aquifer	Boggabri Volcanics (weathered)	Water level and quality data collected as per groundwater management plan.
18	MW6	90BL254255	32	18-22	Nagero Creek Alluvium	Alluvium	Water level and quality data collected as per groundwater management plan.

[A] Metres below ground level
[B] Metres below top of casing

7.2.2 Environmental Performance

7.2.2.1 Groundwater Level Results

The minimum recorded water levels in 2024 have been compared with the trigger levels defined in the GWMP are provided in **Table 7-9**. This table also includes updated trigger values that include the most recent monitoring data. This allows for long-term changes to the groundwater levels to be accounted for, whilst still allowing for sudden changes in groundwater levels to be identified and investigated.

The GMP requires that 5th percentile groundwater level trigger values be recalculated each year to include the additional data. The recalculated trigger values are generally within 400 mm of the triggers included in the GWMP triggers (**Table 7-9**). Recalculated triggers for the 2024 reporting period generally stayed the same (with only minor decreases of less than 100mm) or increased. This is likely due to continue above average rainfall in the 2023 reporting period. During the 2023 reporting period, groundwater levels were observed to slightly decrease uniformly. This is likely due to the lower than average rainfall that occurred during the reporting period.

During the monitoring period, all monitoring bores screened remained within trigger values defined in the GWMP.

Table 7-9: Minimum Measured Groundwater Levels

Monitoring bore	Trigger value (5th percentile) (mAHD)	Minimum water level

	GWMP [A]	Recalculated	2024 reporting period
GW3115	256.98	256.9	257.1
IBC2110	257.11	257.2	264.5
IBC2111	256.62	256.7	264.0
MW6	258.48	258.6	258.6

[A] Approved trigger levels from the approved Groundwater Management Plan

The groundwater level monitoring results obtained during the reporting period have been added to the long-term hydrographs presented annually for BCM, as shown in **Figure 7-7**.

Figure 7-7: Long Term Groundwater Levels for all Bores

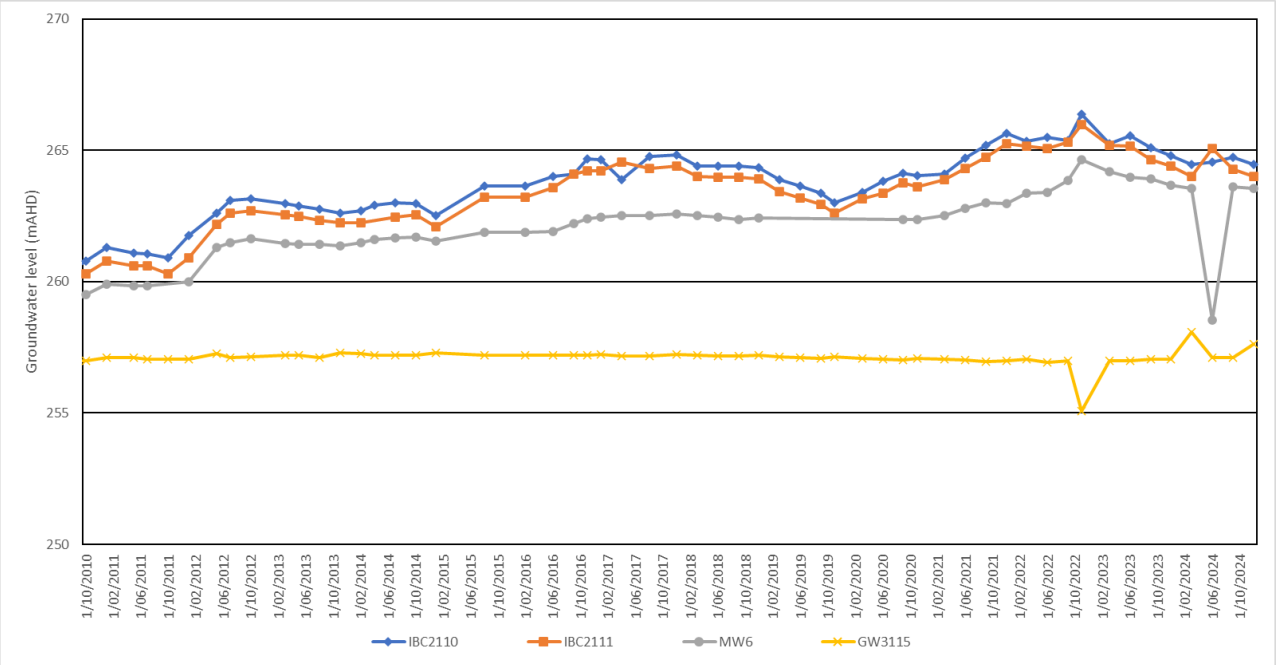


Figure 7-7 clearly shows that the monitoring bores within the Boggabri Volcanics (IBC2110, IBC2111 and GW3115) and alluvium (MW6) have continued to remain relatively stable A slight decrease has occurred throughout the reporting year in response to drier conditions post flood and heavy rainfall years in 2021 *& 2022. Downward spikes have been observed during the reporting period (MW6 & GW3115) which have recovered by the next sampling event and even increased in the case of IBC3115.

7.2.2.2 Groundwater Quality Trigger Values

For certain parameters, the groundwater quality data collected to date has been reviewed and used to develop revised site trigger values for groundwater quality, which are documented in the latest version of the GWMP (May 2017).

Criteria to develop the trigger values have followed the percentiles approach instead of the standard deviation, as recommended for skew ed data, which applies to the BCM. The following assessment criteria are defined in the GWMP:

- One data point greater than the High Trigger Value (HTV), defined as the 99.87th percentile.
- Two consecutive data points greater than the Medium Trigger Value (MTV), defined as the 97.73rd percentile.
- Five successive data points greater than the Low Trigger Value (LTV), defined as the 84.13th percentile.

Following this method, the trigger values derived in the GMP for the currently active monitoring bores are presented in **Table 7-10**.

7.2.2.3 Compensatory groundwater

In accordance with Schedule 3 Condition 34 of SSD 09_0182, BCOPL is required to provide a compensatory water supply to any landowner of privately-owned land whose water supply is adversely and directly impacted because of the project.

No adverse or direct impacts to water supply was reported in 2024, therefore no compensatory water supplies were provided.

Table 7-10: Groundwater Quality Trigger Values

Parameter	Trigger values	Exceedance criteria	Alluvium		Boggabri Volcanics	
			MW6	IBC2110	IBC2111	GW3115
pH	Median		7.0	7.8	6.7	7.5
	HTV (99.87th %ile)	1 data point	9.1	8.4	8.5	9.6
	MTV (97.73rd %ile)	2 consecutive data points	8.4	8.3	7.6	9.1
	LTV (84.13th %ile)	5 consecutive data points	7.4	7.9	7.0	7.7
	LTV (15.87th %ile)	5 consecutive data points	6.8	7.3	6.5	7.2
	MTV (2.27th %ile)	2 consecutive data points	6.5	6.8	6.3	6.6
	HTV (0.13th %ile)	1 data point	6.4	6.4	6.3	6.4
EC (µS/cm)	Median		2,110	2,020	2,350	3,450
	LTV (84.13th %ile)	5 consecutive data points	2,312	2,123	2,499	3,534
	MTV (97.73rd %ile)	2 consecutive data points	2,526	2,320	2,562	3,763
	HTV (99.87th %ile)	1 data point	2,558	2,659	2,570	3,845

Parameter	Trigger values	Exceedance criteria	Alluvium		Boggabri Volcanics	
			MW6	IBC2110	IBC2111	GW3115
Sulphate (mg/L)	Median		60	72	67	188
	LTV (84.13th %ile)	5 consecutive data points	70	87	96	202
	MTV (97.73rd %ile)	2 consecutive data points	80	123	105	227
	HTV (99.87th %ile)	1 data point	84	133	108	292
Chloride (mg/L)	Median		340	358	358	654
	LTV (84.13th %ile)	5 consecutive data points	425	402	437	654
	MTV (97.73rd %ile)	2 consecutive data points	490	475	502	739
	HTV (99.87th %ile)	1 data point	512	509	535	766
Sodium (mg/L)	Median		383	431	349	730
	LTV (84.13th %ile)	5 consecutive data points	405	466	365	760
	MTV (97.73rd %ile)	2 consecutive data points	414	488	387	802
	HTV (99.87th %ile)	1 data point	416	503	387	803

7.2.2.4 Groundwater Quality Results – Field Parameters

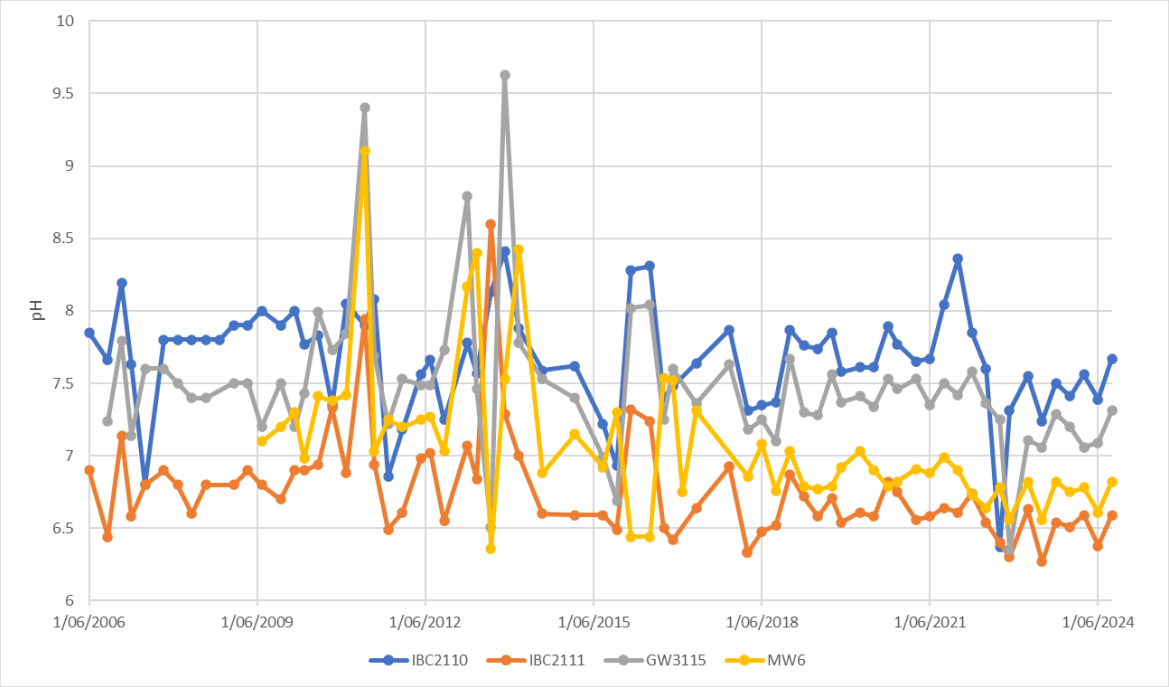
Time series plots of pH and electrical conductivity (EC) are presented in **Figure 7-5** and **Figure 7-6** respectively. Water quality field parameters for EC and pH have also been compared to the trigger values, with results presented in **Table 7-10**.

pH

pH levels were generally within historical limits for pH at all monitoring bores throughout the reporting period. Rises and falls throughout the reporting period were consistent amongst all monitoring bores.

Exceedances of pH trigger values may be attributed to variation in flow conditions at the monitoring sites and may not be representative of typical water quality. Trends in pH will continue to be monitored at these sites to determine whether further investigation is required. See **Figure 7-8** for long term trends.

Figure 7-8: Groundwater Trends in pH

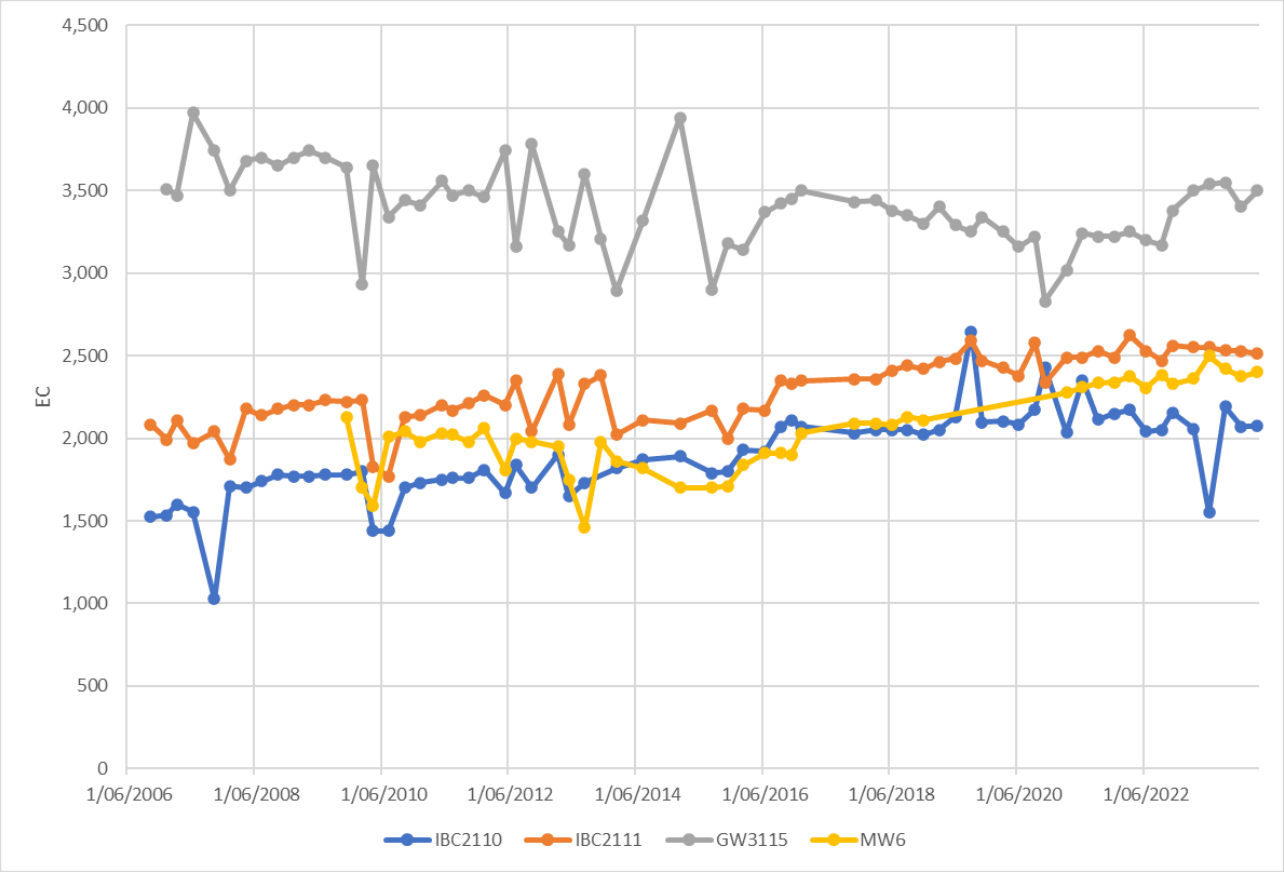


Electrical Conductivity

EC conductivity results were generally within the trigger limits for GW3115 and IBC 2110, and all results showed similar trends to previous years monitoring results.

EC exceedances may be attributed to increases in salinity, increases in the concentration of inorganic materials and/or increases in water temperature. EC Levels at IBC2111 and MW6 are currently under investigation as relative concentrations of dissolved solids is required to make a more informed assessment of water quality at these locations.

Figure 7-9: Groundwater Trends in Electrical Conductivity



Groundwater - Major Ions

Major ion compositions were analysed as part of the analytical suite. Results for major ions are presented in **Table 7-11**.

All major ions at sites sampled were compliant with the trigger values except for exceedances of chloride. The HTV for sulfate was exceeded in June for IBC2111 slightly and was an outlier out of recent and historical results. As the result returned within the HTV for December, no further action was taken.

Table 7-11: Results Summary for Analysis of Major Ions

Bore and Date Sample	Sulphate (mg/L)	Chloride (mg/L)	Sodium(mg/L
	(mg/L)	(mg/L)	(mg/L)
GW3115 (Boggabri Volcanics)			
17/06/2024	180	668	644
3/12/2024	181	652	664
IBC2110 (Boggabri Volcanics)			
17/06/2024	95	470	420
3/12/2024	76	404	426
IBC2111 (Boggabri Volcanics)			
17/06/2024	96	537	343
3/12/2024	96	470	350
MW6 (Alluvium)			
17/06/2024	71	473	400
3/12/2024	84	449	412

Groundwater - Metals

Analytical results indicated that dissolved metal concentrations for Cadmium, Chromium, Copper, and Iron were generally below laboratory limit of reporting (LOR) (**Table 7-12**). Concentrations of Manganese, Nickel, and Zinc above the LOR were recorded (**Table 7-12**), however remain at levels generally consistent with historically observed values.

A summary of the metal concentrations recorded during the reporting period is presented in **Table 7-12**.

Table 7-12: Results Summary for Analysis of Metals

Bore and date sample	Arsenic	Cadmium	Chromium	Copper	Lead	Manganese	Nickel	Zinc	Iron
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
GW3115 (Boggabri Volcanics)									

Bore and date sample	Arsenic	Cadmium	Chromium	Copper	Lead	Manganese	Nickel	Zinc	Iron
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
17/06/2024	<0.001	<0.0001	<0.001	<0.001	<0.001	0.092	<0.001	0.019	2.95
3/12/2024	<0.001	<0.0001	<0.001	<0.001	<0.001	0.1	<0.001	0.016	3.06
IBC2110 (Boggabri Volcanics)									
17/06/2024	<0.001	<0.0001	<0.001	<0.001	<0.001	0.053	0.002	<0.005	<0.05
3/12/2024	<0.001	<0.0001	<0.001	<0.001	<0.001	0.065	<0.001	<0.005	0.06
IBC2111 (Boggabri Volcanics)									
17/06/2024	<0.001	<0.0001	<0.001	0.012	<0.001	0.017	0.001	0.121	<0.05
3/12/2024	<0.001	<0.0001	<0.001	0.01	<0.001	0.018	0.002	0.1	<0.05
MW6 (Alluvium)									
17/06/2024	<0.001	<0.0001	<0.001	0.009	<0.001	0.003	<0.001	0.061	<0.05
3/12/2024	<0.001	<0.0001	<0.001	0.005	<0.001	0.004	<0.001	0.065	<0.05

Groundwater - Nutrients

Nutrient concentrations during 2024 were generally similar to historical concentrations, with spikes in nitrate (and total nitrogen) concentrations at MW6 and IBC2111 in 2024 compared to previous years. The increase in Nitrogen at MW6 is consistent with what was experienced in 2023

Table 7-13: Results Summary for Analysis of Nutrients

Bore and date sample	Ammonia	Nitrite	Nitrate	Nitrite + Nitrate	Total Kjedahl Nitrogen	Total Nitrogen	Total Phosphorus	Reactive Phosphorus
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
GW3115 (Boggabri Volcanics)								
17/06/2024	0.12	<0.01	<0.01	<0.01	0.3	0.3	0.05	<0.01
3/12/2024	0.11	<0.01	<0.01	<0.01	0.2	0.2	0.03	<0.01
IBC2110 (Boggabri Volcanics)								

Bore and date sample	Ammonia (mg/L)	Nitrite (mg/L)	Nitrate (mg/L)	Nitrite + Nitrate (mg/L)	Total Kjedahl Nitrogen (mg/L)	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	Reactive Phosphorus (mg/L)
17/06/2024	0.32	<0.01	0.01	0.01	0.8	0.8	0.2	0.16
3/12/2024	0.55	<0.01	<0.01	<0.01	0.6	0.6	0.22	0.11
IBC2111 (Boggabri Volcanics)								
17/06/2024	<0.01	<0.01	3.46	3.46	0.5	4	0.04	0.02
3/12/2024	0.01	0.01	3.55	3.56	0.4	4	0.04	0.03
MW6 (Alluvium)								
17/06/2024	<0.01	<0.01	2.35	2.35	0.4	2.8	0.04	0.02
3/12/2024	<0.01	<0.01	2.59	2.59	0.3	2.9	0.04	0.02

7.2.2.5 Mine Void Groundwater Inflow

Inflow Volumes

The estimated groundwater make for the 2023/24 water year reporting period is about 229ML. This value was estimated using the BCMs water balance model. Quantifying groundwater inflow to the open cut mining area is difficult as groundwater seepage within the pit mixes with rainfall, runoff and water pumped into ming areas for dust suppression which masks the source of water. This water take from the Gunnedah Oxley Basin Groundwater Source is accounted for in **Table 7-4**.

7.2.3 Improvements and Initiatives

review of the groundwater monitoring network at the BCM conducted by AGE in 2023 identified that additional monitoring points should be added in the Nagero Creek alluvium and Bollol Creek to gain a better understanding of the connectivity between the surface water and groundwater resources, assessments of faults in the project area and in assessment of the depressurisation over time within the deeper coal seams.

An additional 12 monitoring locations are proposed to be constructed during 2025 to replace existing bores that are no longer operational, monitor groundwater in deeper coal seems (as apart of Modification 8) and to assess groundwater-surface relationships with the Nagero Creek Alluvial Region.

8.0 REHABILITATION

The principal objective for rehabilitation at BCM is to return the site to a condition where its landforms, soils, hydrology, flora and fauna are self-sustaining and compatible with the surrounding landscape. Progressive rehabilitation is an ongoing activity at BCM and is carried out in accordance with regulatory requirements, previously the MOP, now the RMP.

The RMP guides rehabilitation for all operational activities and associated infrastructure, and indirectly and partly fulfils the rehabilitation requirements specified in SSD 09_0182. It focuses on rehabilitation of the active pit and waste emplacement areas within CL368. However, closure components also consider lands and infrastructure occupied by the private haul road, rail spur, powerline easements and the BCT.

Schedule 3, Condition 71 of SSD 09_0182 (as modified by MOD 9 in March 2023) replaces the former requirement for a RMP with the requirement for a Rehabilitation Strategy. The Rehabilitation Strategy is currently under preparation and will be submitted for consultation with the relevant Regulatory Authorities for review and comment prior to the submission to the DPHI. The purpose of the Rehabilitation Strategy is to build on the Rehabilitation Objectives within SSD 09_0182 and to address the rehabilitation of land within the Project Boundary (i.e. beyond the areas currently covered by CL 368).

Rehabilitation objectives for the BCM are:

- Mine site (as a whole), including the final void - Safe, stable and non-polluting;
- Mine site (as a whole), including the final void - Minimise the size and depth of the final void as far as is reasonable and feasible and ensure the void contains no retained surface water (i.e. no pit lake);
- Mine site (as a whole), including the final void - Land degradation is minimised and vegetation removal is minimised
- Surface Infrastructure – Decommission and remove, unless the Executive Director, Mineral Resources in Resources Regulator agrees otherwise, and rehabilitate to a level equal or better to the original landscape;
- Waterways – Water is managed to ensure that clean and dirty water systems are separated.
- Waterways – No polluting waterways;
- Other land – Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of local native plant species, a landform consistent with the surrounding environment and stable free draining landform able to support proposed vegetation;
- Other land – Ecological biodiversity is promoted;
- Community / General – Safety risks are eliminated as far as is practical;
- Community / General – Minimise the adverse socio-economic effects associated with mine closure; and
- Community / General – Ensure that cultural heritage is not impacted and is appropriately managed.

This section of the Annual Review discusses the rehabilitation which has been undertaken or is proposed within the BCM Project Boundary as required in accordance with the conditions of SSD 09_0182. **Appendix I** provides a copy of the Annual Rehabilitation Report which has been prepared to satisfy the requirements under the *Mining Act 1992* and reports on the rehabilitation undertaken and proposed within CL 368 and ML 1755 only.

8.1 Rehabilitation Methodology

The adopted rehabilitation methodology is described in detail in the RMP. Key components of the methodology include:

- Landform design;
- Contamination Management during Commissioning;
- Acid rock drainage;
- Reject and fines disposal;
- Groundwater barrier;
- Soil stripping and handling;
- Soil stockpiling;
- Topsoil volume;
- Surface preparation;
- Soil respreading;
- Amelioration of growing media;
- Erosion control;
- Timing of revegetation works;
- Revegetation;
- Habitat creation;
- Seed collection and viability testing; and
- Revegetation species.

8.2 Rehabilitation Progress

8.2.1 Summary of Land Rehabilitation

During the reporting period, 92.28ha of rehabilitation was transitioned to 'Landuse Establishment' which aligns with the 2024 forward works program.

A detailed breakdown of rehabilitation/disturbance footprints for the previous, current, and future reporting period is also provided in **Table 8-1**.

Table 8-1: Rehabilitation Status

Mine Area Type	2022 Reporting Period (Actual) (ha)	2023 Reporting Period (Actual) (ha)	2024 Reporting Period (Actual) (ha)	2025 Reporting Period (Predicted) (ha)
A. Total mine footprint	1,664.7	1,682.7	1,722.3	1734.0
B. Total actual disturbance	1,384.2	1,361.8	1,360.1	1336.8

Mine Area Type	2022 Reporting Period (Actual) (ha)	2023 Reporting Period (Actual) (ha)	2024 Reporting Period (Actual) (ha)	2025 Reporting Period (Predicted) (ha)
C. Land being prepared for rehabilitation	N/A	40.3	16.1	26.3
D. Land under active rehabilitation	280.6*	280.6*	346.1	370.9
E. Completed Rehabilitation	None	None	None	None

Note:
* Reconciliation of rehabilitation areas was undertaken as part of the rehabilitation reforms work. This inconsistency with rehabilitation between 2022 and previous years may be a result of the inclusion of rehabilitation outside of the mining lease (along the rail spur).

8.2.2 2024 Plantings

BCOPL transitioned to direct seeding in 2024. 59.38ha & 32.90ha of rehabilitation was seeded in 2023 and 2024 respectively, see below (**Figure 8-1**)

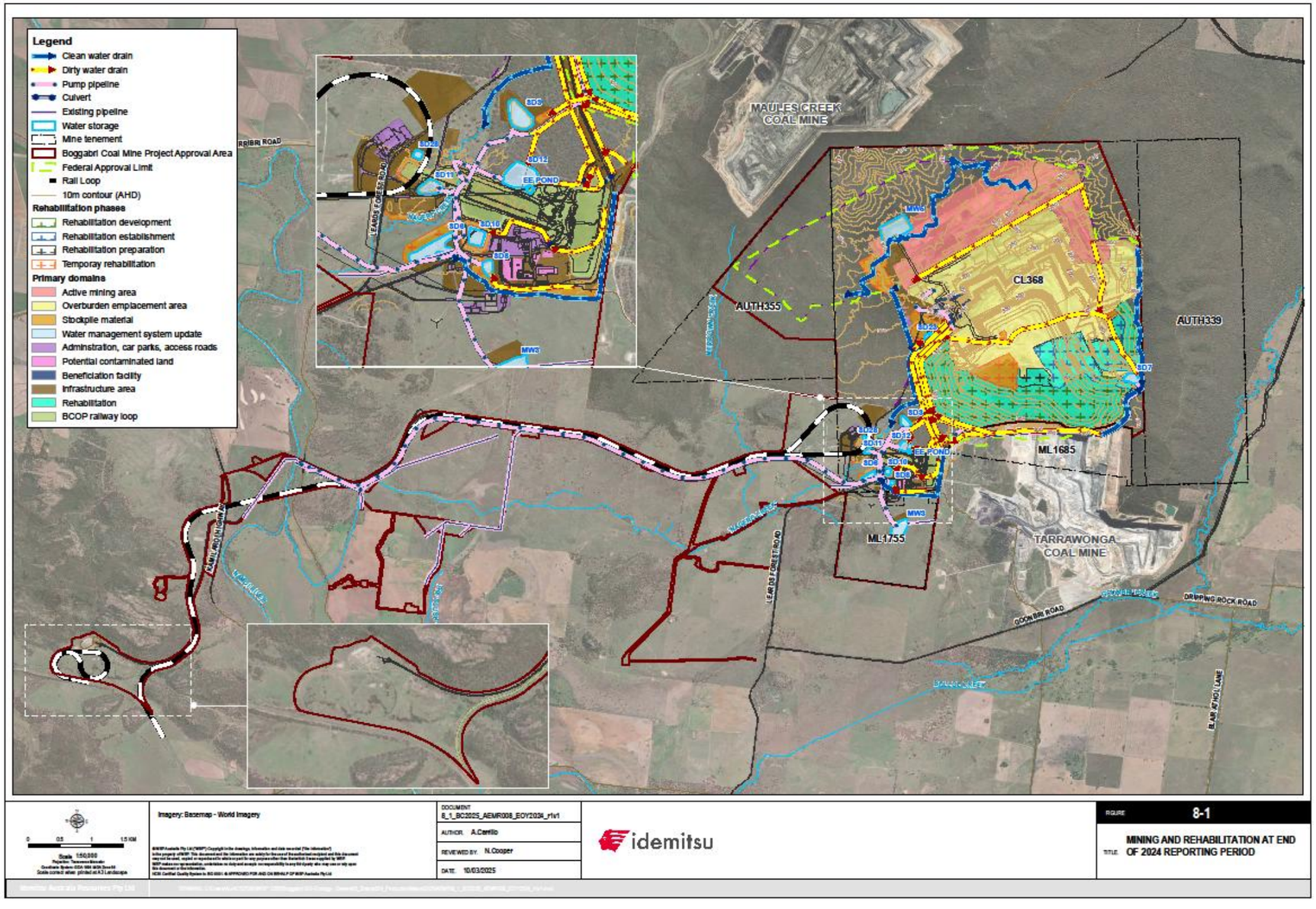
Figure 8-1: 2023 Established Rehabilitation (Sept 2024)

8.2.3 Rehabilitation Status

BCOPL has adopted ten primary rehabilitation domains (refer to **Figure 8-2**). These domains define areas based on operational or functional purpose and geophysical similarities. The RMP outlines the regulatory requirements, rehabilitation objectives, indicators and completion criteria for each rehabilitation phase of all rehabilitation domains.

The calculated rehabilitation status based on the requirements of the *Annual Review Guideline* (2015) for 2022, 2023, 2024 and predicted values for 2025 in accordance with the Forward Program and RMP are summarised in **Table 8-1**.

Figure 8-2: Extent of Mining and Rehabilitation at the end of the 2024 Reporting Period



8.2.4 Comparison with Forward Program Forecasts

Rehabilitation for the end of 2024 aligns with that proposed by the 2024 Forward Program which was lodged on 31 March 2024 to address the requirements of the Rehabilitation Reforms under the *Mining Act 1992*. The Forward Program did not propose any additional rehabilitation for the 2024 calendar year. BCOPL did progress with rehabilitation maintenance and monitoring measures as described within the following sections.

8.3 Removal of Buildings

During the 2024 reporting period, there has been no removal of buildings.

8.4 Rehabilitation Biodiversity Monitoring

Biodiversity monitoring of rehabilitation areas is completed annually to assess the biodiversity status of rehabilitated areas to further guide rehabilitation methodologies, procedures and maintenance activities, in order to achieve site rehabilitation objectives. The monitoring reports on aspects of ecosystem establishment and ecosystem development.

Rehabilitation monitoring for the reporting period commenced 9 September 2024 across all ten of the replicate monitoring sites. Grassy woodland native ecosystem (secondary domain) within the mine rehabilitation area is known from two replicate monitoring sites: being RH2017 and RH2020. Sampling was undertaken at these locations during 2024 as well as a further five sites associated with shrubby woodland/ forest native ecosystem (RH2008D, RH2010, RH2011, RH2016 and RH2018A). The 2024 monitoring program involved the following sampling methodologies at each of the replicate monitoring sites;

- One single modified BioBanking Assessment Methodology (BBAM) plot, species inventories only;
- Photo point monitoring (to track changes in plant growth and ecology of the rehabilitated areas);
- Salinity monitoring within the BioBanking vegetation 20 x 20m quadrat (observational);
- Canopy species recruitment and presence of reproductive structures monitoring (observational); and
- One 20-minute bird and general fauna area search within 80 m (approximately 2 ha) of fixed monitoring sites on separate mornings.

8.4.1 Photographic Monitoring

Photographic monitoring sites have been set up at each replicate monitoring site and are used to track the changes in plant growth, rehabilitation health and ecology of the mine rehabilitation. The photographic monitoring depicts that native vegetation structure and condition across the mine rehabilitation areas are establishing and progressing on a trajectory to be becoming shrubby woodland/forest or grassy woodland ecosystems. Older sites show a well-developed canopy and a sparse to shrubby midstory. The groundcover stratum at these older sites is sparse and appears to have decreased in cover over time as the canopy and midstory has developed.

8.4.2 Summary of Findings

Monitoring results indicate that native species diversity and structure of the vegetation are progressing over time. Acquired data indicate that biodiversity values (vegetation, birds and invertebrates) are trending well against analogue sites associated with the Leard State Forest remnant.

8.4.2.1 Vegetation

A total of 120 species of plant were recorded from the ten, replicate mine rehabilitation monitoring sites surveyed during the 2024 monitoring event. Of these, 94 were native (79%) and 26 were exotic (21%). No plant species recorded in the mine rehabilitation area during the 2024 monitoring event were listed as threatened under the NSW BC act and/or the EPBC Act. Flora surveys and data analysis for BCMs rehabilitation areas identified the following:

- Native species richness has generally increased over time as the rehabilitation areas mature. Native species richness exceeded the averaged BBAM benchmark value across all monitoring locations during the 2024 sampling period.
- Seven of the 10 replicate monitoring sites achieved the RMP completion criteria for native species richness.
- Most mine rehabilitation sites met or exceeded native overstorey projected foliage cover and mid storey cover benchmarks. Native groundcover percentages were generally high, with most monitoring sites meeting or exceeding benchmarks for native ground cover (grass and shrubs).
- Many native groundcover and midstory species recorded across all rehabilitation areas were observed recruiting from the soil seed bank and/or were producing reproductive structures. This suggests that groundcover and midstory stratum is trending towards self-sustaining native ecosystem.
- Planted canopy species showed no evidence of reproductive structures. Reproductive structures were also not observed in the soil bank at these locations.
- Mean exotic species richness is appearing to fluctuate and be influenced by seasonal climate conditions. There was variation in the mean exotic species richness during the 2024 monitoring period, with most sites occurring above the Leard State Forest analogue benchmark for the respective rehabilitation domain.
- There are isolated individuals of African Boxthorn and Prickly Pear which are both priority weeds and weeds of national significance that may spread if left untreated.
- Structural characteristics which take time to develop within natural ecosystems (fallen timber and hollow bearing trees) are mostly absent across the rehabilitation area. Salvaged timber and stags have been distributed/erected in localised areas in place of naturally occurring structural characteristics.
- No salinity was identified in any of the rehabilitation monitoring sites surveyed during the 2024 monitoring period.
- No threatened flora species were recorded across the mine rehabilitation areas.

8.4.2.2 Fauna

- A total of 69 species of birds were recorded from the min rehabilitation area. This included several woodland and generalist species common to the area.
- Five threatened species listed as Vulnerable under the BC Act were recorded from the mine rehabilitation area, including Speckled Warbler, Grey-crowned Babbler, Turquoise Parrot, dusky Wood Swallow, and Little Eagle.
- A total of 10 insectivorous bats species were collectively recorded from the mine rehabilitation area during the 2024 sampling period. Within shrubby woodland/forest native ecosystems one of the four sites sample exceeded the Leard State Forest analogue benchmark for insectivorous bat species

richness, whilst the remaining sites achieved greater than 53% of the Leard State Forest analogue benchmark. Within grassy woodland native ecosystems mean insectivorous bat species richness achieved 73% and 12% of the Leard State Forest benchmark for RH2017 and RH2020 monitoring plots respectively.

- Two threatened species of insectivorous bats listed as Vulnerable under the NSW BC Act were recorded during duplicate surveys at replicate monitoring sites, including Eastern Cave Bat and Yellow-bellied Sheathtail-bat.
- Data generally indicates that the more structurally diverse and older mine rehabilitation areas retain higher mean diurnal bird diversity. Despite this, RH2016 has recorded the highest mean bird species richness during the monitoring period. This is not unexpected, as this monitoring location is progressing well against vegetation benchmarks and is positioned immediately adjacent to and connected with the good quality extant habitats of the larder Leard State Forest.
- Within Shrubby woodland/forest native ecosystems two of the seven sites sampled exceeded the Leard State Forest Analogue benchmark, whilst the remaining sites achieved greater than 94% of the Leard State Forest analogue benchmark.
- Within grassy woodland native ecosystems mean diurnal bird species richness achieved 99% and 82% of the Leard State Forest benchmark for RH2017 and RH2020 respectively.
- A total of 1,931 invertebrates from 68 morpho-species were recorded from the mine rehabilitation area, with Hymenoptera (ants) the most diverse and abundant group recorded. Invertebrate diversity met or exceeded the RMP performance benchmark for all rehabilitation age-classes except RH2020.
- Seven native species were recorded via infra-red/motion sensor cameras, including Short-beaked Echidna, Red-necked Wallaby, and Eastern Grey Kangaroo. Two pest species, Fox and hare, were also recorded from RH2016 and RH2017 monitoring sites.

8.4.2.3 Weed Management

April 2024

Weed management was undertaken in April 2024 for herbaceous weeds within the mine rehab area and fauna corridor. Cut and stem injection method was conducted, targeting *Optunia Stricta* (Prickly Pear).

8.5 Rehabilitation Improvements and Initiatives

During the 2024 reporting period BCOPL has conducted rehabilitation activities in accordance with the Rehabilitation Strategy. Direct seeding of all rehabilitation areas utilised rather than tubestock due to good climatic conditions. Minor methodology changes were made to assist in seed bed preparation which will be continually adjusted based on conditions. A trial program in developing and older rehabilitation is being prepared for 2025.

8.6 Rehabilitation in 2025

Rehabilitation activities proposed for the next reporting period will be completed in accordance with the Forward Works Program.

9.0 COMMUNITY

BCOPL's involvement with the local community is guided by:

- Studies undertaken as part of the EA (and associated Modification Reports) for the Project;
- BCM's SIMP;
- Consultation with key stakeholders, including the CCC; and
- BCOPL's internal environmental management plans and corporate guidance.

In accordance with SSD 09_0182 (Schedule 3, Condition 77(b)), BCOPL has prepared a SIMP, in consultation with relevant stakeholders. BCOPL undertook revisions to the SIMP which were approved by the DPHI in August 2021. The SIMP was revised during the reporting period and was submitted to the DPHI for approval in 2024.

9.1 Community Programs and Investment

BCOPL is committed to supporting the local community in which they operate. Over the 2024 reporting period and in concurrence with previous reporting periods, BCOPL and its contractors were involved in a number of community initiatives and events. BCOPL committed $281,707.70 to local projects and sponsorships in the 2024 reporting period, as summarised in **Table 9-1**. Contributions for the reporting period are about 43% more than the previous year's contributions ($83,857.30)

BCOPL regularly hosts site visits from the community, industry professionals, the media and other interested parties. During 2024 mine tours were given to Ooranga Preschool and Boggabri Public School..

