




2023 Annual Review

Wilpinjong Coal Mine

Annual Review Title Block

Name of operation	Wilpinjong Coal Mine
Name of operator	Wilpinjong Coal Pty Limited
Development consent/project approval #	SSD-6764
Name of holder of development consent/project approval	Wilpinjong Coal Pty Limited
Mining lease #	ML1573, ML1779, ML1795 & ML1846
Name of holder of mining lease	Wilpinjong Coal Pty Limited
Water licences #	WAL21499, WAL19045, WL19055, WL19057, WL19058, WL19426, WAL19425, WAL19430, WAL36398, WAL9476, WAL39785, WAL41548, WAL41549, WAL41550, WAL41551
Name of holder of water licence	Wilpinjong Coal Pty Limited
RMP Start Date	01 July 2022
Annual review start date	01 January 2023
Annual review end date	31 December 2023
<p>I, Kieren Bennetts, certify that this audit report is a true and accurate record of the compliance status of the Wilpinjong Coal Mine for the period 01 January 2023 to 31 December 2023 and that I am authorised to make this statement on behalf of Wilpinjong Coal Pty Limited.</p> <p><i>Note.</i></p> <p><i>a) The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000.</i></p> <p><i>b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or \$22,000, or both).</i></p>	
Name of authorised reporting officer	Kieren Bennetts
Title of authorised reporting officer	Environment & Community Manager
Signature of authorised reporting officer	
Date	30 March 2024

This 2023 Annual Review (AR) (this Report) presents a summary of regulatory compliance, environmental performance and community engagement activities for the *Reporting Period* from 1 January 2023 to 31 December 2023.

This Report provides the results and assessment of environmental performance relevant to the current development consent approval SSD-6764 for the *Reporting Period*.

This AR has been prepared to satisfy the requirements of Condition 4, Schedule 5 of Development Consent (SSD-6764) requiring the preparation of an Annual Review and conditions within Mining Lease (ML) ML1573, ML1779, ML1795, ML1846 and EPBC Approval 2015/7431. The AR was developed to align with the *Annual Review Guideline (October 2015)* issued by the NSW Department of Planning and Environment (DPE).

Copies of this Report will be provided to the following stakeholders:

- NSW Department of Planning and Environment (DPE)¹;
 - Department of Climate Change, Energy, the Environment and Water (DCCEEW); and
 - Department of Planning, Housing and Infrastructure (DPHI).
- NSW – Resource Regulator NSW - RR);
- NSW Environment Protection Authority (EPA);
- DPE – Division of Water (DPE – Water);
- DPE - Biodiversity, Conservation & Science (BSC);
- Mid-Western Regional Council (MWRC);
- NSW Health;
- Department of Agriculture, Water and the Environment; and
- The Mine’s Community Consultative Committee (CCC).

In addition, a copy will be made publicly available on the Peabody website: www.peabodyenergy.com/Operations/Australia-Mining/New-South-Wales-Mining/Wilpinjong-Mine/Approvals,-Plans-Reports in accordance with Condition 12(a), Schedule 5 of Development Consent (SSD-6764).

¹ This Annual Review will reference throughout the DPE as representing both the DCCEEW and DPHI.

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1.0 STATEMENT OF COMPLIANCE

Table 1-1 Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	Yes/No*
SSD-6764	No
ML1573	Yes
ML1779	Yes
ML1795	Yes
ML1846	Yes
EL6169 & EL7091	Yes
EPL12425	No
Water Licences	Yes
EPBC Approval 2015/7431	Yes

Notes: * Refer to Table 1-2 and Section 11.1 and Section 11.2 for details

Table 1-2 Non - Compliances

Relevant Approval	Condition	Summary of Condition Description	Compliance Status	Summary of Comment	Section in AR
Mining Regulation 2016	Schedule 8A	Wilpinjong Coal Mine did not submit a Rehabilitation Cost Estimate (RCE) required with the submission of a Forward Program (FWP), to the NSW Resource Regulator (NSW RR) by the 31 March 2023.	Non-compliant	WCPL promptly addressed the issue through submitting a revised RCE via the NSW Resource Regulator (NSW RR) portal on 7 November 2023. WCPL received a caution notice from the NSW RR on the 7 December 2023.	Section 11.2
SSD-6764	Con 29 Sch 3	Unlicensed discharge (refer to Section 11.1).	Non-compliant	A small split in a poly pipeline allowed mine water to report off site (refer to Section 11.1). Refer to Section 11.1 for implemented corrective actions	Section 11.1
	Con 25 Sch 3	Unlicensed discharge (refer to Section 11.1).	Non-compliant	A small split in a poly pipeline allowed mine water to report off site (refer to Section 11.1). Refer to Section 11.1 for implemented corrective actions	Section 11.1
EPL12425	O2.1	Unlicensed discharge (refer to Section 11.1). The discharge point was not from licensed discharge points 24 or 30.	Non-compliant	A small split in a poly pipeline allowed mine water to report off site (refer to Section 11.1). Refer to Section 11.1 for implemented corrective actions	Section 11.1
	L1.1	Unlicensed discharge (refer to Section 11.1). Water quality electrical conductivity (EC) was greater than 500 µS/cm	Non-compliant	A small split in a poly pipeline allowed mine water to report off site (refer to Section 11.1). Refer to Section 11.1 for implemented corrective actions	Section 11.1
	M2.2	2.5% of the continuous PM10 dust monitoring did not occur at monitoring point 25 (TEOM 3).	Non-compliant	TEOM3 checked remotely each day to identify potential faults, onsite each month and following power outages or when unusual data recorded.	Section 11.2
	M2.2	1.0% of the continuous PM10 dust monitoring did not occur at monitoring point 28 (TEOM 4).	Non-compliant	TEOM4 checked remotely each day to identify potential faults, onsite each month and	

Relevant Approval	Condition	Summary of Condition Description	Compliance Status	Summary of Comment	Section in AR
			Non-compliant	following power outages or when unusual data recorded.	
	M2.2	2.5% of the continuous PM2.5 did not occur at monitoring point 29 (TEOM 2.5).		TEOM2.5 checked remotely each day to identify potential faults, onsite each month and following power outages or when unusual data recorded.	
	M4.2	0.3 % of continuous monitoring for: air temperature, wind speed/direction, lapse rate, rainfall and humidity did not occur at monitoring point 21.	Non-compliant	Weather station checked remotely each day to identify potential faults.	

Table 1-3 Compliance Status Key

Risk Level	Colour Code	Description
High	Non-compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium	Non-compliant	Non-compliance with: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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 Mining Operations

The Wilpinjong Coal Mine (the Mine) is owned by Wilpinjong Coal Pty Limited (WCPL), a wholly owned subsidiary of Peabody Australia Pty Ltd (Peabody). The Mine is an existing open cut coal mining operation situated approximately 40 kilometres (km) north-east of Mudgee, near the Village of Wollar, within the Mid-Western Regional Local Government Area, in central New South Wales (NSW) (**Figure 1**). The mine produces thermal coal products which are transported by rail to domestic customers for use in electricity generation and to the Port of Newcastle for export. Open cut mining operations and associated mobile equipment movements are undertaken 24 hours per day, seven days per week.

WCPL and Peabody Pastoral Holdings Pty Ltd are a major landholder owning adjacent rural properties and land to the east and south-east of the mine. Land to the west of the mine is owned by adjacent mining companies, whilst the National Parks and Wildlife Service estate own significant land to the north and south-west of the Mine.

Private properties are located predominantly in and around the Wollar Village approximately 1.5 km to the east of the Mine and along Mogo Road to the north of the Mine.

The Mine originally operated under Project Approval (PA 05-0021) that was granted by the Minister for Planning under Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) on 1 February 2006. On 24 April 2017, WCPL was granted Development Consent (SSD-6764) for the Wilpinjong Extension Project (WEP) that provides for the continued operation of the Mine at rates of up to 16 million tonnes per annum (Mtpa) of run-of-mine (ROM) out to 2033, and access to approximately 800 hectares (ha) of open cut extensions. Development Consent (SSD-6764) has superseded the Project Approval (Project Approval 05-0021)². WCPL commenced development under Development Consent SSD-6764 on the 19 September 2017.

The approximate extent of the WEP approved open cut and contained infrastructure area at Wilpinjong Coal Mine is shown on **Figure 2-2**. Major components include open cut pits, an elevated waste rock emplacement in Pit 2, ROM pads/coal stockpiles, water management infrastructure, CHPP, product coal stockpiles and rail and other associated infrastructure areas. Open cut mining targeting the Ulan Coal Seam and Moolarben Coal Member (within ML1573, ML1779, ML1795 & ML1846) and the handling and processing of ROM coal at the CHPP is currently approved to operate 24 hours per day, seven days per week.

2.2 Mine Contact Details

Contact details for key personnel responsible for environmental management at the Mine are in **Table 2-1**.

Table 2-1 Mine Contact Details

Name	Position	Contact Details
Tian Oosthuizen	Acting General Manager	Email: COosthuizen@peabodyenergy.com
Kieren Bennetts	Manager Environment & Community	Email: kbennetts@peabodyenergy.com

The street, postal address and contact telephone numbers for the Mine are as follows:

Street Address

1434 Ulan-Wollar Road
WOLLAR NSW 2850

Postal Address

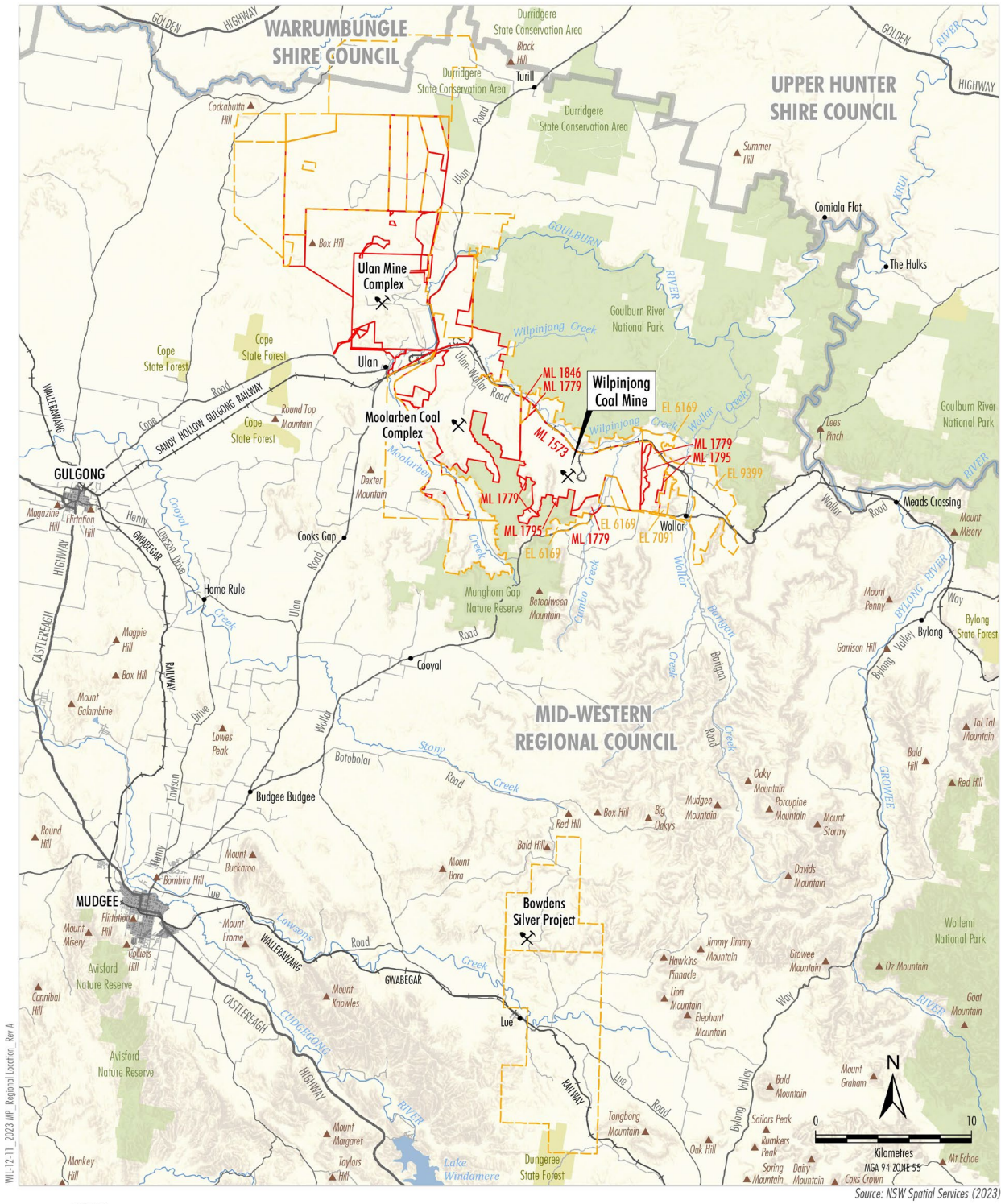
Locked Bag 2005
MUDGE E NSW 2850

Phone Number

Ph:(02) 6370 2500

² PA05-0021 was surrendered on the 28 April 2020 as required by Condition 9, Schedule 2 of SSD-6764 (Surrender of Existing Project Approval).

Figure 2-1 Locality Plan



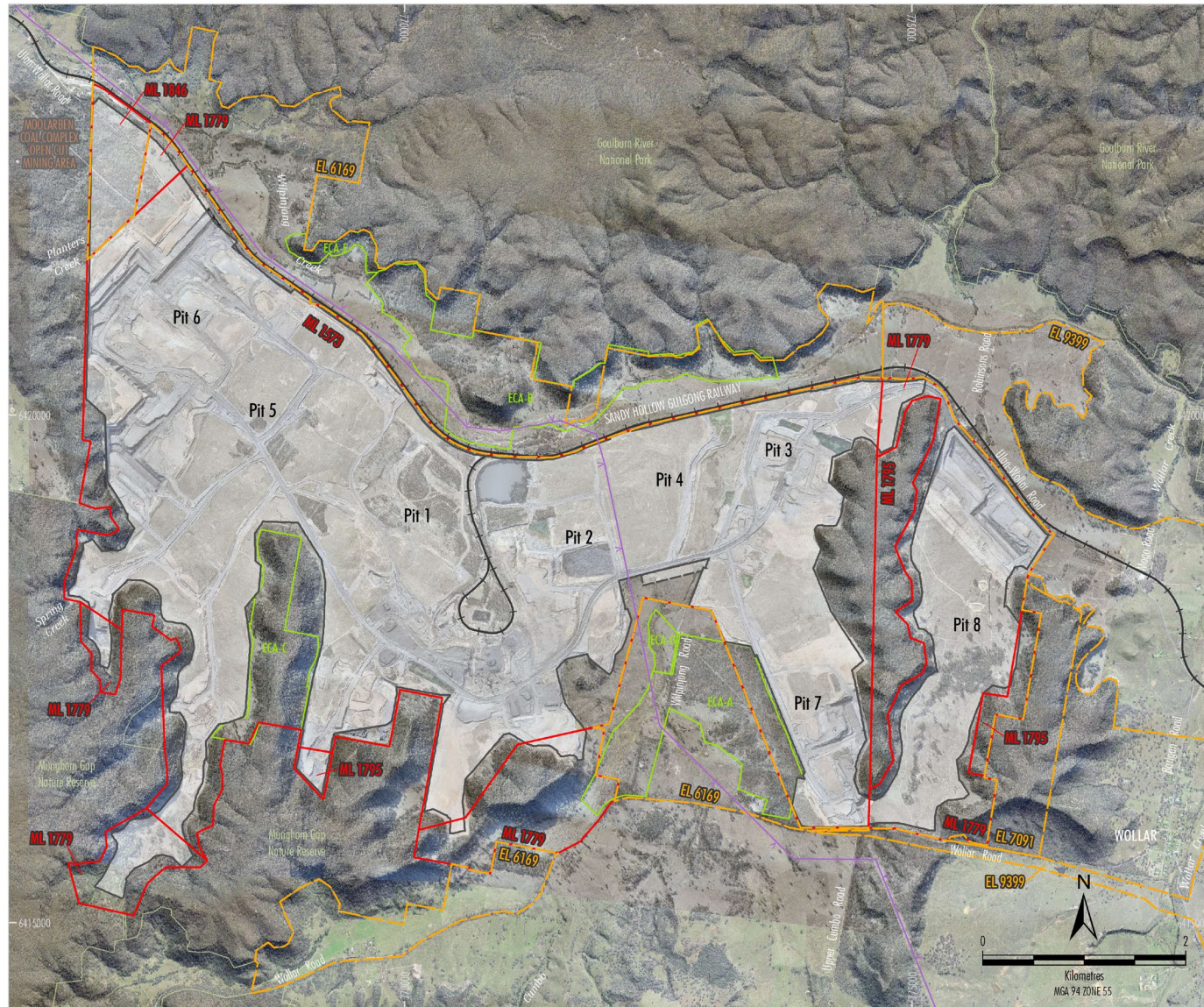
- LEGEND**
- Exploration Licence Boundary
 - Mining Lease Boundary
 - Local Government Area
 - State Forest
 - National Park, Nature Reserve or State Conservation Area
 - ✕ Mining Operation

Source: NSW Spatial Services (2023)



WILPINJONG COAL MINE
Regional Location

Figure 2-2 The Approved WEP Layout and Surrounds



- LEGEND**
- Exploration Licence Boundary
 - Mining Lease Boundary
 - Approved/Existing Open Cut and Contained
 - Infrastructure Area #
 - Relocated Block Bank and Cumbo Creek
 - Disturbance Area
 - Enhancement and Conservation Area
 - Existing TransGrid 330 kV ETL

Inclusive of Amendment No.3 (May 2021)

Source: WCPL (2023); NSW Spatial Services (2023)
 Orthophoto Mosaic: WCPL (May 2023, 2022)

WIL-12-11 EMS 2023 212A

Peabody
 WILPINJONG COAL MINE
 Wilpinjong Coal Mine
 General Arrangement

3.0 APPROVALS

Table 3-1 presents the current approvals, leases and licences that the Mine operates under.