Table 9-1: BCOPL Community Funding 2024

Community Group / Project	BCO Contribution
Boggabri & District Rugby League	**$10,000.00**
Boggabri Anglican Church	**$4,500.00**
Boggabri Business Chamber	**$4,000.00**
Boggabri Fishing Club	**$5,000.00**
Boggabri Golf Club	**$6,500.00**
Boggabri Junior League	**$1,000.00**
Boggabri Nurruby OOSH	**$7,500.00**
Boggabri Public School	**$1,000.00**
Boggabri Women's Shed	**$5,000.00**
Central North Junior Rugby Union	**$5,000.00**
Dorothea MacKellar	**$5,000.00**

Drovers Campfire	**$20,000.00**
GHFC Keepit Commando	**$5,000.00**
Gomeroi Roos Culture & Sport	**$4,000.00**
Gunnedah & District Soccer Association	**$5,000.00**
Gunnedah Anglican Church	**$3,500.00**
Gunnedah Athletics Club	**$5,000.00**
Gunnedah Bulldogs AFL	**$5,000.00**
Gunnedah Cricket Club	**$1,000.00**
Gunnedah Golf Club	**$7,000.00**
Gunnedah High School	**$1,000.00**
Gunnedah Junior Cricket	**$4,682.70**
Gunnedah Lions Club	**$4,104.00**
Gunnedah Motorcycle Club	**$2,500.00**
Gunnedah Physical Culture	**$2,000.00**
Gunnedah Public School P&C	**$2,000.00**
Gunnedah Rodeo Society	**$4,500.00**
Gunnedah Shire Council	**$15,000.00**
Gunnedah Show Society	**$20,000.00**
Gunnedah Touch Association	**$5,000.00**
Manilla Bushman's Campdraft	**$3,000.00**
Manilla Campdraft	**$3,000.00**
Manilla Show Society	**$7,879.00**
Manilla Swimming Club	**$3,000.00**
Maules Creek Campdraft	**$7,500.00**
Narrabri Amateur Fishing Club	**$5,000.00**
Narrabri Junior Polocrosse Challenge	**$1,686.00**

Narrabri Racecourse Land Managers	**$5,000.00**
Narrabri Show Society	**$5,000.00**
Ooranga	**$10,000.00**
Peel High School	**$500.00**
PRAMs	**$5,000.00**
Red Chief Local Aboriginal Lands Council	**$5,000.00**
Red Chief Warriors	**$5,000.00**
Sacred Heart Primary School	**$1,000.00**
Starlight Super Swim	**$1,000.00**
Tamworth Triathlon Club	**$1,000.00**
Uncle Will Memorial Team	**$4,356.00**
Variety Bash	**$2,000.00**
Wean Races	**$5,000.00**
Westpac Helicopters	**$30,000.00**
Total	**$281,707.702**

9.2 Community Consultative Committee

In accordance with SSD 09_0182 (Schedule 5, Condition 7), a CCC based on the *Community Consultative Committees Guideline for State Significant Projects 2023* (DPHI, 2023) has continued through the reporting period.

The purpose of the CCC is to provide a forum for open discussion between representatives of BCOPL, the community, the local council and other stakeholders on issues directly relating to BCM's operations and community relations.

Quarterly CCC meetings were held during the reporting period on the following dates:

- 15 February 2024;
- 16 May 2024;
- 29 August 2024; and
- 14 November 2024.

Key topics discussed included:

- Overview of recent activities and reports from BCM;
- 2024 Archaeological Salvage Program;

- Modification 8 to BCM and proposed amendment;,
- Application for Modification 10;
- Revisions to Management Plans;
- Exploration update;
- Biodiversity offset areas;
- Housing VPA – General Housing;
- Recent correspondence with regulatory agencies;
- Tyre management and waste;
- Environmental Monitoring conditions;
- Tree clearing;
- Community Sponsorship 2024; and
- Community complaints.

Copies of the minutes from CCC meetings are publicly available on the BCM website:

https://idemitsu.com.au/operations/boggabri-coal/approvals-plans-and-reports/community-consultative-committee/

9.3 Complaints

9.3.1 Management of Complaints

Community complaints are managed in accordance with the BCOPL Complaint Management Procedure. This procedure outlines a standard process for reporting and responding to community complaints for all BCOPL employees and contractors at BCM.

The procedure includes reporting:

- The nature of the complaint;
- The method of the complaint, for example, telephone;
- The monitoring results, including any relevant conditions at the time of the complaint;
- Site investigation outcomes;
- Site activity and activity changes; and
- Any necessary actions assigned.

BCOPL maintains a 24 Hour Community Response Line to provide the community or interested stakeholders with an accessible and reliable communications point for complaints. In turn, the response line allows for rapid response to community complaints. The phone number for this Community Response Line is: **1800BOGGABRI (1800 264 422 74).**

Where possible, complainants are contacted within 24 hours of BCOPL's Environment Superintendent being advised of a complaint. Where requested to notify the complainant of any remedial or required actions undertaken, a follow-up on the complaint is made by BCOPL's Environment Superintendent or other authorised representative. All complaints received are tabled at CCC meetings. BCOPL maintains records of completed internal complaint forms for a period of no less than five years.

9.3.2 Registered Environmental Complaints

Nil community complaints were received by BCOPL during the 2024 reporting period. A summary of community complaint totals for the previous five years, are made available in table 9-2 and the company **website**.

Table 9-2: Number of Community Complaints by Year.

Year	2020	2021	2022	2023	2024
Complaints	3	2	2	2	0

9.4 Workforce Profile

As of 31 December 2024, the total workforce on BCM was 805 employees. A breakdown of the workforce and their residential locality are detailed in **Sections 9.4.1** and **9.4.2**.

9.4.1 BCOPL Employees

Wherever possible, local personnel are employed by BCOPL and its contractors. The BCOPL team at BCM consists of 586 employees, the majority (~80%) of whom are based locally within the Narrabri, Gunnedah and Tamworth LGA's. All BCOPL employees are employed full time. A breakdown of the location is found in **Table 9-3**.

Table 9-3: Residential Locality of BCOPL Employees by LGA

Locality	2023 BCOPL Employee Residency	2024 BCOPL Employee Residency
Gunnedah LGA	195	244
Narrabri LGA	43	110
Tamworth LGA	59	124
Other NSW	113	97
QLD	10	11
Total	**509**	**586**

9.4.2 Mining Contractors

Expansion project related construction activities concluded in late 2015, at which point the BCM moved to an operational phase. From late 2015, BCM continued to be contractor operated. In 2017, BCOPL took over the operation of BCM with assistance of mining contractor staff. The 2024 reporting period represents the BCM's ninth year of operations since the commencement of mining operations under SSD 09_0182.

During the reporting period, the major mining contractors on site included Orica Australia Pty Ltd (Orica), Ausdrill Limited (Ausdrill), MPC and One Key.

The largest share of the total contractor workforce at BCM during the 2024 reporting period is attributed to the mine contractor One Key. At the end of December 2024, the One Key workforce consisted of 128 personnel. The Orica workforce was 47personnel, Ausdrill was 35 and MPC workforce had 10 personnel employed at the BCM.

Ninety five percent (95%) of the BCM contractors resided in NSW and 80% resided within the localities of Boggabri, Gunnedah, Curlewis, Narrabri, Manilla and Tamworth (see **Table 9-4**).

Table 9-4: Residential Locality of Contractor Employees by LGA

Locality	One Key Resources Ptf Ltd	Orica	Ausdril	MPC
Narrabri LGA	15	11	6	5
Gunnedah LGA	58	19	4	3
Tamworth LGA	43	7	5	4
Other NSW	12	8	13	0
QLD	0	2	3	0
Other Australia	0	0	5	0
Total	128	47	32	12

10.0 AUDITS

10.1 Independent Environmental Audit (2023)

10.1.1 Scope of Audit

In accordance with Schedule 5, Conditions 10 and 11 of SSD 09_0182, BCOPL engaged independent certified auditors to undertake an independent environmental compliance audit (IEA) of BCM during October 2023.

GHD Pty Ltd (GHD) was approved by the DPHI to assess BCOPL's compliance with the conditions of SSD 09_0182 and other relevant leases, licences and approvals. It also included assessing the environmental performance of the Project in meeting the requirements of SSD 09_0182 through the implementation of a range of environmental management measures outlined in the various environmental management plans developed for the Project. This covered the period from the 7 November 2020 to 17 November 2023.

10.1.2 Audit Outcomes

Overall, 26 non-compliances were identified by GHD including 15 against the conditions of SSD 09_0182, 6 against the conditions of EPL 12407 and 5 against the standard of the Mining Regulation 2016 Schedule 8A Part 2. GHD stated that the site appeared to be well managed and that there were no non-compliances noted of medium or high risk. BCOPL has developed an action plan in response to the recommendations made as part of the IEAs as shown within **Appendix F.**

The final report noted by the auditor that it was evident that the site was generally being managed with a commitment to minimise the impact on the environment and surrounding residents.

Overall, the audit found that the management plans, strategies, and programs that have been prepared for BCM were adequate and prepared in accordance with the relevant compliance requirements. The audit found that on-site staff displayed a good understanding of the key biodiversity issues and were focused on implementing measures that would minimise impacts and achieve good biodiversity/environmental outcomes.

10.1.3 DPHI Review

The IEA was lodged with the DPHI on 20 December 2023. The DPHI found the audit to generally satisfy the requirements of SSD 09_0182 and the DPHI's Independent Audit Guidelines (2015).

The DPHI also requested that a status update on the recommended actions be included in future Annual Reviews until each action is completed.

10.1.4 Status of Audit Recommendations

BCOPL have proposed completion dates for the actions in response to the non-compliances highlighted in the 2023 IEA (Refer to the Response Action Plan in **Appendix F**). The audit action plan is continuing to be closed out and the next IEA is due in 2026.

11.0 INCIDENTS AND NON-COMPLIANCES

All incidents and non-compliances are detailed in **Table 1-2** of the Statement of Compliance. **Table 11-2** outlines the non-compliances which occurred during the 2024 reporting period and BCOPL's response. Actions that have resulted from the IEAs can be found in the Response Action Plan in **Appendix F**.

One warning letter was received by BCOPL during the 2024 reporting period. This has been outlined in **Table 11-1**.

Table 11-1: Notices and Warnings Received during the Reporting Period

Agency	Date	Correspondence Details	BCOPL response
Resources Regulator		Official warning letter to BCOPL – failure to prepare a Rehabilitation Management Plan in the form approved by the Secretary.	RMP revised to follow the form and way and be resubmitted on 31 March 2025.

Table 11-2: Non-Compliances and Exceedances during 2024

Time Period	Condition Description	Relevant approval	Comment
Ongoing	Coal extraction and Stockpiles	SSD 09_0182	Investigation into exceedance of coal extraction limits currently ongoing.
Ongoing	Sound Power Levels	SSD 09_0182 & AQGHGMP	Sound power screening during 2024 recorded one item of plant which exceeded its required sound power level by 3dB or more. Unit EX131 will be addressed over the next 12 months and retested in 2025.
Ongoing	Implementation of GWMP	GWMP	Revised GWMP submitted to DPHI for approval.
Apr-24	Groundwater Management Plan (GWMP)	SSD 09_0182 Schedule 3 Condition 38(c)	GWMP is required to be reviewed to account for the decommissioned monitoring bores. GWMP in final stages of consultation with the department for approval.
Ongoing	Leard Forest Mining Precinct Regional Biodiversity Strategy	SSD 09_0182 Schedule 3 Condition 40	Umwelt prepared a preliminary review of the Leard Forest Regional Biodiversity Strategy in 2018. The scope of the review was reduced to solely focussing on the implementation of the strategy in the revised biodiversity management plans to provide a list of recommendations to the BTM Complex for future revisions of the Leard Forest Regional Biodiversity Strategy. The preliminary review included a recommendation (recommendation 4.6) that a comprehensive review of the strategy should be undertaken by 31 December 2021. A letter of response was provided by BCD on 26 July 2019 providing comments on the preliminary review that supported this recommendation. The Comprehensive Review of the strategy has not been undertaken and therefore the recommendations of the preliminary review have not been implemented. This was considered a non-compliance against this condition. BCO has been working collaboratively with WHC, DPHI and Umwelt to complete the comprehensive review of the LFRBS. This is scheduled to be completed in 2025.

Ongoing	Development of the Eucalyptus Forestry Plantation Offset Strategy	SSD 09_0182 Condition 54	BCOPL submitted a Forestry Planation Offset Strategy in July 2013 to NSW Forestry Corporation. Feedback has been received which suggests NSW Forestry Corporation does not see benefit in the proposed strategy. BCOPL believe this requirement has been closed out with NSW Forestry.
Mar-24	Rehabilitation	Mining Regulation 2016 Schedule 8A Part 2 Standard Condition 15(1) and 15(2)	The auditor noted that the forward program was submitted on 31 March 2024, which was more than 60 days from the completion of the reporting period. The Annual Rehabilitation Report reviewed did not have a date of submission, and therefore compliance with this condition cannot be verified.
Mar-24	Ambient Air Quality Monitoring	EPL-12407 SSD 09_0182 Schedule 3 Condition 27	Exceedances of short term PM_{10} criteria were recorded at the Glenhope HVAS monitor on 6 and 12 March 2024. Evidence of farming activities close to the monitoring unit. This was included in the Annual Return. Exceedances of short term PM_{10} criteria were recorded at the Glenhope HVAS monitor on 6 and 12 March 2024. Evidence of farming activities close to the monitoring unit was presented to DPHI, who concluded BCO were not a contributing factor to this exceedance (Appendix D)

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12.0 ACTIVITIES PROPOSED FOR NEXT ANNUAL REVIEW PERIOD

Activities that are proposed for the next Annual Review reporting period are detailed in **Table 12-1**.

Table 12-1: Activities Proposed for Next Reporting Period

Activity	Target Completion Date
Complete construction of houses in Boggabri	2025
Complete relocation of MW5	2025
Clearing of vegetation in advance of mining	February - April 2025
Continued implementation of a noise attenuation program for items of plant exceeding modelled sound power levels. This will continue as an iterative process and be ongoing throughout the next reporting period	Ongoing
Undertake exploration activities ahead of mining	Ongoing
Fauna habitat resources such as salvaged fallen timber and nest boxes will be introduced in rehabilitation areas	Ongoing
Fauna habitat resources such as salvaged fallen timber and nest boxes will be introduced in rehabilitation areas	Ongoing
Tubestock planting of canopy species in BOAs and rehabilitation areas	Ongoing

13.0 REFERENCES

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- Australian Bureau of Statistics (2022) *Building Approvals*, Australia, October 2022 (abs.gov.au)
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- Thearle Engineering (2025) Sound Power Compliance Boggabri Coal Mobile Fleet 2024 Revision A.
- EMM Consulting (2024) Environmental Noise Monitoring Annual Report 2023.
- EMM Consulting (2025) Boggabri Coal Operations Pty Ltd Site Water Balance Report.

14.0 ABBREVIATIONS

Abbreviations	Terms
µg/m^3	Micrograms per metre cubed
µS/cm	Microsiemens per centimetre
Ausdrill	Ausdrill Limited
AHCS	Aboriginal Heritage Conservation Strategy
AIA	Acoustic Impact Assessment
AN	Ammonium Nitrate
ANFO	Ammonium Nitrate/ Fuel Oil
AQGHGMP	Air Quality and Greenhouse Gas Management Plan
ASCF	Aboriginal Stakeholder Consultative Forum
BBAM	BioBanking Assessment Methodology 2014
BC Act	Biodiversity Conservation Act 2016 NSW
BCM	Boggabri Coal Mine
BCOPL	Boggabri Coal Operations Pty Limited
BFMP	Blast Fume Management Protocol
BLMP	Blast Management Plan
BMP	Biodiversity Management Plan
BOA	Biodiversity Offset Area
BOS	Biodiversity Offset Strategy
BTM Complex	Boggabri, Tarrawonga, Maules Creek Mining Complex
CCC	Community Consultative Committee
CHMP	Cultural Heritage Management Plan
CHPP	Coal Handling and Preparation Plant
CL	Coal Lease
dB(A) $L_{eq\ (15\ minutes)}$	Decibels A-Weighted with an Equivalent Continuous Sound Pressure Level over 15 minutes
DPE	Department of Planning and Environment - now DPHI

Abbreviations	Terms
DPHI	Department of Planning, Housing and Infrastructure
DPI	Department of Primary Industries
EA	Continuation of Boggabri Coal Mine Environmental Assessment (Hansen Bailey, 2010)
EC	Electrical Conductivity
EMPs	Environmental Management Plans
EMS	Environmental Management Strategy
EP&A Act	Environmental Planning and Assessment Act 1979 (NSW)
EPA	Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cth)
EPL	Environment Protection Licence
Forestry NSW	NSW Forestry Corporation of NSW
g/m²/month	Grams per metre squared per month
GHG	Greenhouse Gas
GJ	Gigajoules
GSC	Gunnedah Shire Council
GWMP	Groundwater Management Plan
ha	Hectares
HTV	High Trigger Value
HVAS	High Volume Air Sampler
IA	Idemitsu Australia Pty Ltd
IEA	Independent Environment Audit
kbcm	Kilo Bank Cubic Metres
$L_{Aeq\ (15\ minutes)}$	Equivalent Continuous Sound Pressure Level over 15 minutes
LGA	Local Government Area
LTV	Low Trigger Value
m/s	Metres per second
mAHD	Metres Australian Height Datum

Abbreviations	Terms
Mbcm	Million bank cubic metres
mBGL	Metres Below Ground Level
mbtoc	Metres below top of casing
MCCM	Maules Creek Coal Mine
mg/L	Milligrams per litre
MIA	Mine Infrastructure Area
ML	Mining Lease
MOP	Mining Operations Plan
Mt	Million tonnes
Mtpa	Million Tonnes Per Annum
MTV	Medium Trigger Value
NGERs	National Greenhouse and Energy Reporting
NMP	Noise Management Plan
NPI	National Pollutant Inventory
NSC	Narrabri Shire Council
Orica	Orica Australia Pty Ltd
PA	Project Approval
PAF	Potential Acid Forming
PM_{10}	Particulate matter < 10 µm
$PM_{2.5}$	Particulate matter < 2.5 µm
RAPs	Registered Aboriginal Parties
RBS	Leard Forest Regional Biodiversity Strategy
RMP	Rehabilitation Management Plan
ROM	Run of Mine
SIMP	Social Impact Management Plan
SPL	Sound Power Level
SSD	State Significant Development approval (formerly Project Approval) 09_0182

Abbreviations	Terms
SWB	Site Water Balance
SWMP	Surface Water Management Plan
t CO_2-e	Tonnes of Carbon Dioxide Equivalent
tonnes/t CO2-e	Tonnes per Tonne of Carbon Dioxide Equivalent
TCM	Tarrawonga Coal Mine
TEOM	Tapered Element Oscillating Microbalance
TLO	Train Load-out Facility
TMP	Traffic Management Plan
TSP	Total Suspended Particulates
ULSD	Ultra-Low Sulphur Diesel
WAL	Water Access Licence
WMP	Water Management Plan

Appendix A
Annual Review Requirements

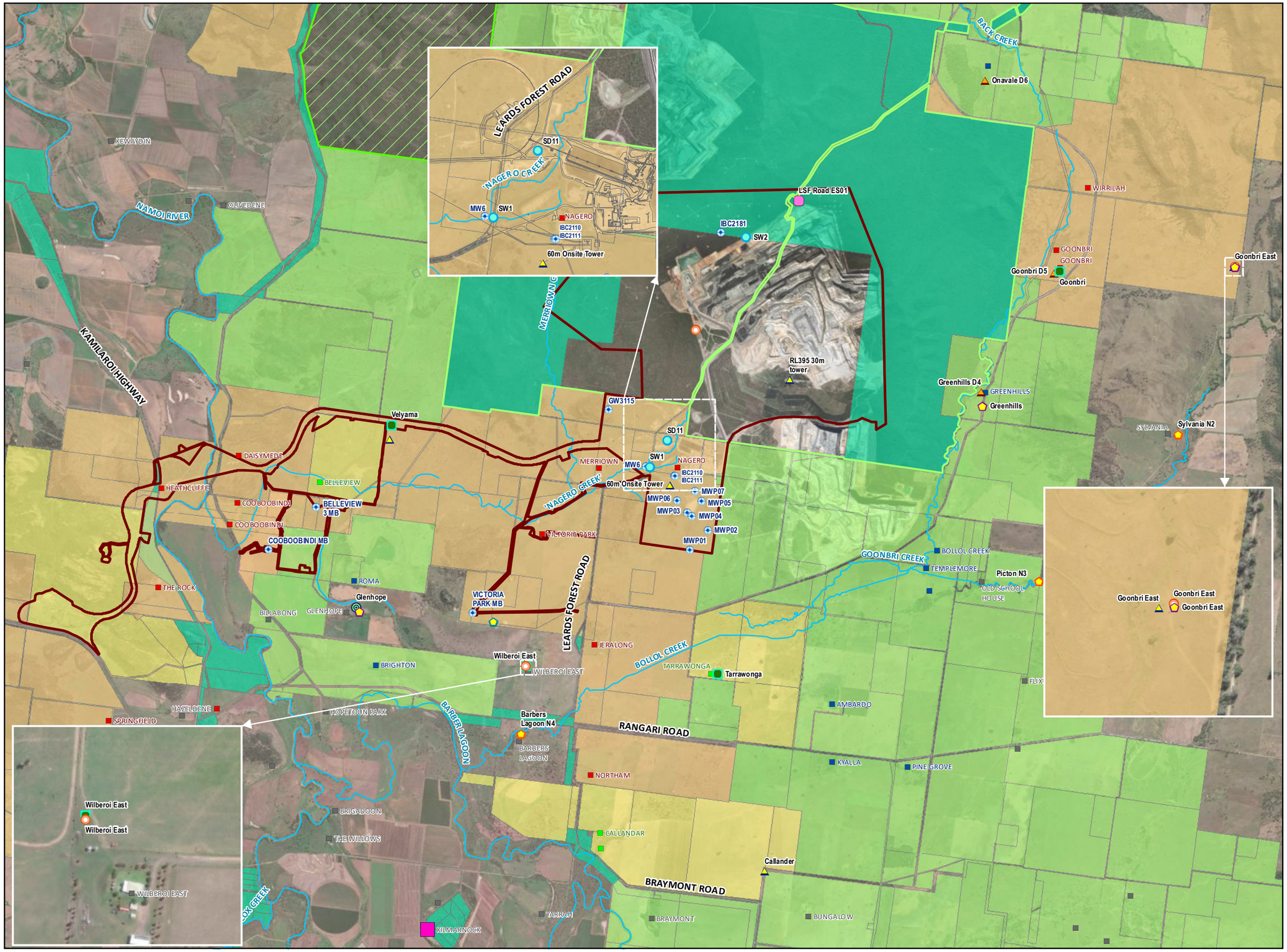
Table A-14-1: Annual Review Requirements

Licence, Approval or Guideline	Section Reference	Requirement	Reference in this report
CL 368	Condition 4	(a) The lease holder must lodge Environmental Management Reports (EMRs) with the Director-General annually or at dates otherwise directed by the Director-General. (b) The EMR must: i. Report against compliance with the MOP; ii. Report on progress in respect of rehabilitation completion criteria; iii. Report on the extent of compliance with regulatory requirements; and iv. Have regard to any relevant guidelines adopted by the Director-General	Whole document
ML 1755	Condition 3(f)	(f) The lease holder must prepare a Rehabilitation Report to the satisfaction of the Minister. The report must: i. provide a detailed review of the progress of rehabilitation against the performance measures and criteria established in the approved MOP; ii. be submitted annually on the grant anniversary date (or at such other times as agreed by the Minister); and iii. be prepared in accordance with any relevant annual reporting guidelines published on the Department's website at: www.resources.nsw.gov.au/environment. Note: The Rehabilitation Report replaces the Annual Environmental Management Report.	**Section 7.0**
Project Approval 09_0182	Schedule 5, Condition 4	Annual Review By the end of March each year, the Proponent shall review the environmental performance of the project for the previous calendar year to the satisfaction of the Secretary. This review must: (a) Describe the development (including any rehabilitation) that was carried out in the past calendar year, and the development that is proposed to be carried out over the current calendar year;	**Section 7.0**

Licence, Approval or Guideline	Section Reference	Requirement	Reference in this report
		(b) Include a comprehensive review of the monitoring results and complaints records of the project over the past year, which includes a comparison of these results against the: • Relevant statutory requirements, limits or performance measures/criteria; • Monitoring results of previous years; and • Relevant predictions in the EA	**Section 4.0 Section 9.3**
		(c) Identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;	**Section 4.0, Section 7.0**
		(d) Identify any trends in the monitoring data over the life of the project;	**Section 4.0**
		(e) Identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and	**Section 4.0**
		(f) Describe what measures will be implemented over the next year to improve the environmental performance of the project.	**Section 5.0**
	Schedule 3, Condition 10	The Proponent shall: (a) Conduct an annual testing program of the attenuated plant on site to ensure that the attenuation remains effective; (b) Restore the effectiveness of any attenuation if it is found to be defective; and (c) Report on the results of any testing and/or attenuation work within the Annual Review.	**Section 6.3**
	Schedule 3, Condition 12	The proponent shall: (i) Use its best endeavours to achieve the long term intrusive noise goals for the project in Table 5, where this is reasonable and feasible, and report on the progress towards achieving these goals in the Annual Review;	**Section 4.3.2**
	Schedule 3, Condition 68	The Proponent shall: (a) Implement all reasonable and feasible measures to minimise the waste (including coal reject) generated by the project; (b) Ensure that the waste generated by the project is appropriately stored, handled and disposed of; (c) Monitor and report on the effectiveness of the waste minimisation and management measures in the Annual Review.	**Section 6.6**

Licence, Approval or Guideline	Section Reference	Requirement	Reference in this report
	Schedule 3, Condition 77	The proponent shall prepare and implement a Social Impact Management Plan (which will) (h) Include a monitoring program, incorporating key performance indicators and a review and reporting protocol, including reporting in the Annual Review.	**Section 11.0**
Boggabri Coal Project EA	Section 8	BCOPL will prepare an Annual Review (which summarises monitoring results and reviews performance) and distribute it to the relevant regulatory authorities and the Boggabri CCC.	**Whole document**

Appendix B
Environmental Monitoring Location Maps



Legend

- Blast monitor
- Dust gauge
- E-sampler
- High volume air sampler (PM10)
- Meteorological station
- Noise monitor (attended)
- Noise monitor (unattended)
- Real time noise monitoring
- Surface water monitoring site
- TEOM location
- Groundwater monitoring bores
- Boggabri Coal residence
- Whitehaven Coal residence
- Mine jointly owned residence
- Privately owned
- Crown
- Waterway
- Boggabri Coal Mine Project Approval Area
- State Conservation Area
- State Forest

Property Ownership

- BCOP
- Joint
- WH
- Crown

0 0.5 1 1.5 2 KM

Scale 1:75,000

Projection: Transverse Mercator
Coordinate System: GDA 1994 MGA Zone 56
Scale correct when printed at A3 Landscape

Imagery:
Basemap - World Imagery

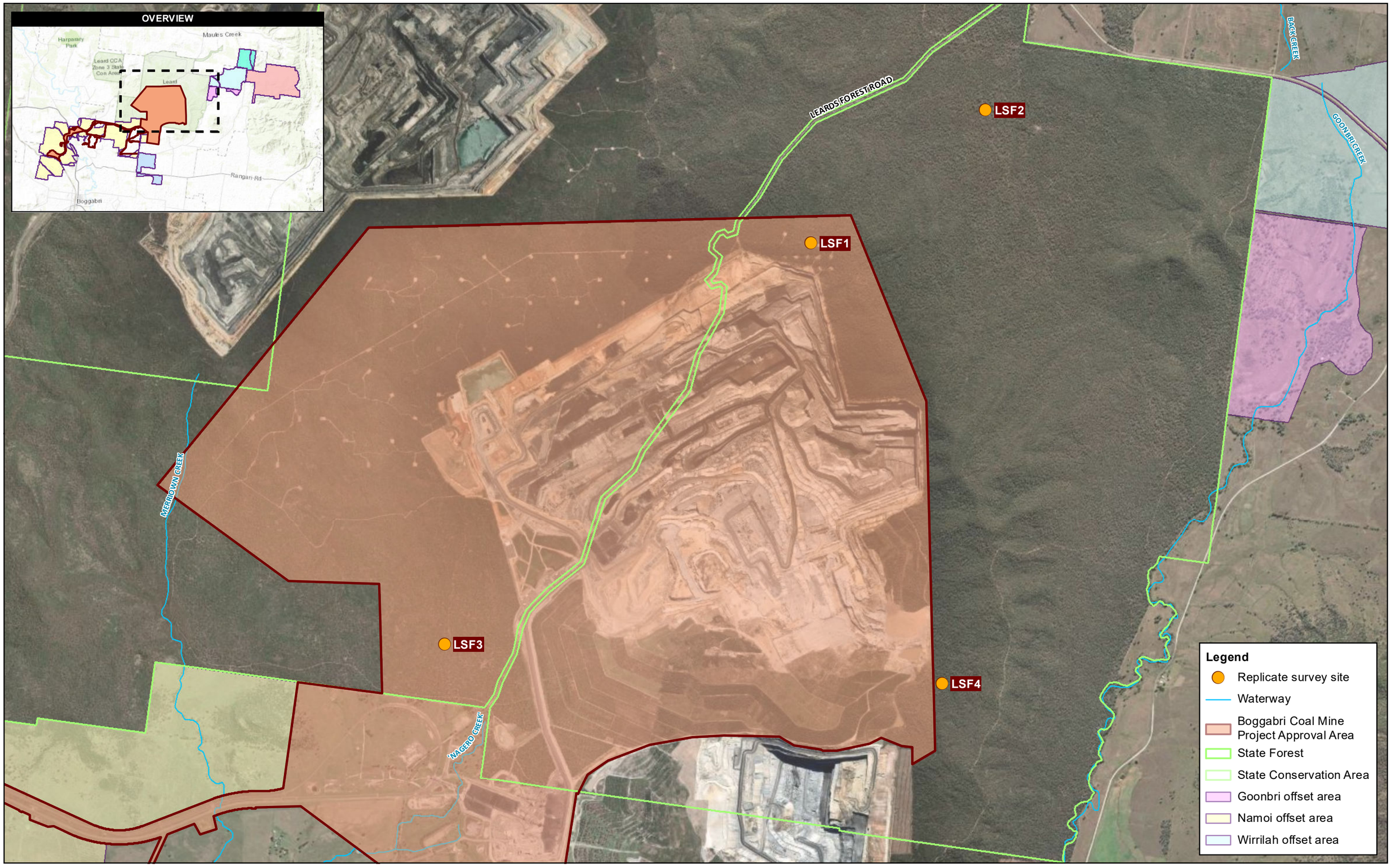
DOCUMENT	A_1_BC2025_AEMR002_MON_r1v1
AUTHOR.	A.Carrillo
REVIEWED BY.	N.Cooper
DATE.	19/02/2025

idemitsu

FIGURE **A-1**

TITLE. **BOGGABRI COAL MINE PROJECT BOUNDARY AND ENVIRONMENTAL MONITORING SITES**

Appendix C
Biodiversity Monitoring Maps



N
W E
S
0 250 500 750 1,000 M

Scale 1:30,000

Projection: Transverse Mercator
Coordinate System: GDA 1994 MGA Zone 56
Scale correct when printed at A3 Landscape

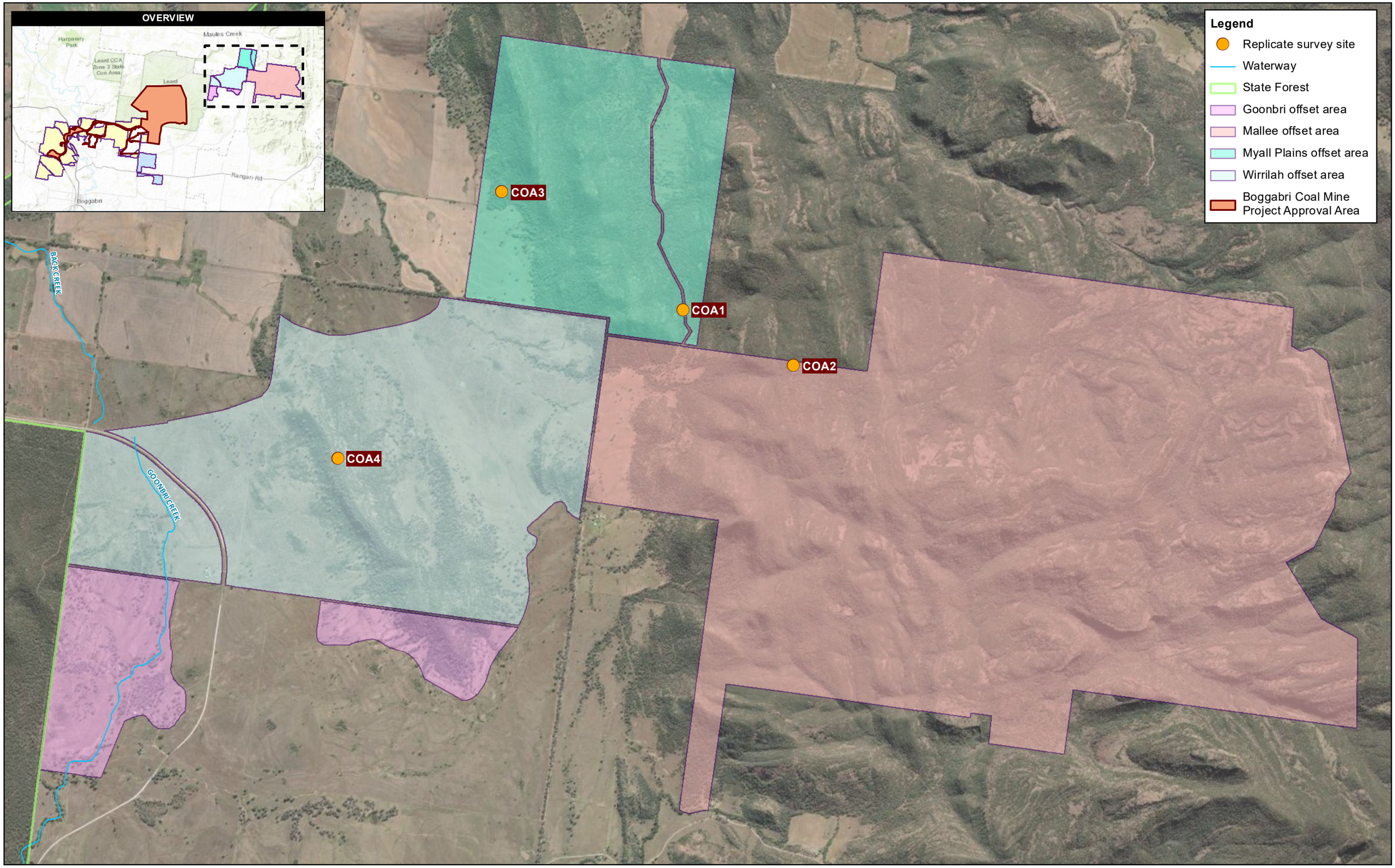
Imagery:
Basemap - World Imagery Sources: Esri, HERE, Garmin, Intermap, increment P Corp.,

DOCUMENT	B_1_BC2025_AEMR003_MON_LSF_r1v1
AUTHOR.	A.Carrillo
REVIEWED BY.	N.Cooper
DATE.	19/02/2025

idemitsu

FIGURE **B-1**

TITLE. **LOCATION OF REPLICATE SURVEY SITES - LEARD STATE FOREST**



0 250 500 750 1,000 M

Scale 1:30,000

Projection: Transverse Mercator
Coordinate System: GDA 1994 MGA Zone 56
Scale correct when printed at A3 Landscape

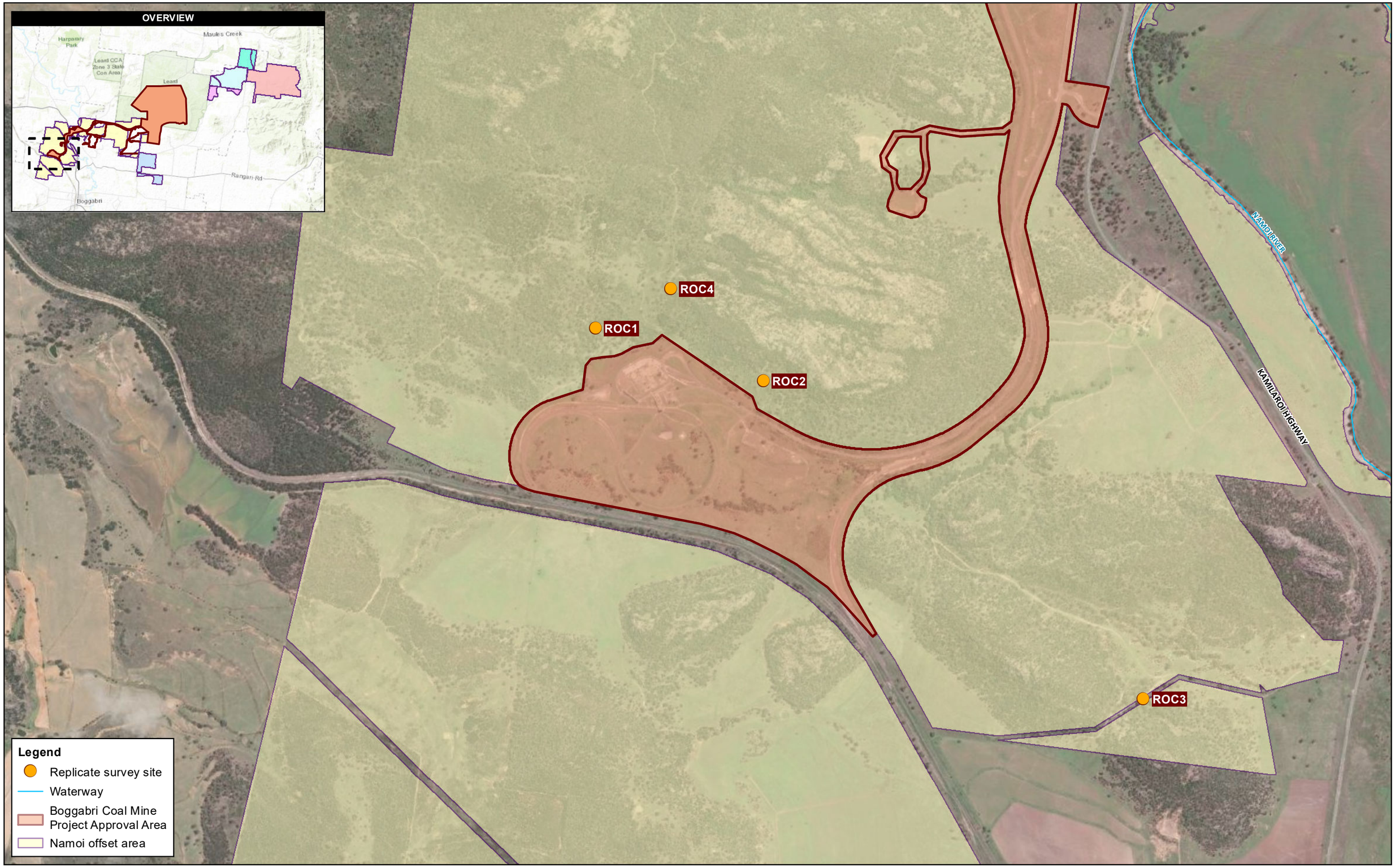
Imagery:
Basemap - World Imagery Sources: Esri, HERE, Garmin, Intermap,

DOCUMENT	B_2_BC2025_AEMR004_MON_COA_r1v1
AUTHOR.	A.Carrillo
APPROVED BY.	N.Cooper
DATE.	19/02/2025

idemitsu

FIGURE **B-2**

TITLE. **LOCATION OF REPLICATE SURVEY SITES - CENTRAL OFFSET AREA**



0 100 200 300 400 M

Scale 1:15,000

Projection: Transverse Mercator
Coordinate System: GDA 1994 MGA Zone 56
Scale correct when printed at A3 Landscape

Imagery:
Basemap - World Imagery Sources: Esri, HERE, Garmin, Intermap,

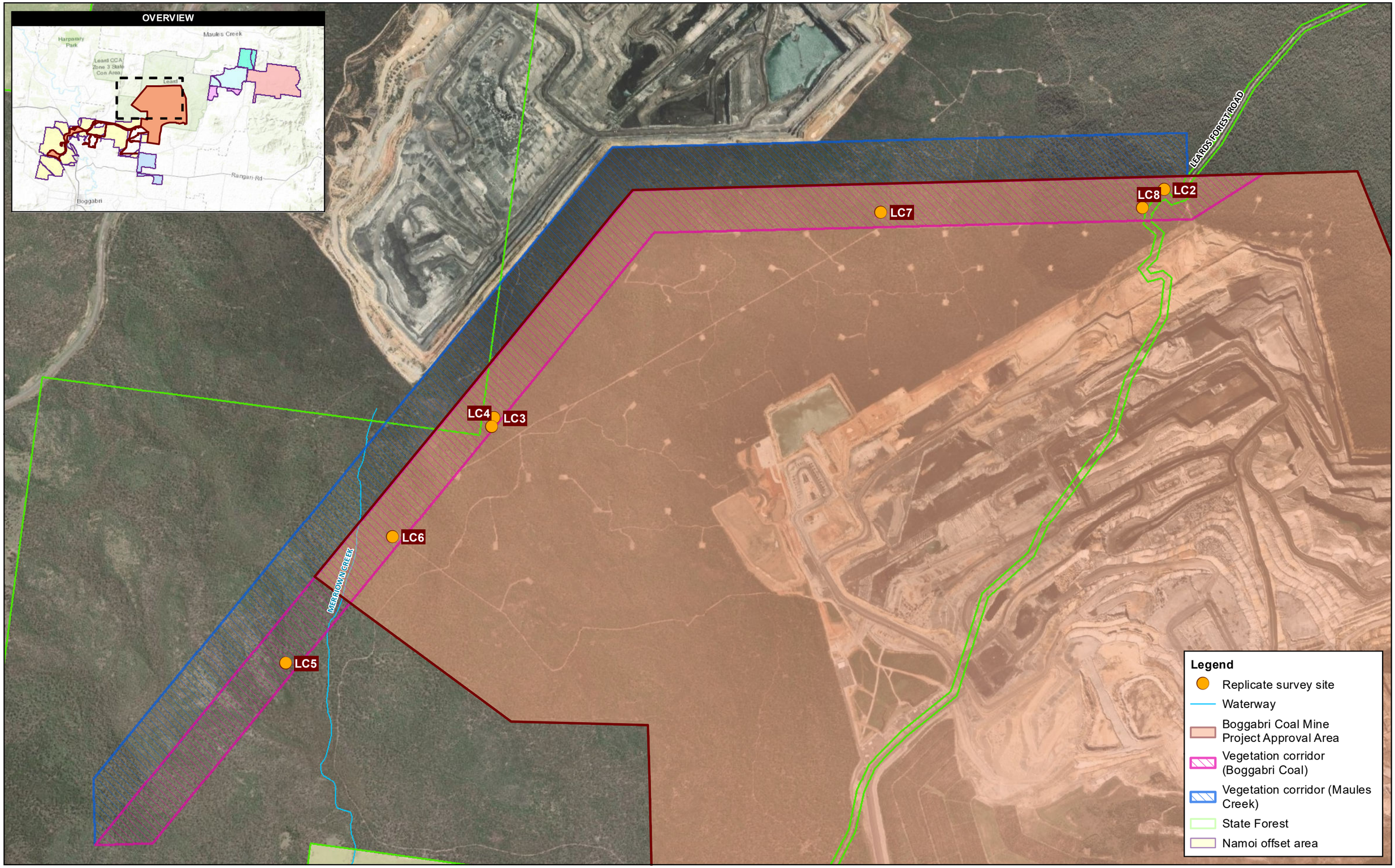
DOCUMENT	B_3_BC2025_AEMR005_MON_Rocklea_r1v1
AUTHOR.	A.Carrillo
REVIEWED BY.	N.Cooper
DATE.	19/02/2025

idemitsu

FIGURE **B-3**

TITLE. **LOCATION OF REPLICATE SURVEY SITES - ROCKLEA PROPERTY (NAMOI OFFSETS)**

DRAWING C:\Users\AUAC507280\WSP O365\Boggabri GIS-Ecology - General\5_Shared\54_Production\Maps\2025AEMR\B_3_BC2025_AEMR005_MON_Rocklea_r1v1.mxd



0 150 300 450 600 M

Scale 1:20,000

Projection: Transverse Mercator
Coordinate System: GDA 1994 MGA Zone 56
Scale correct when printed at A3 Landscape

Imagery:
Basemap - World ImagerySources: Esri, HERE, Garmin, Intermap,

DOCUMENT B_4_BC2025_AEMR006_MON_Corridor_r1v1

AUTHOR. A.Carrillo

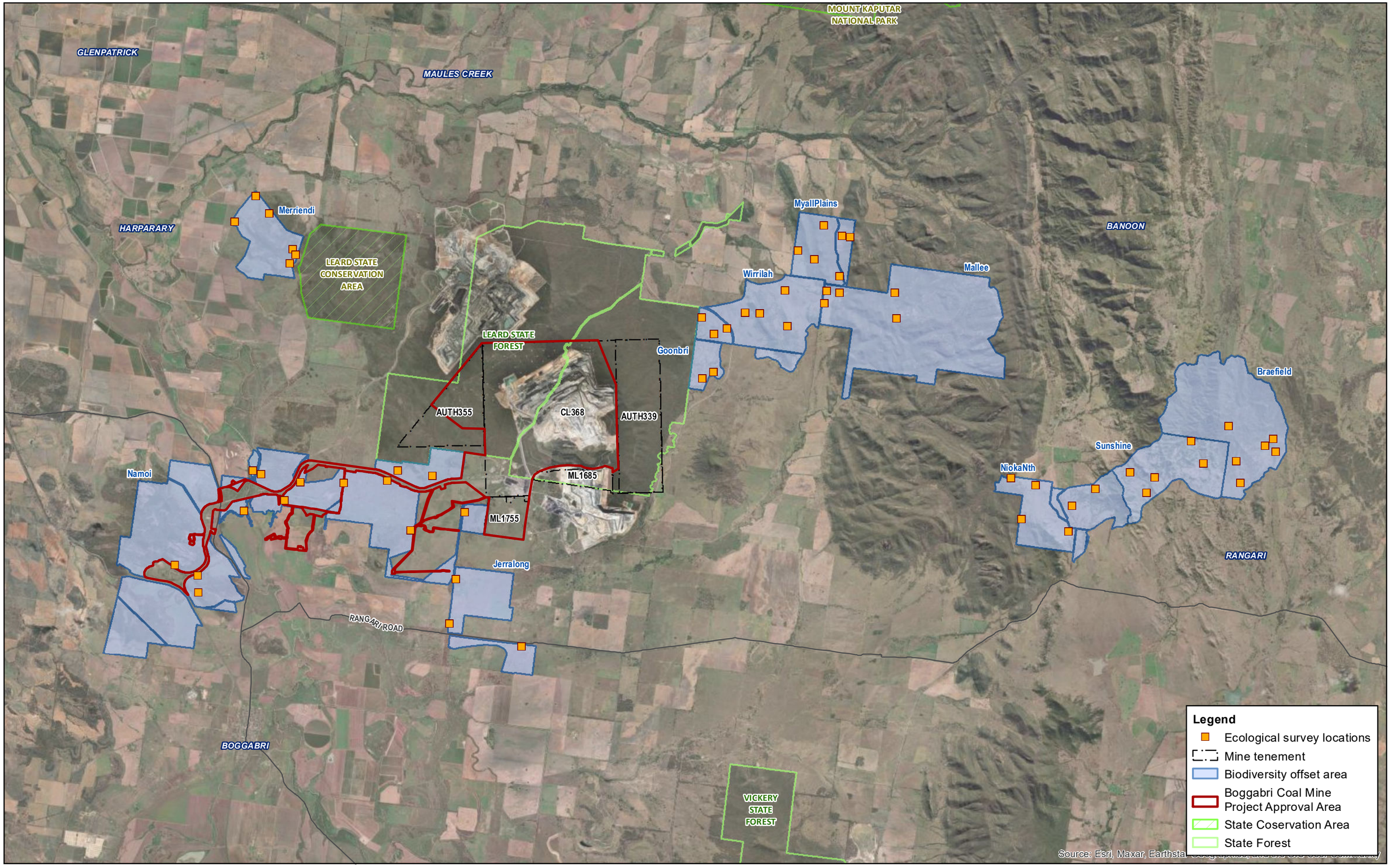
REVIEWED BY. N.Cooper

DATE. 19/02/2025

idemitsu

FIGURE **B-4**

TITLE. **LOCATION OF REPLICATE SURVEY SITES - LEARD STATE FOREST VEGETATION CORRIDOR**



N
W E
S
0 1.5 3 km

Scale 1:125,000

Projection: Transverse Mercator
Coordinate System: GDA 1994 MGA Zone 56
Scale correct when printed at A3 Landscape

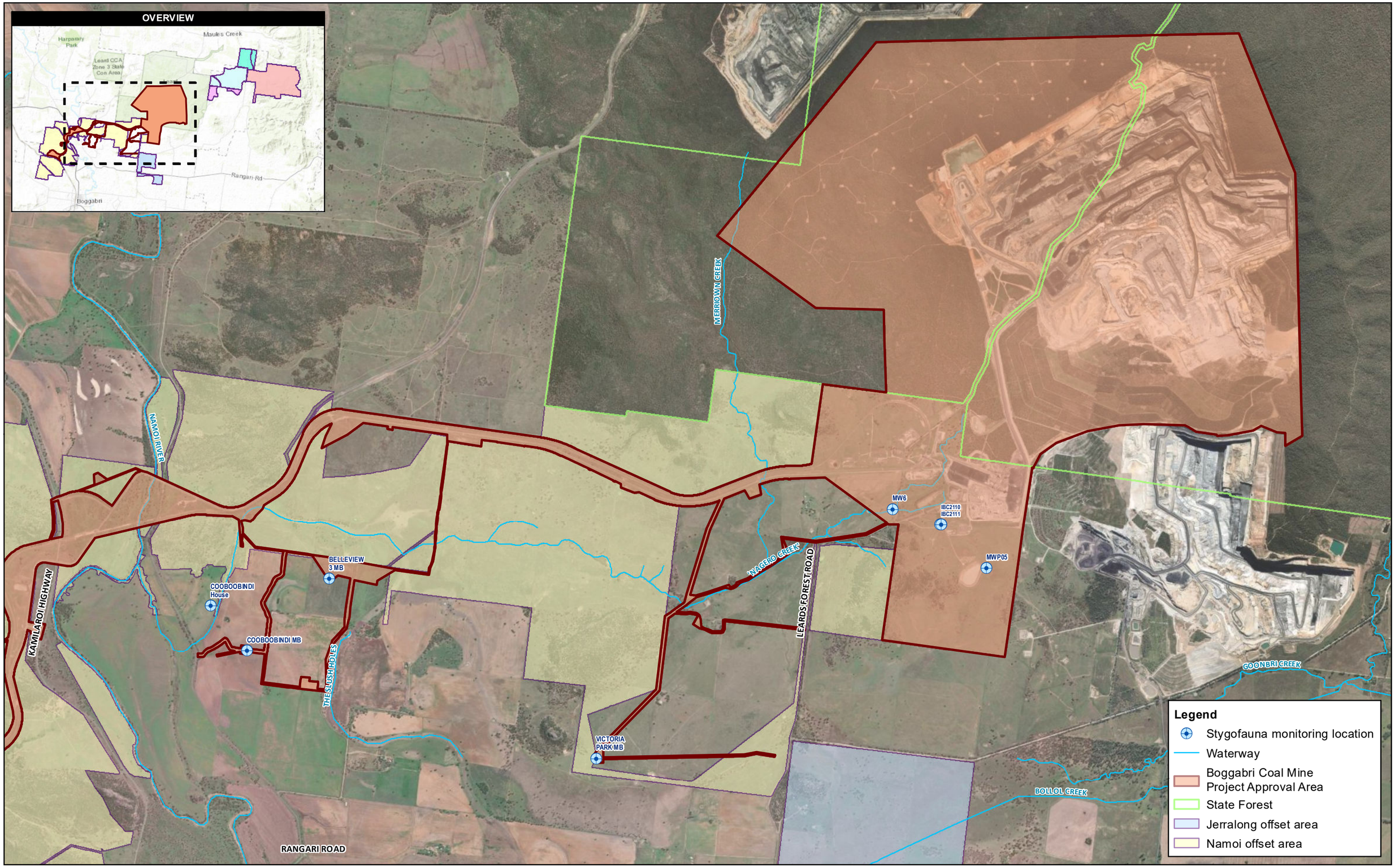
Imagery: Basemap - World Imagery

DOCUMENT	B_5_BC2025_AEMR007_MON_Replicate_r1v1
AUTHOR.	A.Carrillo
REVIEWED BY.	N.Cooper
DATE.	20/02/2025

idemitsu

FIGURE **B-5**

TITLE. **LOCATION OF REPLICATE SURVEY SITES**



0 0.4 0.8 1.2 KM

Scale 1:40,000

Projection: Transverse Mercator
Coordinate System: GDA 1994 MGA Zone 56
Scale correct when printed at A3 Landscape

Imagery:
Basemap - World ImagerySources: Esri, HERE, Garmin, Intermap,

DOCUMENT	B_6_BC2025_AEMR009_MON_stygo_r1v1
AUTHOR.	A.Carrillo
REVIEWED BY.	N.Cooper
DATE.	20/02/2025

idemitsu

FIGURE **B-6**

TITLE. **LOCATION OF STYGOFAUNA MONITORING SITES**

0 100 200 300 M

Scale 1:10,000

Projection: Transverse Mercator
Coordinate System: GDA 1994 MGA Zone 56
Scale correct when printed at A3 Landscape

Imagery:
Basemap - World Imagery Sources: Esri, HERE, Garmin, Intermap,

DOCUMENT	B_7_BC2025_AEMR011_MON_Rehab_r1v1
AUTHOR.	A.Carrillo
REVIEWED BY.	N.Cooper
DATE.	20/02/2025

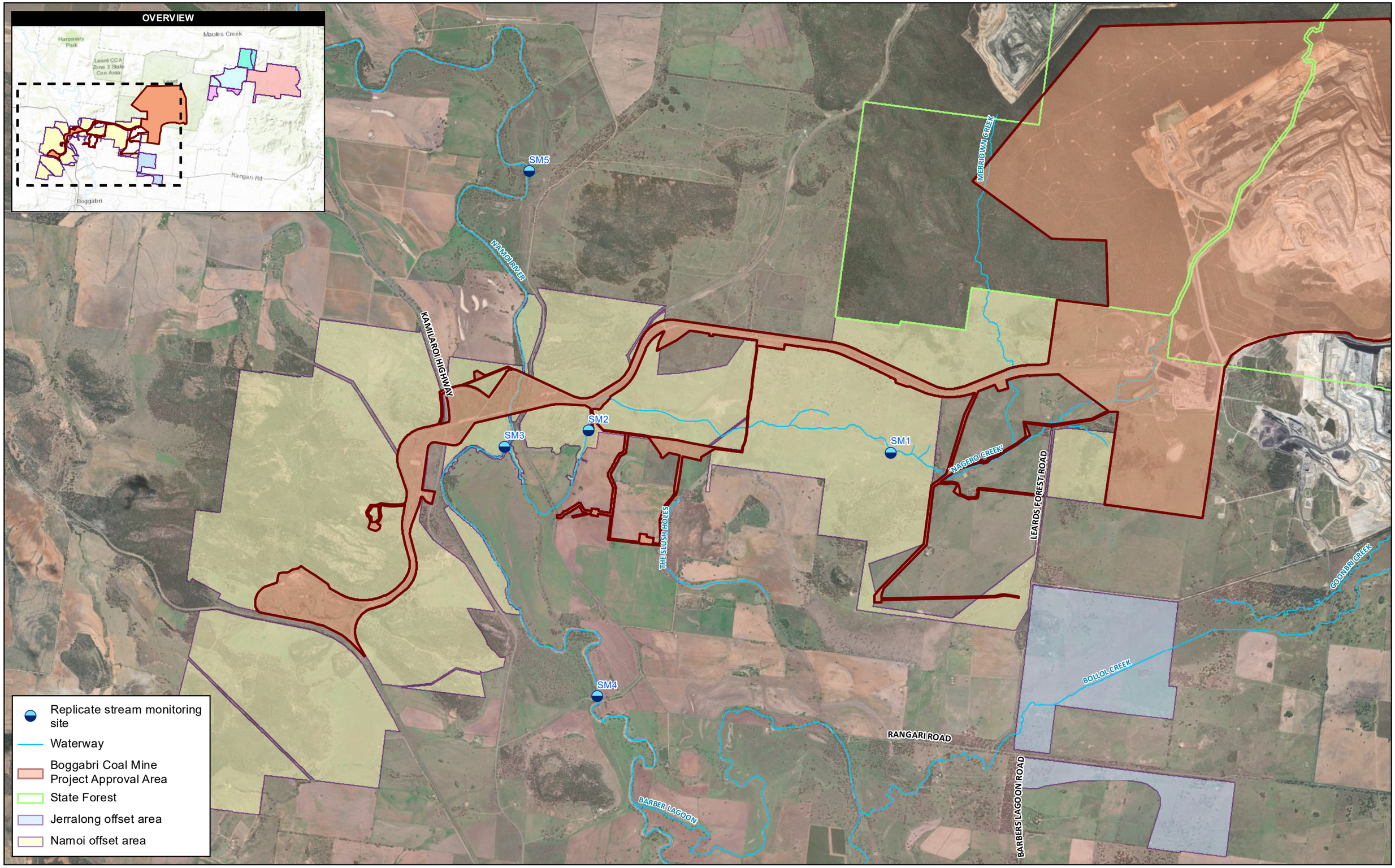
idemitsu

FIGURE **B-7**

TITLE. **LOCATION OF REPLICATE SURVEY SITES - MINE REHABILITATION AREA**

Idemitsu Australia Resources Pty Ltd

DRAWING: C:\Users\AUAC507280\WSP O365\Boggabri GIS-Ecology - General\5_Shared\54_Production\Maps\2025\AEMR\B_7_BC2025_AEMR011_MON_Rehab_r1v1.mxd



0 0.5 1 1.5 KM

Scale 1:50,000

Projection: Transverse Mercator
Coordinate System: GDA 1994 MGA Zone 56
Scale correct when printed at A3 Landscape

Imagery:
Basemap - World Imagery Sources: Esri, HERE, Garmin, Intermap,

DOCUMENT B_8_BC2025_AEMR010_MON_Stream_r1v1

AUTHOR. A.Carrillo

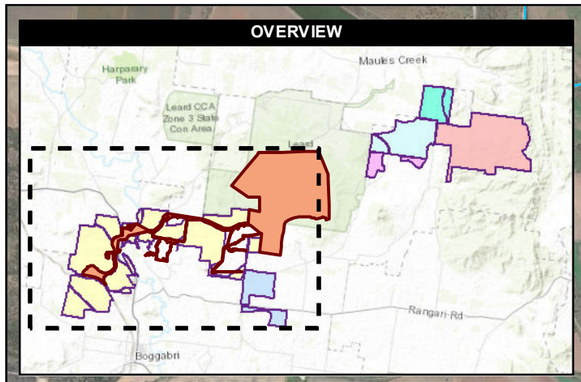
REVIEWED BY. N.Cooper

DATE. 20/02/2025

idemitsu

FIGURE **B-8**

TITLE. **LOCATION OF REPLICATE SURVEY SITES – STREAM AND RIPARIAN VEGETATION HEALTH MONITORING SITES**



SM5
Na15
Na17
Na8
GDE1
SM2
Na5
GDE2
SM3 / Na3
SM1
Na11
SM4
Na2
KAMILAROI HIGHWAY
NAMOI RIVER
WAGERO CREEK
THE SLUSH HOLES
MERRIOWN CREEK
LEARDS FOREST ROAD
GOONBRI CREEK
BOLLOL CREEK
RANGARI ROAD
BARBER LAGOON
BARBERS LAGOON ROAD

- Replicate terrestrial GDE monitoring sites
- Waterway
- Boggabri Coal Mine Project Approval Area
- State Forest
- Jerralong offset area
- Namoi offset area

0 0.5 1 1.5 KM

Scale 1:50,000

Projection: Transverse Mercator
Coordinate System: GDA 1994 MGA Zone 56
Scale correct when printed at A3 Landscape

Imagery:
Basemap - World Imagery Sources: Esri, HERE, Garmin, Intermap,

DOCUMENT B_9_BC2025_AEMR011_MON_TerrestrialGDE_r1v1

AUTHOR. A.Carrillo

REVIEWED BY. N.Cooper

DATE. 20/02/2025

idemitsu

FIGURE **B-9**

TITLE. **LOCATION OF REPLICATE MONITORING SITES – TERRESTRIAL GROUNDWATER DEPENDENT ECOSYSTEM MONITORING**

Appendix D
Regulator Correspondence

Department of Planning, Housing and Infrastructure

NSW Planning ref: MP09_0182-PA-92

Leticia Tolson (Environmental Operations Superintendent)
Boggabri Coal Pty Limited
Kamilaroi Country
Leard State Forest 386 Leards Forest Road
BOGGABRI NSW 2382
19/08/2025

Sent via the Major Projects Portal only

Subject: Boggabri Coal - Annual Review 2024

Dear Ms Tolson

I refer to the Boggabri Coal Mine Annual Review for the period 1 January 2024 to 31 December 2024, submitted as required by Schedule 5, Condition 4 of MP09_0182 as modified (the consent) to the NSW Department of Planning, Housing and Infrastructure (NSW Planning) on 31 March 2025. I also refer to the amended Annual Review submitted as a response to RFI-88513463.

NSW Planning has reviewed the amended 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 Annual Review on the company's website within 30 days.

Please note that the NSW Planning's acceptance of this amended Annual Review is not an endorsement of the compliance status of the project.

Non-compliances identified in the amended Annual Review with Schedule 3, Condition 10(a) and Condition 38(c) have been assessed by NSW Planning in accordance with its Compliance Policy, with NSW Planning on this occasion determining to record the breaches with no further enforcement action proposed. However, please note that recording the breach does not preclude NSW Planning from taking an alternative enforcement action, should it become apparent that an alternative response is more appropriate. All remaining non-compliances with the consent identified in the amended Annual Review have been previously addressed by NSW Planning, no further action is proposed at this time.

Should you wish to discuss the matter further, please contact Joel Curran, Senior Compliance Officer on 02 4904 2702 or email compliance@planning.nsw.gov.au

Yours sincerely

Heidi Watters
Team Leader
Compliance

As nominee of the Planning Secretary

Department of Planning, Housing and Infrastructure

NSW Planning ref: MP09_0182-PA-70

Alex Williams
Environmental Superintendent
Boggabri Coal Pty Limited
Kamilaroi Country
Leard State Forest, 386 Leards Forest Road
Boggabri NSW 2382
27/06/2024

Sent via the Major Projects Portal only

Subject: Boggabri Coal Mine - Annual Review 2023

Dear Miss Williams

I refer to the Boggabri Coal Mine Annual Review for the period 1 January 2023 to 31 December 2023, submitted as required by Schedule 5, Condition 4 of MP09_0182 as modified (the consent) to the NSW Department of Planning, Housing and Infrastructure (NSW Planning) on 31 March 2024.

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 2023 Annual Review on the company's website within 30 days.

Please note that the NSW Planning's acceptance of this Annual Review is not an endorsement of the compliance status of the project.

The non-compliances identified in the Annual Review with Schedule 3, Condition 27 and Condition 54 of the consent have been assessed by NSW Planning in accordance with its Compliance Policy, with NSW Planning on this occasion determining to record the breaches with no further enforcement action proposed. However, please note that recording the breach does not preclude NSW Planning from taking an alternative enforcement action, should it become apparent that an alternative response is more appropriate. All remaining non-compliances identified in the Annual Review were addressed by NSW Planning in our close out letter for the Boggabri Coal Mine 2023 Independent Environmental Audit.

Should you wish to discuss the matter further, please contact Joel Curran, Senior Compliance Officer on 02 4904 2702 or email compliance@planning.nsw.gov.au

Yours sincerely

Heidi Watters
Team Leader
Compliance

As nominee of the Planning Secretary

Resources Regulator

FORM EAMS generic v1.4

Our ref: NCG0006132
LETT0009150

BOGGABRI COAL PTY LIMITED
GPO BOX 301
BRISBANE QLD 4001
Attn: Ben Hiatt

Dear Ben Hiatt

The Resources Regulator (the Regulator), within the Department of Regional NSW (the Department) is responsible for monitoring and enforcing compliance with the Mining Act 1992 and associated Regulations.

Chugoku Electric Power Australia Resources Pty Ltd and Boggabri Coal Pty Ltd are titleholders of Coal Lease 368 (1973) (**CL368**) and Mining Lease 1755 (1992) (**ML1755**), operating as the Boggabri Coal Mine. The Boggabri Coal Mine is considered a 'large mine' under Schedule 8A of the Mining Regulation 2016 given that Boggabri Coal Mine possesses an Environmental Protection Licence (EPL 12407) pursuant to the provisions of the *Protection of the Environment Operations Act 1997.*

Schedule 8A of the Mining Regulations requires, amongst other things, Boggabri Coal Mine to submit Forward Programs (FWP) containing a Rehabilitation Cost Estimate (RCE), and Annual Rehabilitation Reports (ARR) both annually and within strict timeframes.

The Regulator's records indicate that Boggabri Coal Mine was late in the submission of the FWP (with RCE) for the reporting period 01 January 2024 to 31 December 2026 which was due to the Regulator before 29 February 2024. Failure to submit the FWP (with RCE) by the due date is a contravention of Section 378D(1) of the Mining Act 1992 and Schedule 8A of the Mining Regulations 2016.

The Regulator's records further indicate that Boggabri Coal Mine was late in the submission of the ARR for the reporting period 01 January 2023 to 31 December 2023 which was due to the Regulator before 29 February 2024. Failure to submit the ARR by the due date is also a contravention of Section 378D(1) of the Mining Act 1992 and Schedule 8A of the Mining Regulations 2016.

In determining any subsequent compliance action regarding these breaches, the Regulator has taken into account submissions made by Adam Lanske (Agent for Boggabri Coal and representative of Bailey & Associates) along with confirmation that the FWP (with RCE) and ARR have since been provided to the Regulator. Following this, the Regulator has made a determination that no action will be taken with regard to the breaches, in lieu of a warning that any future late submissions may incur an escalated enforcement response.

It is important to note that the next FWP and ARR for the 2024 reporting periods will be due before 02 March 2025.

Boggabri Coal Pty Ltd should note that increased compliance monitoring will occur and any further contraventions may result in escalated enforcement action being taken. Your compliance history will also be considered when determining any applications under the Mining Act 1992.

If you require additional information, please contact the Resources Regulator on 1300 814 609 or via email at nswresourcesregulator@service-now.com.

Yours sincerely,

Brendon Gordon
Senior Compliance Officer
Resources Regulator

28 June 2024

Resources Regulator

FORM EAMS generic v1.4

Our ref: ASMT0036417
LETT0009552

Boggabri Coal Operations Pty Limited
PO Box 12
BOGGABRI NSW 2382
Attn: Ben Hiatt

Dear Ben Hiatt

Boggabri Coal

Targeted Assessment Program – Revegetation

Overview

The Resources Regulator (the Regulator) within the Department of Primary Industries and Regional Development (the Department) is responsible for the administration and enforcement of the *Mining Act 1992* (the Act) and associated Regulations.

Our compliance and enforcement strategy involves targeted assessment programs (TAPs) at mines across NSW. TAPs have been developed to focus on critical controls across mine sites to ensure measures have been identified and implemented to facilitate sustainable rehabilitation outcomes. One of the primary aims of the TAP is to assist industry with continual improvement in rehabilitation outcomes.

Further information regarding our approach to conducting a TAPs can be found at https://www.resourcesregulator.nsw.gov.au/mine-rehabilitation/rehabilitation-compliance-activities

Scope of assessment

On 30 July 2024, a TAP was conducted at the Boggabri Coal Mine (the mine). The assessment focused on how revegetation is being undertaken to achieve sustainable rehabilitation outcomes.

The entire mine complex was not inspected and as such the observations outlined below do not reflect compliance or otherwise with the Act, the *Mining Regulation 2016*, the conditions of authorisation or relevant approvals granted by the Department.

Observations

Based on discussions held with the mine staff, documents presented and field inspections undertaken as part of the assessment, the following key observations and associated recommendations have been identified by the Regulator:

- Risk Assessment - The mine developed a broad-brush rehabilitation risk assessment in 2022 and identified a range of associated controls for phases of rehabilitation. The risk assessment however requires further refinement to ensure

that risk controls are implemented to facilitate sustainable rehabilitation outcomes. It was observed that the risk register dated 22 March 2022 did not prioritise risks to rehabilitation, allocate a responsible person or date for when an identified risk control is to be developed or when an action (eg development of a risk control) has been addressed. It is noted that systems have been recently reviewed and amendments made where improvements have been identified.

- Substrate geochemical and soil biota conditions - Characterisation had been undertaken of soils based on landscape unit. Soils are currently stripped separately thereby maximising the opportunity to achieve a PCT related to the soil being stripped. The characterisation of long-term stockpiles prior to reuse is not a routine activity to identify the impacts of storage. Weeds on long term stockpiles have the potential to become an issue when reused. Further opportunities for improvement have been identified to address geochemical and soil biota conditions.
- Physical and structural properties of the substrate - the mine has reviewed substrate management preparation where deficiencies have been identified, for example altering ripping depth and improving ripping profiles through additional survey controls.
- Revegetation program accounting for unseasonal / adverse weather - the mine schedules seeding to avoid the hotter months, however there is no formal process such as a trigger action response plan in place to prevent revegetation activities in unseasonal / adverse weather. The mine does however recognise the importance seasonal / weather conditions at the time of planting/seeding in the revegetation establishment record that has been recently developed which would allow for later analysis in evaluating why revegetation has advanced successfully or not for a particular area on site.
- Mine planning to schedule revegetation in optimal seasonal conditions - the mine factors rehabilitation into the mine planning system to ensure areas are available to meet progressive rehabilitation. It is noted that the rehabilitation commitments in the forward program are subject to planning for mine modification that has the potential to alter final landforms.
- Availability and integrity of seed resource - There are systems in place to ensure the integrity as well as availability of seed for specific native species to ensure the required ecological objectives are met. The seed mix for a PCT campaign is reviewed by an ecological specialist who will make recommendations regarding species (including subspecies). The validation of species, amount of seed for each species, seed viability, germinability is undertaken by the one provider. There is a legacy related to planning approvals that resulted in rehabilitation using species that are not endemic to the area. This has the potential to compromise long term rehabilitation objectives related to recent planning approvals.
- Prevention of physical damage to revegetation - The mine generally has adequate processes in place prevent physical damage to the revegetation, preventing public access and requiring OCE approval for mine personnel to access.
- Revegetation considers landform aspect and unit - Revegetation outcomes have been generally applied to an appropriate slope aspect and or area of land. It was observed that riparian PCTs are located in drainage lines, however grassy woodland is placed on emplacement crests, rather than lower slopes where cold

air drains. The long-term viability of grassy woodland PCTs is unknown at this point of time.

- Rehabilitation monitoring programs - The mine generally has an adequate initial establishment monitoring program in place to ensure that the target revegetation outcome is emerging and to identify potential threats (e.g. weed infestation, erosion etc.). Key performance indices for each phase of rehabilitation are missing from the monitoring program to evaluate whether vegetation composition, structure and ecological function have, or are on a trajectory, of being met. This is important when demonstrating progression from one rehabilitation phase to the next, and to justify that rehabilitation is being undertaken as soon as reasonably practical. Some areas will have difficultly in meeting PCTs because of historic planning approval conditions. Trials are also proposed in areas that may impact rehabilitation progression (either delay or accelerate compared to other areas within a mapped unit).
- Rehabilitation care and maintenance / adaptive management program - the mine has formal programs in place to use the findings/recommendations of monitoring programs to continually manage rehabilitation areas. Actions from the monitoring are considered in the development of the mine's annual budget and tracked through the action/compliance management system.
- Rehabilitation Management Plan (RMP) – The RMP prepared by Boggabri Coal was not prepared in the form approved by the Secretary. For example, Part 6.3 is missing from the document.

Recommendations

To address the findings of the Revegetation TAP, it is the expectation of the Regulator that a program will be developed to address the recommendations below:

1. Opportunities to continually review and refine the existing rehabilitation risk assessment to address matters identified in the Revegetation TAP include the following:

    - Review and update the revised rehabilitation risk assessment to ensure all risks and risk controls (treatments) associated with revegetation are included.
    - Review the risk assessment to ensure emerging issues that are identified through monitoring are included, with appropriate controls and actions identified to meet rehabilitation objectives, such as species that are not compatible with final land use PCTs.
    - It is recommended that suitably qualified and experienced revegetation experts be involved in the next rehabilitation risk assessment review process.

    Guidance on the range of risks to consider and information of risk assessment can be found on the Regulator's website – Guideline: Rehabilitation Risk Assessment.

2. Update the RMP to address the following:

    - Pursuant with Schedule 8A, Division 3, clause 9(a) of the *Mining Regulation 2016*, rehabilitation outcome documents must be in a form

approved by the Secretary. This includes the structure (i.e Parts). The approved form is the 'Form and Way Rehabilitation Management Plan for Large Mines' document published on the Regulator's website www.resources.regulator.nsw.gov.au.

- Any updates to the rehabilitation risk assessment, including additional controls
- Include further detail regarding the management of growth media, in particular for long term stockpiles (eg weed seed, depletion of carbon, products of anerobic decomposition, leaching of calcium/magnesium resulting in dispersive soils). To maximise target revegetation outcomes, consider seeding long-term stockpiles with short to medium-term species from target Plant Community Types (PCT) to maintain beneficial mycorrhiza and seed store related to specific PCT.
- Update the TARP to include triggers for when rehabilitation actions are to be delayed (ie what are the "prevailing weather conditions" that delay stripping of topsoil, ripping of substrate, winds impact ripping, soil placement, seed spreading, herbicide application). The TARP is to identify when adaptive management is required.
- Include further detail in the RMP to document the optimal seasonal conditions for rehabilitation activities, including for example the stripping and placement of soils and weed control measures, or to avoid very dry weather or frosts.
- Formally document the process for amending the seed mix.
- Consider undertaking independent testing of seed supplied by seed supplier in QA/QC process to ensure species, quantity and quality of seed is being met.
- ML 1883 (1992) is to be incorporated into the RMP.

3. Review and update the rehabilitation establishment record to include:

    - the growth media source location (eg striped pre-mined soils, from rehabilitated areas, stockpile of topsoil of unknown origin, compost etc)
    - weather conditions prior to and during growth media placement and seeding
    - signoff that critical stages have been completed (testing of substrate, application of ameliorants)
    - justification as to why an activity (such as amelioration testing) was not undertaken in accordance with procedure
    - references the spatial mapping for that campaign (eg object id in portal) to facilitate review of influences on performance.

4. As part of the implementation of the final landform design, further work will be required to consult with appropriate bushfire experts (e.g. Rural Fire Service) to ensure that retained access tracks through rehabilitation are appropriate for bushfire control purposes.

5. The development of rehabilitation completion criteria for approval by the Resources Regulator is required to confirm the performance indices and associated benchmark to be achieved for rehabilitation across the mine.
6. Gap analysis to be undertaken of current monitoring program against performance indices associated with rehabilitation objectives and completion criteria to ensure that rehabilitation trajectory and success of achieving final land use(s) can be validated. The Resources Regulator Guideline: Rehabilitation Objectives and Rehabilitation Completion Criteria provides information on the type of suitable performance indicators to be monitored.
7. It is recommended that there should be a focus on ensuring that future monitoring should also evaluate the performance / compliance of rehabilitation against the criteria with the aim of building an evidence-base to support rehabilitation completion applications to the Regulator for progressive signoff of rehabilitation areas, as well as validate what phase the rehabilitation has reached (e.g. ecosystem establishment vs ecosystem development).
8. Where maintenance, adaptive management or trials have taken place (eg tree thinning) rehabilitation records, such as a GIS layers, should be maintained to track performance.

The implementation of the program to address these recommendations will be subject to future Targeted Assessment Programs assessments and other periodic assessments undertaken by the Regulator.

Official Warning – Failure to prepare a Rehabilitation Management Plan in the form approved by the Secretary

Clause 10(1) of Schedule 8A of the Regulation requires the lease holder to prepare a 'Rehabilitation Management Plan' (RMP).

Clause 9 (a) and (b) of Schedule 8A of the Regulation requires the RMP to be prepared be in the 'form' approved by the Secretary, and include any matter required to be included by the form. The approved form is outlined in the 'Form and Way Rehabilitation Management Plan for Large Mines' document published on the Regulator's website www.resourcesregulator.nsw.gov.au.

Failure to prepare a Rehabilitation Plan in the 'form' approved by the Secretary is an offence under section 378D(1) of the Act (contravention of condition of authorisation – offence by holder).

A decision has been made to issue Boggabri Coal an 'official warning' for the non-compliance at this time.

You are required to update the RMP by the 31 March 2025. The revised RMP is to be published on your website. Please note that failure to update the RMP and bring it into compliance with the form approved by the Secretary may result in further escalated enforcement action.

If you require additional information, please contact the Resources Regulator on 1300 814 609 or via email at nswresourcesregulator@service-now.com.

Yours sincerely,

Neil Mcelhinney
Inspector Environment
Resources Regulator

20 January 2025

Other copies provided by email to: Alex Williams

Department of Planning, Housing and Infrastructure

NSW Planning ref: MP09_0182-PA-74

Leticia Tolson
Environmental Operations Superintendent
Boggabri Coal Pty Limited
Kamilaroi Country
Leard State Forest, 386 Leards Forest Road
Boggabri NSW 2382
02/05/2024

Sent via the Major Projects Portal only

Subject: Boggabri Coal –Glenhope HVAS PM10 exceedances notification

Dear Miss Tolson

I refer to the Glenhope HVAS PM10 exceedances notification, submitted as required by Schedule 5, Condition 8 of MP09_0182 as modified (the consent) to the NSW Department of Planning, Housing, and Infrastructure (NSW Planning) on 24 April 2024.

NSW Planning has reviewed the Glenhope HVAS PM10 exceedances notification and considers it to generally satisfy the conditions of consent in relation to notifications.

Schedule 3, Condition 27 of MP09_0182 notes that Boggabri Coal Mine's (BCM) 24-hour PM10 criterion is 'incremental', meaning particulate matter generated by the development alone. Therefore, until requested otherwise, where a BCM air quality monitor has recorded elevated 24-hour PM10 or PM2.5 levels and it has been determined through a robust calculation methodology that the BCM contribution did not exceed the incremental criterion, notification or detailed report is not required to be submitted to NSW Planning.

In cases where it has been determined BCM has exceeded an air quality criterion, under the provisions of Schedule 2, Condition 4 of the consent, I, as nominee of the Planning Secretary, require the exceedance report to contain the following additional information:

- A graphic showing the location of Boggabri Coal Mine (BCM) and its surrounding network of air quality monitors
- A list of all BCM air quality alarms for the exceedance period, and BCM's responses to those alarms
- A table displaying water cart usage rates or similar and
- A calculation of BCM's exceedance level.

Finally, please note that all elevated air quality results should be discussed in the Annual Review.

Should you wish to discuss the matter further, please contact Joel Curran, Senior Compliance Officer on 02 4904 2702 or email compliance@planning.nsw.gov.au

Yours sincerely

Heidi Watters
Team Leader
Compliance

As nominee of the Planning Secretary

Department of Planning, Housing and Infrastructure

Our ref: MP09_0182-PA-92

Leticia Tolson (Environmental Operations Superintendent)
Boggabri Coal Pty Limited
Kamilaroi Country
Leard State Forest 386 Leards Forest Road
BOGGABRI NSW 2382
21/07/2025

Subject: Boggabri Coal - Annual Review 2024

Dear Ms Tolson

I refer to the Boggabri Coal Mine Annual Review 2024, submitted as required by Schedule 5, Condition 4 of MP09_0182 as modified (the consent) to the NSW Department of Planning, Housing and Infrastructure (NSW Planning) on 31 March 2025.

NSW Planning has reviewed the Annual Review and considers more information is required to satisfy Schedule 5, Condition 4 of the consent and the NSW Planning *Annual Review Guideline* (2015). Under the provisions of Schedule 2, Condition 4 of the consent, I, as nominee of the Planning Secretary, request that an amended Annual Review be submitted as a response to this request for information (RFI-88513463) addressing the below points by 21 August 2025 (or as otherwise agreed by the Planning Secretary):

- The paragraph below Table 4.2 states '*Mining operations during the 2024 calendar year remained below the ROM coal and railed product coal limits specified in SSD 09_0182.*' This is incorrect as the ROM coal limit was exceeded in 2024.
- Table 4.3, Item 12, states '*Compliant – Mt of product coal…during 2024.*' The amount of product coal transported by rail in 2024 is not stated.
- Section 6.2.2 'Results' seems to be missing a results table and correct reference to the table.
- Figure 6.4 is presenting annual average results calculated incorrectly. The rolling average line and the first result column should meet. This indicates the annual average is not being calculated correctly. The annual average resets at the end of each calendar year.
- Figure 6.5 is missing an X-axis title.
- Section 7.2.1.1 states that there are 5 monitoring bores, however Table 7-8 only lists 4.
- Section 8.6 is titled Rehabilitation in 2024. Should be titled Rehabilitation in 2025.