Table 3-1 Mine Approvals, Leases and Licences

Relevant Authority	Instrument	Approval/Licence No.	Expiry Date
DPE	Development Consent	SSD-6764	28 years from commencement of Project Approval (i.e. 2033)
NSW-RR	Mining Lease	ML1573	February 2027
	Mining Lease	ML1779	20 December 2039
	Mining Lease	ML1795	27 September 2040
	Mining Lease	ML1846	28 February 2044
	Exploration Licence	EL 6169	22/12/2027
	Exploration Licence	EL 7091	03/03/2028
	Exploration Licence	EL 9399	3 May 2028 refer to Section 3.4
	Mine within Wilpinjong B Notification Area	ML 1573	Endorsed DSC 19 February 2013 Approved 24 January 2014
	Rehabilitation Management Plan (RMP)	Submitted 1/07/2022	Section 3.5
	Tailings Emplacement	Section 101 – TD1 and TD2 (approv. No. 07/1226)	February 2006 (Facility decommissioned)
	Tailings Emplacement	TD3 and TD4 (High Risk Activity Notification)	December 2011 (Facility decommissioned)
	Tailings Emplacement	TD5 (High Risk Activity Notification)	December 2013 (Facility decommissioned)
	Tailings Emplacement	TD6 (High Risk Activity Notification) 02/09/2016	NA
	Tailings Emplacement	Section 101 - Decommission TD2 (approv. No. 09/2396)	29 April 2009 (Facility decommissioned)
Tailings Emplacement	Section 101 - Decommission TD1 (approv. No. 09/2396)	28 October 2011 (Facility decommissioned)	
EPA	Environment Protection Licence (EPL)	EPL 12425	Until the licence is surrendered, suspended or revoked. The licence is subject to review every 3 years
	NSW Radiation Control Act 1990 Registration	Licence Number 5061384	02 January 2025
	Explosives Licence	NSW Explosives Act 2003 Part 3 Licence (Licence Number XSTR200024)	24 March 2028
DCCEW	EPBC Approval	EPBC 2015/7431	31 December 2033
DPE-Water	Water Licences	Refer to Table 7-1 & Table 7-2 in Section 7.1	Refer to Table 7-1 & Table 7-2 in Section 7.1

Note: Copies of the Development Consent (SSD-6764), EPL 12425 and ML1573, ML1779 ML1795 & ML1846 are available on the Peabody Energy website (<http://www.peabodyenergy.com>)

3.1 Ulan Road Strategy (Summary of Actions 2023)

The Ulan Road Strategy (the Strategy) defines the program for upgrading and maintenance of Ulan Road between Mudgee and the entrance to the underground surface facilities of Ulan Coal Complex over the next 21 years and was approved by NSW Planning and Environment on 25 May 2013. The operation of the Strategy relies upon the Funding and Delivery of Ulan Road Upgrade and Maintenance Deed (the Deed) made between the Mines and Mid-Western Regional Council (MWRC) (Appended, clause 19 extracted). Contributions to the Strategy by the Mines in accordance with the deed are mandatory under project approval consent conditions, as modified over the past 5 years. The Strategy also provides for the completion of noise attenuation works of eighteen identified properties along Ulan Road.

It was reported for the 2020 AR reporting period, that all fifteen properties within the zone for noise mitigation measures had their respective noise mitigation measures completed. The last remaining properties to finalise noise agreements occurred in April and July 2020. One property has declined noise mitigation works and two properties are outside the zone for noise mitigation measures. Since the previous 2020 AR, it has been clarified by one property owner that they had not arranged completion of all agreed works. The outstanding mitigation measures were completed by the property owner in mid-2023.

All associated works regarding the capital upgrades for Ulan Road and Cope Road in line with the Strategy and managed by MWRC have been 100% completed, the maintenance period is ongoing in accordance with the Strategy (maintenance period ongoing for the Wilpinjong Coal Project).

3.2 Changes to Approvals (SSD-6764)

On the 16 November 2023, WCPL submitted a modification (MOD2) seeking to modify Development Consent (SSD-6764) to construct and use a temporary on-site accommodation facility. The facility would cater for approximately 100 people and would be wholly within the existing approved open cut and contained infrastructure area. MOD2 also seeks a minor reduction of approved direct open cut mining and surface development impacts to excise several Crown land parcels as they are no longer required for operational purposes. MOD2 was on public exhibition from 27 November to the 15 December 2023. At the time of preparing the 2023 Annual Review, MOD2 remained under assessment with the DPE.

WCPL transferred Biodiversity Offset Areas 1-5 (BOAs) to the National Parks and Wildlife Service (NPWS) in August 2023 as required by Condition 35(a) of SSD-6764.

WCPL is proposing to modify Development Consent (SSD-6764) for the Wilpinjong Coal Mine (MOD3) to facilitate extensions of the existing Pits 3 and 8 (referred to as the Pits 3 and 8 Extension areas) within Exploration Licences (EL) 9399 and EL 6169 and development of associated supporting infrastructure and facilities. A scoping letter was submitted to the DPE during the preparing of the 2023 Annual Review.

3.3 Other Approval Related Activities

- In late 2023, WCPL were granted Complying Development Certificates made under the *Environmental Planning and Assessment Act 1979* Sections 4.27 and 4.28 for the removal of an additional 7 dilapidated properties in Wollar. Demolition planned for 2024.
- Renewal of both EL7091 and EL6169 (refer to **Table 3-1**).
- Application to include ML1846 in the WCPL Colliery Holding boundary submitted in 1 May 2023.
- Continued cooperation-property access with EnergyCo regarding proposed powerlines and substation.

3.4 Changes to Approvals (EPL 12425)

There was one variation to EPL 12425 during the Reporting Period. Licence Variation Notice 1626808 to vary the following licence conditions:

- The removal of licence Point 32 from licence condition P1.3 (an emergency discharge point).

- The removal of licence condition L2.6 (a reference to water quality limits not applying under emergency discharges).
- The removal of Point 32 from the tables under conditions M2.4 and M7.1 (the requirement to monitor pollutants and volume at the emergency discharge point respectively).
- The removal of the licence conditions under (Special Condition) 'E1 Emergency Water Discharge'

3.5 Mining Lease Application

The WEP extended into three new Mining Lease Application (MLA) areas within both EL 6169 and EL 7091. Two MLA's including MLA510 and MLA515 have now been granted approval and converted to ML1779 and ML1795 respectively (**Figure 2-2**). ML1779 was approved on the 20 December 2018. ML1795 was approved on the 27 September 2019.

MLA616 was the last mining lease required to cover the approved mining area for the WEP. MLA616 was granted approval and converted to ML1846 on the 28 February 2023 (**Figure 2-2**).

WCPL will also renew existing ELs and ML1573 as required during the life of the Mine.

3.6 Exploration Licence Application (ELA)

No ELAs were sought by WCPL during the 2023 Reporting Period. The last ELA i.e. ELA 6415 was granted authority, now Exploration Licence 9399 (EL 9399) by the Minister for Regional NSW on the 19 September 2022, in accordance with the provisions of s22(1) of the *Mining Act 1992*. EL9399 covers approximately 1670ha.

3.7 Management Plans

WCPL operates an Environmental Management System to manage compliance and advance continual improvement across the Mine. During the 2023 Reporting Period all management plans were revised and updated accordingly and submitted for re-approval as required by SSD-6764 on the 30 June 2023. A summary of the status of management plans required by SSD-6764 is presented in **Table 3-2**.

Table 3-2 Status of Environmental Management Plans

Management Plan	Schedule 3 of SSD-6764	Approval Status
Noise Management Plan (NMP)	Condition 5	Version 8 approved on 23 January 2023 Revised in June 2023. Version 9 approval pending
Blast Management Plan (BMgtP)	Condition 14	Version 9.1 approved on 17/12/2022. Revised in June 2023. Version 10 approval pending
Blast Fume Management Strategy	Condition 14	Version 6 approved on the 17/12/2022. June 2023 review determined no amendments required
Air Quality Management Plan (AQMP)	Condition 20,	Version 8.1 approved on 17/12/2022. Revised in June 2023. Version 9 approval pending
Water Management Plan (WMP)	Condition 30	Version 4 approved on 4/08/2017 Revised in June 2022. Version 8 approval pending
Site Water Balance (SWB)	Condition 30(d)(ii)	Version 3 approved on 4/08/2017. Revised in June 2022. Version 6 approval pending
Surface Water Management Plan (SWMP)	Condition 30(d)(iii)	Version 3 approved in June 2018. Revised in June 2022. Version 6 approval pending
Groundwater Management Plan (GWMP)	Condition 30(d)(iv)	Version 3 approved on 4/08/2017. Revised in June 2023. Version 6.2 approval pending
Biodiversity Management Plan (BMP)	Condition 42	Version 7.1 approved on 02/09/2021. Revised in June 2023. Version 8 approval pending
Aboriginal Cultural Heritage Management Plan (ACHMP)	Condition 47	Version 9 approved on 23/08/2022. June 2023 review determined no amendments required
Spontaneous Combustion Management Plan (SCMP)	Condition 20(g)	Version 8.1 approved on 17/12/2022. Revised in June 2023. Version 9 approval pending.
Historic Heritage Management Plan (HHMP)	Condition 49	Version 6 approved on 06/02/2023.

Management Plan	Schedule 3 of SSD-6764	Approval Status
		Revised in June 2023. Version 7 approval pending
Rehabilitation Strategy*	Condition 61	Version 1 conditionally approved on the 6/12/2022. June 2023 review determined no amendments required
Rehabilitation Management Plan (RMP)	Condition 64	Version 1 approved on 25/01/2023. Revised in September 2023. Version 2 approval pending
Environmental Management Strategy (EMS)	Condition 1, Schedule 5	Version 9 approved 14/07/2022. Revised in June 2023. Version 10 approval pending
Social Impact Management Plan (SIMP)	Condition 63	Version 3 approved on the 05/04/2023. June 2023 review determined no amendments required

Notes: * Conditional approval of the Rehabilitation Strategy on 6 December 2022, subject to updating the groundwater model.

During the reporting period, WCPL was in consultation with the relevant agencies and stakeholders developing and progressing a number of management plans, but not limited to the following;

- The Rehabilitation Management Plan (RMP) was prepared by WCPL in accordance with the NSW Resources Regulator (NSW RR) *Form and Way-Rehabilitation Management Plan for Large Mines* (NSW RR, July 2021). The RMP was developed to satisfy the requirements of Condition 64, Schedule 3 of Development Consent (SSD-6764). The development of the RMP also satisfies the requirements of Mining Leases (ML) ML1573, ML 1779 and ML1795. The initial RMP (Version 1) was finalised on the 01 July 2022 and approved on the 25/01/2023. A revision to the RMP (Version 2), supported by amendments to the Annual Rehabilitation Report and Forward Program (ARRFP) was completed in September 2023. The revised RMP (Version 2) was pending approval at the time of preparing the 2023 Annual Review.
- WCPL completed a detail review of the WMP, SWB, SWMP and GWMP in June 2022. In November 2022, WCPL resubmitted the GWMP (Version 6.1) to address the additional information required by DPE Water. On the 23 February 2023, WCPL received from the DPE further requests for information to be addressed by the GWMP. WCPL provided responses to DPE's requests and updated the GWMP (Version 6.2) accordingly.

The status of the above plans, strategies and performance criteria will be provided in the next AR. In accordance with Schedule 5, Condition 5 of SSD-6764, WCPL will review and if necessary revise the strategies, plans and programs required under the consent within three months of the submission of this Report to relevant government regulators. In accordance with Schedule 5, Condition 12 of SSD-6764, relevant management plans have been made available to the public on the Peabody Energy website www.peabodyenergy.com

3.8 Biodiversity Offset Areas (BOAs)

All land within Biodiversity Offset Areas D and E were transferred to the National Parks Estate on the 13 January 2016. WCPL were granted an extension of time by the Secretary on the 5 July 2023, regarding the transfer of Biodiversity Offset Areas 1-5 (BOAs) to the National Parks and Wildlife Service (NPWS), until the 31 July 2023.

The transfer of the BOAs is required under Condition 32, Schedule 3 of Development Consent SSD-6764 for the WEP. WCPL completed the transfer of BOAs 1-5 to NPWS, including both the transfer of land and payment of the management fee agreed between WCPL and NPWS. Both the transfer and payment occurred on Wednesday 2 August 2023. The two-day delay from the approved date of 31 July 2023 was a result of interbank transfer timing for the management fee.

4.0 OPERATIONS SUMMARY

Table 4-1 displays the production summary for 2023 and the forecast production summary for 2024.

Table 4-1 Production Summary

Material	SSD-6764 Approved Limit	This Reporting Period (actual)	Next Reporting Period (forecast)
Stripped Topsoil	NA	115,300	208,352
Waste Rock/Overburden (m ³)	NA	40,450,000	44,765,801
ROM Coal (Mtpa)	16	12.8	12.3
Coarse Reject & Tailings (TFP)*	NA	2.1	2.0
Fine Tailings	NA	0	0
Product Coal	NA	10.572	9.965

Notes: *Tailings Filter Press³, Million tonnes per annum = (Mtpa)

4.1 Other Operational Conditions

At the end of the 2023 Reporting Period, active extraction in open cut mining areas were located in Pit 6, Pit 7 and Pit 8 as identified in Plan 2A of the current ARRF. Backfilling of Pit 1, Pit 2 and Pit 3 also occurred.

In accordance with Condition 51, Schedule 3 of SSD-6764, WCPL maintains records of the amount of coal transported from the site each year, and the number of coal haulage train movements generated by the Mine on a daily basis.

10.525 Mt of product coal was transported from the Mine via rail during the 2023 Annual Reporting Period and involved an average of approximately 3.6 train movements per day, with a maximum of 7 train movements per day during 2023 (**Appendix 1**).

Train loading is available on a continuous basis, 24 hours a day and 7 days per week, with a maximum of 10 laden coal trains leaving the site per 24-hour period and an average of six train movements per day when calculated over one calendar year (Condition 7, Schedule 2 of SSD-6764).

No overburden material was supplied (or requested) to regional infrastructure projects in the vicinity of the Mine.

There were no significant construction activities in the Reporting Period, other than haul road and mining related support infrastructure construction. A summary of exploration activities in 2023 is provided in **Appendix 2**.

4.2 Next Reporting Period

The proposed active mining areas for the 2024 Reporting Period are Pit 5, Pit 6, Pit 3 and Pit 8.

The mining and rehabilitation schedule are provided in Plan 2B Mining and Rehabilitation Year 2 within the Annual Rehabilitation Report & Forward Program in accordance with Part 2 of the NSW Resources Regulator *Form and Way – Annual Rehabilitation Report and Forward Program for Large Mines (2021)*, Clause 9 and 13 of Schedule 8A of *Mining Regulation 2016*.

Refer to **Appendix 4** for proposed mining and rehabilitation sequence in 2024. Key construction activities in the next reporting period include haul road and mine support infrastructure construction in Pit 6 and Pit 8. Updates to the CHPP bathhouse, main administration bathhouse and administration buildings are also planned for 2024.

³ In 2015 the Belt Press Filter (BPF) commenced at the CHPP. The BPF and associated transfer conveyor allows for co-disposal of tailings with coarse reject/overburden and improved recovery of water from tailings.

5.0 ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

The DPE requested additional information (RFI) on the 2 May 2023 in regard to the submitted 2022 Annual Review. A summary of the DPE’s RFI and WCPL responses sent on the 17 May 2023 are provided in **Table 5-1**.

Table 5-1 Actions Required from Previous Annual Review

Action required from previous 2022 Annual Review	By Who	Action taken by WCPL
<p>What measures are being implemented to ensure Surface Water exceedances are reported to the department as soon as practicable?</p> <p>What measures are being implemented to ensure Groundwater Level Trigger Exceedances are reported to the department as soon as practicable?</p> <p>What measures are being implemented to ensure EC trigger value at coal monitoring bore exceedances are reported to the department as soon as practicable?</p>	<p>DPE</p>	<p>Review Water Management Plans to specifically change reporting of any trigger level exceedance to the Department as soon as practical and not annual.</p> <p>Amend the SWMP and increase the upper pH investigation trigger for WIL-D2 and WIL-D to reflect the upper pH limit specified in the ANZECC Guidelines and Environment Protection Licence 12425.</p> <p>Replacement of suspect bore GWa14, as well as Gwa4, Gwa5 and Gwa7</p> <p>Carry out additional water analysis on GWc1, GWc3, GWc4 and GWc5 to look further at the recharge mechanism of these bores to explain the higher EC levels recorded.</p>

On the 19 May 2023, WCPL received formally notification the DPE had reviewed the Annual Review and consider it to generally satisfy the reporting requirements of the approval/consent and the department’s *Annual Review Guideline (October 2015)*.

However, the DPE noted the three (3) non-compliances identified in the 2022 Annual Review where WCPL did not report to the relevant agencies as soon as practicable following an exceedance of surface and groundwater trigger levels. In consideration of WCPL’s responses (dated 17 May 2023) the DPE was satisfied that WCPL will report future exceedances to the department as soon as practicable in accordance with Schedule 5 Condition 8 of SSD 6764. The 3 non-compliances were subsequently assessed in accordance with the DPE’s Compliance Policy and on this occasion, determining to record the breach with no further enforcement action. The DPE noted the recording of these breaches does not preclude the DPE from taking alternate action in the future should it become apparent a more appropriate action is deemed necessary.

The DPE also sought WCPL to amend the typographical error in Table 20 and make publicly available a copy of the 2022 Annual Review on the company website. In response WCPL corrected the typographical error and provided a copy of the 2022 Annual Review on the Peabody Energy website www.peabodyenergy.com

6.0 ENVIRONMENTAL PERFORMANCE

Environmental management measures undertaken during the 2023 Reporting Period have been conducted as required by relevant management plans and monitoring programs developed for the Mine in accordance with SSD-6764 and EPL12425.

The 2023 Annual Review provides the results and assessment of environmental performance relevant to development consent approval SSD-6764. The locations of environmental monitoring undertaken throughout the 2022 Reporting Period are provided in **Appendix 3**.

6.1 Meteorological Monitoring

Local meteorological data for 2023 was recorded by the Mine's meteorological station and was operated in accordance with SSD-6764 and EPL 12425. The meteorological station monitors a number of parameters, including temperature, humidity, rainfall, wind speed and wind direction. The location of the meteorological station and associated tables and graphs are provided in **Appendix 3A**.

The total cumulative annual rainfall recorded for 2023 was approximately 478mm. In comparison the previous three years recorded annual cumulative rainfalls of 987.2mm in 2022, 942.4mm in 2021 and 915.8mm in 2020. The 2023 cumulative rainfall represents the first time in three consecutive years the annual rainfall was well below the long-term cumulative annual average rainfall (in the vicinity of the Mine) ranging from 587.7mm to 651.5mm (WEP EA).

The month with the highest total rainfall recorded was 94.0mm in November 2023. The least amount of rainfall was recorded in May with just 2.8mm for the month.

A maximum temperature of 38.9°C (at 10m) was recorded in December 2023. The lowest minimum temperature was -2.1°C (at 10m) recorded in June. The 2023 average minimum was 10.2°C (at 10m) and the 2023 average maximum of 23.8°C (at 10m).