- Section 9 should include a table showing complaint totals for last 5 years.
- Section 10 and Appendix F should be updated for the current status of all recommended actions. Some actions are past their due date.
- Table 11-2 states the non-compliance with Schedule 3, Condition 38(c) is partly due to exceedances of water quality trigger values. Exceedances of these triggers are not considered non-compliances.

Should you wish to discuss the matter further, please contact Joel Curran, Senior Compliance Officer on 02 4904 2702 or email compliance@planning.nsw.gov.au

Yours sincerely

Heidi Watters
Team Leader
Compliance

As nominee of the Planning Secretary

Appendix E

BCM 2024 Actual and 2024 Proposed Exploration Drilling Program

Table E-14-2: Exploration Drilling Holes 2024

Borehole Name	MGA Easting	MGA Northing	Elevation (m)	Total Depth (m)	Drill Start	Drill Finish	STATUS	Purpose
BC2688C	226827.752	6611817.36	298.494	228.43	6/12/2023	25/01/2024	Cemented	Coal Quality
BC2690C	227402.888	6611993.525	274.931	255.12	15/02/2024	28/02/2024	Cemented	Coal Quality
BC2691C	226991.357	6613004.146	347.326	321.24	2/02/2024	22/02/2024	Open	Coal Quality
BC2692	227591.644	6612505.728	336.87	319	2/02/2024	4/02/2024	Cemented	Structural
BC2693	227102.526	6612099.048	299.241	247	6/02/2024	7/02/2024	Cemented	Structural
BC2694	227299.468	6612199.171	295.533	247	7/02/2024	9/02/2024	Cemented	Structural
BC2695C	226991.408	6612601.123	338.527	303.16	2/03/2024	16/03/2024	Cemented	Coal Quality
BC2696	226598.689	6611499.627	287.966	235	19/03/2024	21/03/2024	Cemented	Structural
BC2697	226699.02	6611503.24	284.285	235	27/03/2024	28/03/2024	Cemented	Structural
BC2698C	227206.584	6612403.615	323.698	264.2	29/03/2024	16/04/2024	Cemented	Coal Quality
BC2699C	227395.078	6612603.814	326.716	282.2	25/04/2024	10/05/2024	Cemented	Coal Quality
BC2700	227800.849	6612701.835	345.352	138	8/05/2024	14/05/2024	Cemented	Structural
BC2701C	227594.283	6613040.839	345.824	201.24	14/05/2024	28/05/2024	Cemented	Coal Quality
BC2702	227696.235	6612705.362	345.148	168	14/05/2024	16/05/2024	Cemented	Structural
BC2703	227592.561	6612698.562	341.55	330	16/05/2024	29/05/2024	Cemented	Structural

BC2704C	227802.625	6612808.715	354.79	147.3	30/05/2024	10/06/2024	Cemented	Coal Quality
BC2705	227704.007	6612806.033	353.231	180	28/05/2024	6/06/2024	Cemented	Structural
BC2706	227896.625	6612802.24	348.834	174	7/06/2024	11/06/2024	Cemented	Structural
BC2707C	226804.807	6612203.157	332.758	264.27	22/06/2024	21/07/2024	Cemented	Coal Quality
BC2708LD	226987.91	6612199.035	324.055	265	4/07/2024	7/08/2024	Cemented	Coal Level
BC2709C	227592.818	6612604.331	338.372	312.37	22/07/2024	8/08/2024	Cemented	Coal Quality
BC2710C	227006.547	6612395.086	329.725	279.12	8/08/2024	2/09/2024	Cemented	Coal Quality
BC2711LD	227407.206	6612597.452	326.276	275.1	8/08/2024	5/09/2024	Cemented	Coal Level
BC2712	227895.016	6612896.022	359.974	360	3/09/2024	13/09/2024	Cemented	Structural
BC2713LD	227000.007	6612599.99	338.358	297.3	12/09/2024	5/10/2024	Cemented	Coal Level
BC2714	227007.859	6612298.747	327.514	276	15/09/2024	17/09/2024	Cemented	Structural
BC2715	228099.331	6613004.478	366.404	379	18/09/2024	1/10/2024	Cemented	Structural
BC2716	228001.108	6612898.799	356.855	187	2/10/2024	3/10/2024	Cemented	Structural
BC2717LD	227607.122	6612787.808	341.684	316.6	6/10/2024	24/10/2024	Cemented	Coal Level
BC2718	227106.674	6612393.942	326.775	289	8/10/2024	23/10/2024	Cemented	Structural
BC2719LD	226629.904	6612170.078	344.452	261.5	24/10/2024	7/11/2024	Cemented	Coal Level
BC2720	227507.751	6612700.014	337.886	319	24/10/2024	28/10/2024	Cemented	Structural
BC2721	227297.902	6612505.576	324.618	283	28/10/2024	30/10/2024	Cemented	Structural
BC2722	227501.86	6612612.646	332.098	301	6/11/2024	10/11/2024	Cemented	Structural

223000 224000 225000 226000 227000 228000 229000 230000 231000

6613000 6612000 6611000 6610000 6609000

250m Offset Area

250m Offset Area

DISTURBANCE BDY

DISTURBANCE BDY

CL368

A355

ML1883

CL368

A355

A339

BC2725 Core_072
Core_087G BC2726
Core_097 Core_087 Chip_306 BC2704CR
Chip_314
Core_074
Chip_334 Chip_333
Core_090G Core_089 Chip_345
Core_112
Core_090 Chip_234
Chip_353
Core_102 Core_101 Core_091
Core_102G Core_092
chip_240 Chip_239 Chip_238
BC2727C

- Diamond Drill
- Hammer
- Gas
- Geotech

Metres

223000 224000 225000 226000 227000 228000 229000 230000 231000

REVIEW	NAME	SIGNATURE	DATE
DRAWN BY			11-Dec-2024
DWG CHECKED			

COMMENTS

SCALE 1:24000

ORIG PLOT SIZE A3

TITLE Surface Update

VULCAN DATABASE 11/12/2024

PLOT LOCATION O:\Technical_Services\Survey\23. Plan\2019

LIDAR from July 2024

VULCAN LAYER

PLOT FILE NAME

DRAWING No

REV

Appendix F
2023 BCM IEA Response Action Plan

Reference	Schedule and Condition Number	Condition	Compliance status	Evidence	Recommendation	Response/Proposed action	Target Completion Date	Updated Response/Proposed Action	Revised Target Completion date
Project Approval 09_0182									
NC1	Schedule 2, Condition 2	The Proponent shall carry out the project: Generally in accordance with the EA; and In accordance with the statement of commitments and the conditions of this approval. Notes: The general layout of the project is shown in Appendix 1 and Appendix 2; and The Statement of Commitments is reproduced in Appendix 5.	Non-Compliant	This table and the IEA report have assessed compliance with the EA, statement of commitments and conditions of the approval. This indicates the BCM is generally in accordance with requirements of this condition. Non-compliances were noted against the following conditions: - Condition 9 , Schedule 3 - Condition 15, Schedule 3 - Condition 22, Schedule 3 - Condition 38(b), Schedule 3 - Condition 38(c), Schedule 3 - Condition 68, Schedule 3 - Condition 4, Schedule 5 - Condition 5, Schedule 5 - Condition 8, Schedule 5 - Condition 14, Schedule 5 - Condition 15, Schedule 5 - Statement of Commitments 3 - Statement of Commitments 4 Non-compliances against these conditions are captured and addressed below in this table.	Corrective actions are provided below for each of the non-compliances.		NA		
NC2	Schedule 3 Condition 9	The Proponent shall: (a) Ensure that: • All new trucks, dozers, drills and excavators purchased for use on the site after the date of this approval are commissioned as noise suppressed (or attenuated) units; • Ensure that all equipment and nose control measures deliver sound power levels that are equal to or better than the sound power levels identified in the EA and that correspond to best practice or the application of best available technology economically achievable. • Where reasonable and feasible, improvements are made to existing noise suppression equipment as technologies become available; and (b) monitor and report on the implementation of these requirements annually on its website.	Non-Compliant	*2020 IEA Recommendation: continue investigations and dialogue with DPIE regarding sound power level requirements.* Sound power testing is undertaken annually and reported upon in the Annual Reviews, which are published on the website. As reported in the 2020, 2021 and 2022 Annual Reviews, sound power screening identified plant with exceedances of 3dB or greater, constituting a non-compliance with this condition.	CA 1: Continue to implement mitigation on plant identified as non-compliant with this condition.	Action 1: While SPL testing shows exceedances of noise levels, investigations into suitable solutions will undertaken and implemented.	Ongoing	Non-compliant plant fit with attenuation and re-tested within 12 months. SPL testing ongoing and results to be discussed in 2025 AR	Ongoing
NC3	Schedule 3 Condition 15	The Proponent shall ensure that the blasting on the site does not cause exceedances of the criteria in Table 6. 	Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance
---	---	---	---
Residence on privately owned land	120	10	0%
	115	5	5% of the total number of blasts over a period of 12 months
All public infrastructure	-	50 or alternatively a specific limit determined by the satisfaction of the Secretary by the structural design methodology in AS 2187.2-2006, or its latest version	0% | However, these criteria do not apply if the Proponent has a written agreement with the relevant owner or infrastructure provider/owner, and the Proponent has advised the Department in writing of the terms of this agreement.	Non-Compliant	*2020 IEA Recommendation : Ensure blasts are undertaken under appropriate weather conditions.* *Delays to blasts should be implemented if required based on real time weather data review.* *2020 IEA Recommendation :Implement changes to the TARP notifications system to distinguish "triggers" from "exceedances" so that reportable exceedances are not missed* A review of monitoring data indicated that there was one occasion where blasting criteria was exceeded. BCOPL received a penalty notice from the EPA on 21 July 2022 for this exceedance. BCOPL undertook an internal investigation and response to the EPA with the findings of the	CA 2: Ensure that blast monitoring equipment is regularly maintained and working prior to blasting so that blasts are adequately reported	NO ACTION REQUIRED. BCOPL will continue to ensure blast monitors are calibrated every 3 months and maintained as required as per contract with blast monitor supplier.	NA		

Reference	Schedule and Condition Number	Condition	Compliance status	Evidence	Recommendation	Response/Proposed action	Target Completion Date	Updated Response/Proposed Action	Revised Target Completion date
				investigation, which determined that the exceedance was due to wind gusts and not blasting operation. The EPA withdrew the penalty notice in December 2022. In addition, DPE provided a response to the reported exceedance on 7 July 2023, stating that from the evidence presented by BCOPL an exceedance of criteria had not occurred. There were no other exceedances of criteria within the audit period. As reported in the 2022 Annual Review, a blast which was conducted on 14 November 2022 was not recorded by the 'Goonbri' blast monitoring station, constituting a non-compliance In response to the recommendations of the 2020 IEA, BCOPL continue to engage with blast monitoring contractors delineating the definition of 'triggers' and 'exceedances', BCOPL have engaged a consultant to review planning and fume protocols. BCOPL note that the current technology that is available on site does not allow for this level of reporting and that they will improve processes to review results of monitoring. BCOPL delivered training with supervisors in October 2021 to improve environmental performance regarding ensuring blasts are only undertaken during appropriate weather conditions. Once the BMP is approved, post MOD 8 as per approval from DPE, training of staff will occur again.					
NC4	Schedule 3 Condition 22	The proponent shall prepare and implement a Blast Management Plan for the project to the satisfaction of the Secretary. This plan must: (a) Be submitted to the Secretary for approval within 6 months from the date of project work. (b) be prepared in consultation with the EPA, the CCC and interested members of the local community potentially affected by blasting operations; (c) propose any alternative ground vibration limits for public infrastructure in the vicinity of the site; (d) describe the measures that would be implemented to ensure: • best management practice is being employed; and • compliance with the relevant conditions of this approval; (e) include a road closure management plan for blasting within 500 metres of a public road, that has been prepared in consultation with Council; (f) include a specific blast fume management protocol to demonstrate how emissions will be minimised including risk management strategies if blast fumes are generated; (g) include a monitoring program for evaluating the performance of the project including: • compliance with the applicable criteria; and • minimising fume emissions from the site; and (h) include a Leard Forest Mining Precinct Blast Management Strategy that has been prepared in consultation with other mines within the	Non-Compliant	*2020 IEA Recommendation: Ensure blasts are undertaken under appropriate weather conditions. Delays to blasts should be implemented if required based on real time weather data review - recommendation was addressed in 2020 Annual Review, with target completion 01/08/2021* The latest version of the Blast Management Plan (BMP) is dated November 2018 and was approved by DPIE on 21 February 2019. The Blast Management Strategy is dated April 2020. The preparation of the BMP meets the requirements of the relevant consent conditions The Blast Management Plan was originally prepared in January 2013, with this being within six months of the Project Approval. Key sections for items required by this condition: - Consultation summary - Appendix D - Alternate ground vibration limits - Section 5.1 - Management Measures including road closures - Section 6 - Blast fume management protocol - Appendix C - Weather monitoring program - Section 7.2 and 7.3 - Leard Forest Mining Blast Management Strategy - Section 6.5 and Appendix E The Blast Management Plan is currently under revision. As described above, DPE have granted approval for the submission of the updated plans within three months of MOD8	CA 3: Ensure that maintenance routines include the weather station for regular inspection and maintenance	NO ACTION REQUIRED. BCOPL will continue to have all weather stations including the 60m AWS Met Station Calibrated and maintained on a biannual basis and as required as per the contract with supplier.	NA		

Reference	Schedule and Condition Number	Condition	Compliance status	Evidence	Recommendation	Response/Proposed action	Target Completion Date	Updated Response/Proposed Action	Revised Target Completion date
		Leard Forest Mining Precinct to minimise cumulative blasting impacts. *Note: The Leard Forest Mining Precinct Blast Management Strategy can be developed in stages and will need to be subject to ongoing review dependent upon the determination of and commencement of other mining projects in the area.*		determination which is currently being assessed. Implementation of the requirements over the audit period were generally satisfactory. However, as reported in the 2022 annual review, the continuous rainfall readings at the 60 m AWS were not recorded for the period between 5-12 May 2022. The readings for continuous solar radiation at the weather stations were also not recorded for the period between 21 July 2022 and 7 December 2022. BCOPL also advised that data capture for sigma theta was 90% in May 2023 due to a faulty sensor. The sensor has been fixed and is now capturing data continuously.					
NC5	Schedule 3 Condition 38b	a Surface Water Management Plan, which includes: • detailed baseline data on surface water flows and quality in the water-bodies that could potentially be affected by the project; • detailed baseline data on soils within the irrigation management area; • detailed baseline data on hydrology across the downstream drainage system of the Namoi River floodplain from the mine site to the Namoi River; • a detailed description of the water management system on site, including the: o clean water diversion systems; o erosion and sediment controls (dirty water system); o mine water management systems including irrigation areas; o discharge limits in accordance with EPL requirements; o water storages; o haul road and Boggabri Rail Spur Line and bridge flood and water diversions; detailed plans, including design objectives and performance criteria for: o design and management of final voids; o design and management for the emplacement of reject materials, sodic and dispersible soils and acid or sulphate generating materials; o design and management for construction and operation of the Boggabri Rail Spur Line and bridge across the Namoi River floodplain and upstream adjoining Nagero/Bollol creek catchments; o reinstatement of drainage lines on the rehabilitated areas of the site; and o control of any potential water pollution from the rehabilitated areas of the site; • performance criteria for the following, including trigger levels for investigating any potentially adverse impacts associated with the project: o the water management system; o soils within the irrigation area; o downstream surface water quality; o downstream flooding impacts, including flood impacts due to the construction and operation of the Boggabri Rail Spur Line and rail bridge; and o stream and riparian vegetation health, including the Namoi River; • a program to monitor:	Non-Compliant	*2020 IEA Recommendation: continue to liaise with DPIE with regard to the approval of the revised water management system and the removal of the clean water diversion.* The most recent approved Surface Water Management Plan is dated May 2017. Key sections that address the requirements of this condition: - Baseline information - Section 3 - The Surface Water Management System - Section 4 - Water Management Trigger Levels and Responses - Section 7 - Monitoring program - Section 6 The SWMP generally is compliant with the requirements of this condition, however as identified in the 2020 IEA the clean water drain presented in Appendix A of the SWMP to the north of the disturbance area has been mined through and has not been reinstated. BCOPL are preparing an update to the SWMP that depicts that this drain has been removed, however the updated plan has not been approved constituting a non-compliance against this condition. BCOPL are required to submit the updated plan within 3 months of the determination of MOD8.	CA 4: Ensure the recommendations of the 2020 IEA are included in the updated SWMP	Action 2: BCOPL will include the recommendations of the 2020 IEA in the next version of the Surface Water Management Plan to be submitted within 3 months of MOD 8 approval by the DPE.	Within 3 months of MOD 8 approval by the DPE.	SWMP submitted for approval.	NA

Reference	Schedule and Condition Number	Condition	Compliance status	Evidence	Recommendation	Response/Proposed action	Target Completion Date	Updated Response/Proposed Action	Revised Target Completion date
		o the effectiveness of the water management system; o soils within the irrigation area; and o surface water flows and quality in the watercourses that could be affected by the project; o downstream flooding impacts; and • reporting procedures for the results of the monitoring program; • a plan to respond to any exceedances of the performance criteria, and mitigate and/or offset any adverse surface water impacts of the project; and							
NC6	Schedule 3 Condition 38(c)	a Groundwater Management Plan, which includes: • detailed baseline data of groundwater levels, yield and quality in the region, and privately-owned groundwater bores including a detailed survey/schedule of groundwater dependent ecosystems (including stygo-fauna), that could be affected by the project; • the monitoring and testing requirements specified in the PAC recommendations for groundwater management as set out in Appendix 6; • detailed plans, including design objectives and performance criteria, for the design and management of the proposed final void; • groundwater assessment criteria including trigger levels for investigating any potentially adverse groundwater impacts; • a program to monitor and assess: o groundwater inflows to the open cut mining operations; o the seepage/leachate from water storages, backfilled voids and the final void; o interconnectivity between the alluvial and bedrock aquifers; o background changes in groundwater yield/quality against mine-induced changes; o the impacts of the project on: - regional and local (including alluvial) aquifers; - groundwater supply of potentially affected landowners; - aquifers potentially affected by the mine irrigation area; - groundwater dependent ecosystems (including potential impacts on stygo-fauna) and riparian vegetation. • a program to validate the groundwater model for the project, including an independent review of the model every 3 years, and comparison of monitoring results with modelled predictions; and • a plan to respond to any exceedances of the performance criteria; and	Non-Compliant	*2020 IEA Recommendation: Vary the EPL in consultation with EPA to align with the appropriate borehole locations and remove those that have been mined through.* The most recent Groundwater Management Plan is dated 10 February 2020 and is generally compliant with the requirements of this condition. Key sections that address the requirements of this condition: - Baseline information - Section 3 - Groundwater Monitoring Program - Section 4 - Water Management Trigger Levels and Management Measures- Sections 6 and 7 A review of water quality monitoring data indicates that there were exceedances of trigger values during the audit period. The following points were also not monitored over the reporting period: - IBC2181 - Unable to access in the March 2023 GME - IBC2181 - Unable to access in the November 2022 GME - MWP01 - Unable to access in the January 2021 GME - IBC2181 - Unable to access in the June 2021 GME The Annual Review documents note that the GMP is required to be reviewed to account for the destroyed monitoring bores. It is understood that BCOPL intend to submit an updated plan for DPE approval within 3 months of the determination of MOD8 which is currently being assessed. The groundwater model was reviewed and updated in late 2020 by Australasian Groundwater and Environmental Consultants. In response to 2020 IEA Improvement Recommendation, EPL 12407 was varied in 2021 to remove mined though bores.	CA 5: Ensure that the updated GMP accurately reflects the Groundwater Monitoring Regime and the latest variation of EPL 12407	Action 3: The Groundwater Management Plan will be updated and sent for approval within 3 months of MOD 8 approval. It will reflect the latest variation of EPL 12407 and monitoring regime that is being undertaken on site.	Within 3 months of MOD 8 approval by the DPE.	GWMP currently in consultation. To be submitted for Approval by 21/08/2025	21/08/2025
NC7	Schedule 3 Condition 40	The Proponent shall commission and fund the preparation of a Leard Forest Mining Precinct Regional Biodiversity Strategy, jointly with all other coal mines within the Precinct. The Strategy shall be co-ordinated through the Department (refer	Non-Compliant	The Leard Forest Regional Biodiversity Strategy Stage 1 – Scoping Report was prepared in July 2015, prior to the commencement of this audit period. The Leard Forest Regional Biodiversity Strategy	CA 6: Undertake the comprehensive review of the Leard Forest Regional Biodiversity Strategy in 2024.	Action 4: BCOPL will work with other mines in the BTM complex and have a comprehensive review	31/12/2024	Report commissioned and drafting underway.	31/12/2026

Reference	Schedule and Condition Number	Condition	Compliance status	Evidence	Recommendation	Response/Proposed action	Target Completion Date	Updated Response/Proposed Action	Revised Target Completion date
		condition 42 below) and prepared by suitably qualified, experienced and independent person/s whose appointment has been endorsed by BCS and subsequently approved by the Secretary, in the following stages: Stage 1 – Scoping Stage A scoping report for development of the Strategy must be submitted, within 6 months of the date of this approval, for endorsement by BCS and subsequent approval by the Secretary. The Secretary may extend this period with the agreement of BCS. The scoping report must: include terms of reference, scope and objectives for the Strategy, including recommendations for the Strategy's geographic extent; identify the ongoing functions and members of the working group (see condition 41 of Schedule 3); include a project management plan of the Strategy, with a time schedule, indicative dates for working group meetings, review and milestones for completion; include a funding program for the development of the Strategy, including provision of adequate resources for the participation of working group members; and include a consultation/communications program for the Strategy. Note: The broad terms of reference must be guided by the Planning Assessment Commission (PAC) merit review for the Boggabri Coal Mine (February 2012) – Recommendation 1 for the development of a regional biodiversity strategy. Stage 2 – Strategy Development The Strategy must be developed in accordance with the approved Scoping Stage report and submitted for endorsement by BCS and subsequent approval by the Secretary within 18 months of the date of this approval. The Secretary may extend this period with agreement of BCS. Stage 3 – Strategy Review The Strategy must be reviewed by the end of December 2018, following completion of audits of the rehabilitation and Biodiversity Offset Areas required to be undertaken under approvals for coal mines within the Precinct. The Review shall be conducted by suitably qualified, experienced and independent person/s whose appointment has been endorsed by BCS and approved by the Secretary. Any modifications to the Strategy arising from the review must be endorsed by BCS prior to approval by the Secretary		Stage 2 – Strategy Report was prepared in August 2017, prior to the commencement of this audit. Umwelt prepared a preliminary review of the Leard Forest Regional Biodiversity Strategy in 2018. The scope of the review was reduced to solely focussing on the implementation of the strategy in the revised biodiversity management plans to provide a list of recommendations to the BTM Complex for future revisions of the Leard Forest Regional Biodiversity Strategy. The preliminary review included a recommendation (recommendation 4.6) that a comprehensive review of the strategy should be undertaken by 31 December 2021. A letter of response was provided by BCD on 26 July 2019 providing comments on the preliminary review supported this recommendation. The Comprehensive Review of the strategy has not been undertaken and therefore the recommendations of the preliminary review have not been implemented. This is considered a non-compliance against this condition.		of the Leard Forest Regional Biodiversity Strategy completed by the 31st December 2024.			
NC8	Schedule 3 Condition 68	The Proponent shall: (a) implement all reasonable and feasible measures to minimise the waste (including coal reject) generated by the project; (b) ensure that the waste generated by the project is appropriately stored, handled and disposed of; (c) monitor and report on the effectiveness of the waste minimisation and management measures	Non-Compliant	Generally waste was managed appropriately on site, with waste receptacles clearly labelled. The site is also neat and tidy. However it was noted that the correct waste was not always deposited into the correct bins, with plastic wrap observed in the steel bin, constituting a non-compliance. Waste is reported on in the annual reviews.	CA 7: Ensure that staff are made aware of correct waste management procedures and that waste slides are included in the toolbox talks quarterly.	Action 5: BCOPL will ensure quarterly waste toolbox talks are presented to the workforce.	20/02/2024	Completed	NA

Reference	Schedule and Condition Number	Condition	Compliance status	Evidence	Recommendation	Response/Proposed action	Target Completion Date	Updated Response/Proposed Action	Revised Target Completion date
		in the Annual Review.							
NC9	Schedule 5 Condition 4	By the end of March each year, the Proponent shall review the environmental performance of the project for the previous calendar year to the satisfaction of the Secretary. This review must: (a) describe the development (including any rehabilitation) that was carried out in the past calendar year, and the development that is proposed to be carried out over the current calendar year; (b) include a comprehensive review of the monitoring results and complaints records of the project over the past year, which includes a comparison of these results against the: • relevant statutory requirements, limits or performance measures/criteria; • monitoring results of previous years; and • relevant predictions in the EA; (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance; (d) identify any trends in the monitoring data over the life of the project; (e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and (f) describe what measures will be implemented over the next year to improve the environmental performance of the project.	Non-Compliant	*2020 IEA Improvement Recommendation: Include additional information in the annual reviews regarding longer term trends particularly in terms of surface water, noise and air quality* The format and presentation of the Annual Review documents satisfies the requirements of this condition. BCOPL have also integrated the 2020 IEA recommendation of including additional information in the annual reviews regarding longer term trends particularly in terms of surface water, noise and air quality. As noted in the 2022 Annual Review, the 2021 Annual Review was submitted after the due date.	CA 8: Ensure that annual reviews are submitted by the due date.	NO ACTION REQUIRED. BCOPL will continue to submit the Annual Review by the 31st of March each year as required by the Project Approval.	NA		
NC10	Schedule 5 Condition 5	Within 3 months of the submission of: (a) an annual review under condition 4 above; (b) an incident report under condition 8 below; (c) an audit under condition 10 below; and (d) any modification to the conditions of this approval, the Proponent shall review the strategies, plans, and programs required under this approval. Where this review results in revisions to any such document, then within 4 weeks of the completion of the revision, unless the Secretary agrees otherwise, the revised document must be submitted to the Secretary for approval.	Non-Compliant	*2020 IEA Improvement Recommendation: Prepare a document review register to evidence dates when documents are reviewed. Register should identify if any changes are identified as being required.* It is noted that most plans required under this development consent have not been revised over the audit period and require updating, constituting a non-compliance against this condition. However it is noted that DPE have written to BCOPL indicating that they may submit the updated management plans for approval within 3 months of the determination of MOD8. In response to the 2020 IEA Improvement Recommendation, BCOPL have developed a document register for EMS documents.	CA 9: Ensure that all plans required under this consent are reviewed and updated (if applicable) 3 months after the triggers outlined in Schedule 5, Condition 5 occur	Action 6: Submit all required management plans to the DPE for approval within 3 months of MOD 8 approval. All other plans will be reviewed and updated (if applicable) in the same time period.	Within 3 months of MOD 8 approval by the DPE.	Completed	NA
NC11	Schedule 5 Condition 8	The Proponent shall notify, at the earliest opportunity, the Secretary and any other relevant agencies of any incident that has caused, or threatens to cause, material harm to the environment. For any other incident associated with the project, the Proponent shall notify the Secretary and any other relevant agencies as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent shall provide the Secretary and any relevant agencies with a detailed report on	Non-Compliant	No environmental incidents causing material harm have occurred during the audit period. BCOPL provided the following notices relating to environmental non-compliances during the audit period: - Notification of blast overpressure exceedance on 30 April 2022 sent to DPE (3 May 2022) - Exceedance on 6 March 2023 of criteria at Glenhope HVAS sent to DPE on 2 May 2023. Given that this occurred more than a week from the incident occurring, this constitutes a non-	CA 10: Ensure that non-compliances are reported within 7 days of occurrence.	NO ACTION REQUIRED. BCOPL will continue to report non-compliances within 7 days of becoming aware of an incident.	NA		

Reference	Schedule and Condition Number	Condition	Compliance status	Evidence	Recommendation	Response/Proposed action	Target Completion Date	Updated Response/Proposed Action	Revised Target Completion date
		the incident, and such further reports as may be requested.		compliance against this condition.					
NC12	Schedule 5 Condition 10	By the end of June 2014 and every 3 years thereafter, unless the Secretary directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must: be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary; include consultation with the relevant agencies; assess the environmental performance of the project and assess whether it is complying with the requirements in this approval, and any other relevant approvals, relevant EPL/s and/or Mining Lease (including any assessment, plan or program required under these approvals); assess whether the Proponent is implementing best noise, blasting and air quality management practice; investigate and report on the measures taken to minimise the noise impacts of the project during meteorological conditions when the noise limits in this approval do not apply, including: the effectiveness of these measures in maintaining noise impacts within the relevant noise criteria in this approval and/or the limits in the relevant EPL; and any additional measures available to mitigate noise impacts under such meteorological conditions investigate and report on the measures taken to minimise the air quality impacts of the project during adverse meteorological conditions and extraordinary events (see condition 30(d) of Schedule 3), including: the effectiveness of these measures in maintaining air quality impacts within the criteria in Table 9, Table 10 and Table 11 of Schedule 3; and any additional measures available to mitigate air quality impacts under such conditions; review the adequacy of any approved strategy, plan or program required under the abovementioned approvals; and recommend measures or actions to improve the environmental performance of the project and/or any strategy, plan or program required under these approvals. Note: This audit team must be led by a suitably qualified auditor, and include experts in noise, air quality, ecology, Aboriginal heritage and any other fields specified by the Secretary.	Non-Compliant	Previous audits were undertaken in 2014, 2017 and 2020. The 2020 IEA was undertaken by SLR Consulting. This audit was undertaken in compliance with the requirements of this condition. The audit team for this audit was approved on 31 August 2023. Key sections of this audit that demonstrate compliance with this condition are: - Section 4.2 (summary of compliance) - Section 4.6 (Adequacy of plans and strategies) - Section 4.7 and Appendix B (Agency consultation) - Section 5.2 (Corrective actions) - This table (compliance assessment against the requirements of the consent, licences and leases) This audit was commissioned on the 11 October 2023, four months after the end of June as required by this condition. BCOPL were not granted an extension from DPE, and therefore a non-compliance against this component of the condition is recorded.	CA 11: Ensure that future Independent Environmental Audits are commissioned by the end of June.	Action 7: BCOPL will commission the next independent environmental audit by 30 June 2026.	30/06/2026	On track	NA
NC13	Schedule 5 Condition 14	The Applicant must immediately notify the Department and any other relevant agencies after it becomes aware of an incident. The notification must be in writing via the Department's Major Projects Website and identify the development (including the application number and name) and set out the location and nature of the incident.	Non-Compliant	As described in the compliance findings for Condition 8 of Schedule 5, the exceedance of air quality criteria at the Glenhope HVAS was sent to DPE more than a week from the incident occurring (incident occurring 6 March 2023, notification sent 2 May 2023).	CA 10: Ensure that non-compliances are reported within 7 days of occurrence.	NO ACTION REQUIRED. BCOPL will continue to report non-compliances within 7 days of becoming aware of an incident.	NA		
NC14	Statement of Commitments 3	Boggabri Coal 's Environmental Monitoring Programs for air quality, water quality, noise and blasting will be reviewed and updated as required, in consultation with the relevant	Non-Compliant	The NMP, BMP, AQGHGMP and GMP have not been updated during the audit period. The WMP and SWMP have been submitted to DPE but not have not been approved. DPE	CA 9: Ensure that all plans required under this consent are reviewed and updated (if applicable) 3 months after the triggers outlined in Schedule 5, Condition 5 occur	Action 8: BCOPL will ensure review and update (if applicable) of	Within 3 months of MOD 8 approval by	Completed for MOD 8.	NA

Reference	Schedule and Condition Number	Condition	Compliance status	Evidence	Recommendation	Response/Proposed action	Target Completion Date	Updated Response/Proposed Action	Revised Target Completion date
		regulators for approval by DP&I as specified in conditions of Project Approval.		have granted approval for the submission of the updated plans within three months of MOD8 determination.		management plans within 3 months of triggers outlined in Schedule 5, Condition 5.	the DPE.		
NC15	Statement of Commitments 4	Boggabri Coal's EMPs will be revised and updated as required, in consultation with the relevant regulators for approval by DP&I as specified in any conditions of Project Approval for Surface and Groundwater Management, Flora and Fauna, Rehabilitation and Landscape Management (including Void Management) and Aboriginal Archaeology and Cultural Heritage Management.	Non-Compliant	The Biodiversity Management Plan, GMP and the CHMP have not been updated during the audit period. The WMP and SWMP have been submitted to DPE but not have not been approved. DPE have granted approval for the submission of the updated plans within three months of MOD8 determination. The RMP would be superseded following the approval of the new RMP (replacing the former MOP under the Mining Regulation 2016). This plan is currently in draft.	CA 9: Ensure that all plans required under this consent are reviewed and updated (if applicable) 3 months after the triggers outlined in Schedule 5, Condition 5 occur	See Action 8: BCOPL will ensure the review and update (if applicable) of management plans within 3 months of triggers outlined in Schedule 5, Condition 5.	Within 3 months of MOD 8 approval by the DPE.	Completed for MOD 8. MPs will be reviewed within 3 months of the triggers outlined in s5.c5	Ongoing
EPL 12407									
NC16	L3.1	The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.	Non-Compliant	The EPA issued an Official Caution letter on 30 July 2021 in relation to burying 937 end-of-life haul truck tyres, at depth, between 2014 and 2020, constituting a non-compliance against this condition. Condition L3.3 has since been added to the EPL permitting the disposal of tyres at BCM, and therefore no corrective action is required.		NO ACTION REQUIRED.	NA		
NC17	L3.3	The licensee may dispose of up to 300 end-of-life mining heavy plant tyres on the premises in each annual return year period up until 11 January 2023. Should the report provided in accordance with condition R3.5: be submitted to the EPAs satisfaction at intervals of 2 years; and find that recycling options are not feasible; then the onsite disposal of the end-of life heavy mining plant tyres may continue for the subsequent 2 annual reporting periods. Only waste tyres generated at the premises may be disposed of in accordance with this condition.	Non-Compliant	Following the addition of this condition on the licence, BCOPL disposed of tyres within the pit as per this condition. The R3.5 report has been prepared and was submitted to the EPA on 3 October 2023. Based on the information supplied, BCOPL continued to dispose of tyres between 11 January 2023 and the date of submission for the R3.5 report, constituting a non-compliance against this condition. Given that the R3.5 report has been provided to the EPA, no corrective action is proposed.		No further action required. Approval in place for onsite HV trye disposal from 11 January 2023 until 11 January 2025.	NA		
NC18	O1.1	Licensed activities must be carried out in a competent manner. This includes: the processing, handling, movement and storage of materials and substances used to carry out the activity; and the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.	Non-Compliant	Site inspection confirmed that site operations are undertaken in a competent manner. Generally, waste was managed appropriately with waste receptacles clearly labelled. However, it was noted that the correct waste was not always deposited into the correct bins, with plastic wrap observed in the steel bin, constituting a non- compliance.	CA 7: Ensure that staff are made aware of correct waste management procedures	See Action 5 above: BCOPL will ensure quarterly waste toolbox talks are presented to the workforce.	20/02/2024	Completed	NA
NC19	M2.2	Air Monitoring Requirements Air Monitoring Requirements	Non-Compliant	*2020 IEA Recommendation: Continue to liaise with EPA regarding EPL variation to ensure that monitoring points in EPL align with those utilised by the site.* Air monitoring was generally sampled in accordance with the requirements of this condition. In response to the 2020 IEA recommendation, monitoring points were modified as per the February 2021 variation. As reported in the 2021 Annual Review, the High Velocity Air Sampler (HVAS) unit located at the Glenhope property could not be	No action proposed.	NO ACTION REQUIRED.	NA		

Reference	Schedule and Condition Number	Condition	Compliance status	Evidence	Recommendation	Response/Proposed action	Target Completion Date	Updated Response/Proposed Action	Revised Target Completion date
				accessed due to regional flooding and accordingly did not obtain samples on 23 and 29 November 2021. No corrective action is proposed. During 2021, PM10 samples were not taken for Monitoring Point 45 constituting a low risk non-compliance with this condition. This event has not occurred again and therefore no corrective action is proposed. In addition, the HVAS monitoring network in place for the BCM was not in line with monitoring sites specified within the EPL. The Cooboobindi HVAS was relocated to the Glenhope property during June 2020. An EPL variation was approved on 5 February 2021.					
NC20	M4.1	For each monitoring point specified below in the table below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency specified opposite in the other columns.	Non-Compliant	Weather monitoring over the reporting period was generally in accordance with the requirements of this condition. As reported in the 2022 annual review, the continuous rainfall readings at the 60 m AWS were not recorded for the period between 5-12 May 2022. The readings for continuous solar radiation at the weather stations were also not recorded for the period between 21 July 2022 and 7 December 2022. BCOPL also advised that data capture for sigma theta was 90% in May 2023 due to a faulty sensor. The sensor has been fixed and is now capturing data continuously.	CA 3: Ensure that maintenance routines include the weather station for regular inspection and maintenance	NO ACTION REQUIRED. BCOPL will continue to have all weather stations including the 60m AWS Met Station Calibrated and maintained on a biannual basis and as required as per the contract with supplier.	NA		
NC21	M7.1	To determine compliance with limit condition(s) for blasting: Airblast overpressure and ground vibration levels experienced at the following noise sensitive locations must be measured and recorded for all blasts carried out in or on the premises; - Identified on "Goonbri" and "Wilberoi East" identified on the map titled Plan No. 1 EPL Boundary and Environmental Monitoring locations dated 05/03/2019 (DOC19/227801) Instrumentation used to measure the airblast overpressure and ground vibration levels must meet the requirements of Australian Standard AS 2187.2-2006. Note: A breach of the licence will still occur where airblast overpressure or ground vibration levels from the blasting operations at the premises exceeds the limit specified in conditions L3.1 to L3.4 at any noise sensitive locations other than the locations identified in the above condition.	Non-Compliant	As reported in the 2022 Annual Review, a blast which was conducted on 14 November 2022 was not recorded by the 'Goonbri' blast monitoring station, constituting a low risk non-compliance. BCOPL received a penalty notice from the EPA on 30 April 2022 for an alleged breach of blast criteria reported on 30 April 2022. BCOPL undertook and internal investigation and response to the EPA with the findings of the investigation, which determined that the exceedance was due to wind gusts and not blasting operation. The EPA withdrew the penalty notice in December 2022.	CA 2: Ensure that blast monitoring equipment is regularly maintained and working prior to blasting so that blasts are adequately reported	NO ACTION REQUIRED. BCOPL will continue to ensure blast monitors are calibrated every 3 months and maintained as required as per contract with blast monitor supplier.	NA		
Standard Conditions Mining Regulation 2016 Schedule 8A Part 2									
NC22	11	The holder of a mining lease must amend the rehabilitation management plan for the mining lease as follows— to substitute the proposed version of a rehabilitation outcome document with the version approved by the Secretary—within 30 days after the document is approved, as a consequence of an amendment made under	Non-Compliant	NSW Resources Regulator approved the rehabilitation objectives for the site on 13 October 2023. The latest revision of the RMP is dated 10 November 2023, which is within 30 days of the Rehabilitation Objectives approval. The updated RMP however does not incorporate the approved rehabilitation objectives as required by condition (a).	CA 12: Ensure that the next update of the RMP captures the approved Rehabilitation Objectives and completion criteria for the site.	Action 9: The final version of the RMP will include the Rehabilitation Objectives that were approved October 2023.	31/03/2024	Complete	NA

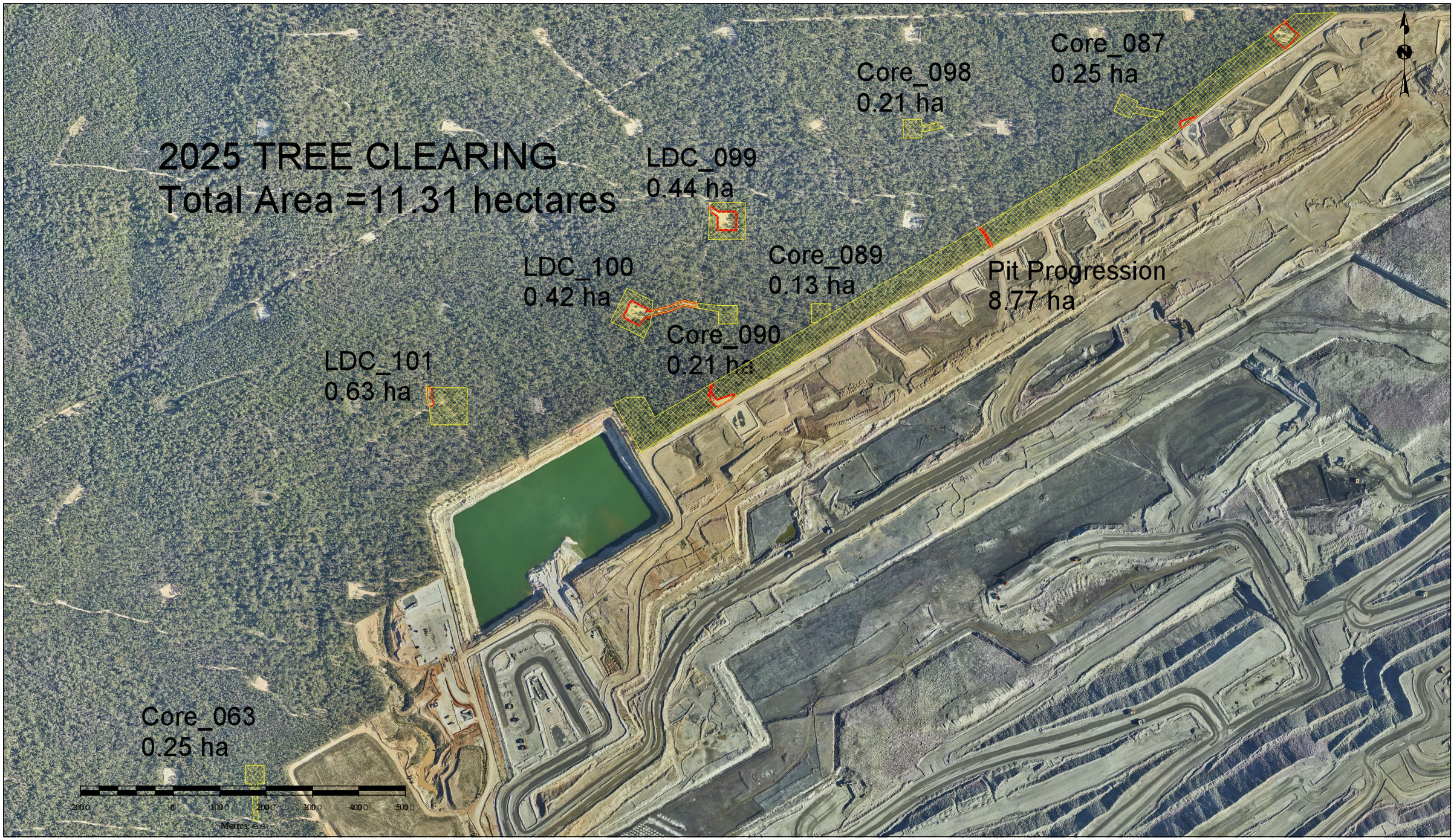
Reference	Schedule and Condition Number	Condition	Compliance status	Evidence	Recommendation	Response/Proposed action	Target Completion Date	Updated Response/Proposed Action	Revised Target Completion date
		clause 14 to a rehabilitation outcome document— within 30 days after the amendment is made, to reflect any changes to the risk control measures in the prepared plan that are identified in a rehabilitation risk assessment—as soon as practicable after the rehabilitation risk assessment is conducted, whenever given a written direction to do so by the Secretary—in accordance with the direction.							
NC23	15(1)	The holder of a mining lease must do the following before the end of the initial period— prepare a rehabilitation management plan, and prepare rehabilitation outcome documents and give them, other than the rehabilitation completion criteria statement, to the Secretary for approval, and prepare a forward program and give it to the Secretary.	Non-Compliant	The initial period is defined as *'30 days, or other period approved by the Secretary, after this Division first applies to the mining lease, or* *if this Division applies to the mining lease because of an increase in the required security deposit—* *when the surface of the mining area is disturbed by activities under the mining lease, or* *at a later date approved by the Secretary.* The Conditions of Schedule 8A were applicable to large mines on 2 July 2022, meaning that the initial period is defined as concluding 1 August 2022. The RMP (Original, dated 2 July 2022) was prepared within the initial period and has since been updated. According to Section 4.1.2 of the RMP, the proposed rehabilitation outcomes were submitted to DPE on 15 March 2023, outside the initial period. The forward program was submitted on 31 March 2023, which was also after the initial period. As the initial period has concluded, no corrective action is proposed.		NO ACTION REQUIRED	NA		
NC24	15(2)	The holder of the mining lease must prepare a forward program and annual rehabilitation report and give them to the Secretary before— 60 days after the last day of each annual reporting period, commencing with the annual reporting period in which the forward program was given to Secretary under subclause (1)(c), or a later date approved by the Secretary.	Non-Compliant	BCOPL requested a change in the annual reporting period to 1 January to 31 December. This was accepted by Resources Regulator on 22 December 2022. The forward program was submitted on 31 March 2023, which was more than 60 days from the completion of the reporting period. The Annual Rehabilitation report reviewed did not have a date of submission, and therefore compliance with this condition cannot be verified.	CA 13: Include the date of submission on the Annual Rehabilitation Report	ACTION 10: The Annual Rehabilitation Report will be submitted by the 31st March each year with the Annual Review.	31/03/2024	Complete	
NC25	16(2)	The holder of a mining lease must make a document to which this clause applies publicly available by— publishing it on its website in a prominent position, or if the holder does not have a website— providing a copy of it to a person— on the written request of a person, and without charge, and within 14 days after the request is received.	Non-Compliant	The forward program and rehabilitation report are published on the project website, however the Rehabilitation Management Plan is not, constituting a non-compliance.	CA 15: Publish the Rehabilitation Management Plan on the website	Action 11: BCOPL will Publish the Rehabilitation Management Plan once finalised.	31/03/2024	Complete	NA
	16(3)	If a document is published on the website of the holder of the mining lease, the holder must ensure that it is published— for a rehabilitation management plan—within 14 days after it is prepared or amended, or	Non-Compliant	The rehabilitation management plan has not been published on the website despite it being more than 14 days since its preparation.	CA 15: Publish the Rehabilitation Management Plan on the website	As Above. Action 11: BCOPL will Publish the Rehabilitation Management Plan once	31/03/2024	Complete	

Reference	Schedule and Condition Number	Condition	Compliance status	Evidence	Recommendation	Response/Proposed action	Target Completion Date	Updated Response/Proposed Action	Revised Target Completion date
		for a forward program or an annual rehabilitation report—within 14 days after it is given to the Secretary or amended,				finalised.			

Recommendations

Rec #	Condition	Commentary	Recommendation	Response	Target Completion Date	Updated Response
MP09_0182						
REC 1	Schedule 3 Condition 13	The NMP was last updated in April 2019 (Rev. 2019). The 2020 IEA identified that the NMP is required to be updated to capture updated practices at BCOPL. This update has not occurred in the reporting period; however correspondence has been received from DPE approving the submission of the updated plan within 3 months from the determination of MOD8.	Update NMP to reflect the latest TARPS.	BCOPL is currently revising the NMP to reflect the latest TARPS and will be submitted to the DPE within 3 months of MOD8 determination.	Within 3 months of MOD8 determination	Complete
REC 2	Schedule 3 Condition 20	The 2020 IEA recommended that drone footage would continue longer so that future complaints could be verified. BCOPL have extended drone footage procedures beyond the initial blast. This procedural change was implemented in 2021. It is recommended that this procedure be captured in the updated Blast Management Plan.	Include drone recording procedure in updated blast management plan.	BCOPL is currently revising the BMP and will include a blast recording procedure in the next update of the blast management plan to be submitted to the DPE within 3 months of MOD8 determination.	Within 3 months of MOD8 determination	BMP updated for MOD 8. Drone procedure to be included in next revision.
REC 3	Schedule 3 Condition 31	The 2020 IEA recommended a standard methodology should be developed for the investigation and reporting of any exceedances recorded by the air quality monitors	Ensure that the updated AQGGMP addresses issues outlined in the 2020 IEA. Consultation with parties outlined in this condition is also recommended.	BCOPL is currently revising the AQGHGMP and will include a procedure for investigating and reporting exceedances recorded by compliance air quality monitors. This will be submitted to the DPE within 3 months of MOD 8 determination.	Within 3 months of MOD8 determination	AQGHGMP updated for MOD 8 – Reporting form complete, to be included in next revision.
REC 4	Schedule 3 Condition 38(a)	The most recent approved Site Water Balance is dated May 2017 and was approved by DPIE on 24 May 2017. An update to the Site Water Balance was completed and submitted to the DPIE for approval in July 2019.	Ensure the revised Site Water Balance and stormwater management systems are included in the updated SWMP	BCOPL is currently revising the SWMP and will be submitted to the DPE with 3 months of MOD8 determination.	Within 3 months of MOD8 determination	Complete
REC 5	Schedule 3 Condition 56	The 2020 IEA recommended that the outstanding recommendations from the 2017 Audit as reported in the 2019 Annual Review be incorporated in the updated CHMP.	Implement the outstanding recommendations from the 2017. Audit as reported in the 2019 Annual Review in the updated CHMP.	The CHMP is currently being revised and will include recommendations from previous Independent Environmental Audits.	Within 3 months of MOD8 determination	Submitted
REC 6	Schedule 5 Condition 1	Ensure that the updated EMS reflects the updates to management plans outlined in this audit.	Ensure that the updated EMS reflects the updates to management plans outlined in this audit	The EMS will be updated and submitted to the DPE within 3 months of MOD 8 determination.	Within 3 months of MOD8 determination	Complete
EPL 12407						
REC 8	P1.1	Monitoring locations and procedures are documented in the AQGHGMP and shown in Appendix A. EPA point 45 (HVAS 'Glenhope') is not shown on the map in the AQGHGMP. This should be updated next time the plan is reviewed.	Improvement recommendation: Ensure the updated AQGHGMP reflects the current points outlined in EPL 12407	This will be included in the AQGHGMP to be submitted to the DPE within 3 months of MOD8 determination.	Within 3 months of MOD8 determination Within 3 months of MOD8 determination	Complete

Appendix G
Proposed Tree Clearing 2025



REVIEW	NAME	SIGNATURE	DATE
DRAWN BY	VMendoza		11-Feb-2025
DWN CHECKED	JCrowe		11-Feb-2025

IDEMITSU
BOGGABRI COAL

SCALE 1:8000
ORIG PLOT SIZE A3

TITLE
2025 Tree Clearing Areas

VULCAN DATABASE	PLOT LOCATION	DESCRIPTION	DWG No.
bog_tree_clearing_2025	O:\Technical_Services\Survey\12.Plots	BOGGABRI COAL MINE 11 February 2025	V04
VULCAN LAYER NAME	PLOT FILE NAME		Revision
Various	2025 Tree..250211		1

Appendix H
2024 Site Water Balance

ENV-WAT-PLN-001-ATT-001 Site Water Balance Report

March 2025

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BOGGABRI COAL

Document details and history

Document details

Document title ENV-WAT-PLN-001-ATT-001 Site Water Balance Report

File name SWBR Rev 14 Final

Document status and review

Edition	Comments	Author	Authorised by	Date
0	Issue to NSW DP&I, OEH, NOW, DRE, and NCMA.	L. Doeleman	J. Rennick	27 Apr 2012
1	-	L. Doeleman	J. Green	14 Sep 2012
2	-	N. Harcombe/A. Hedjripour	C. Dingle	19 Jul 2013
3	Revised to address BCOPL comments. Issue to DP&I.	N. Harcombe/A. Hedjripour	C. Dingle	9 Oct 2013
4	Revised to address DP&I comments. Issue to EPA and DoEE.	N. Harcombe	J. Green	18 Nov 2013
5	Revised to address relevant agencies comments. Issue to DP&I	K. Agllias	J. Green	12 Feb 2014
6	-	L. Doeleman	J. Green	4 Jun 2015
7	-	L. Doeleman	J. Green	10 Sep 2015
8	Include Modification 8 approval conditions.	T. Tinkler/A. Wyatt	P. Forbes	18 May 2017
9	2020 Annual Review.	M. Best/A. Wyatt	H. Russell	23 Apr 2021
10	Regular plan revision	M. Best/A. Wyatt	H. Russell	30 Aug 2021
11	2021 Annual Review	M. Best/A. Wyatt	H. Russell	3 May 2022
12	2020 Annual Review	J O'Brien	A. Williams	27 Mar 2023
13	2023 Annual Review. Include Modification 8 approval conditions.	J. O'Brien/S. Callander	L. Tolson	10 April 2024

14	2024 Annual Review	H. Brichacek/J. O'Brien	L. Tolson	13 March 2025

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Appendices

1.0 INTRODUCTION

1.1 Project description

Boggabri Coal Mine (BCM or the project) is an open cut coal mine located 15 kilometres (km) north-east of the township of Boggabri in north-western New South Wales (NSW) (refer to Figure 1-1). BCM is managed by Boggabri Coal Operations Pty Ltd (BCOPL), a subsidiary of Idemitsu Australia Resources Pty Limited (Idemitsu).

Mining activities at BCM commenced in 2006. The mine currently operates under State Significant Development (SSD) Project Approval (SSD 09_0182), which allows BCOPL to produce 8.6 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal from BCM until the end of 2036. Approval was granted by the NSW Planning Assessment Commission (PAC) under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) on 18 July 2011 and has been subject to several modifications.

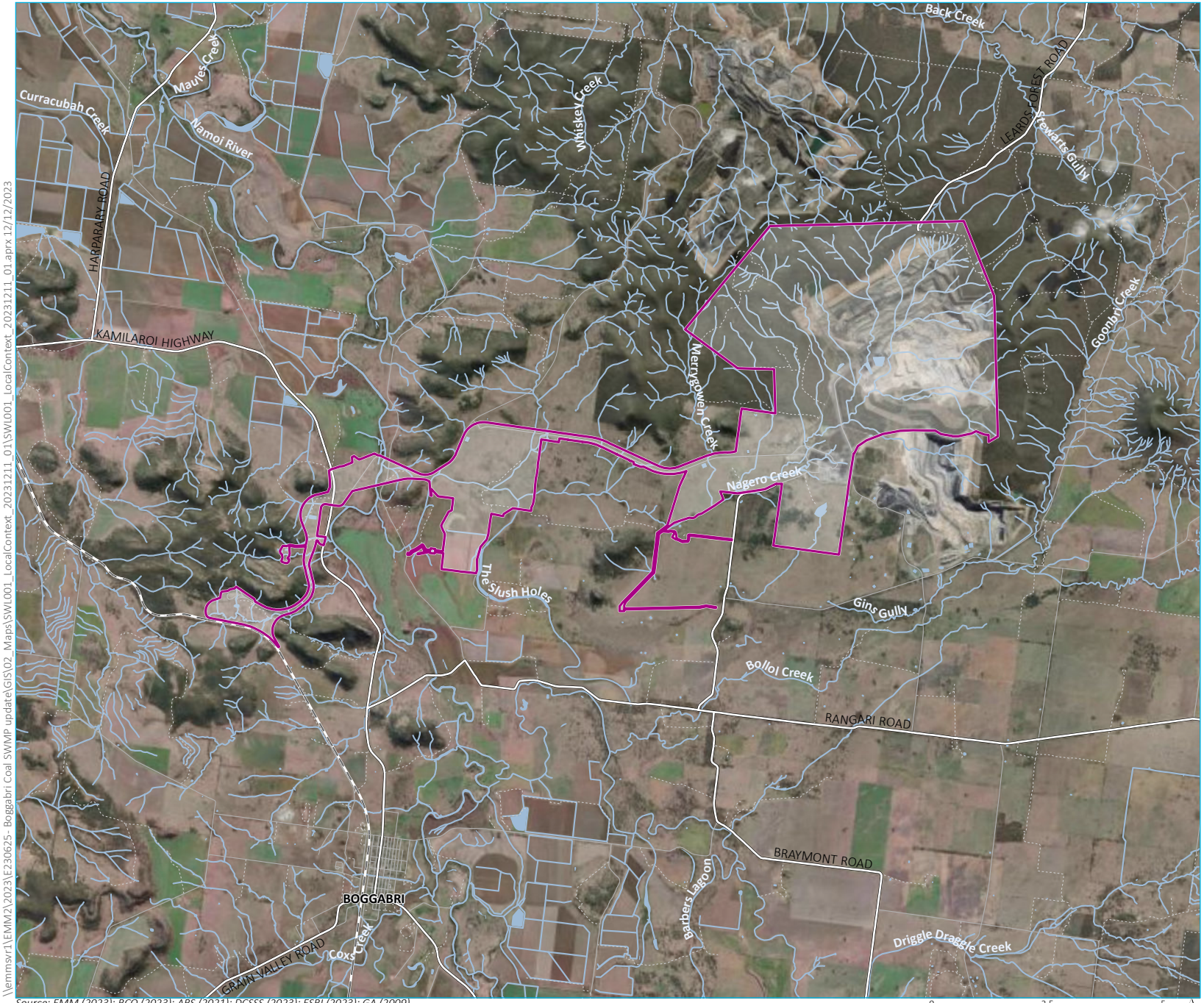
1.2 Purpose

The purpose of this Site Water Balance Report (SWBR) is to define the components of the Site Water Balance (SWB) model at BCM with respect to current Life-of-Mine (LOM) planning and all relevant available information. The SWBR was prepared to directly address SWB related conditions outlined in the Project Approval (SSD 09_0182), the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) approval and mining lease conditions. The key objectives of this SWBR are to:

- address the relevant approval conditions
- describe any changes to the SWB model since the 2023 SWBR (BCOPL, 2024)
- validate the SWB model using observed climate and operational data recorded since the 2023 SWBR (BCOPL, 2024)
- forecast the future water balance for the water management system (WMS) over the approved LOM
- describe proposed water efficiency initiatives, improvement programs and reporting requirements.

This SWBR was prepared with consideration of the relevant statutory requirements (Commonwealth, State or local), regulations, and environmental planning instruments relevant to mine water management, as summarised in Chapter 2.0.

The WMS that forms the basis of the SWB is documented in the BCM Surface Water Management Plan (SWMP). This SWBR should be read in conjunction with the SWMP.



KEY

- Project approval area

Existing environment

- Rail line
- Major road
- Minor road
- Vehicular track
- Watercourse/drainage line
- Waterbody

INSET KEY

- NPWS reserve
- State forest

Source: EMM (2023); BCO (2023); ABS (2021); DCSSS (2023); ESRI (2023); GA (2009)

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Local context

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Figure 1.1

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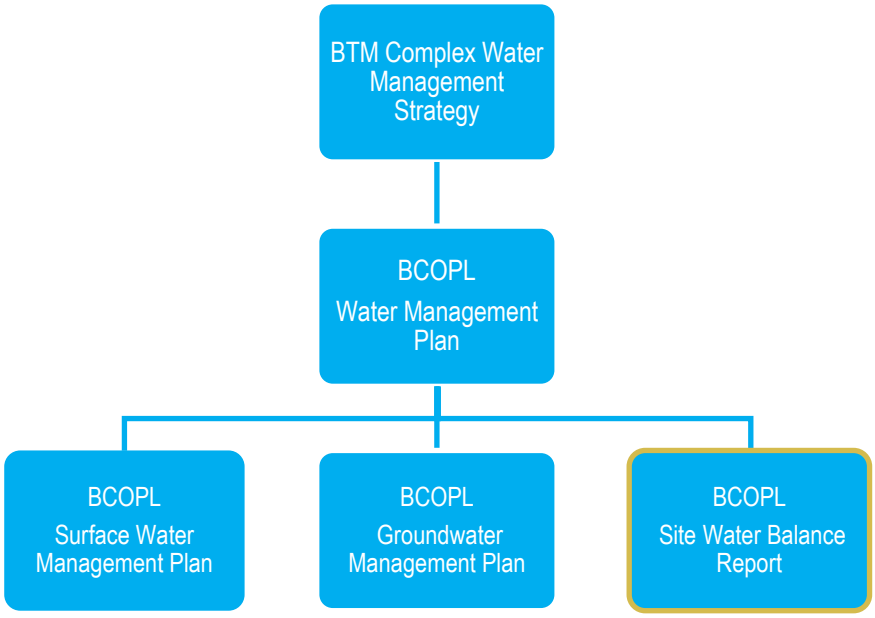
1.3 Related water management documents

This SWBR is a subplan of the overarching BCOPL Water Management Plan (WMP). The water management documents applicable to the BCM are listed in Table 1-1. The WMP document hierarchy is shown in Figure 1-2.

Table 1-1: Related water management documents

Document	Description
Boggabri – Tarrawonga – Maules Creek (BTM) Complex Water Management Strategy	Regional strategy prepared in consultation with Tarrawonga Coal Pty Ltd (TCPL) and Maules Creek Coal Project (MCC).
BCOPL Water Management Plan (WMP)	Overarching document setting out water management framework, statutory requirements, and procedural requirements.
BCOPL Surface Water Management Plan (SWMP)	Surface water baseline data, performance criteria, monitoring program, response plan, water management system description, erosion and sediment controls.
BCOPL Groundwater Management Plan (GWMP)	Groundwater baseline data, performance criteria, monitoring program, response plan, and groundwater model validation program.
BCOPL Site Water Balance Report (SWBR)	Water balance modelling methodology, assumptions and results, and mine water management system operating philosophy.

Figure 1-2: Water management plan document hierarchy



1.4 Agency consultation

As required by consent condition 38 of Schedule 3 of the Project Approval, previous versions of the SWBR and this version of the SWBR were prepared in consultation with several NSW government agencies including:

- Department of Planning and Environment (DPE) – Water (DPE-Water), Biodiversity Conservation (BSC) and Natural Resources Access Regulator (NRAR) divisions
- North West Local Land Services (NLLS) (formerly Namoi Catchment Management Authority [NCMA])
- Community Consultative Committee (CCC)
- Environment Protection Authority (EPA).

1.5 Report preparation

This SWBR has been prepared by Water Resource Engineer Hallam Brichacek and Senior Water Resource Engineer Jason O'Brien and reviewed by Associate Water Resource Engineer Sally Callander. Hallam has four years' experience as a water resource engineer preparing surface water assessments, water management plans, water balance modelling and flood modelling and assessment. Jason has eight years' experience as a water resource engineer preparing surface water assessments, water management plans, water balance modelling and flood risk assessments. Sally has 15 years' experience in the water industry specialising in surface water assessments and management plans, water balance assessments, water quality assessments, hydrologic and hydraulic modelling and floodplain impact assessment, and risk management development and policy.

2.0 STATUTORY REQUIREMENTS

2.1 Relevant legislation

Key legislation that is relevant to this SWBR include:

- *Environmental Protection and Biodiversity Conservation Act (1999)* (EPBC Act) – Commonwealth
- *Environmental Planning and Assessment Act 1979* (EP&A Act) – NSW
- *Mining Act 1992* – NSW
- *Protection of the Environment Operations Act 1997* (POEO Act) – NSW
- *Water Management Act 2000* (WM Act) – NSW.

2.2 Project approval conditions

2.2.1 Commonwealth approval conditions

Commonwealth approval for the project was granted 11 February 2013 pursuant to Sections 130 (1) and 133 of the EPBC Act (EPBC Act referral 2009/5256). A variation to the EPBC Act conditions of approval was authorised in February 2020.

Commonwealth approval for Modification 8 (EPBC Act referral 2021/8875) was granted 19 December 2024. However, the approval conditions associated with EPBC Act referral 2021/8875 are not directly relevant to the SWBR and are addressed in the SWMP and GWMP.

The EPBC Act approval conditions relevant to this SWBR are reproduced in Table 2-1.

Table 2-1: Site water balance related EPBC approval conditions

Condition	Description	Where addressed
EPBC Act referral 2009/5256 – Surface Water and Groundwater Management Plans		
No. 18	The person taking the action must within 6 months of this approval, or such other timeframe specified by the Minister, provide to the Minister a report on: a) any updated modelling of surface and groundwater impacts that has been undertaken in preparing the surface and groundwater management plans b) how the surface and groundwater management plans addressed groundwater and surface water impacts on native vegetation.	Updated surface water modelling is provided in Chapter 3.0. Groundwater impacts are addressed in the GWMP. Impacts to riparian health are addressed in the SWMP.

2.2.2 Mining lease conditions

The objectives of the *Mining Act 1992* are to encourage and facilitate discovery and development of mineral resources having regard to the need to encourage ecologically sustainable development. In relation to water, the Act requires that BCOPL ensure effective rehabilitation of disturbed land and water and to ensure mineral resources are identified and developed in ways that minimise impact to the environment. BCOPL hold coal lease CL368 under this Act. Mining lease conditions are not directly relevant to the SWBR and are addressed in the SWMP.

2.2.3 State project consent conditions

State development consent (SSD 09_0182) was granted 18 July 2012 pursuant to Section 75J of the EP&A Act by the Planning and Assessment Commission of NSW as delegate of the Minister for Planning. Development consent for Modification 8 was issued in January 2024. The NSW State development consent conditions relevant to this SWBR are reproduced in Table 2-2.

Table 2-2: Site water balance related consent conditions

Condition	Description	Where addressed
Water Supply		
Sch 3, 33	The Proponent must ensure that is has sufficient water for all stages of the project, and if necessary, adjust the scale of mining operations on site, to match its available water supply to the satisfaction of the Secretary.	Section 3.4.4
Water Management Plan		
Sch 3, 38	The Proponent must prepare and implement a Water Management Plan for the project to the satisfaction of the Secretary. This plan must be prepared in consultation with the EPA, DPE Water, North West LLS and the CCC, by suitably qualified and experienced person/s whose appointment has been approved by the Secretary, and be submitted to the Secretary for approval within 6 months of the date of this approval. In addition to the standard requirements for management plans (see Schedule 5, Condition 3), this plan must include:	Section 1.4 Section 1.5
	(c) a Site Water Balance, that:	
	• includes details of:	
	– sources and security of water supply, including direct and indirect water take, and contingency for future reporting periods	Section 3.4.4 Section 3.4.5
	– prioritisation strategy for water sources	Appendix B.3.6
	– water use onsite	Appendix B.3.7
	– water management on site	Described in detail in the SWMP
	– any off-site water discharges and management of water during high rainfall years and periods of flooding, including water storage options	Section 3.4.6
	– reporting procedures, including the preparation of a site water balance for each calendar year	Chapter 6.0
	– a program to validate the surface water model, including monitoring discharge volumes from the site and comparison of monitoring results with modelled predictions	Section 5.2

Condition	Description	Where addressed
	– methodologies used in the preparation of thew site water balance, including provision of data sources, measurement type (direct sample/mass balance/engineering calculations/ factors) and formulas used for all inflows, processes and outflows	Appendix B
	• is supported by an annual improvement program to identify and address deficiencies and improvements within monitoring, measurement and calculation methods	Chapter 5.0
	• includes an action plan and schedule to implement annual water efficiency initiatives, and the recommendations in the Advisian peer review report titled “Peer Review of Site Water Use Aspects of Boggabri Coal MOD 5 Project, 22 July 2016”, as set out in Appendix 6A	Chapter 4.0
	• describes the measures that would be implemented to minimise clean water use on site.	Appendix B.3.6

2.3 Permits and licences

2.3.1 Environmental protection licence

Environmental protection licence (EPL) No. 12407 applies to the BCM operations. The EPL outlines surface water quality monitoring requirements and discharge criteria. The EPL also includes a requirement to maintain an air capacity (cumulative freeboard) of 1,000 megalitres (ML) within the BCM mine water inventory. EPL water quality and quantity monitoring requirements are addressed the SWMP.

2.3.2 Water access licences

BCOPL are required to hold water access licences (WAL) for surface water take associated with the BCM. Water licensing requirements, existing WALs and water supply works approvals, and the methodology to account for surface water take at the BCM are described in the SWMP. Water licensing requirements and existing WALs associated with groundwater take are described in the GWMP.

3.0 SITE WATER BALANCE

3.1 Overview

The SWB model is built using GoldSim software and was originally developed as a part of the Continuation of Boggabri Coal Mine Project Surface Water Assessment (WSP, 2010). The SWB model is updated annually to reflect development of the mine and ensure on-site conditions are adequately simulated.

The SWB model is a key strategic planning tool to assess the resilience of the BCM WMS by testing it under a wide range of climate scenarios that may occur over the LOM, each generated by sampling historic rainfall records. By simulating the BCM WMS under these scenarios, the corresponding water inflows, outflows and the likely range of water deficits, surpluses, and discharges from BCM can be quantified.

The SWB model is based on the mine plan layout and WMS documented in *the Continuation of Boggabri Coal Mine Environmental Assessment* (Hansen Bailey, 2010), *Boggabri Coal Forward Program: Sunday 1 January 2023 to Wednesday 31 December 2025*, and *Modification 8 (MOD 8) Amendment Report* (JBA, 2022).

This chapter describes the SWB model updates that have been made since the 2023 SWBR (BCOPL, 2024), the outcomes of the model validation process, and provides forecast model results for the WMS over the approved LOM. The WBM methodology including key inputs and assumptions is described in Appendix B.

3.2 Model updates

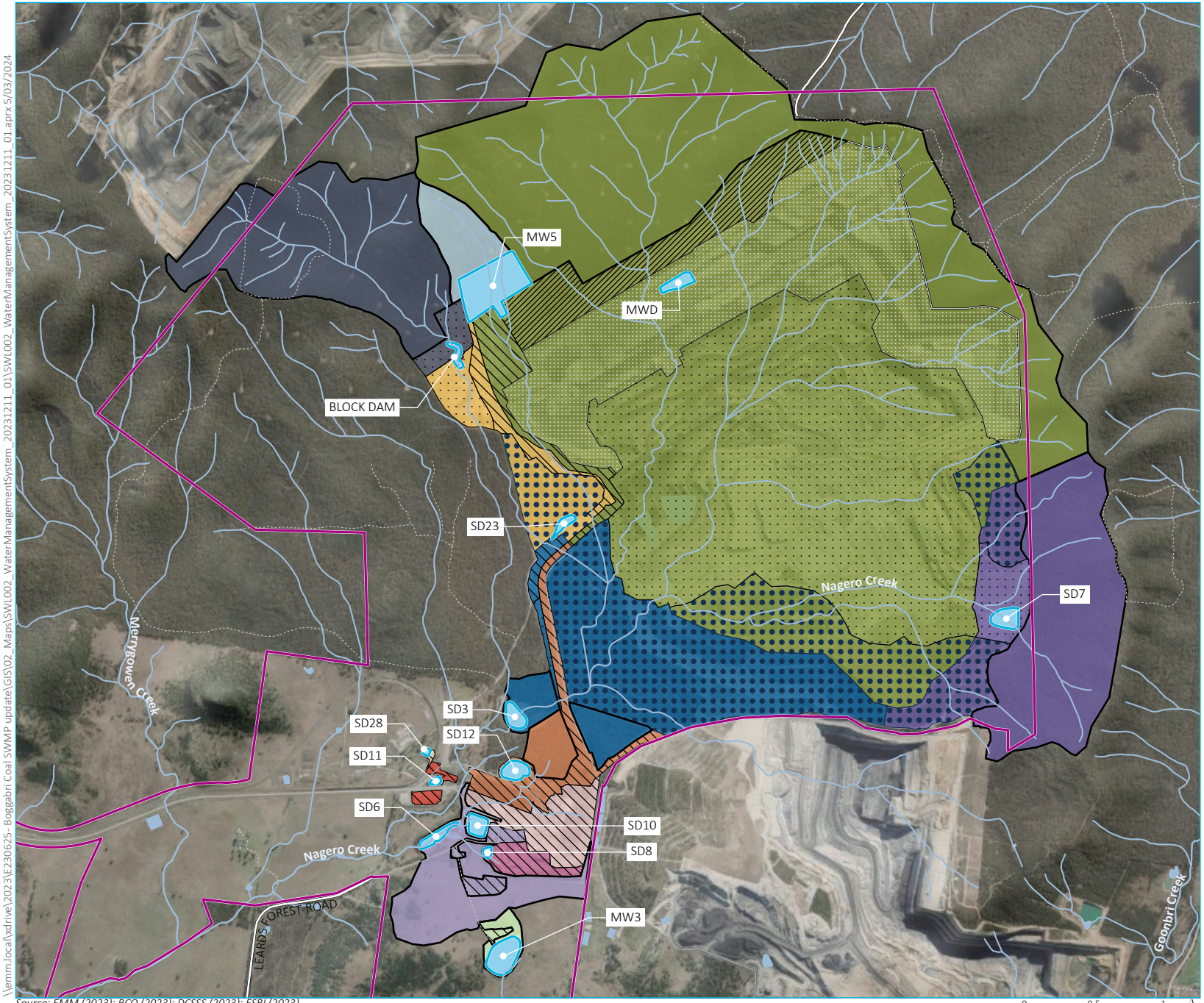
The following key components of the WMS were reviewed as part of the 2024 SWB model update:

- catchment areas and land use
- pump rates and transfers
- storage data (including number of storages, capacity and operating levels)
- Australian Water Balance Model (AWBM) runoff parameters.

The following key updates were made to the model:

- Haul road lengths for 2024 were adjusted to 17 km to remain consistent with observed conditions onsite.
- Decommissioning of MW5 was delayed from the start of 2025 to the start of 2026.

In general, the 2024 SWB remains consistent with the 2023 SWB (BCOPL, 2024).



KEY

- Project approval area
- Water storage

Storage catchment

- MW3
- MW5
- Pit
- Block Dam
- SD3
- SD4
- SD6
- SD7
- SD8
- SD10
- SD11
- SD12
- SD23
- SD28

Land use type

- Industrial
- Mine void
- Pre strip
- Rehabilitation
- Undisturbed
- Unshaped spoil dump

Existing environment

- Major road
- Minor road
- Vehicular track
- Regulation hydroline
- Waterbody

Source: EMM (2023); BCO (2023); DCSSS (2023); ESRI (2023)

0 0.5 1 km

GDA2020 MGA Zone 56

N

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Existing water management system- 2024

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3.3 Model validation

This section presents of the outcomes of the model validation for the 2024 calendar year. Model validation was completed by comparing modelled results to observed results for the following key model elements:

- total site water storage volume
- stored water volume at key storages (MW5 and SD10)
- external water import
- dust suppression water use.

3.3.1 Water inventory

BCOPL routinely records storage levels in accordance with the monitoring program described in the SWMP. Recorded storage levels were used to validate storage volumes for the total site, MW5, and SD10.

3.3.1.1 Total site storage

The observed and modelled total site stored volume from January 2020 to January 2025 are compared in Figure 3-2.

Figure 3-2: Observed vs modelled total site storage volume

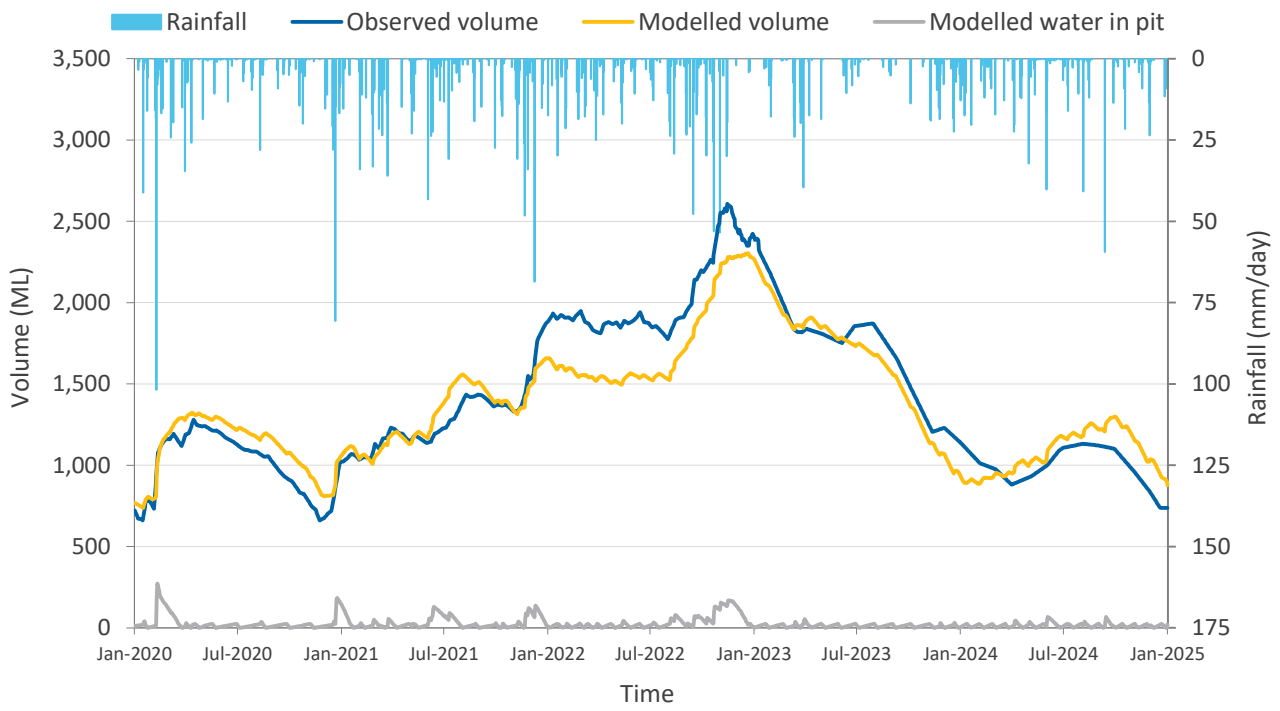


Figure 3-2 shows the modelled storage volume (yellow line) provides a good representation of the observed storage volume (blue line) with similar responses to rainfall occurring for both results. The modelled and observed storage volume are a good match from January 2020 to November 2021. The modelled results show a subdued response to the wet weather period in November and December 2021. After which, the modelled results are shown to follow a similar rise and fall in response to rainfall and storage outflows to the end of 2024.

The total modelled storage volume from January 2022 to January 2023 is generally lower than the observed storage volume due to the underestimation of the 2021 rainfall event.

Overall, the model shows an acceptable fit for total inventory, with the modelled rate of drawdown after rainfall events correlating well with the observed data. Except for the November and December 2021 rainfall event, the magnitude of inflows from rainfall events is also captured by the runoff model.

3.3.1.2 MW5 storage

The observed and modelled storage volume in MW5 from January 2021 to January 2025 are compared in Figure 3-3.