Wind speed recorded during the 2023 Reporting Period displayed an average monthly wind speed range between 1.2 metres per second (m/s) to 2.0m/s. The average windspeed in 2023 was comparable with 2022. A maximum wind speed of 10.7m/s was recorded in November 2023. Wind direction was generally from the South to Southeast during Summer and Autumn and from the West to Southwest in Winter.

6.2 Air, Blast & Noise Monitoring

Air Quality Monitoring

The Mine has developed and implemented an Air Quality Management Plan (AQMP - Version 8.1) (**Table 7**). Criteria for airborne particulate matter (i.e. dust) are specified in Condition 17, Schedule 3 of SSD-6764. During the 2022 Reporting Period, the Mine carried out dust monitoring in accordance with the AQMP at the locations in **Appendix 3B** and at the frequency displayed in **Table 6-1**.

Table 6-1 Summary of Air Quality Monitoring Program

Monitoring Parameter	Monitoring Locations	Frequency
Dust Deposition	DG4 ⁴ , DG5, DG8, DG11 & DG15	Monthly
	DG12 ² , DG13 ² and DG14 ²	Monthly (mining < 1 km of the site)
High-Volume Air Sampling (PM ₁₀)	HV1, HV4 ¹ & HV5	24hrs every six-day cycle
TEOM (PM ₁₀)	TEOM 3 & TEOM 4	Continuous (24-hour average)
TEOM (PM _{2.5})	TEOM 5 ³	Continuous (24-hour average)*

Notes: ¹ Data HV4 for management purposes only. ² Aboriginal rock art site monitoring Sites 72, 152 and 153. ³ TEOM5 installed and operating prior to 31/12/2017. ⁴ DG4 revised as management monitoring in AQMP (Version 8.1) due to close proximity to mining.

The AQMP was revised in June 2023. The revised AQMP (Version 9) was updated to include all applicable figures displaying the recently granted ML1846, EL9399, landownership for property ID959 which is now Peabody owned and DG8, DG11 & DG15 to management from compliance as per EPL12425. The revised AQMP (Version 9) was pending approval from the DPE at the time of preparing the 2023 Annual Review.

Table 6-3 contains the air quality monitoring results, as well as a discussion of the results for the Reporting Period. Further air quality monitoring results for 2023 Reporting Period are provided in **Appendix 3B**.

Spontaneous Combustion

The Mine has developed and implemented a Spontaneous Combustion Management Plan (Version 8) (SCMP) (**Table 7**) as Appendix 3 of the AQMP. As described in the SCMP there are areas of the mine prone to spontaneous combustions events. During 2023 there was a continued effort in managing those areas prone to an outbreak of spontaneous combustion.

The SCMP was revised in June 2023. The revised SCMP (Version 9) was updated to include update of propensity testing results for Pit 6 and Pit 8 and reference where applicable the RMP. The revised SCMP (Version 9) was pending approval from the DPE at the time of preparing the 2023 Annual Review as an appendix to the AQMP.

There were no reportable incidents as a result of spontaneous combustion in 2023. There were twelve (12) unverified odour complaints received during 2023 (**Section 9**). Each of the odour complaints during 2023 received follow up checks by WCPL and were either unable to detect significant spontaneous combustion outbreaks with the capacity to generate offsite odours or detect odours beyond the boundary of the Mine. These checks also included a review of the wind speed and wind direction prior to receiving an odour complaint. The complainants also declined to discuss any of the odour complaints with a WCPL representative.

Spontaneous combustion propensity testing was undertaken in 2020 and within Pit 6 and Pit 8. The results from the 2020 testing determined eight samples have a low propensity of spontaneous combustion (PSC) and nineteen have no PSC.

An assessment of the spontaneous combustion performance indicators as required by the SCMP is provided in **Table 6-2**. Refer to **Section 6.7** for ambient air monitoring program. WCPL will continue to implement the SCMP.

Table 6-2 Assessment of Spontaneous Combustion Performance Indicators

Performance Indicator	2023 Target	2023 Performance
Number of verified complaints received relating to spontaneous combustion	0	0*
Number of incidents relating to spontaneous combustion	0	0
Number of times operations have been shut down as a result of complaints/incidents relating to spontaneous combustion	0	0

Notes: * Investigated odour complaint and could not determine or verify the likely cause of the odour (refer to **Section 9.0** for further details).

Table 6-3 Air Quality Monitoring Environmental Performance

Approved Criteria ^D	WEP Predictions	Performance During the Reporting Period	Trend/Key Management Implications	Implemented/proposed Management Actions																										
Deposited Dust ^C																														
4 g/m ² /month ^E (at any residences on privately owned land)	2g/m ² /month DG4, DG5, DG8, DG11 & DG15	<p>The 2023 annual average dust deposition results for compliance purposes were below the approved criteria of 4 g/m²/month at compliance monitoring sites:</p> <ul style="list-style-type: none"> - DG4 (Ave: 3.4 g/m²/month) - DG5 (Ave: 0.8 g/m²/month) - DG8 (Ave: 1.1 g/m²/month) - DG11 (Ave: 0.9 g/m²/month) - DG15 (Ave:0.9 g/m²/month) 	<p>The 2023 results for depositional dust indicate that deposited dust levels are below the relevant cumulative criterion of 4g/m²/month at relevant compliance monitors in 2023.</p> <p>The annual average measured levels in 2023 are generally well aligned with the modelled predictions and were comparable with 2022, with the exception of DG4.</p> <p>DG4 is located on WCPL owned land in close proximity to the mining lease boundary and was revised in AQMP (Version 8.1) as a monitoring point for management purposes as recommended WCPL air quality specialist.</p> <p>For further results refer to Appendix 3B.</p>	<p>The Mine rehabilitated approximately 76.5ha of mine waste rock emplacement areas in 2023. The Mine is scheduled to complete approximately 82.1ha of mine waste rock rehabilitation in 2024.</p> <p>In 2023 there were a total of 7 complaints regarding air quality and 12 odour complaints, when compared to 5 air quality complaints and 2 odour complains in 2022. Refer to Section 6.2 and Section 9 for details.</p> <p>The effectiveness of the adopted control measures as described in the AQMP, WCPL were able to achieve compliance against the Air Quality Assessment Criteria Table 17, Schedule 3 of SSD-6764 in 2023.</p>																										
PM₁₀ (24hr Continuous Average Concentrations & 24hr 6 Day Cycle Concentrations)																														
50 µg/m ³ ^{AF}	15-20 µg/m ³ Village of Wollar	<p>The 24-hour average PM₁₀ concentrations were below the relevant criterion of 50µg/m³ in 2022.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">6 Day Cycle</th> <th>HV1</th> <th>HV4</th> <th>HV5</th> </tr> <tr> <th>µg/m³</th> <th>µg/m³</th> <th>µg/m³</th> </tr> </thead> <tbody> <tr> <td>PM₁₀ (Max)</td> <td>24.1</td> <td>31.3</td> <td>27.1</td> </tr> <tr> <td>PM₁₀ (Min)</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Continuous</th> <th>TEOM3</th> <th>TEOM4</th> </tr> <tr> <th>µg/m³</th> <th>µg/m³</th> </tr> </thead> <tbody> <tr> <td>PM₁₀ (Max)</td> <td>31.5</td> <td>36.5</td> </tr> <tr> <td>PM₁₀ (Min)</td> <td>2.7</td> <td>3.0</td> </tr> </tbody> </table>	6 Day Cycle	HV1	HV4	HV5	µg/m ³	µg/m ³	µg/m ³	PM ₁₀ (Max)	24.1	31.3	27.1	PM ₁₀ (Min)	0.0	0.0	0.0	Continuous	TEOM3	TEOM4	µg/m ³	µg/m ³	PM ₁₀ (Max)	31.5	36.5	PM ₁₀ (Min)	2.7	3.0	<p>The 24-hour average PM₁₀ concentrations were below the relevant criterion of 50µg/m³ during the Reporting Period.</p> <p>The 24-hour average PM₁₀ concentrations in 2023 were slightly higher than the 2022 results.</p> <p>The 24-hour average PM₁₀ concentrations in 2023 are generally well aligned with the modelled predictions for HV1 located in the Village of Wollar.</p> <p>HV4 is located on WCPL land in close proximity to the mining lease boundary and is a monitoring point for management purposes.</p> <p>For further results refer to Appendix 3B.</p>	<p>WCPL revised the AQMP within three months of the submission of the 2022 Annual Review. AQMP (Version 9) was pending approval at the time of preparing this 2023 Annual Review.</p> <p>All dust related complaints were responded to in accordance with the Complaints Management Procedure.</p> <p>During the Reporting Period the following control measures were implemented in accordance with the AQMP, including response to dust alarms from TEOMs, meteorological conditions assessed prior to blasting, active haul roads and traffic areas were watered on an appropriate basis using water carts and water sprays were utilised on the ROM coal bins, and on recently stripped areas as required.</p>
6 Day Cycle	HV1	HV4		HV5																										
	µg/m ³	µg/m ³	µg/m ³																											
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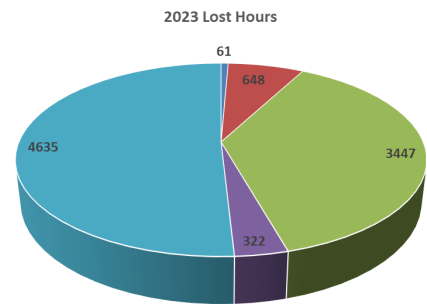
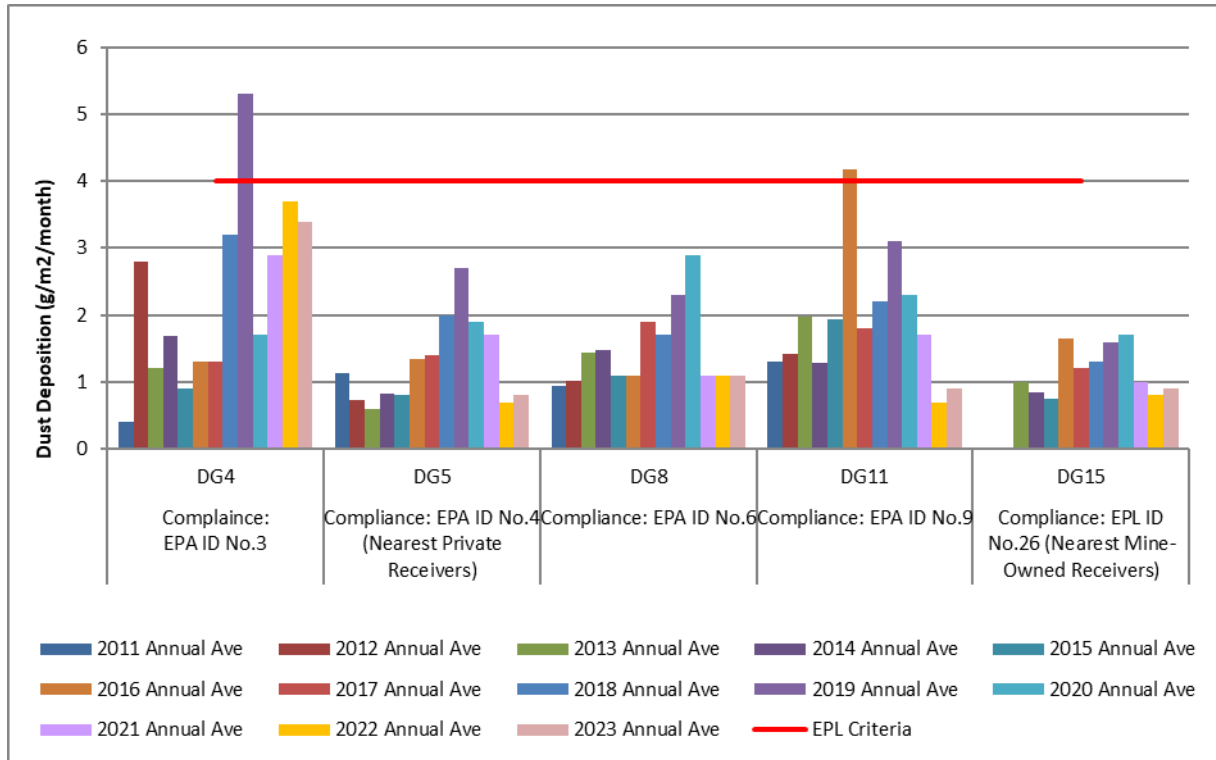
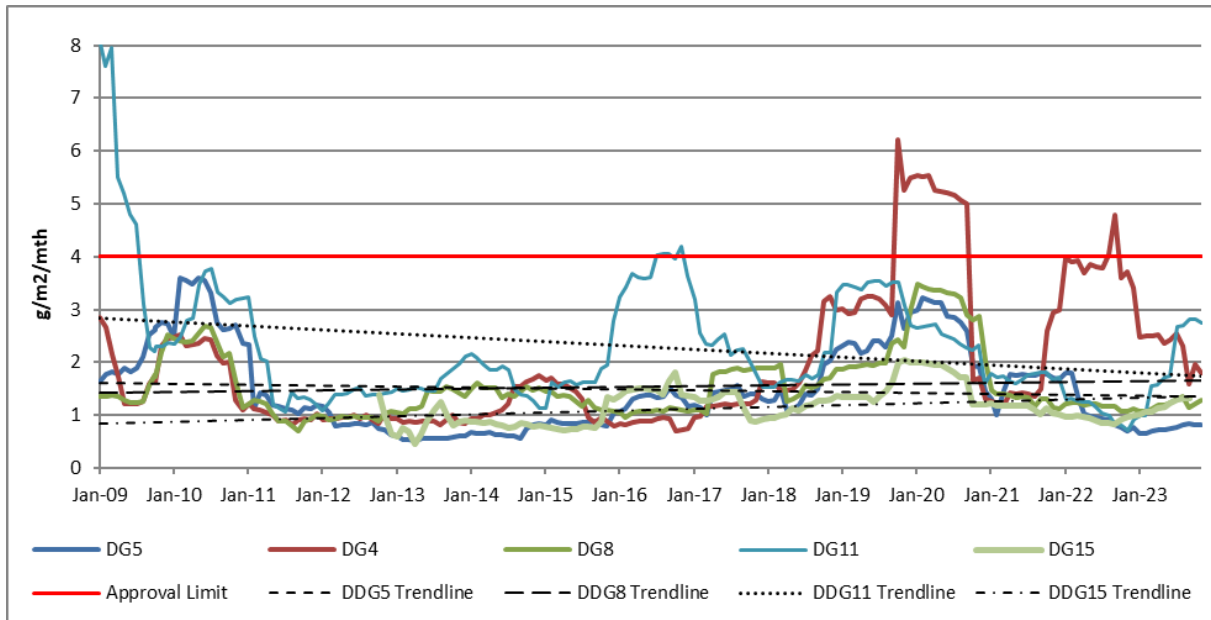
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30 µg/m ³ AE	15-20 µg/m ³ (for Wollar Road & Village of Wollar)	<p>The 2023 annual average PM₁₀ concentrations for “all days” were below criterion of 30µg/m³:</p> <table border="1"> <thead> <tr> <th rowspan="2">6 Day Cycle</th> <th>HV1</th> <th>HV4</th> <th>HV5</th> </tr> <tr> <th>µg/m³</th> <th>µg/m³</th> <th>µg/m³</th> </tr> </thead> <tbody> <tr> <td>PM₁₀ (Ave)</td> <td>10.0</td> <td>12.0</td> <td>11.4</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th rowspan="2">Continuous</th> <th>TEOM3</th> <th>TEOM4</th> </tr> <tr> <th>µg/m³</th> <th>µg/m³</th> </tr> </thead> <tbody> <tr> <td>PM₁₀ (Ave)</td> <td>10.2</td> <td>12.1</td> </tr> </tbody> </table>	6 Day Cycle	HV1	HV4	HV5	µg/m ³	µg/m ³	µg/m ³	PM ₁₀ (Ave)	10.0	12.0	11.4	Continuous	TEOM3	TEOM4	µg/m ³	µg/m ³	PM ₁₀ (Ave)	10.2	12.1	<p>The 2023 annual average PM₁₀ concentrations were below the relevant Consent criterion of 30µg/m³.</p> <p>The annual average PM₁₀ concentrations in 2023 are generally well aligned with the modelled predictions for TEOM 3 located in the Village of Wollar. The annual average PM₁₀ levels in 2023 are slightly higher than the levels in previous years, in correlation to below annual average rainfall in 2023.</p> <p>Annual average PM₁₀ measured levels are generally lower than the model prediction.</p> <p>The slight increase of the PM₁₀ annual average is likely due to the ending of three consecutive years of above average annual rainfall from 2020-2022, with a decreasing annual rainfall recorded in 2023. For further results refer to Appendix 3B.</p>	<p>In 2023, Figure 6A displays lost time hours associated with implementation of dust management strategies (i.e., lost time only captured for primary dig implements such as dozers, excavators and loaders) as a direct result of modifying the operations to remain compliant with relevant air quality criteria.</p> <p style="text-align: center;">Figure 6A Lost Hours in 2023</p>  <p style="text-align: center;">2023 Lost Hours</p> <table border="1"> <thead> <tr> <th>Category</th> <th>Hours</th> </tr> </thead> <tbody> <tr> <td>Dust</td> <td>4635</td> </tr> <tr> <td>Fog</td> <td>648</td> </tr> <tr> <td>Lightning</td> <td>3447</td> </tr> <tr> <td>Noise</td> <td>322</td> </tr> <tr> <td>Rain</td> <td>61</td> </tr> </tbody> </table> <p style="text-align: center;"> ■ Dust ■ Fog ■ Lightning ■ Noise ■ Rain </p>	Category	Hours	Dust	4635	Fog	648	Lightning	3447	Noise	322	Rain	61
6 Day Cycle	HV1	HV4		HV5																															
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PM_{2.5} (24hr & Annual Average Concentrations)																																			
No criteria established	3-4 µg/m ³ (for Village of Wollar)	<p>The 2023 annual average and 24hr PM_{2.5} concentrations were below the relevant adopted NEPM criterion.</p> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th>Annual Average</th> <th>Max. 24hr</th> <th>Days > NEPM</th> </tr> <tr> <th>µg/m³</th> <th>µg/m³</th> <th>µg/m³</th> </tr> </thead> <tbody> <tr> <td>2023</td> <td>5.1</td> <td>21.5</td> <td>0.6</td> </tr> </tbody> </table> <p>Adopted NPEM criteria in accordance with AQMP:</p> <ul style="list-style-type: none"> Annual Average: 8 µg/m³ 24 Hour: 25 µg/m³ 		Annual Average	Max. 24hr	Days > NEPM	µg/m ³	µg/m ³	µg/m ³	2023	5.1	21.5	0.6	<p>The annual average PM_{2.5} levels in 2023 are slightly higher than the levels in previous years.</p> <p>The annual average PM_{2.5} concentrations in 2023 are generally aligned with the modelled predictions for TEOM 5 located in the Village of Wollar although is slightly higher than the modelled results by approximately 1.4µg/m³. Non-modelled local PM_{2.5} sources include combustion engines, transport movements and various human activities.</p> <p>As discussed above the below average annual rainfall in 2023 correlates with a slight increase of the PM_{2.5} annual average results for 2023. For further results refer to Appendix 3B.</p>																					
	Annual Average	Max. 24hr		Days > NEPM																															
	µg/m ³	µg/m ³	µg/m ³																																
2023	5.1	21.5	0.6																																
<p>Notes: g/m²/month = grams per square metre per month. µg/m³ = micrograms per cubic metre. (A) Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources); (B) Incremental impact (i.e. incremental increase in concentrations due to the development on its own); (C) Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method; and (D) Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Director-General. (E) Annual Averaging Period. F) 24 Hour Averaging Period.</p>																																			