Figure 3-3: Observed vs modelled MW5 storage volume

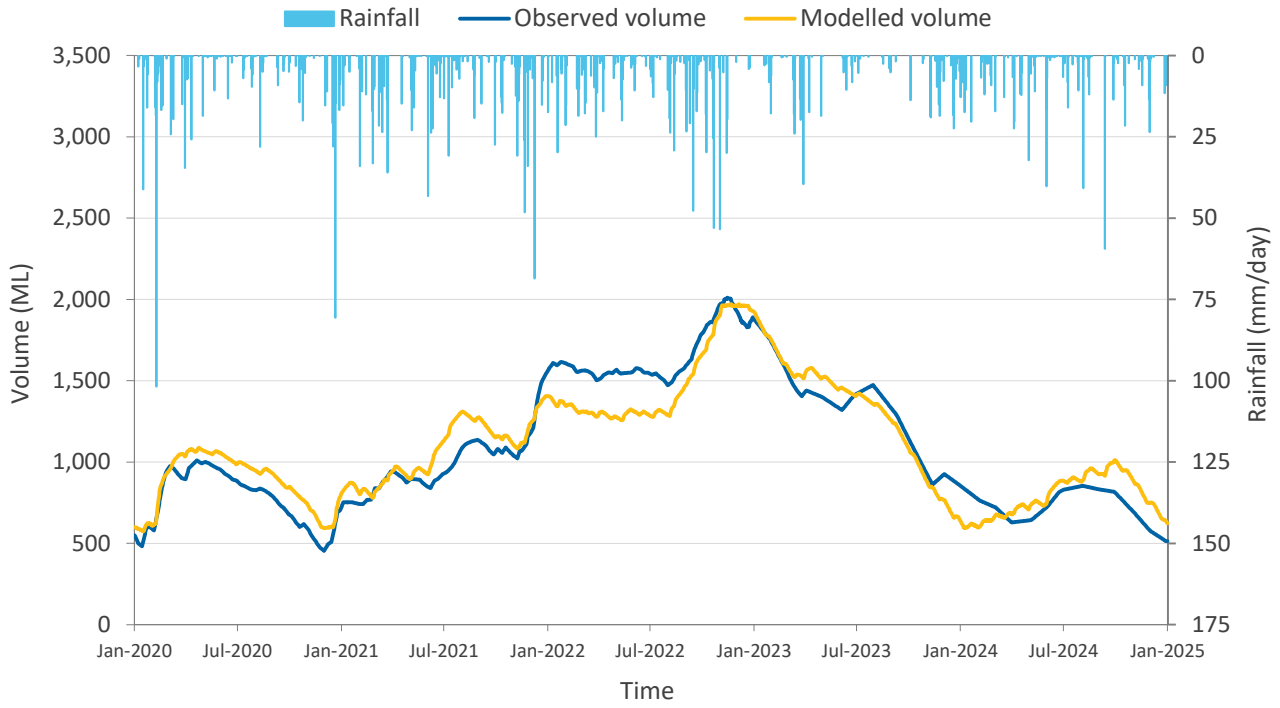
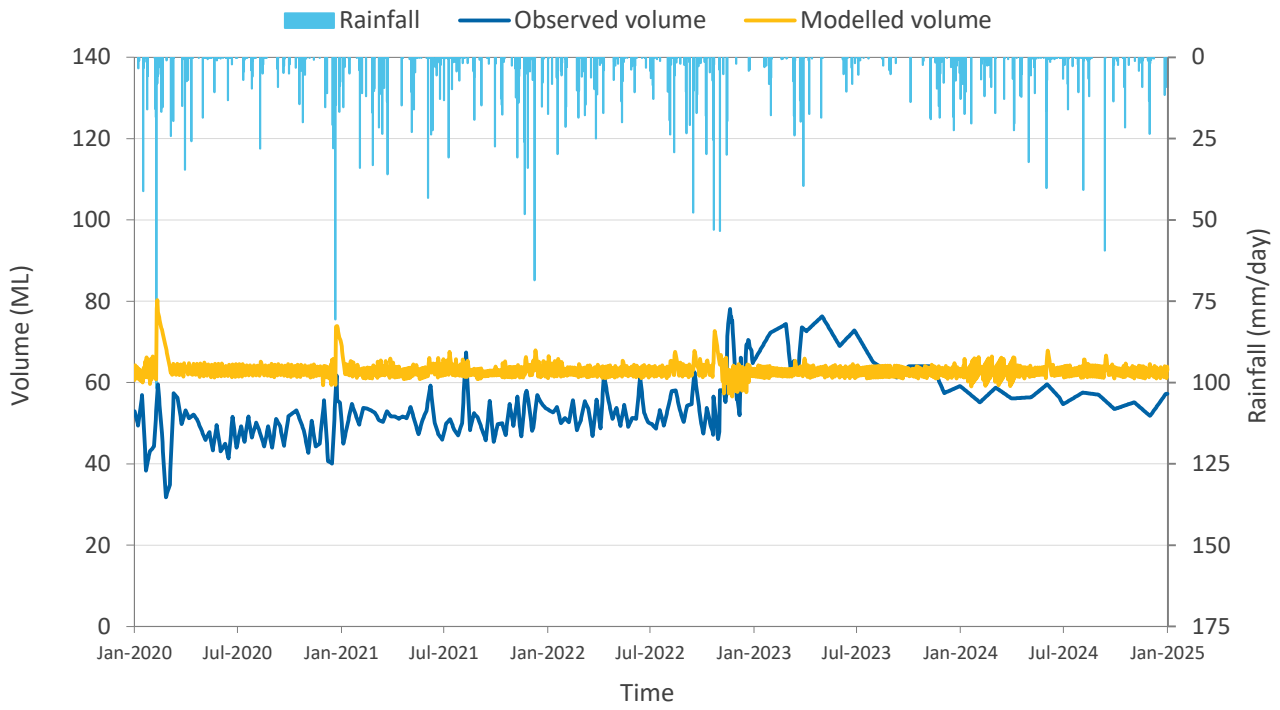


Figure 3-3 shows the modelled storage volume in MW5 is a good match to the observed storage volume with similar responses to rainfall occurring for both results. The modelled volume is underestimated following the November and December 2021 rainfall event as per the total site stored water. The modelled MW5 volume matches the observed peak that occurred During the November 2022 rainfall event as the pumping and transfer rules described in Appendix B preferentially send water to MW5 from the rest of the WMS whenever an excess is observed up until MW5 reaches its HOV.

3.3.1.3 SD10 storage

The observed and modelled storage volume in SD10 from January 2020 to January 2025 are compared in Figure 3-4.

Figure 3-4: Observed vs modelled SD10 storage volume



SD10 operates as a transfer point for water to and from MW5 as well as supplying water to the CHPP and MIA. Modelled storage volumes are elevated compared to observed values prior to January 2023. The modelled storage volumes are similar to observed values from January 2023 onwards. Modelled storage volumes are shown to follow a relatively stable trend as per the observed values. This is expected as SD10 has a relatively small contributing catchment area and is therefore strongly influenced by pumped transfers to and from other aspects of the WMS. The observed storage volume fluctuates more than the modelled volume due to day-to-day operational decisions which may vary from the strict rules implemented within the WBM. The modelled operating logic is considered to be capturing the operation of SD10 adequately.

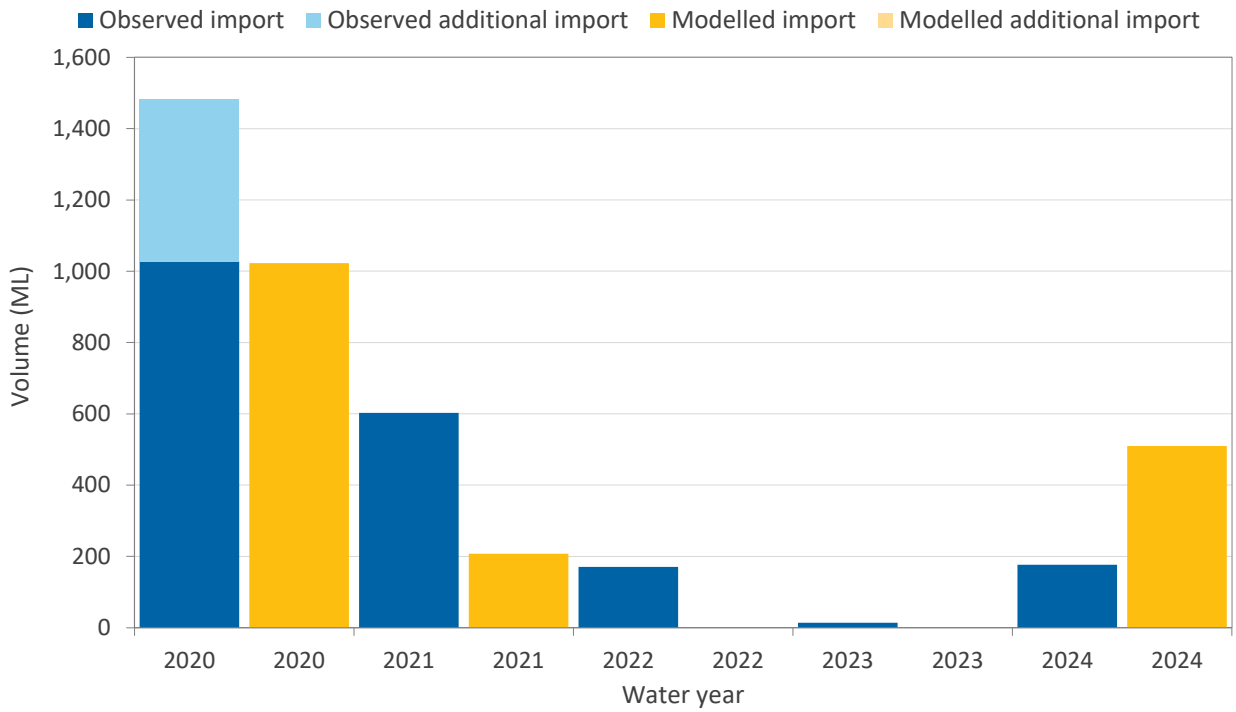
3.3.1.4 Summary

Modelled storage volumes generally match observed storage volumes with the key trends in rainfall and runoff adequately represented. Typically, modelled results differ from observed results due to the model operating rules described in Appendix B. In reality, water may be preferentially held in one storage or another on a case-by-case basis which is difficult to replicate in a model based on rules and assumptions.

3.3.2 Water import

Consistent with the water source prioritisation strategy described in the SWMP and summarised in Appendix B.3.6, the SWB model preferentially sources import water from groundwater sources as water from the Namoi River is often unreliable during dry periods. As a result, modelled water import has been classified as either groundwater import or additional import, where the additional import is assumed to be sourced from the purchase of additional temporary groundwater entitlements (but other options such as river water may be explored). Modelled water imports are compared to observed water imports on a water year (July to June) basis in Figure 3-5.

Figure 3-5: Observed vs modelled water import: water year (July to June)



The SWB model is shown to generally underestimate the volume of water imported from the borefield or additional sources. The underestimation of imported water from 2020 to 2022 is primarily associated with the updated SWB model logic which preferentially sources CHPP and MIA water demand (several hundred megalitres a year) from SD10 via a filtration system (implemented in the 2022 calendar year) rather than directly from the borefield.

Due to the substantial volume of water stored onsite (refer to Figure 3-7) through 2022 and 2023, only 13.6 ML was imported from the borefield during the 2022/2023 water year. The SWB model predicted zero water imports during 2022 and 2023 which is consistent with the observed values.

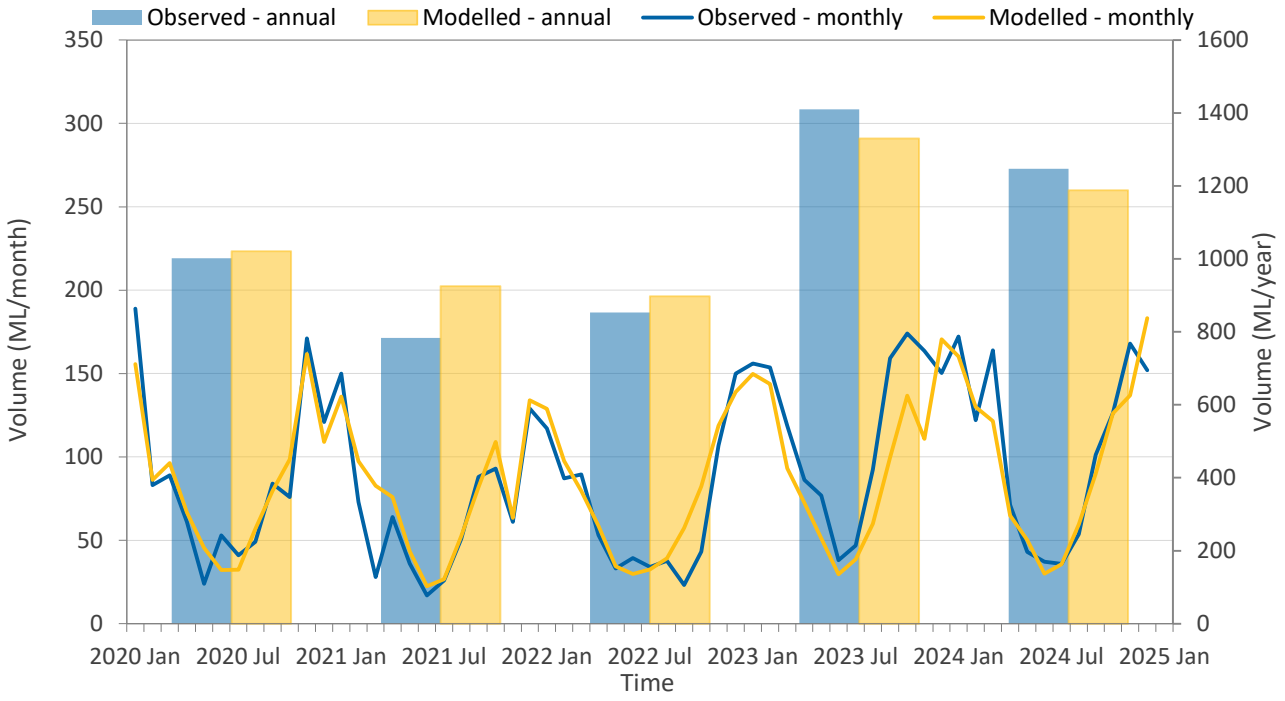
The water balance model predicted that all water take in 2024 would occur in the first half of the year (i.e. during the 2023/2024 water year). BCM recorded a water take volume of 177 ML (refer to Figure 3-7) in the first half of 2024, however 353 ML was extracted over the full year. The model predicted a water take volume of 510 ML for 2024 which is 31% greater than the actual take for 2024. The difference in water take timing and volume can be attributed to differences between the model logic and operational decisions.

3.3.3 Dust suppression

Monthly and annual modelled dust suppression use is compared to observed values in Figure 3-6. Modelled dust suppression usage generally shows a good match to observed values. Annual modelled dust suppression values range from 18% higher than observed values in 2021 to 6% less than observed values in 2023. Monthly modelled dust suppression is shown to follow similar trends to observed values (i.e. higher in summer and lower in winter).

Total haul road area and the applied evaporation rate both have a degree of uncertainty around them when estimating dust suppression, as such the small variance from observed usage is acceptable for the SWB model. The methodology for modelling dust suppressions is outlined in Appendix B.3.7.

Figure 3-6: Observed vs modelled dust suppression



3.3.4 Validation outcome

The validation of the SWB model against total and key storage volumes, water import, and dust suppression was found to provide a suitable estimation of observed values. As a result, the SWB model is considered adequate and suitable to forecast conditions for the LOM. Recommendations to improve validation outcomes and the veracity of the model in future model updates are made in Section 5.1.

3.4 Forecast model results

The SWB model was used to forecast the performance of the BCM WMS over the LOM to assess the risk of water shortfall or water excess and to allow for mine planning to be undertaken to mitigate potential risks.

The SWB model was run for a total of 130 times using simulated rainfall and evaporation conditions sampled from the historical climate record (refer to Appendix A). The results of the simulation are presented in the following sections.

3.4.1 Model results summary

The median annual site water balance for the 2025, 2026, 2028, 2033 and 2036 mine years is provided in Table 3-1. It should be noted the median values of the different inflows and outflows do not coincide and result in an increase or decrease in site water storage volumes. Unlike mean values, the median of the total inflows and total outflows do not balance exactly. Nonetheless, median values have been shown as they are a more representative measure of central tendency for processes with skewed distribution such as rainfall/runoff.

Table 3-1: Median site water balance for select mine years

Water management system component	2025	2026	2028	2033	2036
Inflows (ML)					
Runoff and direct rainfall:					
• Dirty water storages	119	118	381	444	439
• Contaminated water storages and pit	655	634	437	426	416
Groundwater interception	424	582	238	230	127
Imported water from borefield	747	573	819	647	752
Import water from additional sources	0	0	0	0	0
Total inflows (ML)	1,945	1,906	1,876	1,747	1,734
Outflows (ML)					
Demands:					
• Dust suppression – haul roads	1,246	1,444	1,432	1,154	1,159
• CHPP/MIA	310	310	311	310	311
Evaporation:					
• Dirty water sediment dams	37	40	137	221	233
• Contaminated water dams, MWDs and pit	222	198	198	198	199
Discharges:					
• Dirty water sediment dams	0	0	0	0	0
• Mine water dams and pit	0	0	0	0	0
Total outflows (ML)	1,816	1,992	2,079	1,883	1,902
Change in storage (ML)	87	-15	40	12	15

The SWB model results presented in Table 3-1 indicate water imported from the borefield represents between 30% and 44% of total median inflows. Rainfall and runoff make up between 39% and 50% of total median inflows while groundwater interception represents between 7% and 31% of total median inflows. Import from additional water sources is not predicted to be required under median conditions.

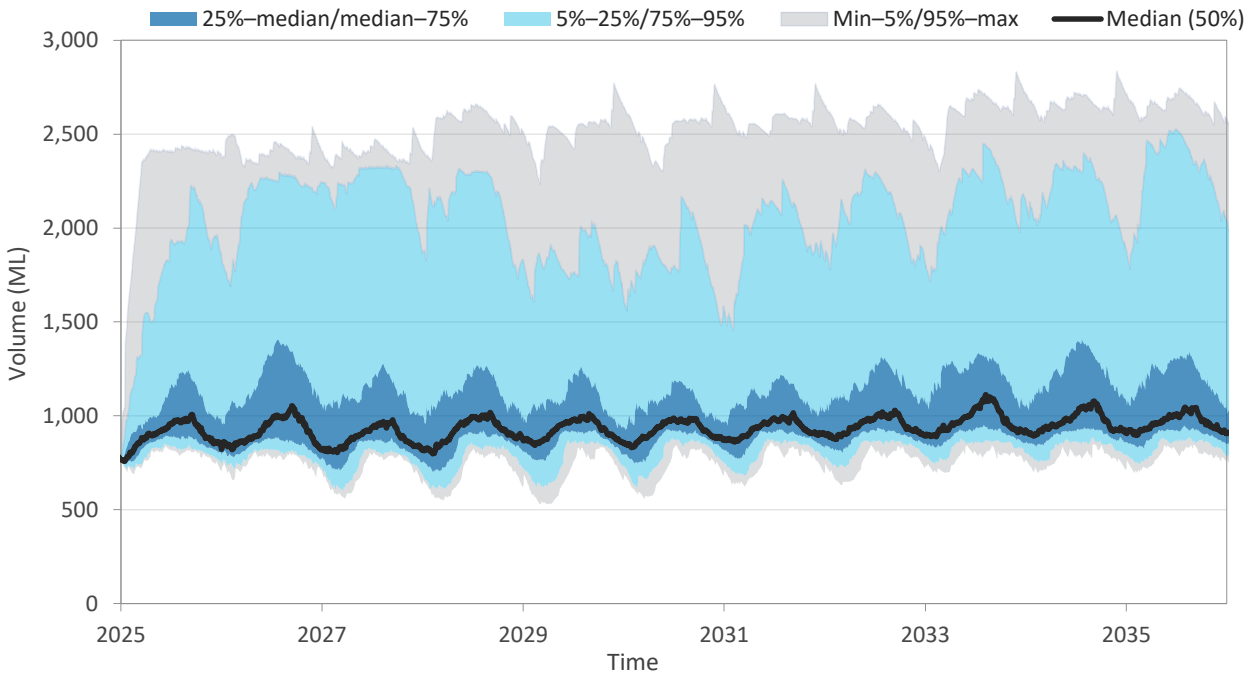
Water used for dust suppression is the largest outflow from the system, representing between 61% and 72% of total median outflows. CHPP and MIA water demand represent between 15% and 17% of total median

outflows while evaporation losses range from 12% to 23% of total median outflows. No discharges are expected under median conditions.

3.4.2 Total site storage

Forecasted estimates for total site storage volume (less the volume stored in the pit) are shown in Figure 3-7. The results are presented as the range between the minimum and 5th percentile, 5th percentile and 25th percentile, 25th percentile and median, median and 75th percentile, 75th percentile and 95th percentile, and 95th percentile and maximum values. Note the percentile values for stored volumes represent the daily results, whereas the values shown in Table 3-1 represent annual results.

Figure 3-7: Modelled daily timeseries for total site volume

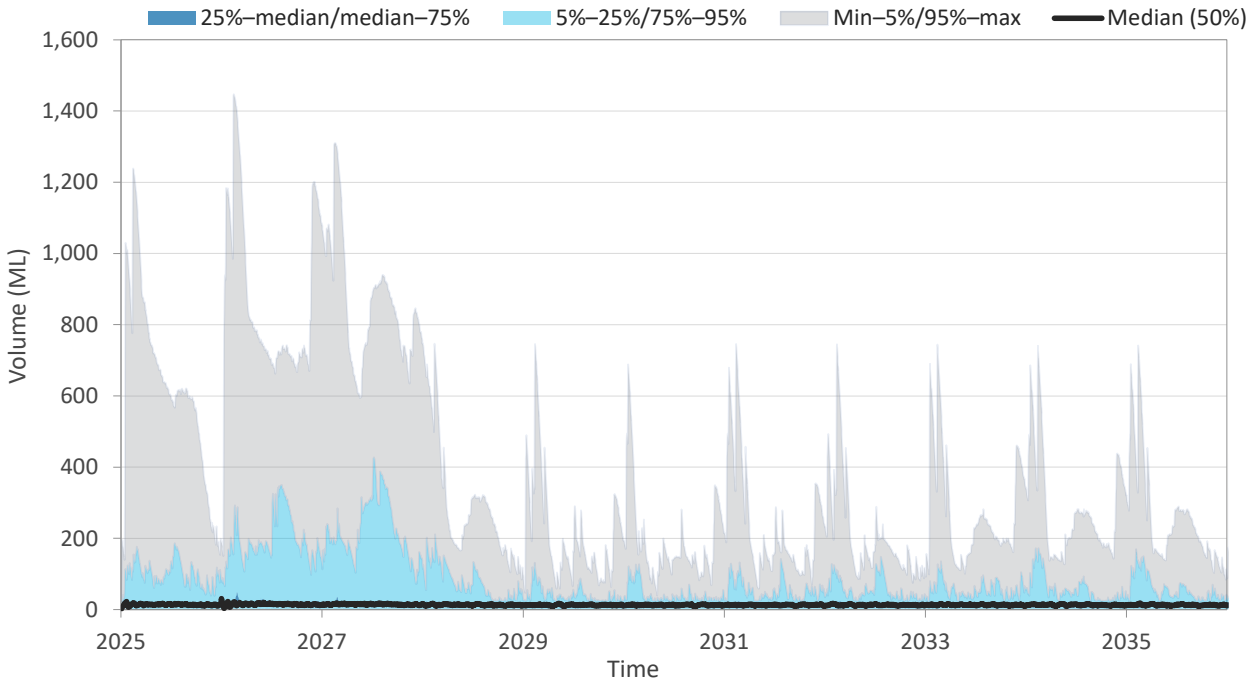


Total site storage is shown to remain relatively stable as the mine progresses with minimum to 75th percentile value range tightly grouped to the median result (shown as the black line). This is expected as the mine is generally in water deficit on an annual basis as rainfall and runoff volumes are typical less than water demands. Hence, the volume of stored water in the system is maintained at a constant level due to imports from the borefield. The 75th percentile to maximum result represents the WMS response to significant wet weather periods that could occur in the future (based on historical rainfall events).

3.4.3 Water stored in the pit

Forecasted model results of water stored in the pit over the LOM are provided in Figure 3-8. The pit void is predicted to be empty most of the time with the maximum predicted volume stored in the pit estimated at 1,400 ML. The volume of water that is expected to be stored in the pit decreases over time as the contributing catchment area to the pit decreases as rehabilitation progresses.

Figure 3-8: Modelled daily timeseries of water stored in-pit



3.4.4 Water supply reliability

Annual predicted water imports (based on the water year) over the LOM are shown in Figure 3-9. The volume of imported water is compared to BCOPL's existing groundwater entitlements (1,028 unit shares) to extract from the borefield and surface water entitlements (322 unit shares) to extract from the Namoi River. BCOPL preferentially sources import water from groundwater sources and typically utilises account carryover as set out under the rules of the water sharing plan or the temporary trade of entitlement to meet onsite water demands. However, the use of river water is still an option and has therefore been included for consideration in this section.

Figure 3-9: Annual modelled water imports

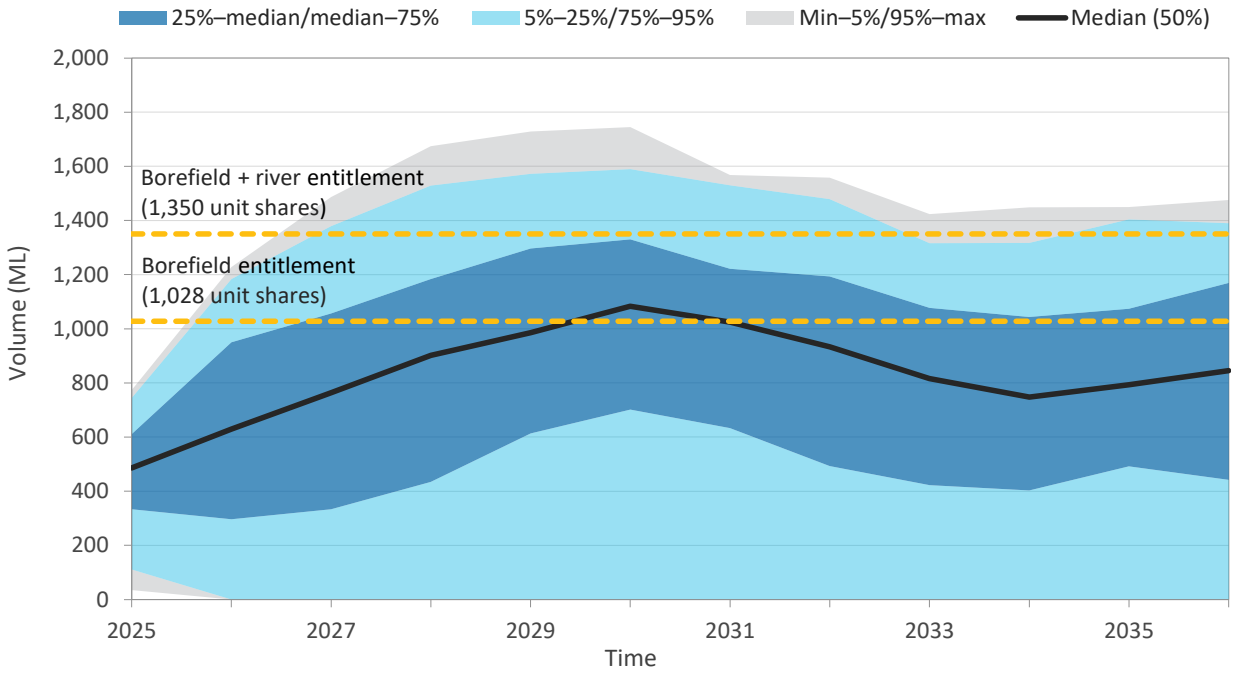


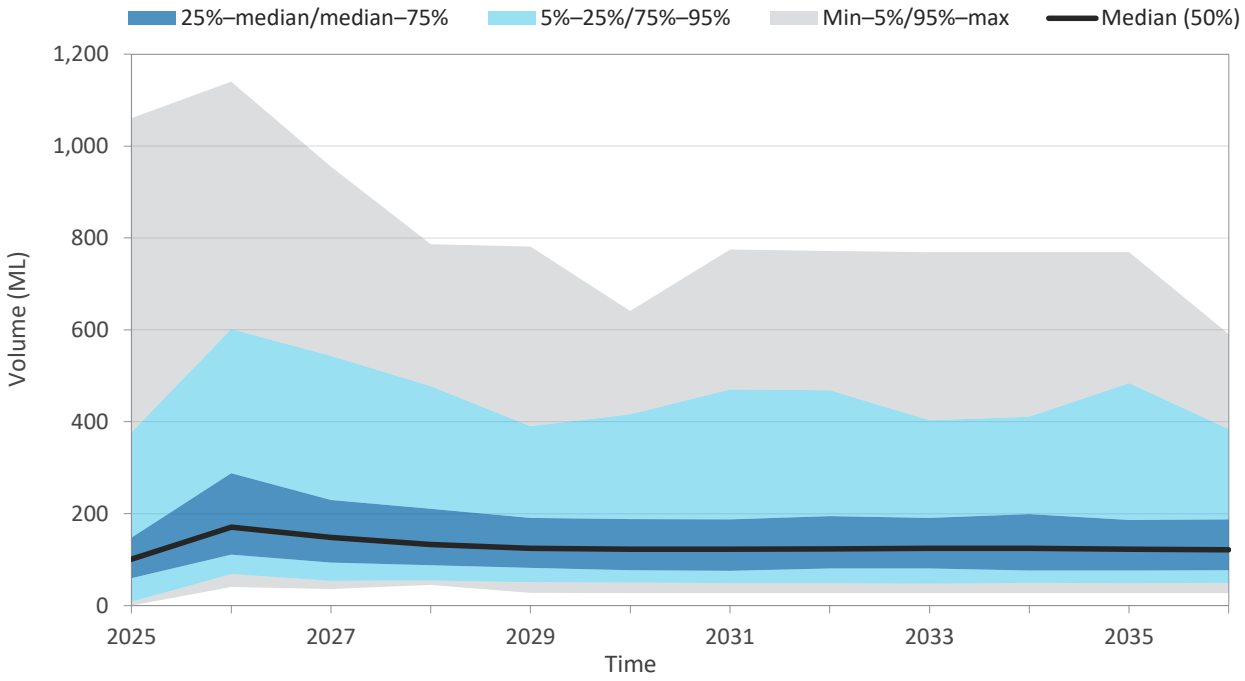
Figure 3-9 shows imported water is expected to peak at the end of 2030 due to increased dust suppression requirements associated with longer proposed haul roads and decreased runoff potential as larger areas of the existing mine void become rehabilitated. The maximum predicted volume of 1,745 ML/year exceeds BCOPL's existing groundwater and surface water entitlements by 395 ML. The probability of requiring additional water entitlements in excess of BCOPL's existing entitlements ranges from 5–25% per year over the LOM.

Condition 33 of the Project Approval requires BCOPL to have sufficient water for all stages of the Project, and if necessary, adjust the scale of mining operations on site, to match its available water supply. Historically, BCOPL have been able to successfully secure additional water requirements through temporary trade, including during the recent 2018/2019 drought. However, there is a risk mining operations may be impacted if BCOPL are unable to successfully temporary trade additional water entitlements to meet potential water demands in the future.

3.4.5 Intercepted catchment runoff

Annual runoff from undisturbed catchment area that is predicted to be intercepted over the LOM is shown in Figure 3-10. It should be noted the volumes shown in Figure 3-10 represent all intercepted runoff from undisturbed catchment areas including runoff that is licensable and runoff that does not require licensing due to exemptions.

Figure 3-10: Annual modelled intercepted undisturbed catchment runoff



The predicted volume of intercepted runoff generally decreases over time as mining progresses to the north, reducing the overall contributing catchment area. The median runoff volume over the LOM is 124 ML/year while the 75th percentile is 191 ML/year. BCOPL hold 93-unit shares in the Bluevale Water Source to account for the licensable portion of intercepted catchment runoff. Water accounting is completed quarterly using recorded data and the SWB model. This allows for the actual volume of water take to be accounted for in the year that the take occurs and for the total catchment area that requires licensing to be modified as mining progresses. Additional entitlements are purchased via temporary trade should the SWB model indicate BCOPL may exceed their entitlement.

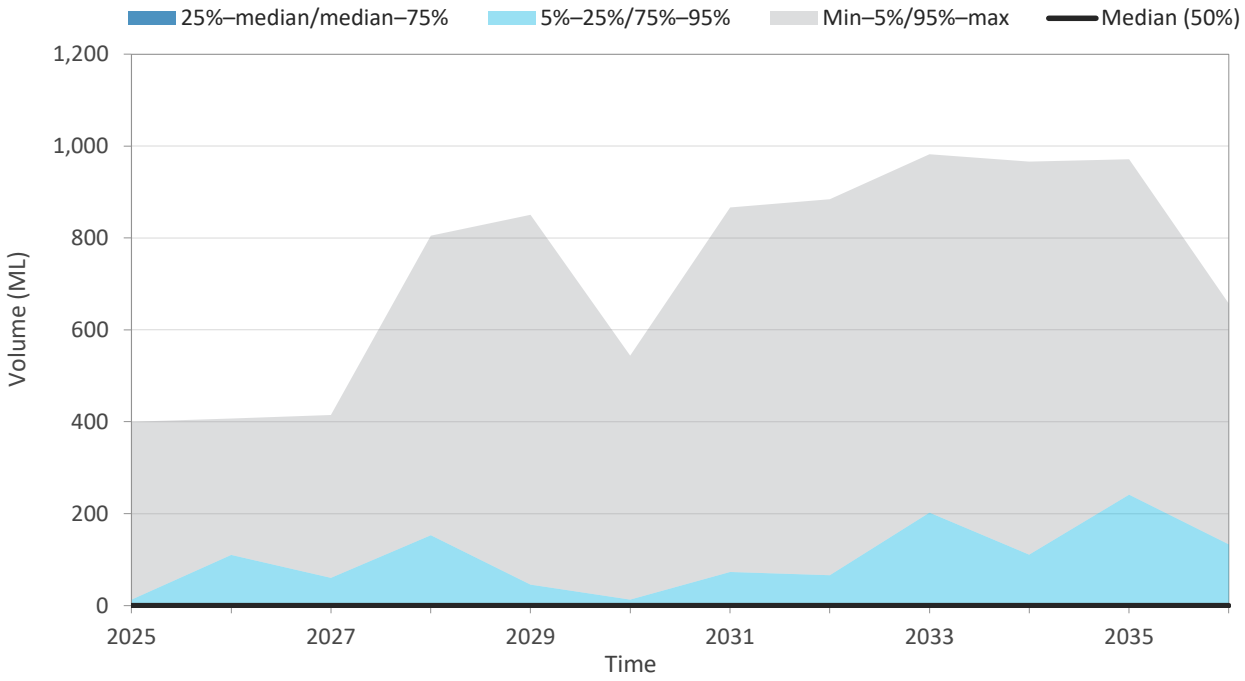
3.4.6 Modelled overflows

The modelled overflows from dirty water storages are shown in Figure 3-11. No overflows are predicted under median conditions due to the design capacity of MW5/MW11 providing storage space for dirty water runoff in small to moderate rainfall events.

The occurrence of dirty water discharges generally increases over the LOM as rehabilitation progresses and a larger portion of the disturbance area drains to dirty water dams rather than the mine void. A maximum dirty water overflow of up to 982 ML/year is predicted to occur in 2033 when a substantial portion of the disturbed area will drain to sediment dams which are not currently proposed to be harvested from for reuse onsite.

No overflows from contaminated water dams are predicted for the LOM. Any excess contaminated water will be stored in the pit to prevent overflows.

Figure 3-11: Annual modelled dirty water overflows



4.0 WATER EFFICIENCY INITIATIVES

The action plan to implement water efficiency initiatives and the recommendations (Advisian, 2016) referenced in Appendix 6A of the Project Approval are provided in Table 4-1.

Table 4-1: Water balance initiatives action plan

Action plan	Schedule
BCOPL water efficiency initiatives	
Propose water efficiency initiatives.	Annually during the SWB review process
Report on the effectiveness of water efficiency initiatives.	Annually in the Annual Review
Water efficiency initiatives (Project Approval Appendix 6A)	
Install meters for all major water flows including:	
Water transfers from sediment dams and mine pits into mine water storages.	Complete
All water-cart fill points.	Complete
All elements of the anticipated water demand for various purposes associated with CHPP (as identified in Table 4 of the letters dated 8 July).	Complete
All water imports including any bore water obtained onsite.	Complete
Install water level meters on all significant water storages as a check on inflows and outflows and a means of assessing evaporation and seepage losses. This data will also provide a basis for improving estimates of runoff from different surface types (hardstand, mine pit, “raw’ overburden, etc.).	Complete
Collect moisture content data for all coal flows associated with the CHPP to permit full water balance accounting.	In progress
Record all flow meters and water levels at least weekly (preferable by means for continuous recording) and analyse the data on a monthly basis to develop a full accounting of all water sources and losses.	Complete
Compare monitored gains from rainfall and losses by evaporation from water storages to the rainfall and evaporation data from the weather station.	Modelled storage volumes are compared to observed storage volumes in Section 3.4.
Update the site water balance annually based on monitored data and provide details in the Annual Report to the Department.	Commitment to update annual SWB provided in Section 5.2.

5.0 ANNUAL IMPROVEMENT PROGRAM

5.1 Recommended improvements

BCOPL undertake annual reviews to identify and address deficiencies and make improvements to the monitoring, measurement, and calculation methods presented in the SWB. The results of the improvement program will be incorporated into the annual revision of the SWB.

It is recommended the following elements of the water balance are reviewed as part of the 2025 SWBR:

- Model calibration – verification of water import volumes following the implementation of water efficiency initiatives at SD6 and SD10 was limited in 2022 and 2023 due to extended wet weather removing the need to import water (refer to Section 3.3.2). Water import volumes were similar between modelled and observed values over the 2024 calendar year. The performance of modelled water imports should be reviewed again in 2025 and if necessary, calibration should be reviewed accordingly.
- Review of AWBM parameters – data from the expanded BCM surface water monitoring program should be utilised to improve calibration of the AWBM runoff parameters including for undisturbed catchment areas.
- Water storage staging – the staging of any new storages or storage upgrades should be reviewed to make sure they are current for the 2025 calendar year and forecasted mine plan.

5.2 Validation program

BCOPL is committed to performing a validation of the SWB model annually. In this validation procedure, the existing model is used to simulate the WMS for the previous year using observed climate data as an input. The modelled results such as water imports, dust suppression water use, and storage volumes (total, MW5, and SD10) are then compared to observed values.

If the SWB model is not representative of the WMS, an investigation into any discrepancies will be conducted with the aim of calibrating the model correctly. The updated model will be used to update the predictions described in Section 3.4.

A summary of the annual validation program outcomes will be included in the Annual Review report.

6.0 REPORTING AND REVIEW

6.1 Reporting

General and specific reporting requirements relevant to this SWBR are described in Table 6-1.

Table 6-1: Reporting requirements

Reporting aspect	Reporting procedure
Annual Return	EPL 12407 contains conditions that require BCOPL supply the EPA with an Annual Return. Details of the Annual Return reporting requirements and procedures are documented in the WMP.
Incidents and non-compliance	BCOPL will manage and report environment incidents, complaints, non-conformances with relevant statutory requirements and exceedances of performance criteria as outlined in the BCOPL Incident Management Standard and documented in the WMP.
Annual SWBR	BCOPL will prepare an annual SWBR in accordance with Schedule 3, Condition 38 of the Project Approval. A summary of the annual SWBR will be included in the Annual Review report for each calendar year.

6.2 Review

General and specific review requirements relevant to this SWBR are described in Table 6-2.

Table 6-2: Review requirements

Review aspect	Review procedure
Annual Review	BCOPL prepares and submits an Annual Review with respect to the environmental performance of the development to relevant agencies. Details of the Annual Review requirements are documented in the WMP.
SWB review	BCOPL will review the SWB in accordance with Schedule 5, Condition 4 of the Project Approval. Details of the review process are documented in the WMP.

7.0 REFERENCES

- Advisian (2016). *Peer Review of Site Water Use Aspects of Boggabri Coal MOD5 Project*.
- AGE (2020). *Boggabri, Tarrawonga, Maules Creek Complex Groundwater Model Update*.
- AGE (2022). *Groundwater Impact Assessment Boggabri Coal Mine MOD 8 Amendment to SSD 09_0182*.
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- BCOPL (2024). *Boggabri Coal Mine - 2023 Site Water Balance Report*.
- Boughton 2004. *Australian water balance model. Environmental Modelling & Software 946-956.*
- DECC (2008). *Managing Urban Stormwater: Soils and Construction, Volume 2E – Mines and quarries*.
- DECCW (2006). *NSW Water Quality and River Flow Objectives*.
- Engeny (2022). *Boggabri Coal Mine Modification 8 Amendment: Updated Surface Water Assessment*.
- Hansen Bailey (2010). *Continuation of Boggabri Coal Mine Environmental Assessment*.
- JBA (2022). *Boggabri Coal Mine Modification 8: Amendment Report*.
- Landcom (2004). *Managing Urban Stormwater - Soils and Construction. 4th edition*.
- WSP (2010). *Boggabri Coal Mine Project Surface Water Assessment*.

8.0 ABBREVIATIONS

Abbreviation	Definition
ARI	Average Recurrence Interval
ASCF	Aboriginal Stakeholder Consultation Forum
BCM	Boggabri Coal Mine
BCOP	Boggabri Coal Operations Pty Ltd
BCSD	Department of Planning and Environment – Biodiversity Conservation and Science Division
BCT	Boggabri Coal Terminal
BMP	Biodiversity Management Plan
BOA	Biodiversity Offset Areas
BTM	Boggabri, Tarrawonga, Maules Creek
CBIMP	Common Boundary Integration Management Plan
CCC	Community Consultative Committee
CEC	Cation Exchange Capacity
CFMP	Clearing and Fauna Management Protocol
CHMP	Cultural Heritage Management Plan
CHPP	Coal Handling and Preparation Plant, including By-pass crusher
CL	Coal Lease
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DA	Development Application
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DECC	Former Department of Environment and Climate Change
DECCW	Former Department of Environment, Climate Change and Water
DPI	NSW Department of Primary Industries
DPE	Former Department of Planning and Environment (now Department of Planning Housing and Infrastructure (DPHI))
DPHI	Department of Planning Housing and Infrastructure
DRE	Former NSW Department of Trade and Investment - Division of Resources and Energy

Abbreviation	Definition
DRG	Former Department of Planning and Environment – Division of Resources and Geoscience
DTIRIS	Former NSW Department of Trade and Investments, Regional Infrastructure and Services
EA	Environmental Assessment
EC	Electrical Conductivity
EMPs	Environment Management Plans
EP&A Act	Environmental Planning and Assessment Act, 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act, 1999
EPL	Environment Protection Licence
GMP	Groundwater Management Plan
GSC	Gunnedah Shire Council
IA	Idemitsu Australia Pty Ltd
Km	Kilometre
MCA	Minerals Council of Australia
MEG	Department of Regional NSW – Mining, Exploration and Geoscience
MIA	Mine Infrastructure Area
ML	Mining Lease
Mt	Million Tonnes
Mtpa	Million Tonnes Per Annum
NOW	Former NSW Office of Water
NSC	Narrabri Shire Council
NSW	New South Wales
OEH	Former NSW Office of Environment and Heritage
PAC	Former NSW Planning and Assessment Commission
PAF	Potentially Acid Forming
POEO Act	Protection of the Environment (Operations) Act, 1997
Resources Regulator	Department of Regional NSW – Resources Regulator
RMP	Rehabilitation Management Plan

Abbreviation	Definition
RL	Relative Level
RMS	NSW Roads and Maritime Services
ROM	Run of Mine
SCMP	Spontaneous Combustion Management Plan
SD	Sediment Dam
SWB	Site Water Balance
SMP	Soil Management Protocol
SWC	State Water Corporation
SWMP	Surface Water Management Plan
t	Tonne
TARP	Trigger Action Response Plan
TCPL	Tarrawonga Coal Pty Limited
TSS	Total Suspended Solids
WMP	Water Management Plan
WMS	Water Management Strategy

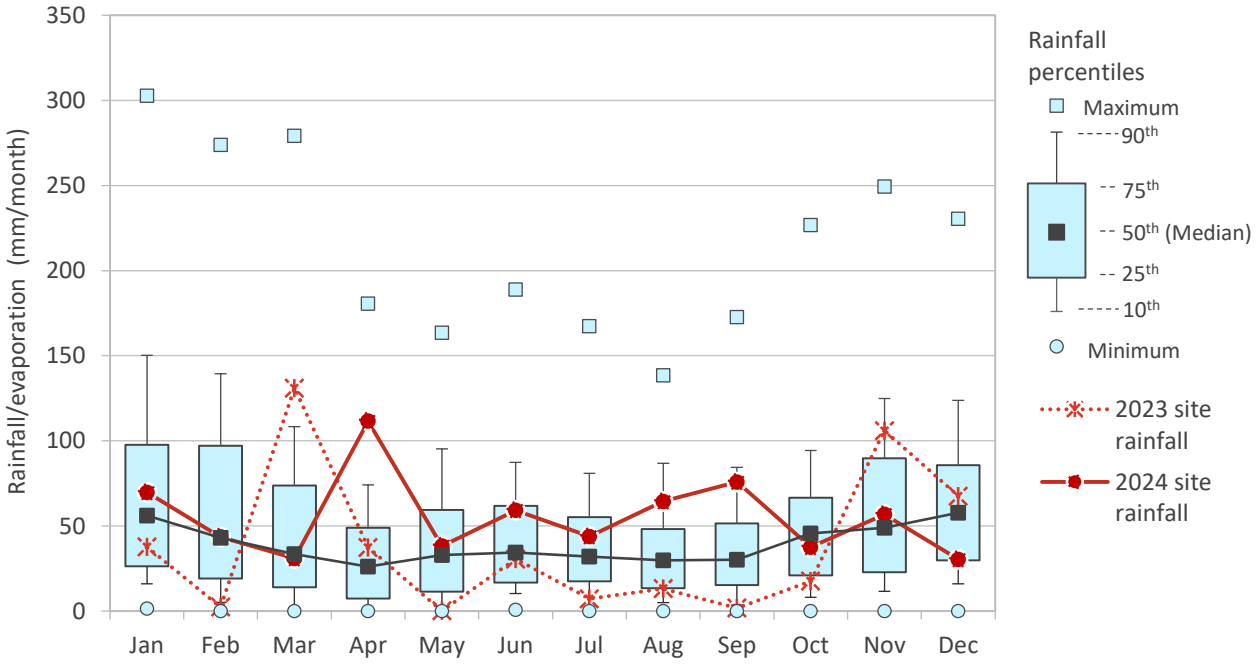
Appendix A
Climate data

A.1 Rainfall data

Daily rainfall data at the Boggabri Post Office gauge was obtained as SILO (Scientific Information for Land Owners) patched point data from the Queensland Climate Change Centre of Excellence. SILO patched point data is based on historical data from the BoM rainfall stations, with missing data 'patched' in by interpolating data from nearby operating stations. SILO data was obtained for Boggabri Post Office gauge from January 1889 to December 2024.

Monthly rainfall statistics for the Boggabri Post Office gauge are shown in Figure A-1. Monthly rainfall totals for the 2023 and 2024 calendar year recorded at the site rainfall gauge are also shown for comparative purposes.

Figure A-1: Monthly rainfall statistics – Boggabri Post Office and site rainfall gauge



Rainfall during the 2023 calendar year was generally drier than typical conditions with most months exceeding the historical median value at Boggabri Post Office gauge. Rainfall during the 2024 calendar year was generally wetter than the historical median at Boggabri Post Office gauge. Monthly rainfall totals in 2023 in March, April, November and December had above average rainfall totals with March exceeding the 90th percentile rainfall totals (i.e. rainfall conditions that are only exceeded in 10% of years). All other months had below average rainfall totals with February, May, July and September totals below the 10th percentile indicating an extremely variable rainfall year. Conversely, 2024 rainfall only exceeded the 90th percentile rainfall total in April. All other months had above average rainfall totals excluding March, October and December. The 2023 annual rainfall total at the site gauge of 453 mm is approximately equivalent to a 20th percentile rainfall year based on the 135 years of rainfall data at the Boggabri Post Office gauge, whilst the 2024 annual rainfall of 662 mm equates to roughly a 60th percentile rainfall year.

A.2 Evaporation data

Daily evaporation rates were obtained as SILO patched point data at the Boggabri Post Office gauge over the January 1889 to December 2024 period. Evaporation data was sourced as Class A pan evaporation, Morton's potential evapotranspiration, and Morton's shallow lake evaporation.

The BoM records daily evaporation data at the Gunnedah Resource Centre (GRC) (055024) weather station which is approximately 46 km south-east of the site. The GRC weather station has recorded evaporation data since 1948. The Gunnedah Resource Centre evaporation data is compared to the SILO patched point data for Boggabri Post Office in Figure A-2. The comparison is intended to provide confidence the SILO data reflects actual recorded evaporation values. Average monthly rainfall totals are also presented in Figure A-2 for context.

Figure A-2: Monthly pan evaporation rates – Boggabri Post Office

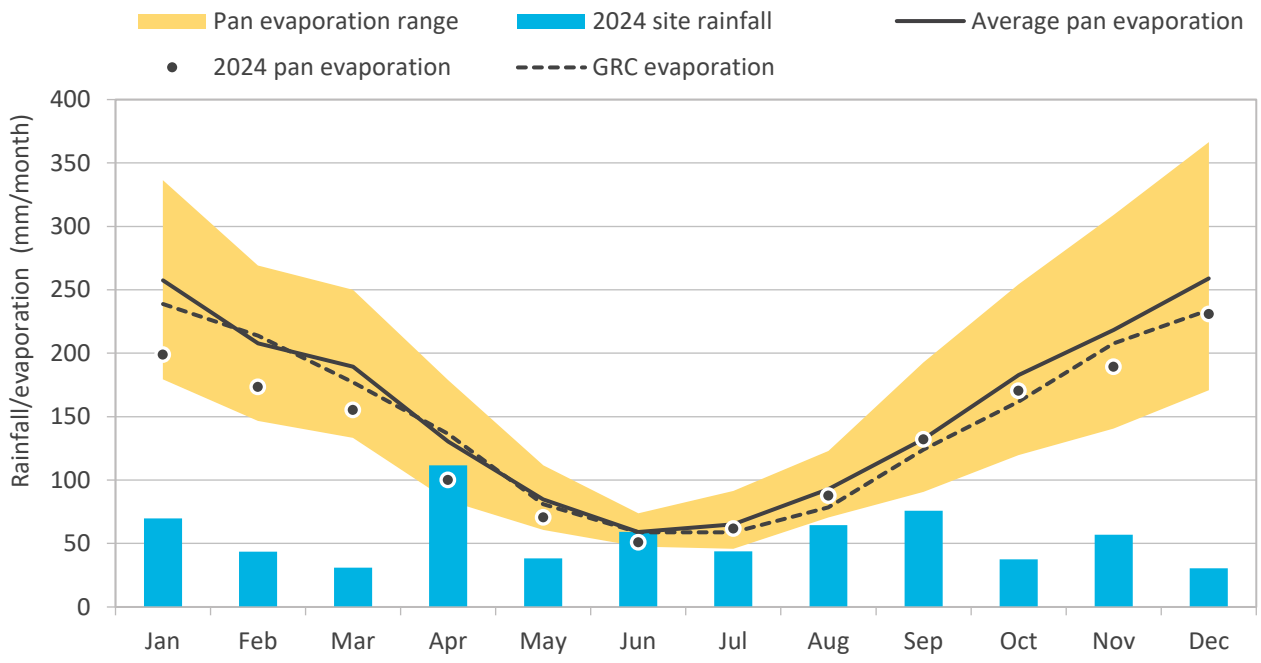


Figure A-2 shows the long-term average data from the SILO patched point data at Boggabri Post Office matches well with the data recorded at the GRC. Monthly evaporation totals are up to four times larger in summer compared to winter. Monthly evaporation totals are shown to have substantially exceeded monthly rainfall totals in most months over the 2024 calendar year.

Appendix B
Water balance methodology

B.1 Overview

The Site Water Balance (SWB) model was developed in GoldSim (version 14). The model applies a continuous simulation methodology that assesses the performance of the Boggabri Coal Mine (BCM) water management system (WMS) under a range of climate conditions. The model was created by representing the WMS as a series of elements, each containing pre-set rules and data, that were linked together to simulate the interaction of these elements.

The water balance model simulated the volume of water stored within the BCM WMS based on the following equation:

Change in volume over time = inflows – outflows

Where:

- Modelled inflows consisted of direct rainfall onto the water surface area of each storage, catchment runoff, groundwater inflows, and make up water imported from the BCM borefield and the Namoi River.
- Modelled outflows consisted of evaporation from the water surface area of each storage, dust suppression water use, Coal Handling and Preparation Plant (CHPP) and Mine Infrastructure Area (MIA) water use, and via discharge from storage outlets due to overflows.

The modelled WMS including how each component is linked is shown schematically in Appendix C.

B.2 Modelling approach

B.2.1 Simulation period

The SWB model simulates the historical WMS performance (back to approximately 2019) for verification purposes as well as the next 11 years (between 2025 and 2036) of the Life-of-Mine (LOM) for forecasting purposes. The simulation period can be updated as needed to investigate a shorter or longer LOM or future operational scenarios.

The SWB model includes 135 years of historical rainfall and evaporation data allowing the LOM to be simulated using a range of climate conditions (refer to Appendix C).

B.2.2 Timestep

Water is pumped across the BCM WMS based on pre-determined rules and pump rates (refer to Table B-4). Daily pump rates for some transfers, such as those between MW5 and SD23 to meet dust suppression demands, may exceed the actual volume of water that requires pumping in each day resulting in more water being transferred than what would occur under actual operations.

A sub-daily timestep is required to allow less than the maximum daily pump rate to be transferred per day. The SWB model applies a 6-hour timestep to adequately simulate the ability to operate pumps at sub-daily intervals.

B.3 Model assumptions

B.3.1 Climate

Rainfall

Historical daily rainfall data from 1889 to 2023 (135 years) obtained as patched point data from the SILO database, as discussed in Appendix A was applied the SWB model. Daily rainfall was applied to calculate direct rainfall onto the simulated water surface of each modelled storage whereby the volume of direct rainfall was calculated as the product of the simulated rainfall depth and the water surface area of the storage, calculated from surveyed stage-storage-area relationships.

Daily rainfall was also applied to the rainfall runoff model described in Appendix B.3.2 to estimate runoff from the WMS contributing catchment.

Evaporation

Daily evaporation rates at the Boggabri Post Office gauge were obtained as SILO patched point data from 1889 to 2023 (135 years). Evaporation data was sourced as Morton's potential evapotranspiration and Morton's shallow lake evaporation and applied to the SWB model as follows:

- Morton's potential evapotranspiration – applied to the rainfall runoff model and to calculate dust suppression demand.
- Morton's shallow lake evaporation – applied to calculate evaporation from pond water surface areas.

B.3.2 Runoff model

Australian Water Balance Model (AWBM) overview

The volume of surface water runoff from the mine site catchment has been estimated using the Australian Water Balance Model (AWBM). The AWBM was developed by Boughton (2004) and is widely used across Australia to estimate stream flow and runoff. The AWBM has been incorporated into the SWB model.

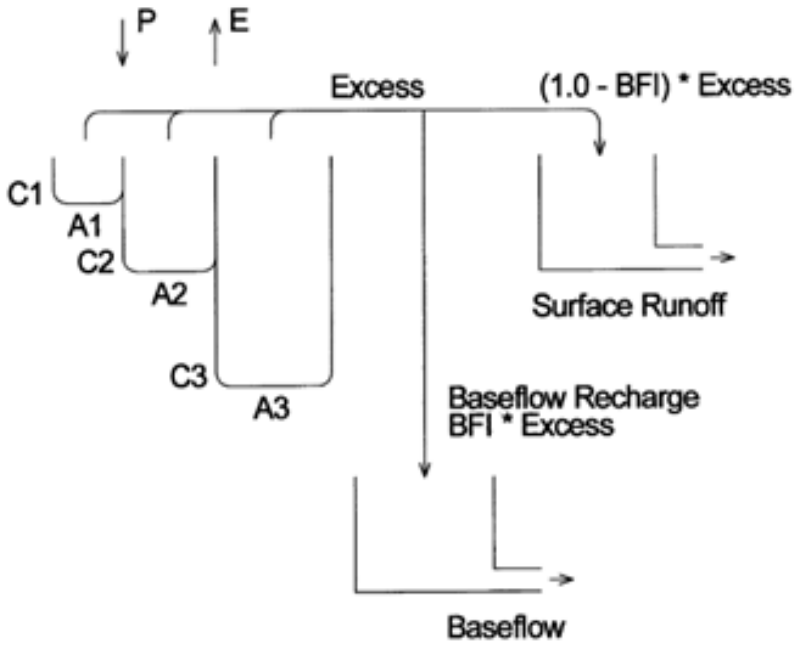
The AWBM is a 'bucket model'. It describes catchment runoff processes using the concept of surface stores (buckets), which trap rainfall and must fill before runoff can occur. Spatial variability is incorporated by using three stores, each with a different capacity (C1, C2 and C3) and partial areas (A1, A2 and A3, where A1+A2+A3=1). Hence, parts of the catchment generate runoff after only a small depth of rain has fallen, while other parts of the catchment only generate runoff after significant ponds have formed and overflowed.

Since the AWBM is a continuous simulation model, antecedent moisture conditions within the catchment are tracked over time within the stores such that catchment wetness from preceding rainfall affects runoff generated by subsequent rainfall. For example, the first day of rain after a dry summer may generate a lower percentage of runoff than subsequent days of rainfall.

The AWBM was used to estimate catchment runoff from the various land use categories across BCM. The land use categories considered were undisturbed, rehabilitated spoil, industrial (hardstand and infrastructure areas), mining void (pit), active spoil and pre-strip.

A schematic of how the AWBM represents rainfall runoff is shown in Figure B-1.

Figure B-1: Schematic layout of the AWBM rainfall-runoff model (Boughton, 2004)



AWBM model parameters

The AWBM is defined by nine parameters: three soil storage capacities, three partial areas, and three recession parameters. The AWBM parameters were selected to reflect the different hydrological responses of each of the six catchment land use types included in the SWB model. The AWBM parameters applied to the SWB model are presented in Table B-1. The model validation results presented in Section 3.3 indicate the adopted AWBM parameters are representing the WMS processes adequately.

Table B-1: Adopted AWBM parameter values

Land use	BFI	K_{base}	K_{surf}	A1	A2	A3	C1	C2	C3
Industrial	0.0	0.0	0.0	0.134	0.433	0.433	10	35	85
Open cut	0.0	0.0	0.0	0.2	0.2	0.6	15	50	150
Pre-strip	0.2	0.98	0.0	0.134	0.433	0.433	15	60	150
Rehabilitation	0.6	0.99	0.0	0.2	0.2	0.6	20	120	200
Spoil	0.9	0.99	0.0	0.2	0.2	0.6	20	130	220
Undisturbed	0.05	0.98	0.0	0.134	0.433	0.433	13	120	200

B.3.3 Water storages

All water management dams to be included in the water balance model, and their key operating volumes, are summarised in Table B-2. BCOPL maintain an in-pit mine water dam (MWD) during operations. The in-pit MWD is typically relocated and renamed frequently as the mine progresses. However, the functionality of the storage to transfer water from the pit to MW5/MW11 and to provide a dust suppression fill point for the pit area remain similar over time.

Table B-2: Water storage assumptions

Storage	Type	Online	Dead storage (ML)	LOV (ML)	HOV (ML)	Capacity (ML)	Overflows to
Existing storages							
MW3	Contaminated water dam	-	1.0	5.0	131.0	153.5	Bollol Creek
MW5	Mine water dam	-	1.0	600	1,961	2,200	Pit
MWD	Contaminated water dam	-	1.0	1.0	33.8	92.8	Pit
Pit	Mining void	-	1.0	25.0	200.0	-	-
SD3	Sediment dam	-	16.7	33.3	34.3	102.3	Nagero Creek
SD6	Sediment dam	-	8.7	17.4	18.4	55.9	Nagero Creek
SD7	Sediment dam	-	11.7	23.3	24.3	95.1	Pit
SD8	Sediment dam	-	1.6	3.3	4.3	13.4	SD6
SD10	Mine water dam	-	9.7	19.4	61.7	116.4	SD6
SD11	Contaminated water dam	-	1.4	2.7	3.7	16.4	Nagero Creek
SD12	Contaminated water dam	-	17.2	34.4	35.4	206.6	Nagero Creek
SD23	Contaminated water dam	-	1.6	3.2	4.2	17.0	Pit
SD28	Sediment dam	-	1.0	0.6	1.6	3.5	Nagero Creek
Proposed storages							
SD19	Sediment dam	2028	30.0	60.0	61.0	179.9	SD3

Storage	Type	Online	Dead storage (ML)	LOV (ML)	HOV (ML)	Capacity (ML)	Overflows to
Existing storages							
SD20	Sediment dam	2033	7.0	13.9	14.9	41.8	SD19
SD21	Sediment dam	2033	9.3	18.5	19.5	55.6	Nagero Creek
SD22	Sediment dam	2033	1.0	0.8	1.8	2.4	Nagero Creek
SD24	Sediment dam	2033	1.2	2.4	3.4	7.3	Nagero Creek
MW11	Mine water dam	2025	1.0	600	2,000	2,200	Pit

B.3.4 Catchment areas

The contributing catchment area to each water management dam at several stages in the LOM are provided in Table B-3. The contributing catchment area to each storage is linearly interpolated between these years for the purposes of the water balance model.

It is assumed the Tarrawonga Coal Mine (TCM) catchment area to Nagero Creek discharging across the western boundary of mining lease 1579 discharges directly to Nagero Creek. However, it is understood that these discharges are captured within SD6. The volumes discharged from TCM are not expected to result in any material impact to the SWB model due to the relatively large volume of water storage available at BCM and have therefore been excluded from the SWB model.

Table B-3: Catchment areas over life of mine

Catchment	Catchment area (ha)				
	2024	2025	2026	2028	2033
Existing					
MW3	10.7	10.7	10.7	10.7	10.7
MW5	208	208	-	-	-
MWD	1.7	1.7	1.7	1.7	1.7
Pit	1,405	1,405	1,493	741	741
SD3	194	194	314	314	314
SD6	64	64	64	64	64
SD7	208	208	208	208	208

Catchment	Catchment area (ha)				
	2024	2025	2026	2028	2033
Existing					
SD8	10.9	10.9	10.9	10.9	10.9
SD10	32	32	32	32	32
SD11	3.9	3.9	3.9	3.9	3.9
SD12	46	46	46	46	46
SD23	57	57	-	-	-
SD28	0.6	0.6	0.6	0.6	0.6
Proposed					
SD19	-	-	-	657	657
SD20	-	-	-	95	95
SD21	-	-	-	-	116
SD22	-	-	-	-	7
SD24	-	-	-	-	17
MW11	-	-	57	57	57
Total	2,242	2,242	2,242	2,242	2,382

B.3.5 Pump transfers

The operating rules applied to pump transfers in the water balance model are summarised in Table B-4. All pumping operations and rules are based on the existing and proposed infrastructure. The pumps are modelled to switch on when the on trigger occurs and the specific conditions are true. The pump remains on until the off trigger occurs, or the conditions become false. The pump triggers and conditions are based on the low operating volume (LOV) and high operating volume (HOV) for each storage. It was assumed that pumping occurs at an average pump rate and no allowance has been made for changes to flowrate with changes in head.

Table B-4: Pump operating rules

Pump from	Pump to	Pump rate (ML/day)	On trigger	Off trigger	Conditions
Existing					
Pit	MW8	5.0 (10.0 if pit volume exceeds 200 ML)	Pit > LOV	Pit < LOV	MW8 < HOV
Pit	MW5	5.0 (10.0 if pit volume exceeds 200 ML)	Pit > LOV	Pit < LOV	MW5 < HOV
Pit	SD23	5.0 (10.0 if pit volume exceeds 200 ML)	Pit > LOV	Pit < LOV	SD23 < HOV
MW3	SD10	3.5	MW3 > HOV	MW3 < LOV	SD10 < HOV
MW5	MWD	5.0	MW5 > dead storage volume	MW5 < dead storage volume	MWD< HOV
MW5	SD23	5.0	MW5 > dead storage volume	MW5 < dead storage volume	SD23 < HOV
MW5	SD10	5.0	MW5 > dead storage volume	MW5 < dead storage volume	SD10 <HOV
SD3	SD12	5.0	SD3 > HOV	SD3 < LOV	SD12 < HOV Pit < HOV
SD6	SD10	2.0	SD6 > HOV	SD6 < LOV	SD10 < HOV Pit < HOV
SD7	SD12	10.0	SD7 > HOV	SD7 < LOV	SD12 < HOV
SD8	SD10	1.9	SD8 > HOV	SD8 < LOV	SD10 < HOV
SD10	MW5	10.0	SD10 > HOV	SD10 < HOV	MW5 < HOV
SD10	MW3	10.0	SD10 > HOV	SD10 < HOV	MW3 < HOV MW5 > HOV
SD10	Pit	10.0	SD10 > HOV MW3 > HOV MW5 > HOV	SD10 < HOV MW3 < HOV MW5 < HOV	-

Pump from	Pump to	Pump rate (ML/day)	On trigger	Off trigger	Conditions
SD11	SD10	2.0	SD11 > HOV	SD11 < LOV	SD10 < HOV
SD12	MW5	20.0	SD12 > HOV	SD12 < LOV	MW5 < HOV
SD23	MW5	3.0	SD23 > HOV	SD23 < HOV	MW5 < HOV
Proposed					
Pit	MW11	5.0 (10.0 if pit volume exceeds 200 ML)	Pit > LOV	Pit < LOV	MW11 < HOV
MW11	MWD	5.0	MW11 > dead storage volume	MW11 < dead storage volume	MWD < HOV
MW11	SD10	5.0	MW11 > dead storage volume	MW11 < dead storage volume	SD10 <HOV
SD10	MW11	10.0	SD10 > HOV	SD10 < HOV	MW11 < HOV
SD12	MW11	20.0	SD12 > HOV	SD12 < LOV	MW11 < HOV
SD19	MW11	3.0	SD23 > HOV	SD23 < HOV	MW11 < HOV

B.3.6 Water sources

Water prioritisation strategy

Water is required for several activities on site including dust suppression, use in the CHPP and as washdown water in the MIA. To minimise clean water use on site, water requirements are sourced from water storages and supplemented with imported water in the following priority:

1. surface water captured on site in contaminated water dams and sediment dams and stored in mine water dams
2. imported groundwater from the Upper Namoi Zone 4 Groundwater Source via the borefield
3. imported surface water from the Lower Namoi Regulated River Water Source via the pump station on the Namoi River.

The water balance model sources water in accordance with the above priorities. Further details on clean water management and water source prioritisation are provided in the SWMP.

Rainfall and runoff

Surface water runoff that drains into the water management dams is stored for use onsite. The volume of inflows to each storage is calculated as the sum of direct rainfall onto the storage water surface and the runoff generated from the contributing catchment.

The volume of direct rainfall is calculated as the product of the rainfall depth and the storage water surface area. Each storage includes a stage storage relationship whereby the assumed exposed surface area of stored water varies with the volume of water stored each day.

The volume of catchment runoff is calculated as the product of catchment area (refer to Table B-3) and the runoff depth calculated by the AWBM described in Appendix B.3.2.

Water Imports

External water supply can be sourced from the BCM borefield or the Namoi River via pump and pipeline. Water imports are triggered in the model when the volume of water stored in MW5/M11 recedes below the LOV of 600 ML. Water imports enter the WMS via SD10 prior to being pumped to the CHPP and MIA to meet water demands or MW5/M11 to meet dust suppression demands via the fill points in SD23 and the MWD. Water imports are assumed to occur at a rate of 5.6 ML/day.

Allowing MW5/M11 to drawdown to the LOV before importing water is intended to maximise the reuse of dirty and contaminated water stored on site before sourcing water from external sources.

Groundwater

Groundwater inflows to the mining void were adopted from *Groundwater Impact Assessment Boggabri Coal Mine MOD 8 Amendment to SSD 09_0182* (AGE, 2022), which represents the most current groundwater modelling results for the Boggabri, Tarrawonga, Maules Creek (BTM) Complex. The predicted annual groundwater inflow volumes for BCM were applied to the water balance model and are presented in Figure B-2.

Figure B-2: Estimated groundwater inflows to mining void (AGE, 2022)

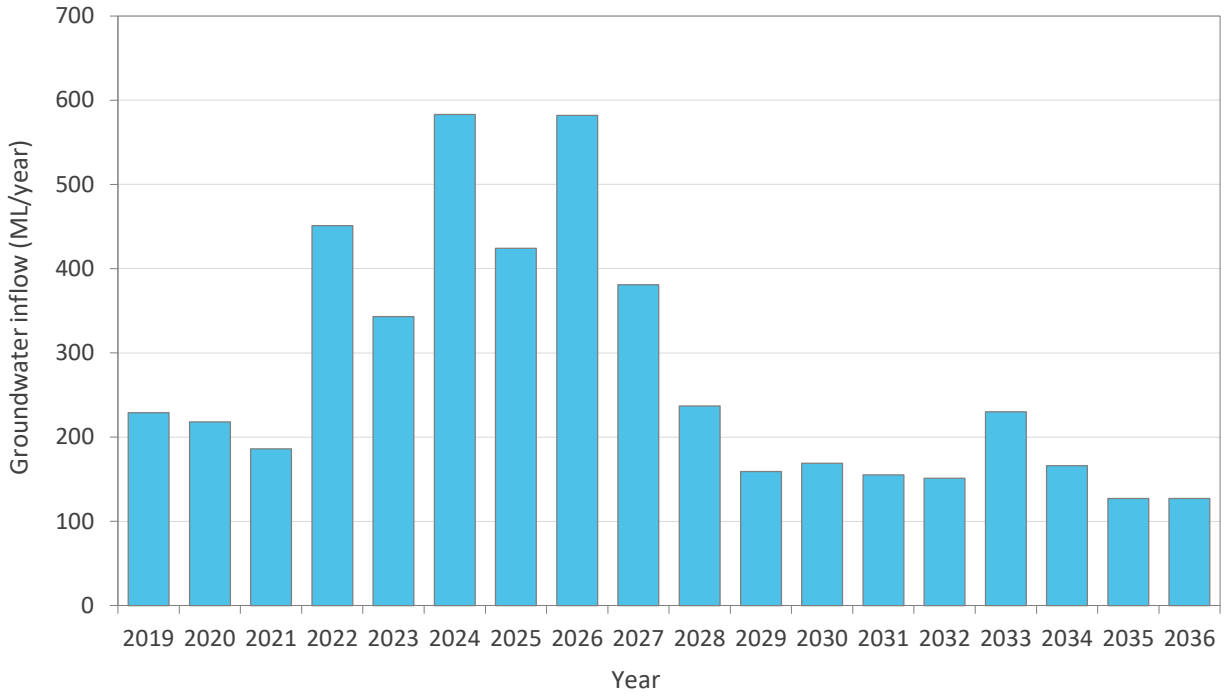


Figure B-2 shows groundwater inflows to the mining void are predicted to peak in 2024 and 2026. After which, groundwater inflows are predicted to gradually decline over the LOM so that inflows are approximately 150 ML/year from 2029 onwards. Some of the predicted groundwater inflows will be lost through evaporation. Any excess groundwater that is collected in the mine void is pumped to the water storages in accordance with the pump operational rules described in Table B-4.

B.3.7 Water demands

Evaporation

Evaporation loss from each storage water surface was calculated as the product of the daily Morton's shallow lake evaporation depth and the water surface area of the storage. Morton's potential evapotranspiration data was used in the AWBM runoff calculations to estimate soil moisture losses.

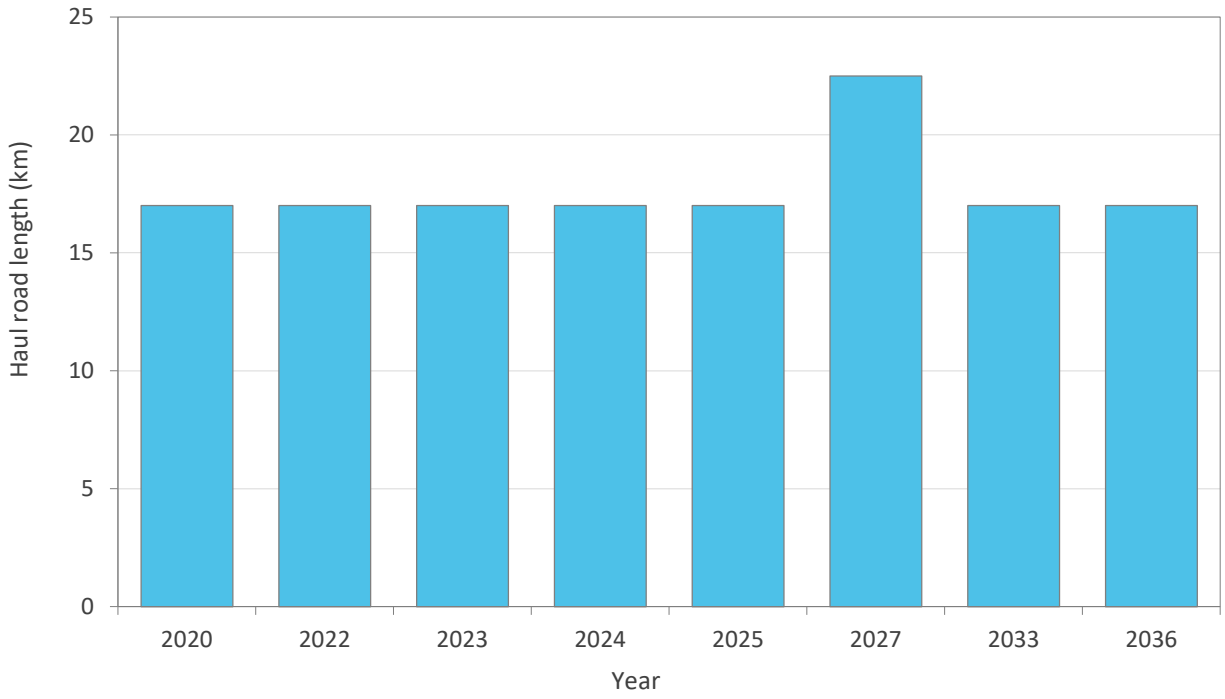
Dust Suppression

Water is required for dust suppression on haul roads and other disturbed areas. Dust suppression for the CHPP coal stockpiles, coal crushing areas, and coal loading areas and MIA are accounted for in the CHPP demands (refer to Appendix B.3.7).

Modelled dust suppression demand is calculated as a factor of haul road surface area multiplied by the daily evaporation rate less rainfall so that no dust suppression occurs on days where the rainfall rate exceeds the evaporation rate. An effective width of 50 m was assumed for all haul roads as calibrated in previous versions of the SWB model. Future hall length roads were adopted from the Modification 8 surface water impact assessment (Engeny, 2022) whereby values were interpolated between years. The haul road lengths applied to the SWB model are shown in Figure B-3.

Water used for dust suppression is preferentially sourced from recycled contaminated water from various storages depending on the mine progression. Currently, there are fill points at the MWD and SD23. There is also a fill point located at SD7 which is not currently being utilised.

Figure B-3: Haul road lengths applied to the SWB model



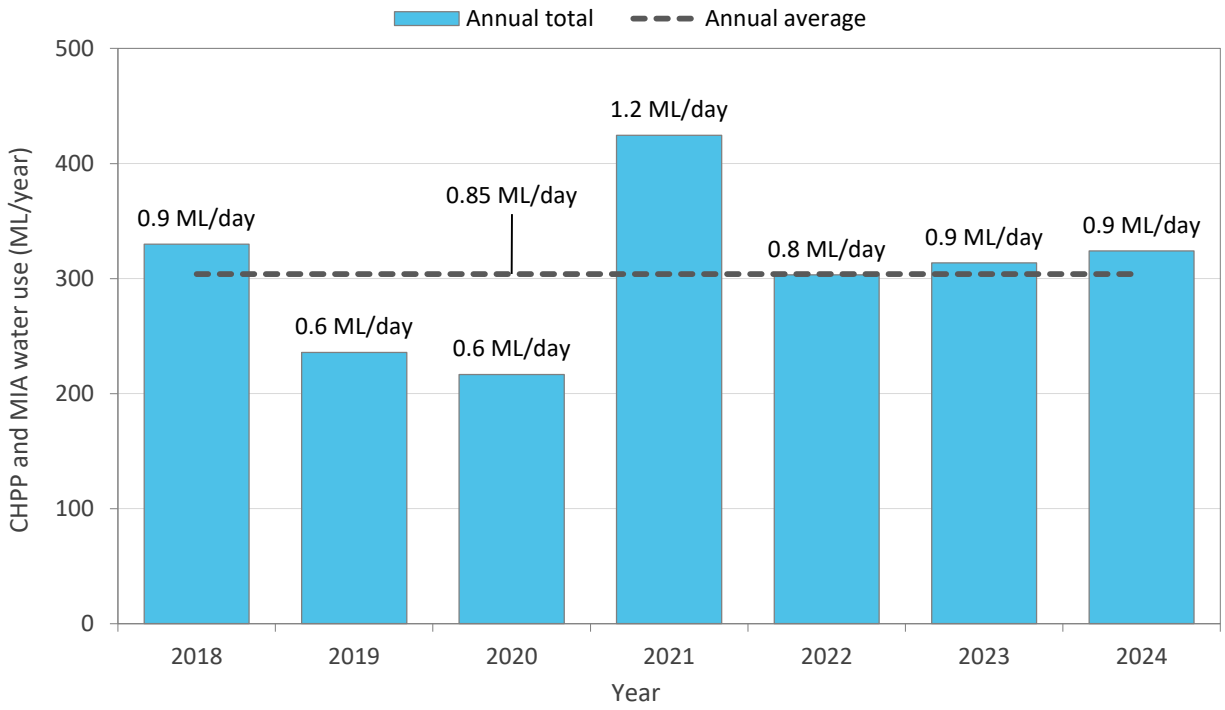
CHPP and MIA water demand

The CHPP requires water for coal washing, dust suppression, and as fire suppression. Water is required for vehicle washdown in the MIA. Washdown water is recycled, however, water is required to make-up evaporative losses. Make-up water for the CHPP and MIA is currently sourced from SD6 and SD10 via a filtration system.

Potable water is used in the administration building and amenities during operations. Potable water is currently sourced from groundwater entitlements (WAL 29473) assigned to the Lovton Bore. Wastewater from the administration building and amenities will be treated in an onsite treatment plant. Potable water demand and wastewater generated by the onsite treatment plant were not considered in the water balance analysis due to the relatively minor volumes involved.

A combined CHPP and MIA water demand of 0.85 ML/day was applied the water balance model based on recent historical recorded values which are shown in Figure B-4. The demand is simulated in the model as a constant flow rate that is extracted from SD10. The assumption of a constant flow rate is appropriate for the purpose of the SWB model as actual day to day variations in operations will be attenuated by the water storage on site.