Figure 6-1 Compliance Annual Average Dust Deposition Results 2011 – 2023



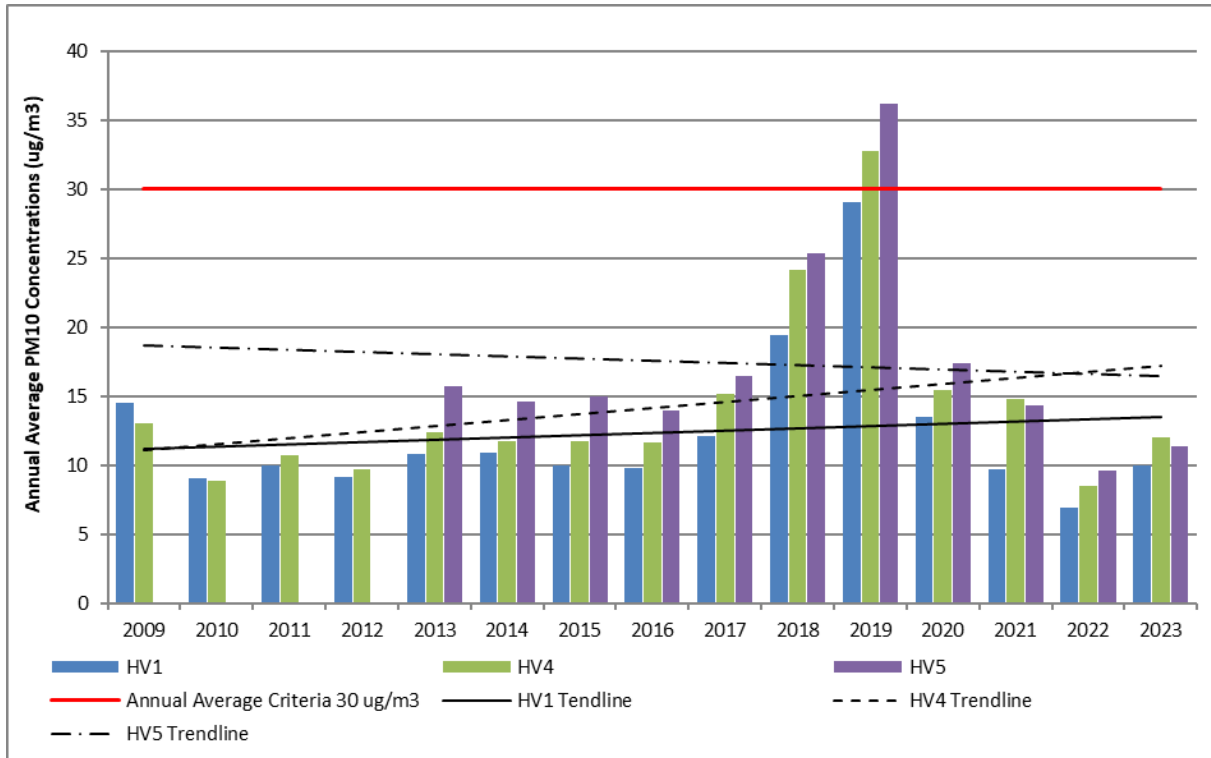
Notes: Based on the positioning of the compliance monitors at WCM, it can be assumed that the DG8 monitor is sufficiently away from mining activity and is generally represented of background levels for the area. On this basis, the potential incremental contribution from WCM can be estimated as the level recorded at the compliance monitors minus the level at DG8.

Figure 6-2 Compliance Dust Deposition Trends (Rolling Averages) 2009-2023



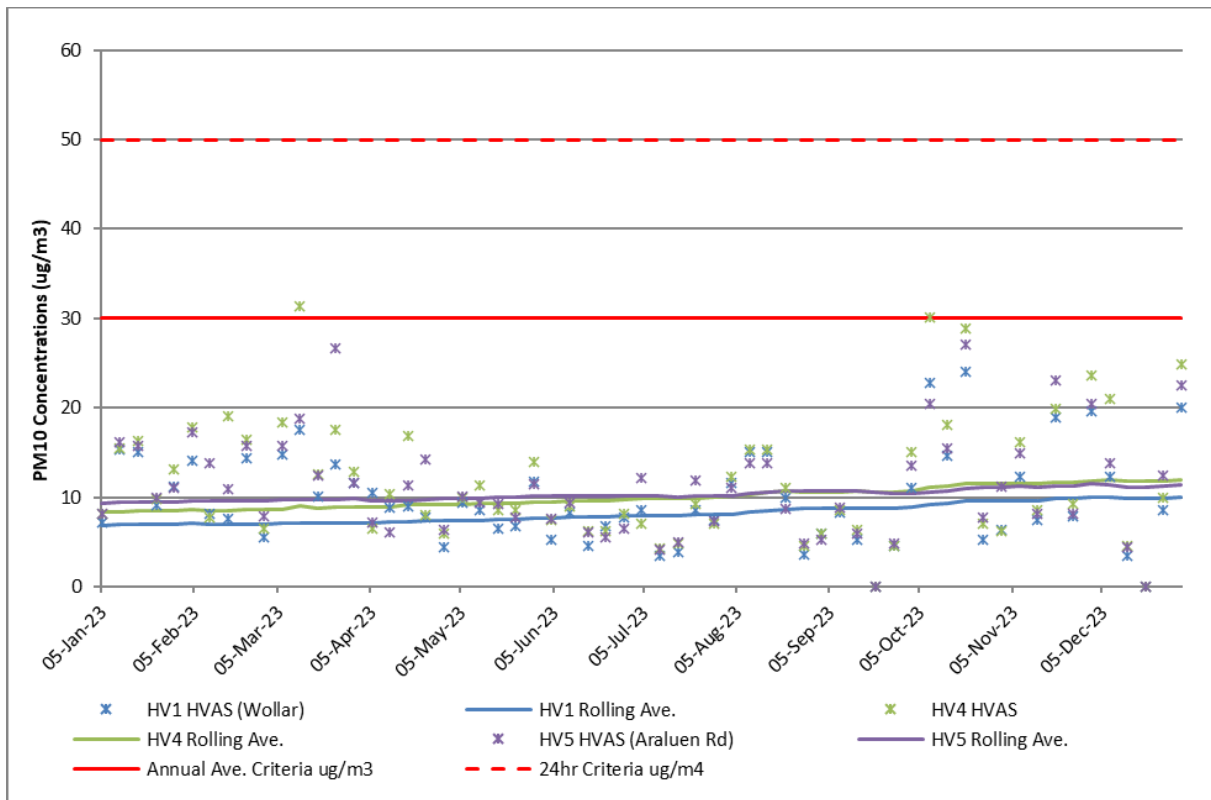
Notes: Drought conditions and extraordinary events impacted the background deposited dust levels in 2020. Currently, the nearest privately-owned residence to the DG4 monitor is located over 5km away and thus the DG4 monitor is no longer considered to be representative of dust levels at privately owned residences.

Figure 6-3 Compliance HVAS Annual Average PM₁₀ Results and Trends 2009 – 2023



Notes: Elevated results in 2019 were caused by regional extraordinary events as described the 2019 Annual Review.

Figure 6-4 Compliance HVAS (Rolling Averages) Annual Average & 24hr 6-Day Cycle PM₁₀ Results 2023



Notes: The nearest private residence to the HV4 monitor is located over 5km away from the monitor, the private residency response protocol (which includes an investigation of elevated readings at monitors representative of privately owned residences) is not triggered when elevated levels are recorded at this location as such, it may be more appropriate use to use HV4 as a management monitor rather than compliance monitor.

Figure 6-5 Compliance TEOM 24hr & Annual Average PM₁₀ Results 2023

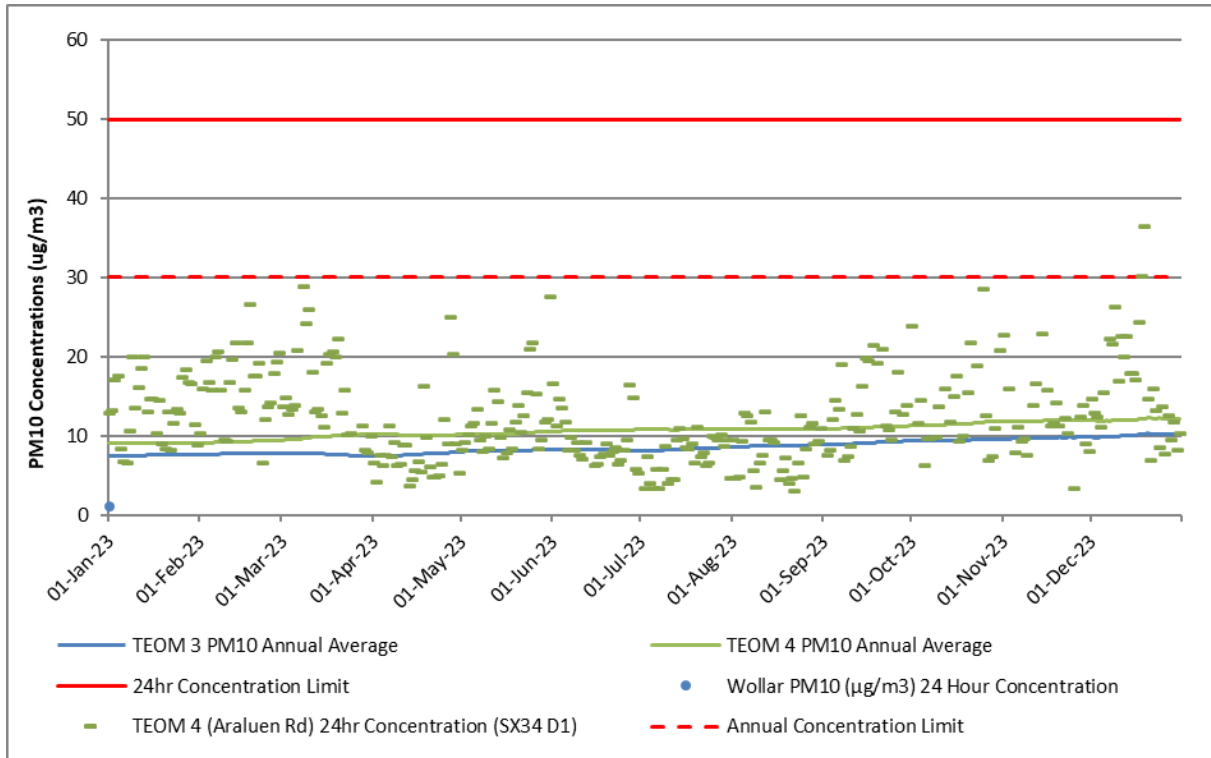
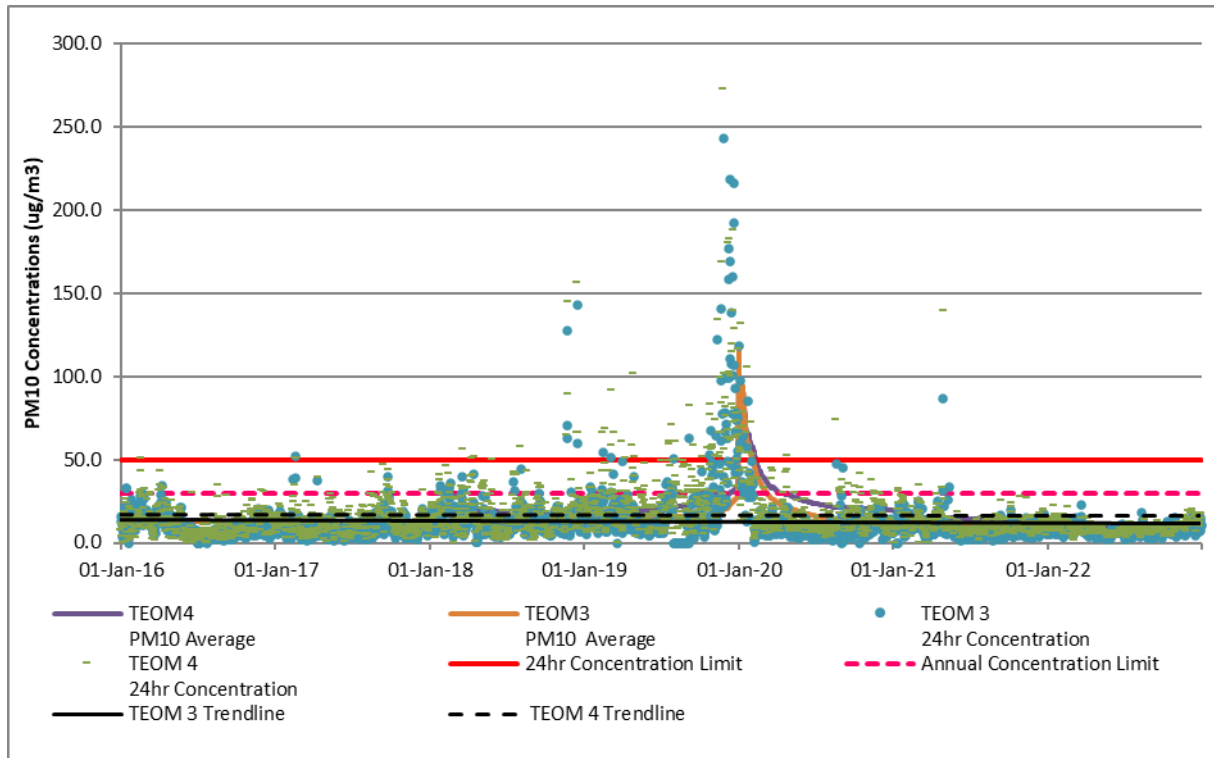
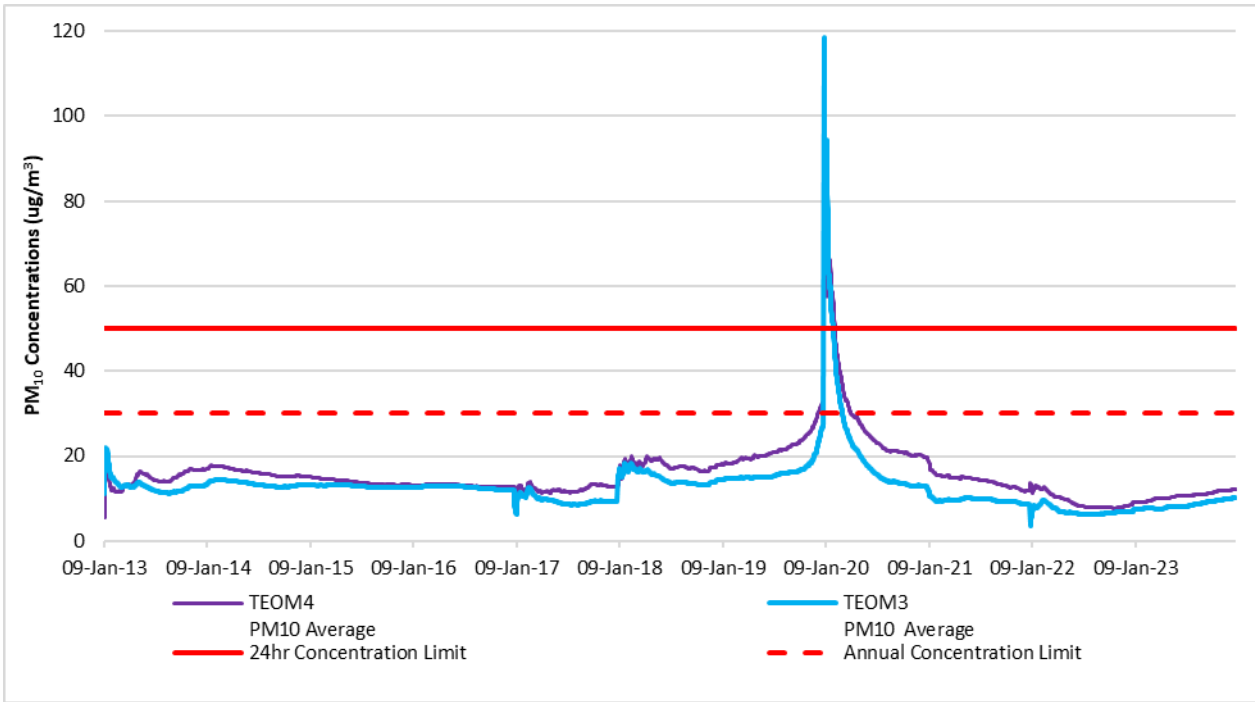


Figure 6-6 Compliance TEOM PM₁₀ 24hr Results and Trends (Rolling Averages) 2015-2023



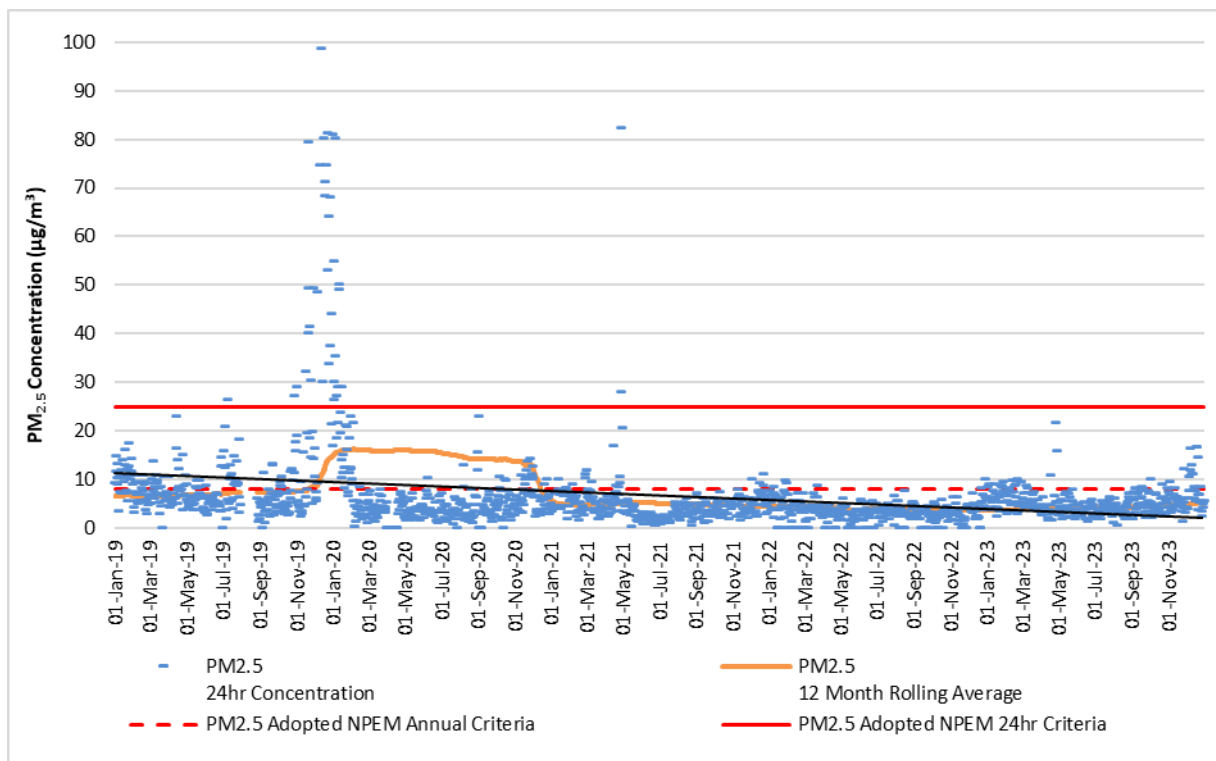
Notes: The rolling annual average levels in generally show a trend of increasing levels, with the monitors all showing a sudden increase in levels at the end of 2019 associated with the 2019/2020 NSW bushfires and a sharp drop towards the end of 2020. It is noted that in 2021 there were two days considered to be “extraordinary events” for WCM, 28/04/2021 and 29/04/2021. These days were considered extraordinary events due to smoke associated with nearby hazard reduction burns.

Figure 6-7 Compliance TEOM PM₁₀ (Rolling Averages) 2015-2023



Notes: The rolling annual average levels in generally show a trend of increasing levels, with the monitors all showing a sudden increase in levels at the end of 2019 associated with the 2019/2020 NSW bushfires and a sharp drop in 2020 coinciding with the return of above average rainfall.

Graph 1 Compliance TEOM PM_{2.5} 24hr Results and Trends (Rolling Averages) 2018-2023



Notes: PM_{2.5} levels at the end of 2019 and start of 2020 are significantly elevated compared with the rest of the data. The levels were affected by bushfire smoke across NSW during the 2019/2020 bushfire season. It is noted that in 2021 there were two days considered to be “extraordinary events” for WCM, 28/04/2021 and 29/04/2021 due to smoke associated with nearby hazard reduction burns.

EIS Predictions

All privately-owned receivers were predicted to comply with the EPA's criteria for 24-hour average PM₁₀, annual average PM₁₀ and annual average TSP concentrations as well as annual average dust deposition and the Ambient Air – NEPM advisory reporting standards for 24-hour and annual average PM_{2.5} concentrations for the Project Years 2, 4, 8, 12 and 15 (WEP 2015). The management measures and results from the 2023 air quality monitoring program implemented by WCPL maintain the predictions made for air quality assessment in the *Wilpinjong Extension Project Environmental Impact Statement 2015*.

Blast Monitoring

The Mine has developed and implemented a Blast Management Plan (**Table 6-4**). Blasting vibration, overpressure limits, the time and frequency of blasting are specified in Conditions 7, 8 and 9, Schedule 3 of SSD-6764.

During the 2023 Reporting Period, the Mine carried out vibration and overpressure monitoring in accordance with the Blast Management Plan (BMgtP) at the required locations in **Appendix 3E** and at the frequency displayed in **Table 6-5**.

Table 6-4 Summary of the Blasting and Vibration Monitoring Program

Location	Type	Frequency
Wollar Public School	Airblast Overpressure and Ground Vibration	Every blast
Aboriginal rock art sites: 72, 152 & 153	Ground Vibration	Every blast within 1km of Aboriginal rock art sites.
Archaeological sites: WE7, WE10, WCP535, WE76 ² & WE77 ²	Ground Vibration	Every blast within 1km of Aboriginal sites
Historical Mine Adit	Ground Vibration	Every blast within Pit 8
Railway Line/ Culvert ³	Ground Vibration	Every blast within 350m of railway culverts and 100m of railway lines
Ulan-Wollar Road	Ground Vibration	Every blast within 100m of the Ulan-Wollar Road
TransGrid Powerline Suspension Towers	Ground Vibration	Every blast within 100 of TransGrid powerline suspension towers*
Tailings Dam 3, 4, 5 or 6	Ground Vibration	Every blast within the DSC Approval area ¹

Notes: ¹ During the reporting period monitoring was not required as the trigger for blast monitoring was not either within the range. ² To date unable to relocate sites therefore monitoring of sites was not able to occur. Investigations with WCPL archaeologist could not relocate the sites in 2020. ³ Monitoring of ground vibration will be undertaken at the closet rail infrastructure when blasting is within 100 m of the railway line and/or 350 m of a railway culvert.

The BMgtP was revised in June 2023. The revised BMgtP (Version 10) was updated was updated to include all applicable figures displaying the recently granted ML1846, EL9399, landownership for property ID959 which is now Peabody owned. The revised BMgtP (Version 10) was pending approval from the DPE at the time pf preparing the 2023 Annual Review.

Table 6-5 Blast Monitoring Environmental Performance (Wollar School)

Approved Criteria				Performance During the Reporting Period	Trend/Key Management Implications	Implemented/proposed Management Actions
<i>Location</i>	<i>Airblast overpressure (dB(Lin Peak))</i>	<i>Ground vibration (mm/s)</i>	<i>Allowable exceedance</i>	<p>Blast monitoring results for the Reporting Period complied (Figure 6-8 & Appendix 3E) with the approved criteria of 115dB (<120dB) and 5mm/s (<10mm/s) at privately owned residences.</p> <p><u>Wollar Public School:</u></p> <ul style="list-style-type: none"> - Max: 113.3 dBL - Max: 1.81 mm/s <p>There was a total of 130 blasts for the 2023 reporting period.</p> <p>There were no airblast overpressures greater than the allowable 5% of all blasts i.e. >115dB and no airblast overpressures greater than the maximum 120dB for the Reporting Period.</p> <p>There were no blasts resulting in ground vibration >5mm/s limit and therefore no blasts resulting in ground vibration >10mm/s for 2023.</p> <p>No reportable fume events occurred during the 2023 reporting period. There were low concentration fume events i.e. typically lower rated events remaining on site, that did require reporting under WCPL’s Blast Fume Management Strategy.</p>	<p>All blast monitoring on privately owned land was undertaken in accordance with the Blast Management Plan in 2023.</p> <p>There were 4 blasting related community complaints in 2023, the same as in 2022 and 2021.</p> <p>All blasting events during the Reporting Period occurred during the approved times of 9.00am to 5.00pm.</p> <p>No blasting occurred on a Sunday or on a Public Holiday during the 2023 Reporting Period.</p> <p>There were no more than two blasts per day (max. of 2 allowed) and an average of 2.5 blasts per week (max. of 5 per week allowed).</p> <p>In accordance with Condition 13(c), Schedule 3 of PA05-0021 and Condition 12(d), Schedule 3 of SD6764, WCPL co-ordinated the timing of blasting with the adjoining Moolarben Coal Mine and Ulan Coal Mine to minimise the potential cumulative blasting impacts of the three mines.</p>	<p>The Blast Management Plan was reviewed in 2023 (Version 10). The revised BMgtP (Version 10) was pending approval from the DPE at the time of preparing the 2023 Annual Review</p> <p>The Blast Fume Management Strategy was reviewed in 2022 (Version 6). The review included update to Figure 1 to include sensitive receivers for workers at the RO plant, post fume event reporting requirements and updated mitigation measures. WCPL completed review of the Blast Fume Management Strategy and determined at the time of the 2023 review amendments were not required.</p> <p>The current <i>Blast Management Plan (Version 9.1)</i> and the <i>Blast Fume Management Strategy (Version 6.0)</i> were last approved on 17 December 2022 by the DPE.</p>
<i>Residence on privately owned land</i>	115	5	5% of the total number of blasts over a rolling period of 12 months			
	120	10	0%			
<i>All public infrastructure</i>	-	50 <small>(or a limit determined by the structural design methodology in AS 2187.2-006, or its latest version, or other alternative limit for public infrastructure, to the satisfaction of the Secretary)</small>	0%			

However, these criteria do not apply if the Applicant has a written agreement with the relevant owner to exceed these criteria, and has advised the Department in writing of the terms of this agreement.

Table 6-6 Blast Monitoring Environmental Performance (Public Infrastructure)

Approved Criteria			Performance During the Reporting Period	Trend/Key Management Implications	Implemented/proposed Management Actions
Location	Ground vibration (mm/s)	Allowable exceedance	Blast monitoring results for the Reporting Period complied with the approved criteria of 200mm/s at a Main Rail Line opposite (Pit 8):	All blast monitoring of public infrastructure was undertaken in accordance with the Blast Management Plan.	<p>The Blast Management Plan was reviewed in 2023 (Version 10). The revised BMgtP (Version 10) was pending approval from the DPE at the time of preparing the 2023 Annual Review</p> <p>The Blast Fume Management Strategy was reviewed in 2022 (Version 6). The review included update to Figure 1 to include sensitive receivers for workers at the RO plant, post fume event reporting requirements and updated mitigation measures. WCPL completed review of the Blast Fume Management Strategy and determined at the time of the 2023 review amendments were not required.</p> <p>The current <i>Blast Management Plan (Version 9.1)</i> and the <i>Blast Fume Management Strategy (Version 6.0)</i> were last approved on 17 December 2022 by the DPE.</p>
Tailings Dam¹	50	0%	<ul style="list-style-type: none"> - Max: 15.58 mm/s - Ave: 1.56 mm/s 	All vibration results were below the ground vibration criteria as approved by ARTC of 100mm/s as monitored at Main Rail Culverts opposite Pit 8.	
Railway Lines²	200	-	Blast monitoring results for the Reporting Period complied with the approved criteria of 100mm/s at Ulan-Wollar Road/Main Rail Culvert opposite (Pit 8):	All vibration results were below the ground vibration criteria as approved by ARTC of 200mm/s as monitored at Main Rail Line opposite Pit 8.	
Railway Culverts³	100	-	<ul style="list-style-type: none"> - Max: 14.73 mm/s - Ave: 1.62 mm/s 	All other vibration results were below the ground vibration criteria as approved by MWRC of 100mm/s as monitored at a Public Road Culvert opposite Pit 6 and Pit 8.	
Public Road⁴	200	-	Blast monitoring results for the Reporting Period complied with the approved criteria of 100mm/s at Ulan-Wollar Road/Main Rail Culvert (West) opposite (Pit 6):	No blast monitoring was required at TD6 as all blasts during 2023 were outside the DSC Approval Area.	
Public Road Infrastructure⁵	100	-	<ul style="list-style-type: none"> - Max: 83.46 mm/s - Ave: 4.39 mm/s 	No blast monitoring was required along the TransGrid Powerline as all blasts during 2023 were not within 100m of this infrastructure.	
Transgrid Powerline⁶	50	-	Blast monitoring results for the Reporting Period complied with the approved criteria of 100mm/s at Ulan-Wollar Road/Main Rail Culvert (Far West) opposite (Pit 6):		
<p>1) Dam Safety Committee approved 2) As agreed with ARTC when blasting within 100m 3) As agreed with ARTC when blasting within 300m 4) As agreed with MWRC when blasting within 100m 5) As agreed with MWRC when blasting within 350m 6) As agreed with Transgrid when blasting within 100m of a tower.</p> <p>Note: However, these criteria do not apply if the Applicant has a written agreement with the relevant owner to exceed these criteria, and has advised the Department in writing of the terms of this agreement.</p>			<ul style="list-style-type: none"> - Max: 85.17 mm/s - Ave: 6.16 mm/s 		
			Blast monitoring results for the Reporting Period complied with the approved criteria of 100mm/s at Ulan-Wollar Road/Main Rail Culvert (East) opposite (Pit 6):		
			<ul style="list-style-type: none"> - Max: 28.95 mm/s - Ave: 1.76 mm/s 		

Table 6-7 Blast Monitoring Environmental Performance (Heritage Sites)

Approved Criteria		Performance During the Reporting Period			Trend/Key Management Implications	Implemented/proposed Management Actions
Location	Ground vibration (mm/s)	Blast monitoring results for the Reporting Period complied with the approved criteria of 80mm/s at Archaeological Sites 72, 152, 153, WE7, WE10 & WCP535:			<p>All blast monitoring requirements of Aboriginal Heritage Sites were undertaken in accordance with the Blast Management Plan in 2023.</p> <p>All blast monitoring requirements of the historical Mine Adit in Slate Gully were undertaken in accordance with the Blast Management Plan in 2023.</p> <p>All vibration results were below the performance criteria of damage criteria of 80mm/s and/or 250mm/s respectively for Archaeological Sites 72, 152, 153, WE7, WE10 & WCP535 in 2023.</p> <p>All vibration results were below the performance criteria of 80mm/s of the historical Mine Adit in Slate Gully in 2023.</p> <p>The blast monitoring requirements were not triggered during Reporting Period at sites WE76 and WE77 as sites could not be relocated for monitoring since surveyed for the WEP.</p> <p>Monitoring for microbats utilising the historical Mine Adit in Slate Gully continued in 2023 as required by the Biodiversity Management Plan and the Blast Management Plan.</p>	<p>The Blast Management Plan was reviewed in 2023 (Version 10). The revised BMgtP (Version 10) was pending approval from the DPE at the time pf preparing the 2023 Annual Review</p> <p>The Blast Fume Management Strategy was reviewed in 2022 (Version 6). The review included update to Figure 1 to include sensitive receivers for workers at the RO plant, post fume event reporting requirements and updated mitigation measures. WCPL completed review of the Blast Fume Management Strategy and determined at the time of the 2023 review amendments were not required.</p> <p>The current <i>Blast Management Plan (Version 9.1)</i> and the <i>Blast Fume Management Strategy (Version 6.0)</i> were last approved on 17 December 2022 by the DPE.</p> <p>In accordance with the Blast Management Plan the control strategies were implemented at the Mine in order to minimise the potential for exceedances of the relevant blasting criteria applicable to Heritage Sites and on this basis will continue to implement the Blast Management Plan and review blasting performance in next Reporting Period.</p>
Archaeological Sites 72, 152 and 153 within ML	Performance Indicator 80 ¹ Damage Criteria 250 ¹	Rock Art (Site 152) Pit 5 South (mm/s)	Rock Art (Site 153) Pit 5 North (mm/s)	Castle Rock (Site 72) (mm/s)		
Archaeological Sites WE7, WE10 & WCP535 in the Munghorn Gap Nature Reserve	Performance Indicator 80 ² Damage Criteria 250 ²	Max 1.24	2.91	1.48		
Archaeological Sites WE76 & WE77 in the Munghorn Gap Nature Reserve	Performance Indicator 80 ² Damage Criteria 250 ²	Min 0.01	0.02	0.00		
Mine Adit	- 80 ³	Ave 0.24	0.41	0.29		
		Rock Shelter WE7* (mm/s)	Rock Shelter WE10* (mm/s)	Rock Shelter WE535 (mm/s)		
		Max 0.00	0.00	2.29		
		Min 0.00	0.00	0.01		
		Ave 0.00	0.00	0.40		
		Notes: * Blast monitoring not required as blasting activities not within 1km in 2023.				
		Blast monitoring results for the reporting period complied with the approved criteria of 80mm/s at the Slate Gully Mine Adit:				
		Slate Gully Mine Adit (mm/s)				
		Max 30.97				
		Min 0.00				
		Ave 2.62				

1) When blasting within 1 km 2) Representative site when blasting within 1 km 3) When blasting in Pit 8

Figure 6-8 Blasting Monitoring Results for 2023 (Wollar School)