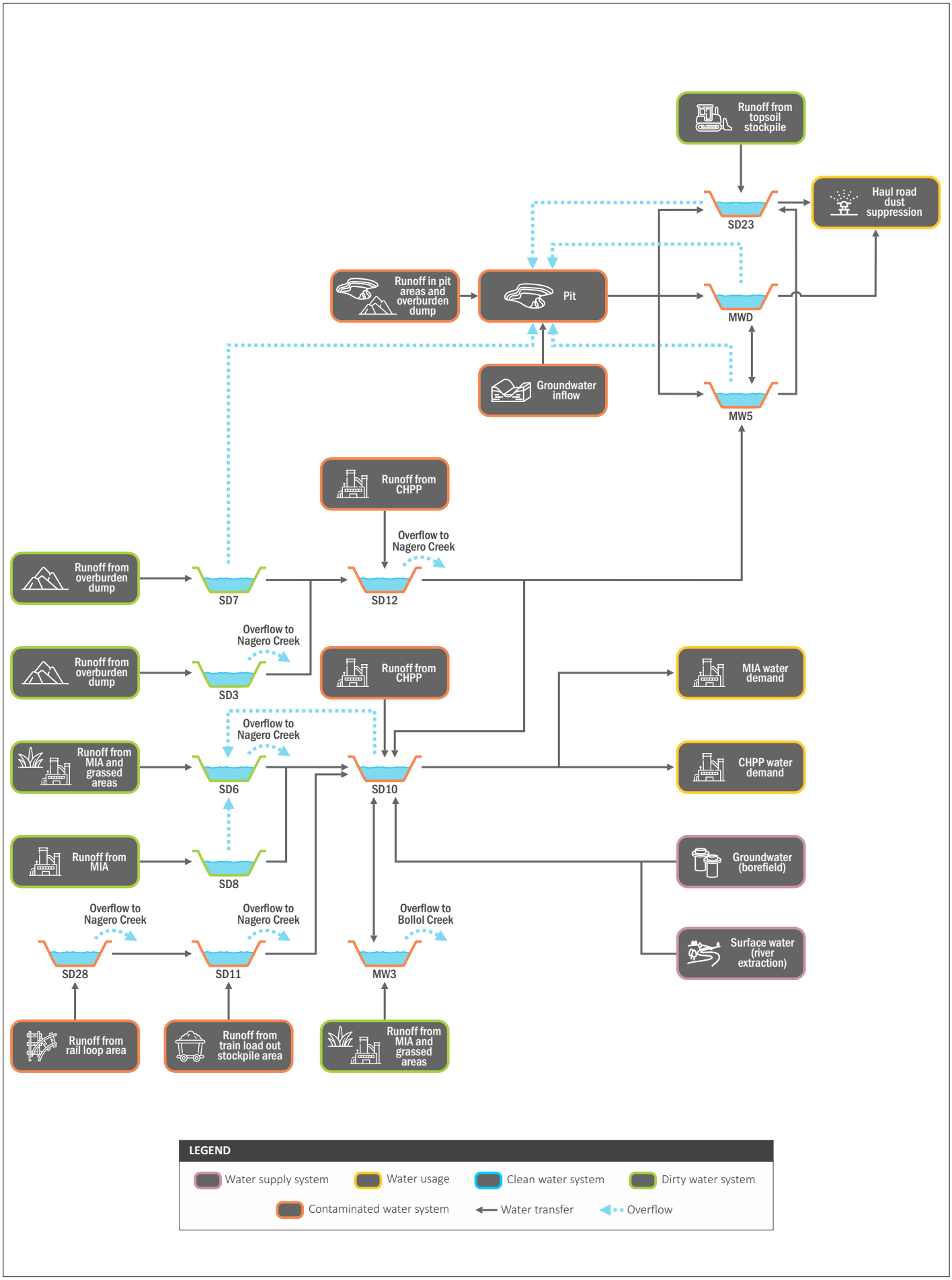
Figure B-4: Recorded CHPP and MIA water use



Seepage

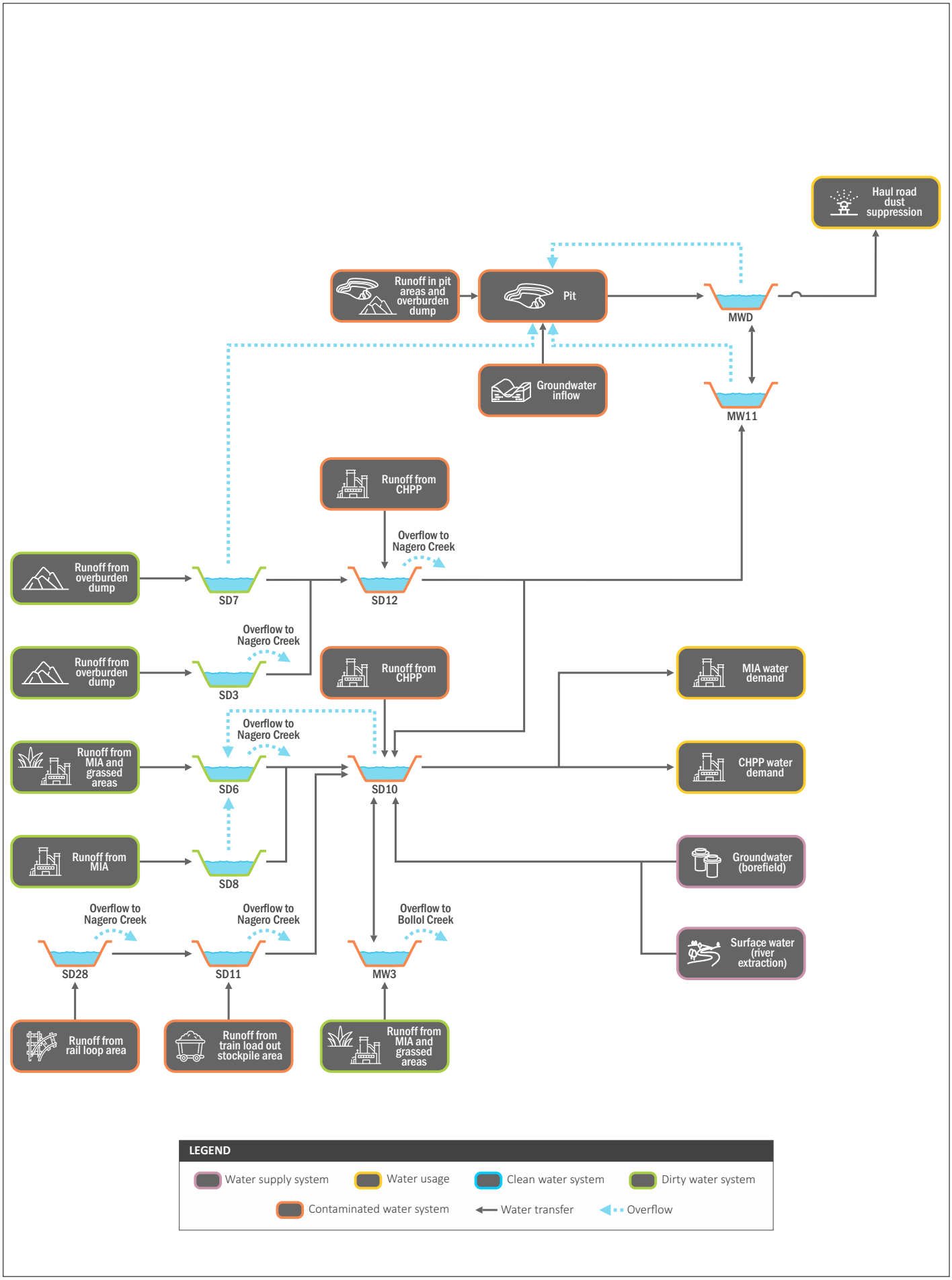
Typically, losses associated with seepage from water storages are minor compared to evaporation and pumped outflows. Hence, seepage losses are assumed to be negligible for modelling purposes and are therefore set to zero in the WBM.

Appendix C
Water management system schematics



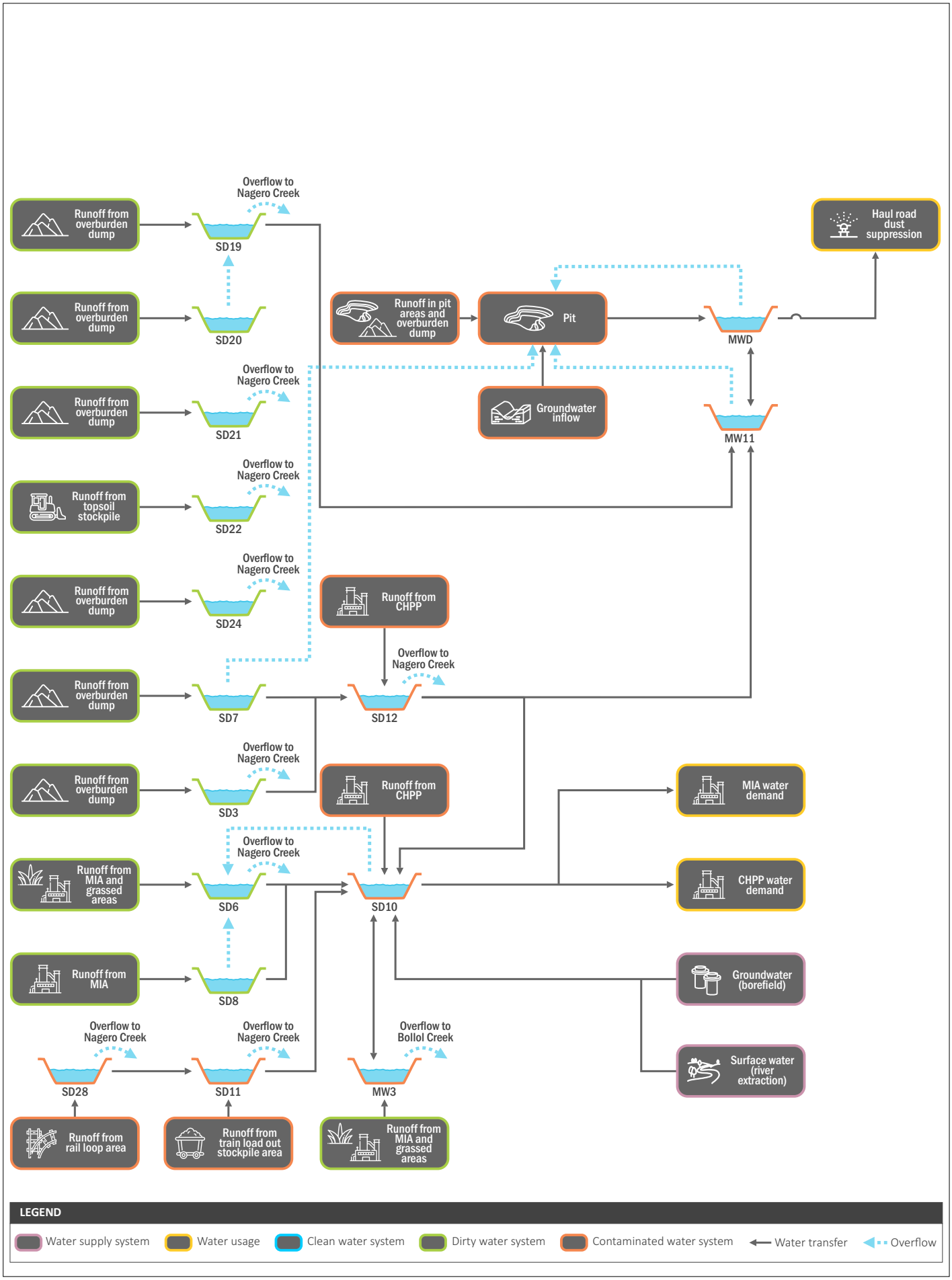
Water balance model schematic (2024)

Boggabri Coal Operations Pty Ltd
Site Water Balance
Figure C.1



Water balance model schematic – indicative conditions (2026)

Boggabri Coal Operations Pty Ltd
Site Water Balance
Figure C.2



Water balance model schematic – indicative conditions (2033)

Boggabri Coal Operations Pty Ltd
Site Water Balance
Figure C.3

EMM
creating opportunities

Appendix I
Annual Rehabilitation Report

NSW GOVERNMENT

NSW Resources Regulator

ARR0001483

BOGGABRI COAL ANNUAL REHABILITATION REPORT

Monday 1 January 2024 to Tuesday 31 December 2024

Summary table

DETAIL	
Mine	Boggabri Coal
Reference	ARR0001483
Annual report period commencement date	Monday 1 January 2024
Annual report period end date	Tuesday 31 December 2024
Forward program	FWP0001392
Mining leases	ML 1883 (1992), CL 368 (1973), ML 1755 (1992)
Lease holder(s)	Chugoku Electric Power Australia Resources PTY. LTD., Ns Boggabri Pty Limited, Boggabri Coal Pty Limited
Contact	Stewart Dunlop
Date of submission	Thursday 17 April 2025

Important

The department may make the information in your report and any supporting information available for inspection by members of the public, including by publication on its website or by displaying the information at any of its offices. If you consider any part of your report to be confidential, please communicate this to the department via the message function on this submission within the NSW Resources Regulator Portal.

Mine details

Project description

Boggabri Coal Mine (BCM) is an open cut coal mine located 15 km north-east of the township of Boggabri in north-western NSW. BCM is managed by Boggabri Coal Operations Pty Ltd on behalf of Idemitsu Australia's (IA) subsidiary Boggabri Coal Pty Ltd and its JV partners (Chugoku Electric Power Australia Resources Pty Ltd and NS Boggabri Pty Limited). BCM operates in accordance with SSD09_0182 which was granted on 18 July 2012 which enables the continuation of open cut mining until the end of 2036. Mining operations are progressing northward, extracting up to 8.6 Mtpa of ROM coal utilising truck and shovel mining methods. Progressive rehabilitation of the overburden emplacement areas is undertaken as areas achieve the final landform design. Up to 4.2 Mtpa of ROM coal can be processed at the CHPP, with the ability to bypass ROM coal to produce high quality semisoft coking, PCI and thermal coal products which is transported to the Port of Newcastle by rail for sale to the export market.

Life of mine

11 years

Current development consents, leases and licences

Development consents granted under the *Environmental Planning and Assessment Act 1979*

SSD 09-0182 (MOD 7)
SSD 09-0182 (MOD 7)
SSD 09-0182 (MOD 7)
SSD 09-0182 (MOD 7)
SSD 09-0182 (MOD 7)
SSD 09-0182 (MOD 7)
SSD 09-0182 (MOD 7)

Authorisations covering the mining area granted under the *Mining Act 1992*

ML 1883 (1992), CL 368 (1973), ML 1755 (1992)

Any other approvals, licences, or authorities issued by government agencies that are relevant to the progress of mining operation and rehabilitation activities

EPL 12407
EPBC 2009/5256 (as varied)
SSD 09-0182 (MOD 11)
SSD 09-0182 (MOD 8)

EPBC 2021/8875
SSD 09-0182 (MOD 9)

Summary of the scope and/or purpose of the new applications or modifications to existing approvals (if applicable)

Major Project 09_0182 Modification 8 was approved in January 2024 and EPBC (2021/8875) was approved in December 2024. Both relating to extending mine life and depth of mining. Major Project 09_0182 Modification 11 (SSD 09_0182 (MOD 11) was approved in July 2024 to facilitate the extension to the existing workshop and associated facilities. The preliminary scoping of Modification 10 was submitted to the NSW Government in May 2024. Environmental Assessments for Modification 10 have commenced during the 2024 calendar year and will ultimately support the Modification application to be lodged in 2025.

Changes to land ownership and land use

There have been no changes to land ownership and land use within the Project Boundary during the reporting period.

Surface disturbance and rehabilitation activities during the reporting period

Surface disturbance and rehabilitation activities that were conducted and an analysis of the progress against the rehabilitation schedule

There was an additional 39.19 ha of surface disturbance during the reporting period. Rehabilitation activities were undertaken within the Eastern extents of the approved Mine Disturbance Area generally in accordance with FWP0001392.

Rehabilitation planning activities that were conducted, including any specialist studies

No additional rehabilitation planning activities were conducted during the reporting period. Ongoing monitoring will continue and associated specialist advice will be sought as rehabilitation activities are scoped and executed. A Tree thinning trial was commenced in August 2024 in areas of 2010 & 2011 rehabilitation. Due to wet weather and ecologist advice, this program has been pushed back until April 2025. This will be included in the 'Rehabilitation Research & Trials' section in the 2025 Annual Rehab Report.

Overview of subsidence repair and/or remediation works undertaken

No underground mining is undertaken at BCM and hence no subsidence repairs were undertaken during the reporting period.

Overview of rehabilitation management and maintenance activities

BCOPL undertakes regular rehabilitation monitoring to assess the progression of rehabilitation as a method to identify maintenance and corrective actions. BCOPL undertook the following management and maintenance activities during 2024: - Weed management - Topsoiling and re-seeding areas of rehabilitation that were poor condition - Maintenance of access tracks - Construction of water management structures - Placement of habitat structures (Habitat logs & Bush rock) across rehabilitation areas

Details of any rehabilitation actions taken as required by any letters, notices or directions issued by government agencies, including the NSW Resources Regulator

BCOPL did not receive any regulatory actions in relation to rehabilitation during the reporting period.

Details of any rehabilitation areas that have achieved the final land use

No areas of rehabilitation have achieved the final land use during the reporting period.

Key production milestones

MATERIAL	UNIT	FWP0001392 YEAR 1	THIS REPORT
Stripped topsoil (if applicable)	(m^3)	285,000	142,382
Rock/overburden	(m^3)	60,210,631	57,609,895.86
Ore	(Mt)	8.53	8.6
Reject material[1]	(Mt)	1.41	1.22
Product	(Mt)	7.1	7.24

[1] This includes coarse rejects, tailings and any other wastes resulting from beneficiation.

Disturbance and rehabilitation statistics

Current disturbance and rehabilitation progression

	ELEMENT	UNIT	THIS REPORT
A1	Total disturbance footprint – surface disturbance	(ha)	1,573.45
B	Total active disturbance	(ha)	1,211.6
C	Rehabilitation – land preparation	(ha)	15.21
D	Ecosystem and land use establishment	(ha)	93.97
E	Ecosystem and land use development	(ha)	252.67
F	Rehabilitation completion	(ha)	0

Rehabilitation key performance indicators (KPIs)

	ELEMENT	UNIT	THIS REPORT
G	New disturbance area	(ha)	40.53
H	New rehabilitation commenced during annual reporting period	(ha)	41.31
I	Established rehabilitation	(ha)	252.67
J	Annual rehabilitation to disturbance ratio	%	1.02
K	Rehabilitated land to total mine footprint	%	16.06

Progressive achievement of established rehabilitation

	ELEMENT	UNIT	THIS REPORT
L	**Established rehabilitation for agricultural final land uses**	%	0
M	**Established rehabilitation for native ecosystem final land uses**	%	99.99
N	**Established rehabilitation for other/non-vegetated final land uses**	%	0

Variation to the rehabilitation schedule

Identify the components of the most recent forward program that were not achieved

Key factors that delayed progressive rehabilitation

No delays occurred to progressive rehabilitation in 2024.

Outline actions that will be included in the forward program and carried out to minimise disturbance and undertake progressive rehabilitation as far as reasonably practical

Disturbance has been minimised to clear areas required to facilitate mining operations to continue for the upcoming year. Rehabilitation is maximised by progressing all areas where active mining has ceased and shaping to the final landform design can commence.

Rehabilitation monitoring and research findings

Rehabilitation monitoring

The rehabilitation monitoring carried out in the annual reporting period

Biodiversity monitoring of rehabilitation areas is completed annually to assess the biodiversity status of rehabilitated areas to further guide rehabilitation methodologies, procedures and maintenance activities, in order to achieve site rehabilitation objectives. The monitoring reports on aspects of ecosystem establishment and ecosystem development. Monitoring for the reporting period commenced on 9 September 2024 at all replicate monitoring sites located within the 4, 6, 7, 8, 13, 14 and 16-year-old mine rehabilitation age-classes. Grassy woodland native ecosystem (secondary domain) within the mine rehabilitation area is known from two replicate monitoring sites: being RH2017 and RH2020. Sampling was undertaken at these locations during 2023 as well as a further eight sites associated with shrubby woodland/ forest native ecosystem (RH2008, RH2008D, RH2010, RH2011, RH2016, RH2018A, RH2018B, RH2018C). Monitoring comprised of diurnal bird surveys, bat surveys, invertebrate sampling, diurnal herpetofauna searches, passive infra-red/motion sensor camera detection, vegetation transects and BioBanking plots. There was one area in the South East that was identified in 2024 that had vegetation not performing well. It has been scheduled for additional fertiliser and supplementary seeding when the climatic conditions are more suitable in 2025. That area was also reclassified in the rehabilitation phase to reflect the additional work required in that area.

Status of performance against rehabilitation objectives and rehabilitation completion criteria

The monitoring program that has been implemented

The 2024 rehabilitation monitoring program identified rehabilitation areas are generally trending towards their rehabilitation objectives and completion criteria. Native species richness has generally increased over time as rehabilitation matures. Native species richness exceeded the averaged BBAM benchmark value across all monitoring locations during 2024. Most rehabilitation met native overstorey projected foliage and mid storey cover benchmarks. Native groundcover percentage was generally high. Many native ground and midstorey species recorded across all rehabilitation areas were observed recruiting from the soil seed bank and/or were producing reproductive structures suggesting the rehab is trending towards a self-sustaining native ecosystem. There was variation in mean exotic species richness during the 2024 monitoring period, with most sites occurring above the Leard State Forest analogue benchmark for the respective rehabilitation domain. The installation of stag trees and fallen timber has assisted in developing structural characteristics which take time to develop. Landform inspections generally showed no visible sign of instability or slumping and no active

erosion within rehabilitated area. No evidence of salinity was detected during 2024. There was one area in the South East with poor vegetation establishment. Further work is proposed in 2025 and this is reflected within the Forward Program.

Are all rehabilitation areas in Landform Establishment phase or higher represented in the monitoring program to assess performance against the rehabilitation objectives and approved or, if not yet approved rehabilitation completion criteria and final landform and rehabilitation plan?

Yes

Year rehabilitation areas will be included as part of the monitoring program

An appraisal of whether rehabilitation is moving towards achieving the proposed rehabilitation objectives, approved or, if not yet approved, rehabilitation completion criteria and final landform and rehabilitation plan as soon as reasonably practicable.

The completed rehabilitation areas are progressing towards meeting the rehabilitation completion criteria. There was one area that will require further attention with fertiliser and secondary seeding in Autumn 2025 to improve the groundcover success. The erosion in the previous years rehab areas was repaired and additional contour drainage structures installed. This is under monitoring and has effectively prevented a reoccurrence.

Appraisal description

Rehabilitation is moving towards achieving the final land use as soon as reasonably practicable.

Rehabilitation monitoring program findings

Biodiversity monitoring of rehabilitation areas is completed annually to assess the biodiversity status of rehabilitated areas to further guide rehabilitation methodologies, procedures and maintenance activities, in order to achieve site rehabilitation objectives. The monitoring reports on aspects of ecosystem establishment and ecosystem development. Regular inspections were conducted throughout 2024 at the completion of key rehabilitation phases to ensure all works were conducted in accordance with the RMP & BMP.

Performance issues and their causes including identification of any knowledge gaps that must be addressed

The Final Void and Mine Closure plan is currently being prepared for submission in December 2025. There was one area in the South East that was identified in 2024 that had vegetation not performing well. It has been schedulled for additional fertiliser and supplementary seeding when the climatic conditions are more suitable in 2025. That area was also reclassifed in the rehabilitation phase to reflect the additional work required in that area.

Outcomes of rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS	ON TRACK?
RRT0001069	Flora and Fauna Monitoring	To collect baseline information (including from analogue sites beyond CL 368) to provide comparative data for assessment of the success of rehabilitation works.	As part of the ongoing biodiversity monitoring program for the BCM as described within the approved Biodiversity Management Plan, this monitoring of flora and fauna communities will be conducted within and beyond the surrounding Leard State Forest (including analogue sites beyond CL 368).	14 Dec 2033	Ongoing	Yes
RRT0001070	Nest Box Management Plan	Installation of nest boxes in rehabilitation areas to provide suitable habitat for displaced fauna.	Further detail is described within the approved Biodiversity Management Plan. The total hollow numbers for rehabilitation areas are to match the estimated loss of hollows in the clearing area, with 50% of these to be installed within 10 years of rehabilitation age and all nest boxes are to be installed within 15 years of offset establishment. Each nest box will be monitored every five years.	31 Dec 2033	Ongoing	Yes
RRT0001071	Eucalypt Thinning Monitoring Program Trial	To determine the baseline condition and any subsequent changes to biodiversity values within the BCM mine rehabilitation in response to the thinning trials (as per biodiversity audit recommendation).	Monitoring to evaluate the success of the thinning trials and/or identify potential failures to enable adaptive management of future thinning activities to occur within the mine rehabilitation areas.	31 Dec 2033	Ongoing	Yes

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS	ON TRACK?
RRT0001072	Growth Media Evaluation	Analysis to confirm the adequacy of the were any limitations	xx	31 Dec 2033	Superseded	Yes
RRT0001073	Growth Media Evaluation (Full Detail)	To investigate the suitability of growth media utilised on mine rehabilitation and to determine any limitations requiring remediation.	In early 2016, BCOP commissioned a preliminary evaluation of growth media within the 2008 to 2014 rehabilitation areas (Landloch, 2016). The assessment was conducted in accordance with the procedure detailed in the Soil Management Protocol (SMP). Samples were subject to soil surface descriptions, morphological descriptions, field tests and laboratory analysis. Recommendations from this work have been incorporated into the rehabilitation methodology implemented onsite.	31 Dec 2033	Ongoing	Yes

Outcomes of completed trials and research

N/A

Attachment 1 – Reporting Definitions

REPORTING CATEGORY		DEFINITION
A1	Total disturbance footprint – surface disturbance	All areas within a mining lease that either have at some point in time or continue to pose a rehabilitation liability due to surface disturbance activities. The total disturbance footprint is the sum of the total active disturbance, decommissioning, landform establishment, growth medium development, ecosystem and land use establishment, ecosystem and land use development and rehabilitation completion (see definitions below). Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.
A2	Underground Mining Area	Underground mining operations areas/subsidence management areas.
B	Total active disturbance	Includes on-lease exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste rock emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped) and temporary stabilised areas (e.g. areas sown with temporary cover crops for dust mitigation and temporary rehabilitation).
C	Rehabilitation – land preparation	Includes the sum of all disturbed land within a mining lease that have commenced any, or all, of the following phases of rehabilitation – decommissioning, landform establishment and growth medium development. Refer to the glossary of terms in this document for the definition of these phases of rehabilitation.

REPORTING CATEGORY		DEFINITION
D	Ecosystem and land use establishment	Includes the area which has been seeded/planted with the target vegetation species for the intended final land use. However, vegetation has not matured to a stage where it can be demonstrated that it will be sustainable for the long term and or require only a maintenance regime consistent with target reference/analogue sites. Typically, rehabilitation areas would be in this phase for at least two years (and usually more) before rehabilitation can be classified as being in the ecosystem and land use development phase. This phase does not apply to infrastructure areas that are being retained as part of final land use for the site.
E	Ecosystem and Land Use Development	Rehabilitation has matured to a level where target revegetation outcomes are on a trajectory towards meeting the final rehabilitation objectives and rehabilitation completion criteria (as verified by monitoring). This phase includes infrastructure areas that are to be retained for an approved post mining land use, following completion of all necessary measures to render the infrastructure fit for this purpose (for example structural integrity).
F	Rehabilitation Completion	The NSW Resources Regulator has determined in writing that the mining area has achieved the approved rehabilitation objectives and approved rehabilitation completion criteria and final landform and rehabilitation plan following the submission of *Form: ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate and/or notification of mine or petroleum site closure.*
G	New active disturbance area	The area of any new active disturbance that has been created during the annual reporting period (definition A1 in Table 5).
H	New rehabilitation commenced during annual reporting period	The sum of any new rehabilitation commenced in the annual reporting period. These areas may be in the rehabilitation land preparation phase or the ecosystem & land use establishment phase (definitions C and D in Table 5).
I	Established rehabilitation (hectares)	The total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5).

REPORTING CATEGORY		DEFINITION
J	Annual rehabilitation to disturbance ratio	The rehabilitation to disturbance ratio (H/G) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the year. A ratio of 1/1 indicates that the area of new rehabilitation and disturbance in that year are the same.
K	% Rehabilitated land to total mine footprint	The proportion of the total mine footprint (area of land that has been disturbed by past or present surface disturbance activities) that has established rehabilitation (I/A1 x 100). For open cut mining, the proportion of the total mine footprint verified to be “established rehabilitation” should substantially increase as an operation progresses towards mine closure.
L	Established rehabilitation for agricultural final land uses (hectares)	The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5) that have been returned to an agricultural final land use.
M	Established rehabilitation for native ecosystem final land uses (hectares)	The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or rehabilitation completion phase (definitions E & F in Table 5) that have been returned to native ecosystem final land use.
N	Established rehabilitation for other/non-vegetated final land uses (hectares)	The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5) that have been returned to other/non-vegetated final land use.

Attachment 2 – Definitions

WORD	DEFINITION
Active	In the context of rehabilitation, land associated with mining domains is considered 'active' for the period following disturbance until the commencement of rehabilitation.
Active mining phase of rehabilitation	In the context of rehabilitation, the active mining phase of rehabilitation constitutes the rehabilitation activities undertaken during mining operations such as salvaging and managing soil resources, salvaging habitat resources, and native seed collection. This phase also includes management actions taken during operations to manage risks to rehabilitation and enhance rehabilitation outcomes such as selective handling of waste rock and management of tailings emplacements.
Analogue site	In the context of rehabilitation, an analogue site is a 'reference site' that represents an example of the defining characteristics (such as vegetation composition and structure or agricultural productivity) of the final land use. Characteristics of analogue sites can be assessed to develop the rehabilitation objectives and completion criteria for final land use domains.
Annual rehabilitation report and forward program	As described in the Mining Regulation 2016.
Annual reporting period	As defined in the Mining Regulation 2016.
Closure	A whole-of-mine-life process, which typically culminates in the relinquishment of the mining lease. It includes decommissioning and rehabilitation to achieve the approved final land use(s).
Decommissioning	The process of removing mining infrastructure and removing contaminants and hazardous materials.
Decommissioning Phase of Rehabilitation	Activities associated with the removal of mining infrastructure and removal and/or remediation of contaminants and hazardous materials. In the context of the rehabilitation management plan this phase of rehabilitation may also include studies and assessments associated with decommissioning and demolition of infrastructure or works carried out to make safe or 'fit for purpose' built infrastructure to be retained for future use(s) following lease relinquishment.

WORD	DEFINITION
Department	The Department of Regional NSW.
Disturbance	See Surface Disturbance.
Disturbance area	An area that has been disturbed and that requires rehabilitation. This may include areas such as on-licence exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped), and areas requiring rehabilitation that are temporarily stabilised (i.e. managed to minimise dust generation and/or erosion).
Domain	An area (or areas) of the land that has been disturbed by mining and has a specific operational use (mining domain) or specific final land use (final land use domain). Land within a domain typically has similar geochemical and/or geophysical characteristics and therefore requires specific rehabilitation activities to achieve the associated final land use.
Ecosystem and Land Use Development	This phase of rehabilitation consists of the activities to manage maturing rehabilitation areas on a trajectory to achieving the approved rehabilitation objectives and completion criteria. For vegetated land uses this phase may include processes to develop characteristics of functional self-sustaining ecosystems, such as nutrient recycling, vegetation flowering and reproduction, and increasing habitat complexity, and development of a productive, self-sustaining soil profile. This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.
Ecosystem and Land Use Establishment	This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform. For vegetated land uses this rehabilitation phase includes establishing the desired vegetation community and implementing land management activities such as weed control. This phase of rehabilitation may also include habitat augmentation such as installation of nest boxes.
Exploration	Has the same meaning as that term under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

WORD	DEFINITION
Final landform and rehabilitation plan	As defined in the Mining Regulation 2016.
Final land use	As defined in the Mining Regulation 2016.
Form and way	Means the form and way approved by the Secretary. Approved form and way documents are available on the Department's website.
Growth Medium Development	This phase of rehabilitation consists of activities required to establish the physical, chemical and biological components of the substrate required to establish the desired vegetation community (including short lived pioneer species. This phase may include spreading the prepared landform with topsoil and/or subsoil and/or soil substitutes, applying soil ameliorants to enhance the physical, chemical and biological characteristics of the growth media, and actions to minimise loss of growth media due to erosion.
Habitat	Has the same meaning as that term under the *Biodiversity Conservation Act 2016* and the *Fisheries Management Act 1994* (as relevant).
Indicator	An attribute of the biophysical environment (e.g. pH, topsoil depth, biomass) that can be used to approximate the progression of a biophysical process. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion (i.e. defined end point). It may be aligned to an established protocol and used to evaluate changes in a system.
Land	As defined in the *Mining Act 1992.*
Landform Establishment	This phase of rehabilitation consists of the processes and activities required to construct the final landform. In addition to profiling the surface of rehabilitation areas to the approved final landform profile this phase may include works to construct surface water drainage features, encapsulate problematic materials such as tailings, and prepare a substrate with the desired physical and chemical characteristics (e.g. rock raking or ameliorating sodic materials).
Large mine	As defined in the Mining Regulation 2016.
Lease holder	The holder of a mining lease.

WORD	DEFINITION
Life of mine	The timeframe of how long a mine is approved to mine, from commencement to closure.
Mine rehabilitation portal	Means the NSW Resources Regulator's online portal that lease holders must use (via a registered account) to: ■ upload rehabilitation geographical information system (GIS) spatial data ■ develop rehabilitation GIS spatial data (using online tracing functions) ■ generate rehabilitation plans and rehabilitation statistics using the map viewer and Rehabilitation Key Performance Indicator functionalities. Data submitted to the mine rehabilitation portal is collated in a centralised geodatabase for use by the NSW Resources Regulator to regulate rehabilitation performance of lease holders.
Mining area	As defined in the *Mining Act 1992*.
Mining domain	A land management unit with a discrete operational function (e.g. overburden emplacement), and therefore similar geophysical characteristics, that will require specific rehabilitation treatments to achieve the final land use(s).
Mining land	As defined in the *Mining Act 1992.*
Native vegetation	Has the same meaning as that term under section 60B of the *Local Land Services Act 2013.*
Overburden	Material overlying coal or a mineral deposit.
Performance indicator	An attribute of the biophysical environment (for example pH, slope, topsoil depth, biomass) that can be used to demonstrate achievement of a rehabilitation objective. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion, that is, a defined end point. It may be aligned to an established protocol and used to evaluate changes in a system.

WORD	DEFINITION
Phases of rehabilitation	The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are: ■ active mining ■ decommissioning ■ landform Establishment ■ growth medium development ■ ecosystem and land use establishment ■ ecosystem and land use development.
Progressive rehabilitation	The progress of rehabilitation towards achieving the approved rehabilitation completion criteria. This may be described in terms of domains, phases, performance indicators and rehabilitation completion criteria.
Rehabilitation Completion	The final phase of rehabilitation when a rehabilitation area has achieved the approved rehabilitation objectives and rehabilitation completion criteria for the final land use. Rehabilitation areas may be classified as complete when the NSW Resources Regulator has determined in writing that the relevant rehabilitation obligations have been fulfilled following submission of *Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate* application by the lease holder.
Rehabilitation Completion criteria	As defined in the Mining Regulation 2016.
Rehabilitation cost estimate	As defined in the Mining Regulation 2016.
Rehabilitation management plan	As defined in the Mining Regulation 2016.
Rehabilitation objectives	As defined in the Mining Regulation 2016.
Rehabilitation risk assessment	As defined in the Mining Regulation 2016.
Rehabilitation schedule	The defined timeframes for progressive rehabilitation set out in the forward program.

WORD	DEFINITION
Relevant stakeholders	Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes: ■ the relevant development consent authority ■ the local council ■ the relevant landholder(s) ■ community consultative committee (if required under the development consent) or equivalent consultative group ■ affected land holder(s) ■ government agencies relevant to the final land use ■ affected infrastructure authorities (electricity, telecommunications, water, pipeline, road, rail authorities) ■ local Aboriginal communities, and ■ any other person or body determined by the Minister to be a relevant stakeholder in relation to a mining lease.
Risk	The effect of uncertainty on objectives. It is measured in terms of consequences and likelihood (AS/NZS ISO 31000:2009).
Secretary	The Secretary of the Department.
Security deposit	An amount that a mining lease holder is required to provide and maintain under a mining lease condition, to secure funding for the fulfilment of obligations under the lease (including obligations that may arise in the future).
Surface disturbance	Includes activities that disturb the surface of the mining area, including mining operations, ancillary mining activities and exploration.
Tailings	A combination of the fine-grained solid material remaining after the recoverable metals and minerals have been extracted from the mined ore, and any process water[2].
Waste	Has the same meaning as that term under the *Protection of the Environment Operations Act 1997*.

[2] Commonwealth of Australia (DITR), 2007. *Tailings Management*.

Attachment 3 – Rehabilitation Complaints

DATE	COMPLAINANT	COMPLAINT DETAILS	RESPONSE DETAILS	STATUS OF RESPONSE	DATE RESPONSE COMPLETED (IF APPLICABLE)

Attachment 4 – Stakeholder consultation

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
21 Mar 2024	Community	Rehabilitation Strategy and Management Plan placed on BCM website	Rehabilitation Strategy and Rehabilitation Management Plan	No stakeholder issues or concerns have been raised
27 Oct 2022	NSW Resources Regulator	Phone discussions and Teams Meeting	Discussion in relation to the Spatial Data submission & issues with KPI data.	Resubmission of Spatial Data to revise KPI data for submission of Forward Program.
13 Oct 2023	NSW Resources Regulator	Response via the NSW Resources Regulator's online portal	Proposed rehabilitation objectives for BCM	NSW Resources Regulator provided approval of Rehabilitation Objectives
30 Jul 2024	NSW Resources Regulator	NSW Resources Regulator completed a Targeted Assessment Program (TAP) in relation to revegetation practices across the NSW mines. BCM was visited as part of this TAP to review the revegetation practices that are implemented and to identify areas of further improvement.	Mine revegetation practices that were implemented at BCM.	BCOPL received written feedback following the completion of the revegetation TAP. BCOPL will report on the progress of the implementation of these recommendations during the 2025 Annual Rehabilitation Report.
1 Feb 2023	NSW Resources Regulator	Response from NSW Resources Regulator via the NSW Resources Regulator's online portal	Spatial theme data to support the Final Landform and Rehabilitation Plan	NSW Resources Regulator refused spatial theme data and provided comments

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
15 Mar 2023	NSW Resources Regulator	Submission via the NSW Resources Regulator's online portal	Spatial theme data to support the Final Landform and Rehabilitation Plan	Updated in response to the comments provided 1 February 2023
6 Sep 2023	NSW Resources Regulator	Response via the NSW Resources Regulator's online portal	Proposed rehabilitation objectives for BCM	NSW Resources Regulator refused Objectives and provided comments
21 Mar 2024	Narrabri Shire Council	Distribution of the draft Rehabilitation Strategy prepared in accordance with Schedule 3, Condition 71 of SSD 09_0182 via the Major Projects Portal.	Draft Rehabilitation Strategy	Revision and update of the Rehabilitation Strategy to address comments raised by Narrabri Shire Council, prior to lodgement to Department of Planning Housing and Infrastructure (DPHI) for approval. The Rehabilitation Strategy was approved by DPHI on 21 August 2024.
21 Mar 2024	North West Local Land Services	Distribution of the draft Rehabilitation Strategy prepared in accordance with Schedule 3, Condition 71 of SSD 09_0182 via the Major Projects Portal.	Draft Rehabilitation Strategy	Revision and update of the Rehabilitation Strategy to address comments raised by North West Local Land Services, prior to lodgement to Department of Planning Housing and Infrastructure (DPHI) for approval. The Rehabilitation Strategy was approved by DPHI on 21 August 2024.
21 Mar 2024	Forestry Corporation of NSW	Distribution of the draft Rehabilitation Strategy prepared in accordance with Schedule 3, Condition 71 of SSD 09_0182 via the Major Projects Portal.	Draft Rehabilitation Strategy	Revision and update of the Rehabilitation Strategy to address comments raised by Forestry Corporation of NSW, prior to lodgement to Department of Planning Housing and Infrastructure (DPHI) for approval. The Rehabilitation Strategy was approved by DPHI on 21 August 2024.
21 Mar 2024	NSW DCCEEW BCS	Distribution of the draft Rehabilitation Strategy	Draft Rehabilitation Strategy	Revision and update of the Rehabilitation Strategy to address comments raised by NSW DCCEEW BCS, prior to

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
		prepared in accordance with Schedule 3, Condition 71 of SSD 09_0182 via the Major Projects Portal.		lodgement to Department of Planning Housing and Infrastructure (DPHI) for approval. The Rehabilitation Strategy was approved by DPHI on 21 August 2024.
21 Mar 2024	NSW DCCEEW Water Group	Distribution of the draft Rehabilitation Strategy prepared in accordance with Schedule 3, Condition 71 of SSD 09_0182 via the Major Projects Portal.	Draft Rehabilitation Strategy	Revision and update of the Rehabilitation Strategy to address comments raised by the NSW DCCEEW Water Group, prior to lodgement to Department of Planning Housing and Infrastructure (DPHI) for approval. The Rehabilitation Strategy was approved by DPHI on 21 August 2024.
21 Mar 2024	BCM Community Consultative Committee	Distribution of the draft Rehabilitation Strategy prepared in accordance with Schedule 3, Condition 71 of SSD 09_0182. The Rehabilitation Strategy was discussed during CCC meetings on 15 February 2024, 16 May 2024, 29 August 2024 and 14 November 2024.	Draft Rehabilitation Strategy	Revision and update of the Rehabilitation Strategy to address comments raised by the BCM CCC, prior to lodgement to Department of Planning Housing and Infrastructure (DPHI) for approval. The Rehabilitation Strategy was approved by DPHI on 21 August 2024.
21 Mar 2024	NSW Resources Regulator	Distribution of the draft Rehabilitation Strategy prepared in accordance with Schedule 3, Condition 71 of SSD 09_0182 via the Major Projects Portal.	Draft Rehabilitation Strategy	Revision and update of the Rehabilitation Strategy to address comments raised by NSW Resources Regulator, prior to lodgement to Department of Planning Housing and Infrastructure (DPHI) for approval. The Rehabilitation Strategy was approved by DPHI on 21 August 2024.

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
29 Sep 2023	NSW Resources Regulator	Submission via the NSW Resources Regulator's online portal	Spatial theme data to support the Final Landform and Rehabilitation Plan	Updated in response to the comments provided 6 September 2023
25 Nov 2022	NSW Resources Regulators	Submission via the NSW Resources Regulator's online portal	Spatial theme data to support the Final Landform and Rehabilitation Plan	NSW Resources Regulator to provide approval or feedback
15 Mar 2023	NSW Resources Regulator	Submission via the NSW Resources Regulator's online portal	Proposed rehabilitation objectives for BCM	NSW Resources Regulator to provide approval or feedback
6 Oct 2023	NSW Resources Regulator	Submission via the NSW Resources Regulator's online portal	Proposed rehabilitation objectives for BCM	Updated in response to the comments provided 6 September 2023

Attachment 5 – Plans

Plan 1A attachment not provided.

Plan 1B attachment not provided.