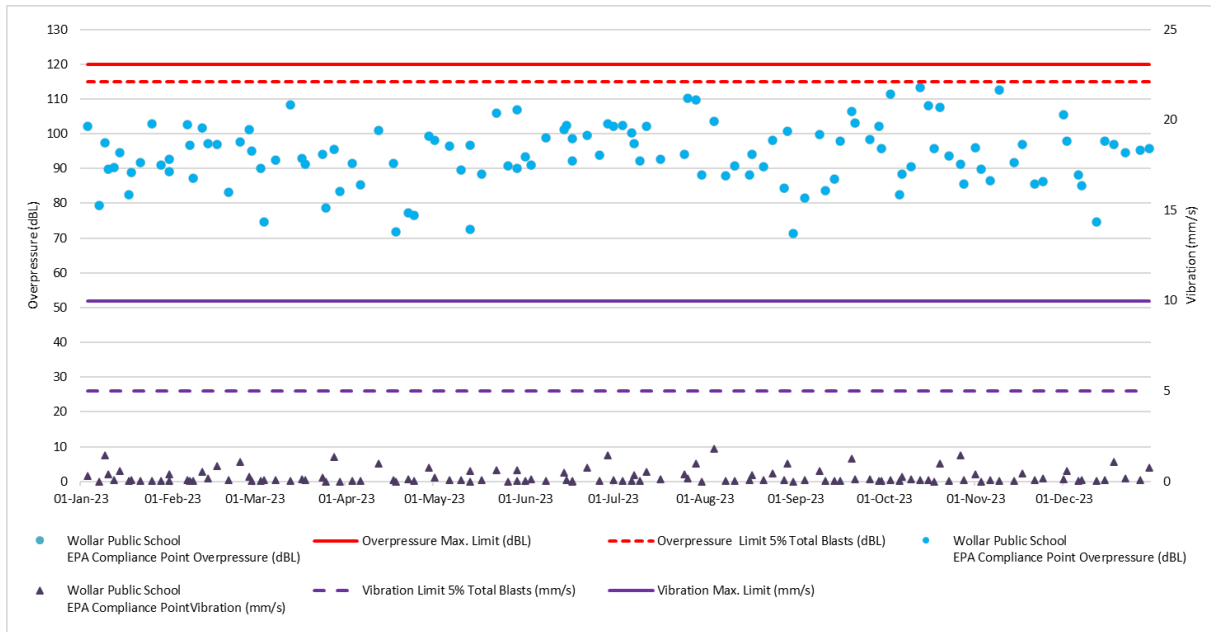
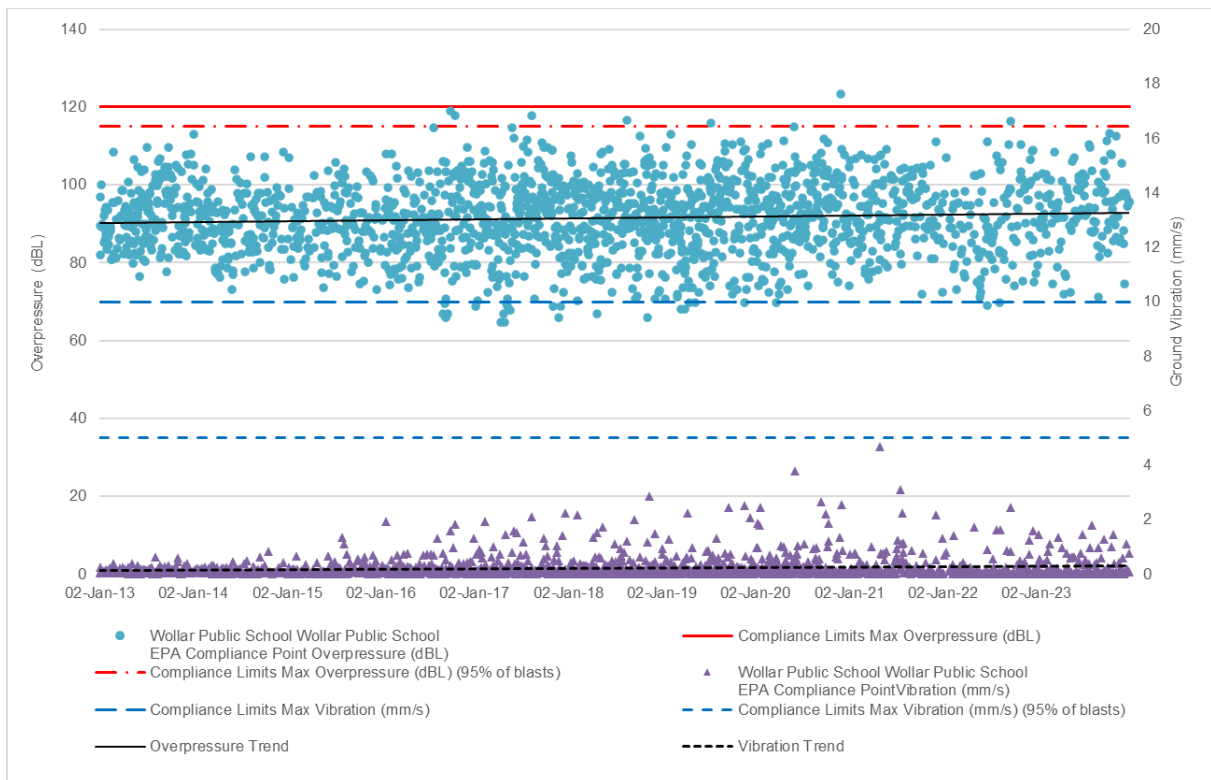


Figure 6-9 Blasting Monitoring Trends 2013 to 2023 (Wollar School)



EIS Predictions

The blasting assessment indicates that no exceedances of relevant airblast or vibration criteria would occur at any privately-owned receivers, community facilities or historical heritage sites in the Village of Wollar for the typical maximum blast MIC proposed for the Project (up to approximately 3,900 kilograms [kg]). Through the continued management of blast MICs, there would be no exceedances of vibration damage criteria at any Aboriginal rock shelter sites with art in the vicinity of the Wilpinjong Coal Mine (WEP 2015). The management measures and results from the 2023 blast monitoring program implemented by WCPL

maintain the predictions made for the blasting assessment in the *Wilpinjong Extension Project Environmental Impact Statement 2015*.

Noise Monitoring

The Mine has developed and implemented a Noise Management Plan (NMP). During the 2023 Reporting Period a combination of both attended and unattended noise monitoring programs were undertaken to assess the performance of the Mine against the Noise Criteria (**Table 6-8**).

Attended noise monitoring is used for determining compliance against the Noise Criteria whilst unattended or real-time monitoring is primarily utilised as a proactive noise control system; providing noise alerts when predetermined noise levels are triggered so mining operations can be modified to lower the noise impacts on receptors. A summary of noise monitoring results is provided in **Table 6-9**.

Further noise monitoring results for 2023 Reporting Period, including figures with noise monitoring locations are provided in **Appendix 3F**.

Table 6-8 Summary Noise Monitoring Program

Location	Monitoring Site	Parameter	Frequency
St Laurence O'Toole Church [^]	N6	Attended Noise	Monthly
Tichular	N14	Attended Noise	Monthly
Wollar Village	N15	Attended Noise	Monthly
Araluen Rd*	N16	Attended Noise	Monthly
Mogo Rd	N17	Attended Noise	Monthly
Mogo Rd	N19	Attended Noise	Monthly
Ringwood Rd	N20	Attended Noise	Monthly
WCPL Rail Loop	-	Meteorology & Inversion	Continuous
Wollar Village	-	Real-Time Noise - Fixed	Continuous
Mogo Rd	-	Real-Time Noise - Fixed	Continuous
Ringwood Rd	-	Real-Time Noise - Fixed	Continuous
Tichular	-	Real-Time Noise - Mobile	Continuous

Notes: [^] Owned by WCPL.

The NMP (Version 8) was revised in June 2023 updated to include all applicable figures displaying the recently granted ML1846, EL9399, landownership for property ID959 which is now Peabody owned. The revised NMP (Version 8) was pending approval from the DPE at the time of preparing the 2023 Annual Review.

Locations N17 and N19 were not accessible in January 2023 due to a road closure related to flooding. There were no suitable alternate locations to represent N17 and N19 that were accessible, so no monitoring occurred for these locations.

EIS Comparison

The following 2023 noise monitoring summary from the *Wilpinjong Coal – Annual Environmental Monitoring Report 2023* (EMM 2024) included:

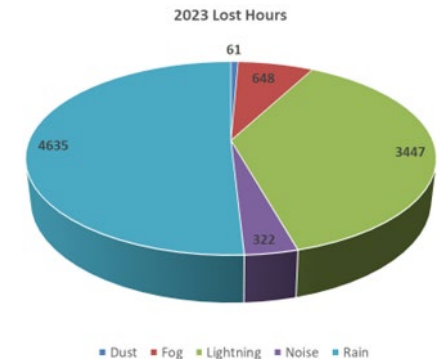
- During 2023 attended noise monitoring, noise levels from WCP complied with relevant noise limits at all monitoring locations.
- Site only LAeq noise levels were low (either IA, NM, or less than 30 dB) for a large majority of measurements at all monitoring locations. At N14, N19, and N20, site only LAeq noise levels were inaudible or less than 30 dB during all attended noise monitoring measurements. At N6, N15, and N17, site only LAeq noise levels were occasionally above 30 dB and long-term noise trend lines indicate site only LAeq noise levels have increased slightly during attended noise monitoring.

-
- When comparable, measured noise levels were lower than predicted noise levels under corresponding meteorological conditions at all locations during all measurements, with one exception. During the September 2023 measurement at N15, the measured site only LAeq and LA1,1minute were both 4 dB higher than predicted under strong inversion conditions.

Table 6-9 Noise Monitoring Environmental Performance

Approved Criteria					Performance During the Reporting Period	Trend/Key Management Implications	Implemented/proposed Management Actions
Property ID & Location ¹	Day ²	Evening ³	Night ⁴		<p>Attended noise monitoring during 2023 was undertaken monthly as required by the NMP at N6, N14, N14, N17, N19 and N20 (Table 17) during the night periods of 17 January, 20/21 February, 16/17 March, 20/21 April, 30/31 May, 27/28 June, 12/13 July, 28/29 August, 18 September, 24 October, 27 November and 5 December.</p> <p>During 2023 attended noise monitoring, noise levels from WCP complied with relevant noise limits at all monitoring locations, with a single exception at N15.</p> <p>Noise levels from site complied with relevant limits at all monitoring locations, excluding the first measurement at N15 during the September 2023 survey. A remeasure was taken 15 minutes after the exceedance at N15 and noise levels were compliant.</p> <p>Noise limits were not applicable due to meteorological conditions at the time of monitoring (EMM 2024) (Appendix 3F).</p> <p>Low frequency assessments were carried out in accordance with the EPA 'Noise Policy for Industry' (NPfI). Low frequency modification factors were implemented when applicable and did not result in any exceedances of WCP noise limits (Appendix 3F).</p>	<p>As recorded in 2022, there were 47 noise complaints in 2023. WC staff investigated the complaints and determined that the low frequency (LF) levels recorded by the nearest real time noise monitor were compliant with the Noise Criteria. All noise complaints were responded to as required by WCPL (Section 9.0).</p> <p>Long Term Trends</p> <p>Site only LAeq noise levels were low (either IA, NM, or less than 30 dB) for a large majority of measurements at all monitoring locations (EMM, 2024).</p> <p>At N14, N19, and N20, site only LAeq noise levels were inaudible or less than 30 dB during all attended noise monitoring measurements (EMM, 2024).</p> <p>At N6, N15, and N17, site only LAeq noise levels were occasionally above 30 dB and long-term noise trend lines indicate site only LAeq noise levels have increased slightly during attended noise monitoring (EMM, 2024).</p> <p>Validation reports of real time noise monitoring are now conducted monthly and are provided in Appendix 3F.</p>	<p>The Noise Management Plan was reviewed in 2023 (Version 9). The revised NMP (Version 9) was pending approval from the DPE at the time of preparing the 2023 Annual Review</p> <p>The current <i>Noise Management Plan (Version 8)</i> was last approved on 17 December 2022 by the DPE</p> <p>Continue to implement the Noise Management Plan (NMP) in accordance Condition 5, Schedule 3 of SSD-6764.</p> <p>In 2023 Figure 6A displays the lost time hours associated with implementation of noise management strategies (i.e., lost time only captured for primary dig implements such as dozers, excavators and loaders) as a direct result of modifying the operations to remain compliant with relevant noise criteria.</p>
102	36	36	38	45			
Wollar Village – Residential ⁵	36	37	37	45			
All other privately owned land	35	35	35	45			
901 – Wollar School	35 (internal) 45 (external) When in use			-			
150A – St Luke’s Anglican Church ⁶	40 (internal) When in use			-			
900 – St Laurence O’Toole Catholic Church ⁶				-			
<p>Notes: 1) To interpret the locations refer to Table 18 and Appendix 3F.</p> <p>2) Day is defined as the period from 7 am to 6 pm Monday to Saturday and 8 am to 6 pm Sunday and Public Holidays.</p> <p>3) Evening is defined as the period 6 pm to 10 pm.</p> <p>4) Night is defined as the period from 10 pm to 7 am Monday to Saturday and 10 pm to 8 am Sunday and Public Holidays.</p> <p>5) Wollar Village EPL intrusive noise limits are currently day 36dBA, evening 35dBA and night 35dBA.</p> <p>6) Both Properties 150A and 900 are owned by WCPL. Both buildings have been deconsecrated and are no longer places of worship.</p>							

Figure 6A Lost Hours in 2023



6.3 Heritage

The Mine has developed and implemented an Aboriginal Cultural Heritage Management Plan (ACHMP) (**Table 3-2**). Four routine rounds of Cultural Heritage meetings were undertaken in 2023 (inclusive of RAPCC) in March, June, September and December. Additionally, an extraordinary RAPCC meeting was held in February 2023 to announce that WCPL would not be mining Rocky Hill (a culturally significant complex of sites located in Pit 8). Key heritage and environmental issues that were raised during consultation included summary of mining operations, exploration, review of Aboriginal Cultural Heritage Management Plan (ACHMP), management of Aboriginal heritage including rock shelters and salvage works program.

The ACHMP was reviewed in June 2022 (Version 9) with minor amendments including updating table of known sites and figures accordingly. The ACHMP (Version 9) was approved by the DPE on the 23 August 2022. WCPL completed review of the ACHMP (Version 9) in 2023 and determined at the time the ACHMP did not require further revisions.

During the 2023 Reporting Period, a number of archaeological surveys, due diligence surveys, surface salvage works and other programs and investigations were carried out, including but not limited to:

- Surface clearance for clean water diversions (Pit 8 Slate Gully North);
 - No lithic items found.
- Surface clearance for timber habitat (Pit 8 Slate Gully South);
 - One lithic item found.
- Due diligence heritage surveys for exploration program for EL9399.

WCPL are required to assess and report on the following performance indicators as described in the ACHMP:

- (Nil) Number of complaints received regarding Aboriginal cultural heritage management at the Mine; &
- (Nil) Number of incidents or non-compliances recorded regarding Aboriginal cultural heritage at the Mine.

In 2023 WCPL did not exceed the performance indicators as described in the ACHMP i.e. no complaints were received, and no incidents or non-compliance occurred regarding Aboriginal heritage.

The Mine has developed and implemented a Historic Heritage Management Plan (HHMP) in accordance with Condition 49, Schedule 3 of SSD-6764, the HHMP includes a program and description of the measures/procedures that would be implemented for historic heritage management at the Wilpinjong Coal Mine.

In accordance with the HHMP, WCPL are to report on the performance of monitoring the Shale Oil Mine Adit in relation to blasting (**Table 6-7**). During 2023 the HHMP (now Version 7) was revised and updated to include a record of WCPL owned dilapidated buildings demolished in Wollar during 2022 which included the removal of six more depilated structures. The HHMP (Version 7) was pending reapproval at the time of preparing this 2023 Annual Review.

6.4 Biodiversity

A Biodiversity Management Plan (BMP) (Version 7.1) (**Table 3-2**) has been prepared and implemented for the Mine. In June 2021 revision of BMP included revised disturbance footprint boundary in Pit 6 and figures, accordingly, revised three-year BMP schedule, revised monitoring sites and inclusion of BVT reference sites. The BMP outlines strategies for the management of flora and fauna, threatened species, rehabilitated areas, regeneration areas, biodiversity offset areas (BOA's) and the Enhancement and Conservation Areas (ECA's). A summary report on the Biodiversity Offset requirements and progress against the 3-year Management Schedule is provided in **Appendix 5**.

The Biodiversity Offset Strategy in the BMP comprises a package of BOA's that will be set aside for conservation and managed in perpetuity, and WCPL's rehabilitation strategy. In addition, the Biodiversity Offset Strategy includes a number of ECA's and residual Regeneration Areas associated with the original Wilpinjong Coal Project that will strengthen the linkages between the rehabilitation areas and the Goulburn River National Park and Munghorn Gap Nature Reserve. In addition, the Biodiversity Offset Strategy also includes on-site rehabilitation to establish the biometric vegetation types (BVTs) and fauna habitat as required by Schedule 3, Condition 37 of the Development Consent SSD-6764.

In April 2019, WCPL finalised the BVT performance and completion criteria in consultation with OEH, DoEE and DPIE and accordingly the BMP was comprehensively updated as required to reflect the new criteria and resubmitted in June 2019. WCPL's Biodiversity Monitoring Program in the BMP includes annual monitoring of flora and fauna, and a range of landscape function indicators. This monitoring program is used to evaluate ecosystem function and performance and the success of specific management actions implemented across the various Management Domains⁴.

A summary of the 2023 flora and fauna monitoring results are provided below. A summary of the monitoring within rehabilitation areas is provided in **Section 8.2**. For the complete 2023 biodiversity monitoring reports, prepared by Ecological Australia (ELA) and Biodiversity Monitoring Services, refer to **Appendix 5**.

Eco Logical Australia (ELA) was engaged by Wilpinjong Coal Pty Ltd (WCPL) to undertake biodiversity monitoring at the Wilpinjong Coal Mine (WCM) in accordance with the WCM Biodiversity Management Plan (BMP) (WCPL 2021). Monitoring has historically been undertaken at established sites across the WCM Management Domains detailed within the BMP, including Biodiversity Offset Areas, Enhancement and Conservation Areas, Regeneration and Rehabilitation Areas, and reference sites (ELA 2024).

The 2023 monitoring program was adapted to reflect a change in biodiversity monitoring objectives, primarily, a shift to monitoring Rehabilitation Areas, including two previously established monitoring plots, plots within 2021 seeded rehabilitation areas, and the establishment of plots within 2023 seeded rehabilitation areas (ELA 2024).

Reference sites were established in 2019 and 2020 in areas that conform to WCPL's targeted rehabilitation BioMetric Vegetation Types (BVTs), in accordance with Condition 36 of the WCM Development Consent SSD 6764 (ELA 2024).

Floristic monitoring was undertaken in accordance with the biometric plot method prescribed in the BMP at both rehabilitation and reference sites. Attribute data for each site was collected and analysed to produce and overall site value score (SVS), which was then compared to both the local reference site monitoring data, and benchmark data for the target BVT. No significant conclusions can be drawn from the data at this early stage of the rehabilitation monitoring program (ELA 2024).

Landscape Function Analysis (LFA) monitoring was also undertaken within the Rehabilitation Areas and Reference Sites. A decrease in the LFA scores from 2022 to 2023 monitoring was observed, likely due to the drier climactic conditions leading up to 2023 monitoring. Although these results are largely consistent with reference sites, the Trigger Action Response Plan (TARP) has been enacted and a review of LFA data is required (ELA 2024).

Fauna monitoring was undertaken at both rehabilitation and reference sites, which identified a range of both native and introduced species utilising the areas. Native fauna included birds, microbat species, mammals, reptiles and amphibians. Of these, 10 species listed as threatened under *the NSW Biodiversity Conservation Act (BC Act) 2016* and/or the *Commonwealth Environmental Protection and Biodiversity Act (EPBC Act) 1999* were recorded. Five feral pest animal species and three priority weed species (Local Land Services 2023) were recorded within the rehabilitation areas (ELA 2024).

⁴ Mine closure or rehabilitation domains are identified in the WCPL's RMP.

Bird species richness in the rehabilitation areas was comparable with 2022 results. R6 remained the same and R9 increased slightly. This is a positive indication that despite the drier year and subsequent drop in water sources and food availability, increases in bird diversity will continue to be recorded as the vegetation develops in rehabilitation areas. A range of surrogate nectivorous bird species were recorded at both rehabilitation sites, indicated that the sites may function as suitable habitat for the Regent Honeyeater in the long-term. In addition, flowering eucalypts were recorded in the rehabilitation areas during summer and spring (ELA 2024).

Up to 21 microbat species were recorded during spring surveys, including seven (7) species listed as vulnerable on the BC Act and EPBC Act. Microbat monitoring has been conducted on the rehabilitation areas for a number of years and shows the presence of a variety of bat species using the area, presumably as foraging habitat only due to the immaturity of trees and lack of old growth hollows. Species richness has increased since 2022 and it is encouraging to record a diversity of microbats utilising the rehabilitation areas even if only for foraging (ELA 2024).

Slate Gully Mine Adit Monitoring

An abandoned underground oil shale mine at Slate Gully, Wilpinjong NSW, supports colonies of two microbat species; Eastern Horseshoe-bat (*Rhinolophus megaphyllus*) and Large Bent-winged Bat (*Miniopterus orianae oceanensis*, formerly known as Eastern Bentwing-bat *Miniopterus schreibersii oceanensis*). Monitoring undertaken since April 2017 indicates that less than 50 Eastern Horseshoe-bats inhabit the mine workings throughout the year. From exit counts conducted to date, numbers of this species do not vary substantially throughout the year. Numbers of the Large Bent-winged Bat inhabiting the mine vary considerably more throughout the year (BMS, 2024).

In accordance with the BMP, Eastern-Bentwing Bat Management Strategies were undertaken in 2019 with the installation of a section of 1000mm diameter steel pipe culvert inserted into the adit to ensure access/egress for microbat species. To mitigate the potential for future collapse, rock debris was removed from around the entrance. On further recommendations provided by WCPL's microbat specialist, further rock material was removed in 2020 from around the top of the pipe to maintain access for microbats through the existing adit entry (**Photo 1**). In 2023 upgrades to the bat adit culvert were undertaken (**Photo 2**). The much larger 1200mm wide new culvert was designed and installed in consultation with UCML's microbat specialists and is considered above the requirement for bats to maximise their ability to leave and return to the Adit, as this had previously been reached with the 1000mm (wide) culvert.

Mining excavation works began in early 2020 approximately 600m to the northeast of the adit. Previous plans estimated the pit to come within 150m of the adit sometime in 2021, but by February 2023 only a clearwater drain existed within 150m of the adit. In February 2023 the main pit was approximately 430m away. By February 2024, the topsoil stripping is approximately 100m from the adit (to clearwater drain), and the main pit is approximately 350m east of the adit. Bats within the workings have been, or will be, subject to artificial lighting (Linley 2016), vibration and noise. There is also the potential for dust and fumes associated with the open cut operations (BMS, 2024).

Exit counts of bats leaving the adit, as well as capture of exiting bats, has been undertaken over the past seven years to determine what species are utilising the old oil shale mine and how their numbers and sexual composition change throughout the year (*Fly By Night 2017*; *Fly By Night 2018*; *Fly By Night 2019*). This has given a firm basis to monitor colonies of the two species roosting within the workings as the adjacent area is strip mined for coal. Previously we recommended that continual monitoring of bat activity via an ultrasonic bat call detector would provide a superior method to monitor the roost long term. This report details the results of automated monitoring over a 12-month period from January 2023 to December 2023, as well as concurrent monthly hand counts of bats exiting the workings (BMS, 2024).

The activity of the Large Bent-winged Bat recorded at the detector was broadly comparable with the hand counts undertaken simultaneously at the adit. Activity of the Eastern Horseshoe-bat recorded at the detector correlated much more poorly with the hand counts. This can be attributed to the small population of Eastern Horseshoe-bats resident in the workings throughout the year compared with that of the Large

Bent-winged Bat. The activity patterns of the Eastern Horseshoe-bat (lots of coming and going) also impacts the suitability of the index for this species. From all the data collected, we estimate the population of Eastern Horseshoe-bats within the adit to be stable at 5-30 individuals. Early years have shown activity of the Eastern Horseshoe-bat peaking during the autumn and spring months, with minor activity declines over winter and summer (BMS, 2024).

Looking at bat activity before and after blasts showed mixed (increase/decrease) results. The small changes relative to normal nightly variation in activity suggest no impact from blasting in Pits 3 or 8 on the two bat species. Results, suggest that monitoring of the colony at Slate Gully through nightly recording of echolocation calls provides a feasible means of monitoring use of the disused workings by the two microbat species. Mean monthly activity for the two species can be compared prior to mining taking place in adjacent areas with that post mining. As of February 2024, mining activity is approximately 350m from the adit. As the mine moves closer in 2024, we should be able to detect any potential impacts to occupation/activity of the two cave dwelling microbat species (BMS, 2024). Refer to **Appendix E** for complete report.

Photo 1 Culvert Support & Bat Detector with Solar Panel setup 20m in front of Adit



Photo 2 Upgrades to the Bat Adit Culvert in 2023



6.5 Waste Management

The Mine has developed and implemented a waste management strategy to ensure that waste at the Mine is minimised and effectively managed. WCPL have engaged an appropriately licensed waste management contractor to perform the following activities in relation to waste management, including but not limited to;

- On-site waste management i.e. waste segregation of scrap steel, general waste, recyclables, hydrocarbons and hazardous materials;
- Off-site disposal to licensed waste facilities;
- Off-site recycling to licensed waste centres; and
- Recording and reporting waste volumes.

As required by Condition 58(f), Schedule 3 of SSD-6764, WCPL are required to report on waste management and minimisation (**Table 6-10 & Figure 6-10**) in the 2023 Annual Review. During the reporting period approximately 83% of the total waste removed from the Mine was recycled.

Appendix 3G has the complete summary of waste statistics for the 2023 Reporting Period. Approximately 329.2 tonnes of tyres were disposed of in-Pit during 2023, all of which were buried in Pit 7.

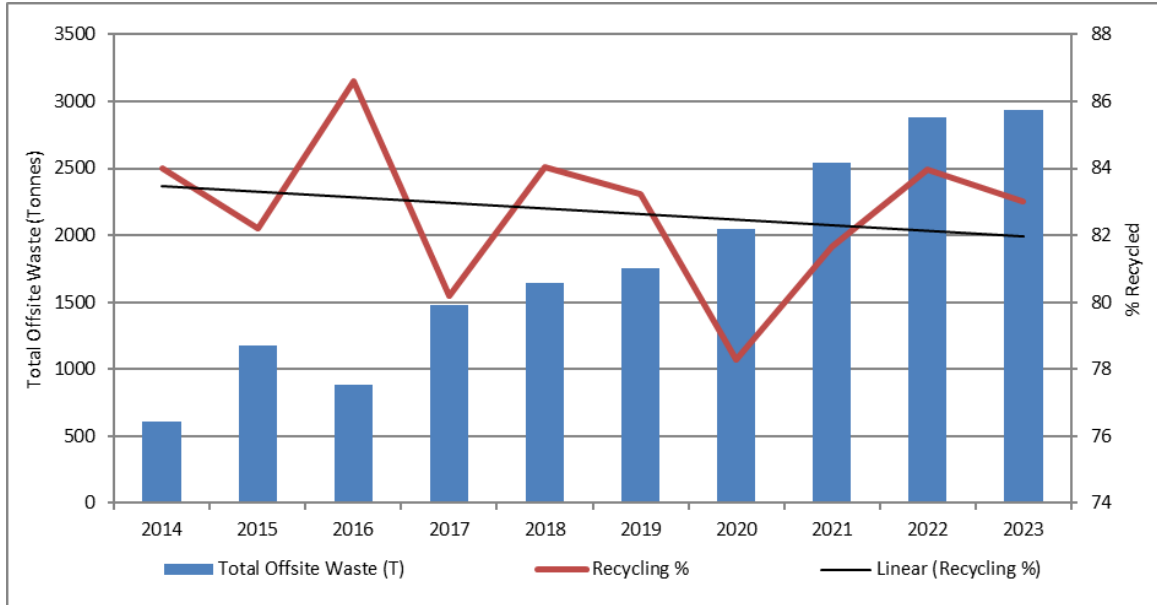
WCPL are additionally permitted to dispose of building and demolition waste in-pit, in accordance with EPL 12425. Inert waste material generated from the demolition of Peabody owned properties in Wollar during 2022 were transported to site in 2023 and disposed within Pit 7.

In 2023 there was approximately 1,440 tonnes of building and demolition waste deposited in Pit 7. This demolition of delict dwellings in Wollar is undertaken in accordance with the Social Impact Management Plan (SIMP). Asbestos recovered from the demolished properties in 2022 was removed and disposed by WCPL's licensed waste contractor in accordance with all regulatory requirements.

Table 6-10 Summary of Monthly Waste Statistics for 2023

Totals	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Totals
Total Offsite Waste (T)	179.2	287.4	171.0	188.9	187.4	226.2	249.5	197.2	222.1	364.7	366.1	297.4	2,937.1
Recycled Waste (T)	158.3	266.5	140.6	165.3	148.8	205.3	156.4	155.0	184.9	326.6	298.6	227.6	2,434.0
Recycling %	88%	93%	82%	88%	79%	91%	63%	79%	83%	90%	82%	77%	83%

Figure 6-10 Waste Statistics and Trends



6.6 Greenhouse Gas

Greenhouse gas management measures for the Mine are outlined in the AQMP. Diesel and electricity usage were recorded during the 2023 Reporting Period, which allows for the calculation of carbon dioxide (CO₂) equivalent emissions. The primary source (approximately 80%) of greenhouse gas emissions at the Mine is due to the release of carbon dioxide (CO₂) and methane (CH₄) during the combustion of diesel fuel during mining operations. Fugitive emissions of CH₄ and CO₂ from the coal seam as the coal is mined and CO₂ released during the use of explosives make up approximately 20% of greenhouse gas emissions at the Mine. Greenhouse gas emission (i.e. Scope 1 & Scope 2) estimates for 2023 are presented in **Table 6-11**.

Table 6-11 Estimated Wilpinjong Coal Mine Greenhouse Gas Emissions Financial Year

Year	ROM Coal (Mt)	Electricity Consumed (kWh)	Diesel Consumed (kL)	CO ₂ -e Electricity Usage (t)	CO ₂ -e Diesel Usage (t)	CO ₂ -e Fugitive Emissions (t)	Total CO ₂ -e Emissions (t)	Total CO ₂ -e Emissions (t) Predicted (WEP) [#]
2017	13.6	29,929,870	32,976	25,141	89,356	12,809	127,306	167,977
2018	14.2	32,940,513	38,360	27,341	103,948	13,828	145,117	182,002
2019	15.1	32,037,969	43,647	26,272	118,270	12,980	152,522	180,302
2020	14.7	31,748,174	47,528	25,950	12,8788	12,636	167,375	176,408
2021	14.48	34,887,914	50,795	27,906	136,572	10,732	175,211	168,387 [^]
2022	13.47	34,456,634	49,391	27,221	133,947	20,082	181,775	168,516 [^]
2023	13.33	34,264,194	50,084	25,013	136,010	18,234	180,000	158,004 [^]

Notes: kWh = kilowatt hours and kL = kilolitre. * A NSW default factor was used to calculate these values. [#] Scope 1 and 2 predicted emissions from the WEP for 2017, 2018, 2019 and 2020 based on 15.5Mt, 15.95Mt, 15.28Mt, 14.53Mt and 12.44Mt ROM coal respectively. [^]The WEP predictions for 2021, 2022 and 2023 based on annual ROM of 12.44Mt.

Greenhouse gas emissions from the Wilpinjong Coal Mine would continue to be monitored and reported annually in accordance with Peabody Energy's obligations under the *Commonwealth Government National Greenhouse and Energy Reporting System*. Peabody Energy and WCPL will also comply with any obligations under the *Commonwealth Clean Energy Act, 2011*.

6.7 Ambient Air Quality Monitoring

Condition 16, Schedule 3 of SSD-6764 requires WCPL to ensure that no offensive odours are emitted from the site, as defined under the *Protection of the Environment Operations Act, 1997*.

Previous monitoring occurred in the Wollar Village up to April 2018 for the following pollutants that can be released during spontaneous combustion events, including Oxides of Nitrogen (NO_x), Sulfur Dioxide (SO₂), Hydrogen Sulfide (H₂S), Benzene, Toluene and *p*-Xylene. An air quality monitoring station was situated in the Village of Wollar to monitor for the above-mentioned pollutants during the removal of Keylah Dump, as required by the SCMP and the Keylah Dump Removal Management Plan. The removal of Keylah Dump was completed during 2017. Therefore, this air quality monitoring station in the Village of Wollar specific for the dump removal, was no longer required and subsequently removed in May 2018.

The SCMP was revised in June 2022. The revised SCMP (Version 8.1) was updated to include 2021 IEA Actions which included the recommendations from 2021 IEA to add corrective actions to inspection program, review the frequency of the aerial thermal imagery inspection program and updated Figure 3 regarding areas of risk. SCMP (Version 8.1) was approved on the 17 December 2022.

A revision of the SCMP was completed in 2023 (now Version 9) and included update of propensity testing results for Pit 6 and Pit 8 and reference to the RMP. The revised SCMP (Version 9) was pending approval from the DPE at the time of preparing the 2023 Annual Review.

There were no reportable incidents as a result of spontaneous combustion in 2023. There were twelve (12) unverified odour complaints received during 2022 (**Section 9**), an increase of two (2) odour complaints received in 2022 and below the 17 odour complaints received in 2021. Each of the odour complaints during 2023 received follow up checks by WCPL and were either unable to detect significant spontaneous combustion outbreaks with the capacity to generate offsite odours or detect odours beyond the boundary of the Mine. These checks also included a review of the wind speed and wind direction prior to receiving an odour complaint. The complainant declined to discuss any of the odour complaints with a WCPL representative on all but two occasions. Refer to **Section 6.2** and **Section 9** for further details.

7.0 WATER MANAGEMENT

WCPL have prepared and implemented a Water Management Plan (WMP) (**Table 3-2**). Several key component management plans and programs that support the WMP include the Surface Water Monitoring Program (SWMP), the Groundwater Monitoring Program (GWMP) and the Site Water Balance (SWB). The WMP, SWMP, GWMP and the SWB were reviewed and resubmitted for approval in June 2022, and the GWMP was resubmitted in June 2023. Refer to **Section 3.5** for further details.

7.1 Water Licences

Table 7-1 presents the relevant entitlement volume for the consolidated licence, the estimated inflow or 'take' for 2022-23 and compares these water balance model estimates to numerical model predictions. The SLR (2022) annualised inflow estimate (660 ML/yr) is within the allocated licence volume for the 2022-23 water year.

Table 7-1 Summary of Annual Volume of Inferred Maximum Groundwater Take (Water Years 2018-2023)

Water Access License	Limit [ML/a]	2021-2022		2022-2023	
		SLR Water Balance Inflow (SLR, 2023)	Modelled inflow (SLR, 2020)	SLR Water Balance Inflow (SLR, 2024)	Modelled inflow (SLR, 2020)
Pits	3,121 ML/a (WAL 41862)	840	870	913	660
Dewatering Bores		0		0	
TOTAL		840	870	913	660

Notes: *Volume of water pumped from dewatering bores [ML] for the water year 2019-20, refer to Section 7 of the SLR Report.

Table 7-2 lists the converted water entitlement licenses to Water Access License (WAL) that occurred during October 2017.

Table 7-2 Summary of WAL Held by WCPL

WAL ¹	AL #	Water Source	Category	Entitlement ²	Holder	Work Approval ³	Expiry date
21499	20AL211215	Wollar Creek	Aquifer	474 Unit shares	Peabody Pastoral Holdings Pty Ltd/Wilpinjong Coal Pty Limited as 100/374 share	20CA211216	31/07/2032
19045	20AL209956	Upper Goulbourn	Unregulated	183 Unit shares	Peabody Pastoral Holdings Pty Ltd	20CA209957	12/11/2032
19055	20AL209954	Upper Goulbourn	Unregulated	50 Unit shares	Peabody Pastoral Holdings Pty Ltd	20CA209955	31/07/2032
19057	20AL209966	Upper Goulbourn	Unregulated	110 Unit shares	Peabody Pastoral Holdings Pty Ltd	20CA209967	7/02/2024
19058	20AL209974	Upper Goulbourn	Unregulated	168 Unit shares	Peabody Pastoral Holdings Pty Ltd	20CA209975	19/11/2032
19426	20AL210793	Wollar Creek	Unregulated	40 Unit shares	Peabody Pastoral Holdings Pty Ltd	20CA210794	31/07/2032
19423	20AL210790	Wollar Creek	Domestic & stock	2 ML	Peabody Pastoral Holdings Pty Ltd	20WA210792	31/07/2032
19425	20AL210795	Wollar Creek	Domestic & stock	1 ML	Peabody Pastoral Holdings Pty Ltd	20WA210796	31/07/2022 ⁴
19430	20AL210798	Wollar Creek	Domestic & stock	5 ML	Peabody Pastoral Holdings Pty Ltd	20WA210799	31/07/2032
36398	20AL212799	Wollar Creek	Domestic & stock	1 ML	Peabody Pastoral Holdings Pty Ltd	20WA212768	30/07/2023
-	-	Wollar Creek	Pump Site	-	Peabody Pastoral Holdings Pty Ltd	20WA210801	31/07/2032
9476	80AL701849	Macquarie/Cudgegong	Regulated (General Security)	790 Unit shares	Wilpinjong Coal Pty Limited	No nominated work	N/A
41862	N/A	Sydney Basin - North Coast Groundwater	Aquifer	3121 Unit shares	Wilpinjong Coal Pty Limited	20MW065002	N/A

Notes: ¹Water entitlement held under NSW *Water Management Act, 2000* is granted in perpetuity. ²One unit is currently equivalent to 1.0 ML as per the *Available Water Determination Order for Various NSW Unregulated and Alluvial Water Sources (No. 1) 2013*. ³Work Approvals only attract an expiry date, applications to extend Work Approvals due to expire will be undertaken in 2024. ⁴Application to extend submitted in 2022.

7.2 Estimated Groundwater Take

WCPL holds a WAL41862 to cover the extraction of water from all open cut pits. The total authorised volume of groundwater extraction for Water Year from 1 July 2022 to 30 June 2023 is 3,121 ML/year.

SLR completed a review of estimated groundwater take for the 2022/2023 Water Year (SLR, 2024) (**Table 7-1**). The following summary is provided from SLR's (**Appendix 3D**) review:

- WCPL holds a groundwater licence for 3,212 ML/a under WAL 41862 for the Sydney Basin North Coast Groundwater Source. For the 2022-2023 water year the groundwater model predicts an inflow of 660 ML/a. These estimates are lower than the 913 ML/a estimated by SLR for the 2022-2023 water year using the site water balance model (SLR, 2024).
- For the 2022-2023 water year the additional alluvial water loss, over and above what occurs naturally, is estimated to be about 0.27 ML/day from Wilpinjong Creek alluvium and about 0.2 ML/day from Cumbo Creek alluvium. This gives a predicted alluvial groundwater take of about 172 ML/year. WCM holds an allocation of 474 ML for the Wollar Creek Water Source under the Water Sharing Plan for the Hunter Unregulated and Alluvial Sources, 2009. This estimated take is within and compliant with the licence volume held by WCM (SLR 2024).

This take is within and compliant with the licence volume held by WCPL. For more information refer to **Appendix 3D**.

7.3 Water Licence Conditions

Assessment of the various water access licence conditions relevant to WCPL work approvals includes:

- The total volume of water taken under in any water year must not exceed a volume (Complied – refer to **Table 7-1 & Section 7.2**).
- The volume of water taken in the water year must be recorded (Complied – refer to **Table 7-1 & Section 7.2**).
- Once the water access licence holder becomes aware of a breach of any condition on this water access licence, the water access licence holder must notify the Minister as soon as practicable (Complied – no breach of conditions occurred during water year 2022/2023).

7.4 Water Management System

Water management activities were undertaken during the 2023 Reporting Period in accordance with the Mine's water management system outlined in the WMP⁵. In summary, water management for the Mine is based on the containment and re-use of mine water as well as the control of sediment laden water that may be potentially carried with runoff from disturbed areas. The mine water management system is shown in schematic form on **Appendix 3C**. The key components of the Mine's water management system include:

- Collection and re-use of surface runoff from disturbed areas;
- Capture and on-site containment of mine water, comprising groundwater inflows and incidental rainfall-runoff to operational areas;
- Re-use of contained mine water for dust suppression over active surfaces (e.g. haul roads).
- Recycling of mine water associated with the CHPP and tailings disposal areas;
- Consumption of contained waters in the Mine water supply system;
- Management of treated sewage effluent in accordance with the OEH's *Environmental Guidelines for the Utilisation of Treated Effluent*;
- Standby-operation of an evaporative spray system on the eastern bank of Pit 2 (West); and

⁵ With exception to Emergency Water Discharge during the previous 2022 Reporting Period (**Section 7.4.1**).

- Discharge of treated water via a water treatment facility to Wilpinjong Creek in accordance with EPL 12425.
- Diversion of clean water upslope of mine disturbance in Pit 6 and Pit 8.

7.4.1 Emergency Discharge (ED)

In October 2022, WCPL sought an exemption under S.284 of *the Protection of the Environment Operations Act* (POEO Act) to allow for the emergency offsite discharge of mine water due to above average rainfall associated with the third consecutive La Niña year.

Licence Variation Notice 1623919 of EPL No.12425 permitted the discharge from the premises, under emergency conditions, surplus rainwater captured and stored in open cut pits and associated dams on the 31 October 2022. *Licence Condition E1 Emergency Water Discharge* permitted the volumes of water discharged from licence discharge point (LDP):

- LDP30 - 18 ML/day
- LDP31 - 18 ML/day
- LDP32 - 35 ML/day

Water quality sampling for LDP30, LDP31 and LDP32 during emergency discharge included:

- Electrical conductivity - grab sample daily during any discharge;
- pH range of 6.5 to 8.5 - grab sample daily during any discharge; and
- Turbidity - grab sample daily during any discharge.

Licence Variation Notice 1625163 allowed the extension of time of the water discharge under emergency water discharge conditions from 5pm on the 25 November 2022 to 5pm 1 January 2023. As required by Licence Variation Notice 1625163 on the 14 December 2022, LDP31 was removed and emergency discharging ceased from LDP30 and LDP31 on the 1 January 2023. The water quality results and volumes from the Emergency Water Discharge inclusive of the 1 January 2023, under Special Condition E1 were reported in the previous 2022 Annual Review.

On the 1 March 2023, Licence Variation Notice 1626808 varied the following licence conditions:

- The removal of licence Point 32 from licence condition P1.3 (an emergency discharge point).
- The removal of licence condition L2.6 (a reference to water quality limits not applying under emergency discharges).
- The removal of Point 32 from the tables under conditions M2.4 and M7.1 (the requirement to monitor pollutants and volume at the emergency discharge point respectively).
- The removal of the licence conditions under (Special Condition) 'E1 Emergency Water Discharge'

7.5 Erosion and Sediment Control

An erosion and sediment control measures are described in the SWMP for the Mine. During the 2023 Reporting Period water management structures were either implemented or maintained to contain potentially sediment laden water from mining activities in Pit 3, Pit 4, Pit 5, Pit 6, Pit 7 and Pit 8 within the Mine's water management system. Other activities included routine removal of sediment from sumps, drains and sediment dams located in the Mining Infrastructure Area (MIA) and CHPP.

There was one reportable incident in relation to unauthorised water discharge during 2023 (refer to **Section 11.1**).

A clean water diversion (CWD) has been constructed in Pit 8 to reduce surface water from Pit 8 (Slate Gully) undisturbed water catchments that will otherwise report into the Pit 8 disturbance footprint. The CWD in Pit 8 will progress with the advancing pit.

WCPL sought a variation to EPL12425 in 2021 to allow the rain water collected by the diversion upstream of Pit 8 to discharge to Wilpinjong Creek under various water quality conditions (**Section 3.2**). Newly approved licence discharge point (LDP) 30 permits water to be discharged from the CWD if the value of turbidity does not exceed the turbidity value measured at the Wilpinjong Creek upstream gauging station. When there is no flow within Wilpinjong Creek at the upstream gauging station the value of turbidity measured at point 30 must not exceed 50 Nephelometric Turbidity Units (NTU).

There was one discharge event from the approved LDP30 during the 2023 Reporting Period. Discharge from EPL Point 30 occurred only on 1 January 2023 as part of the emergency provisions (**Section 7.4.1**). 4.9 ML was released on this day. For further information refer to *Annual Review 2023 – Surface Water Compliance* prepared by SLR in **Appendix 3C**.

WCPL are planning to install a strategic clean water diversion in western area of Pit 6 to reduce surface water from undisturbed water catchments that will otherwise report into the Pit 6 disturbance footprint.

During the Reporting Period clean water upslope of mining disturbance in Pit 6 (30.2ML) and Pit 8 (29ML) was captured in existing dams, pumped around the active mining area and returned downslope of the mining operation.

7.6 Surface Water

In June 2022, WCPL completed a review of the SWMP (Version 6) included Updates to address 2021 IEA recommendations and 2021 Annual Review, additional information CWD for Pit 6, sampling units for rehabilitation areas, review of pH triggers and TARPs for CC-1, WIL-GSD and WIL-D2 and an additional TARP for Channel Stability. At the time of preparing this 2023 Annual Review the SWMP (Version 6) was still pending approval. A summary of the surface water monitoring program is presented in **Table 7-5**.

A summary of the surface water monitoring results assessed against each relevant water quality impact criteria from the SWMP is provided in **Table 7-6**. Further water monitoring results for 2023 Reporting Period, including figures with surface water quality monitoring locations are provided in **Appendix 3C**.

A detailed assessment of creek flows, discharge from LDPs and water monitoring results against triggers in the SWMP was completed by SLR (**Appendix 3C**) and summarised throughout were applicable.

Table 7-3 Surface Water Monitoring Program

Monitoring Locations		Frequency	Parameters ¹
Wilpinjong Creek	Licenced Discharge Point No. 24	Continuous (during discharge)	Volume of water discharged ⁶ , EC and pH
		Weekly (during discharge)	Oil & Grease and TSS ⁷
	WIL-U, WIL-U2, WIL-PC, WIL-NC, WIL-D and WIL-D2 ²	Monthly	Field pH and EC, turbidity ³ , and SO ₄
		Quarterly [^]	Copper, Zinc, Iron, Aluminium, Nickel, Manganese, Barium, Strontium, Lead, Arsenic and Selenium
	WILGSU and WILGSD (gauging stations) ²	Continuous	Flow rate, pH, EC and temperature
		Monthly	Field pH and EC, turbidity ³ , and SO ₄
		Following significant rainfall events ⁴	pH, EC, TDS, TSS and sulphate
	WC1, WC2, WC3, WC4, WC5, WC6, WC7, WC8 ⁵	Annually	Stream health monitoring
	Forty-nine survey points along Wilpinjong Creek ⁵	Annually	Channel stability monitoring (photo-points, description, stability)
	CC1, CC2 and CC3 ²	Monthly	Field pH and EC, turbidity ³ , and SO ₄

Monitoring Locations		Frequency	Parameters ¹
Cumbo Creek		Quarterly [^]	Copper, Zinc, Iron, Aluminium, Nickel, Manganese, Barium, Strontium, Lead, Arsenic and Selenium
	CC3 ²	Following significant rainfall events ⁴	pH, EC, TDS, TSS and sulphate
	CCGSU and CCGSD (gauging station) ²	Continuous	Flow rate, pH, EC and temperature
		monthly	Field pH and EC, turbidity ³ , and SO ₄
		Following significant rainfall events ³	pH, EC, TDS, TSS and sulphate
	CC1, CC2 ⁵	Annually	Stream health monitoring
	Nine survey points along Cumbo Creek ⁵	Annually	Channel stability monitoring
Wollar Creek	WOL 1 and WOL 2 ²	Monthly	Field pH and EC, turbidity, and SO ₄
		Quarterly [^]	Copper, Zinc, Iron, Aluminium, Nickel, Manganese, Barium, Strontium, Lead, Arsenic and Selenium
	WO1, WO2, WO3 ⁵	Annually	Stream health monitoring
Slate Gully Creek	SGC_1 ²	Monthly	Field pH and EC, turbidity, and SO ₄
		Quarterly	Copper, Zinc, Iron, Aluminium, Nickel, Manganese, Barium, Strontium, Lead, Arsenic and Selenium
		Following significant rainfall events ⁴	pH, EC, TDS, TSS and sulphate

Notes: ¹ Parameters will be analysed provided water samples can be collected. ² Monitoring locations are illustrated in Appendix 3C. ³ Turbidity indicates the potential downstream water quality effects caused by suspended solids. ⁴ Greater than 20 millimetres (mm) in 24 hours. ⁵ Monitoring locations are illustrated on Figure 21. ⁶ Volume to monitored using flow meter and continuous logger. ⁷ Grab samples. [^] Quarterly under PA05-0021 then monthly under SSD-6764. Shaded cells indicate added to the water monitoring program as a result of SSD-6764 and the revised Surface Water Management Plan.

Table 7-4 Surface Water Performance

Location		Approved Criteria ^{1, 2}	Performance During the Reporting Period ^{1, 2}	Trend/Key Management Implications	Implemented/Proposed Management Actions
Wilpinjong Creek Sites: <ul style="list-style-type: none"> • WIL_NC • WIL_D • WIL_D2 	EC (µS/cm)	3,440 µS/cm For 3 consecutive readings	No exceedance of triggers	<p>During the 2023 assessment period, the identified trigger exceedances were related to upper pH trigger exceedances at Wilpinjong Creek (Downstream), as observed at WIL-D2 and WIL-D.</p> <p>Throughout 2023 WCPL notified the DPE of pH trigger exceedances as required by the SWMP.</p> <p>pH observations at the Wilpinjong Creek Upstream monitoring sites during 2023 are relatively stable and near neutral, with pH at all sites ranging from pH 6.7 to 8.2. The higher pH (observed early in 2023) is thought to be related to the approved discharge of excess mine water from Moolarben Coal which is upstream (SLR, 2023a). This elevated pH does not persist throughout 2023. Rainfall, and subsequent flow conditions are considered to be the primary drivers of fluctuations in the pH observations at upstream Wilpinjong Creek monitoring sites (SLR 2024).</p> <p>Analysis of the available surface water data in 2023 indicates a lower-than-average rainfall influenced flow and water quality conditions. The only TARP exceedances experienced in 2023 are that associated with high pH in the Wilpinjong Creek Downstream monitoring locations.</p> <p>SLR has completed the preliminary investigation of the pH trigger exceedances within the WCM surface water monitoring network (SLR, 2023c) at Wilpinjong Creek downstream sites, consistent with the trigger action response plan (TARP) for surface water quality (SWMP Table 15 – WCPL, 2017).</p> <p>The investigation evaluated whether each trigger exceedance was directly caused by or predominantly as a result of activities being undertaken by, or directly as a result of the mine. SLR (2023b).</p> <p>For the complete assessment of surface water quality results from the 2023 Reporting Period by SLR refer to Appendix 3C for the <i>Annual Review 2023 – Surface Water Compliance</i>.</p>	<p>WCPL will continue to implement the approved WMP and SWMP in accordance with Condition 30, Schedule 3 of SSD-6764.</p> <p>There was one reportable incident in May 2023 that involved mine water being discharged from a small spill that have developed in a poly pipeline. For further details refer to Section 11.1.</p> <p>As required by the SWMP, notification to the DPE regarding upper pH limits triggered at WILD and WILD2 were provided in writing on the 11 September 2023, 3 October 2023, 9 November 2023 and 21 December 2023.</p> <p>WCPL commissioned SLR to complete the <i>Wilpinjong Creek Surface Water pH Trigger Exceedance Investigation (Appendix 3C)</i>. SLR concluded that the pH exceedances are a reflection of natural water flow and not associated with mining operations.</p> <p>In accordance with Condition 5, Schedule 5 of SD-6764, WCPL will review, and revise, WMP and SWMP within three months of the submission of this Annual Review.</p> <p>Continued implementation of the Surface Water Management Measures (Section of the SWMP) to comply with the water management performance measures (Appendix 3C) in Table 6 of the Development Consent SSD-6764.</p>
	Turbidity (NTU)	24 NTU For 3 consecutive readings	No exceedance of triggers		
	pH (lower)	6.9 pH For 3 consecutive readings	No exceedance of triggers		
	pH (upper)	7.7pH For 3 consecutive readings	Triggers exceeded		
Cumbo Creek (Downstream) Site: <ul style="list-style-type: none"> • CC1 	EC (µS/cm)	7,510 µS/cm For 3 consecutive readings	No exceedance of triggers	<p>SLR has completed the preliminary investigation of the pH trigger exceedances within the WCM surface water monitoring network (SLR, 2023c) at Wilpinjong Creek downstream sites, consistent with the trigger action response plan (TARP) for surface water quality (SWMP Table 15 – WCPL, 2017).</p> <p>The investigation evaluated whether each trigger exceedance was directly caused by or predominantly as a result of activities being undertaken by, or directly as a result of the mine. SLR (2023b).</p> <p>For the complete assessment of surface water quality results from the 2023 Reporting Period by SLR refer to Appendix 3C for the <i>Annual Review 2023 – Surface Water Compliance</i>.</p>	<p>WCPL will continue to implement the approved WMP and SWMP in accordance with Condition 30, Schedule 3 of SSD-6764.</p> <p>There was one reportable incident in May 2023 that involved mine water being discharged from a small spill that have developed in a poly pipeline. For further details refer to Section 11.1.</p> <p>As required by the SWMP, notification to the DPE regarding upper pH limits triggered at WILD and WILD2 were provided in writing on the 11 September 2023, 3 October 2023, 9 November 2023 and 21 December 2023.</p> <p>WCPL commissioned SLR to complete the <i>Wilpinjong Creek Surface Water pH Trigger Exceedance Investigation (Appendix 3C)</i>. SLR concluded that the pH exceedances are a reflection of natural water flow and not associated with mining operations.</p> <p>In accordance with Condition 5, Schedule 5 of SD-6764, WCPL will review, and revise, WMP and SWMP within three months of the submission of this Annual Review.</p> <p>Continued implementation of the Surface Water Management Measures (Section of the SWMP) to comply with the water management performance measures (Appendix 3C) in Table 6 of the Development Consent SSD-6764.</p>
	Turbidity (NTU)	77 NTU For 3 consecutive readings	No exceedance of triggers		
	pH (lower)	7.5 pH For 3 consecutive readings	No exceedance of triggers		
	pH (upper)	8.2 pH For 3 consecutive readings	No exceedance of triggers		

Note: ¹ Trigger is only considered to have been exceeded if the recorded value at monitoring site is greater than (or less than for lower pH Trigger) all values from the upstream monitoring sites sampled on the same day. In the event that a single result is recorded above/below the 80th/20th percentile value, WCPL will undertake a preliminary investigation to ascertain whether the result was caused by an obvious anomaly or whether further testing is required. ² Trigger is only considered to be exceeded if recorded value at the monitoring site is greater than (or less than for lower pH trigger) for 3 consecutive readings.

Table 7-5 Summary of Surface Water Monitoring Result 2023

SW Monitoring Point	EC (µS/cm)			pH			SO ₄ (mg/L)			Turbidity (NTU)		
	Min	Max	Ave.	Min	Max	Ave	Min	Max	Ave	Min	Max	Ave
Summary of Surface Water Monitoring Results 2023												
CC1	2220	4280	3496	7.6	7.9	7.7	630	1580	1191	1.5	66.9	17.0
CC2	2210	3980	2842	7.7	8.2	8.0	629	1610	875	0.4	55.7	7.3
CC3	1730	2450	2105	7.9	8.6	8.2	506	875	672	1.0	31.8	9.6
WIL (U)	737	2230	1076	6.9	8.0	7.3	48	655	178	9.2	116.0	43.0
WIL (U2)	738	2240	1104	6.7	8.2	7.3	28	649	109	5.5	76.2	32.5
WIL (PC)	2300	2300	2300	8.0	8.0	8.0	571	571	571	31.4	31.4	31.4
WIL (NC)	448	450	449	7.3	7.4	7.4	93	99	96	<0.1	<0.1	<0.1
WIL (D)	638	1890	1269	7.6	8.4	8.1	97	778	350	3.1	22.0	7.9
WIL (D2)	682	1790	1246	7.8	8.3	8.0	127	588	340	2.3	15.1	4.5
WOL1	718.0	1820.0	1233.6	7.8	8.6	8.2	129.0	742.0	340.4	3.8	36.2	10.4
WOL2	1080.0	1550.0	1320.8	8.0	8.6	8.2	147.0	307.0	229.1	3.0	12.0	6.6

Notes: Result/s in **bold** outside of relevant criteria but not for three consecutive readings. **Results** outside of relevant criteria for three consecutive readings (refer to **Table 7-4** for discussion and recommendations).

Surface Water Flow

The following section presents and discusses daily flow data from the three continuous surface water monitoring gauges on Wilpinjong Creek (WILGSU and WILGSD) and Cumbo Creek (CCGSU). Observed flow trends are reviewed against rainfall data from the local rainfall station (Wollar, 062032) and discharge volumes throughout 2023 (SLR 2024).

The two Wilpinjong Creek gauging stations have been recording since January 2012. The catchment area reporting to the upstream site (WILGSU) is 86 km² while the downstream site has a catchment area of 216 km². CCGSU on Cumbo Creek has been recording data since August 2015 (SLR 2024).

During 2023, flow at CCGSU fluctuated between <0.01 and 35 ML/day in response to rainfall events, with the highest flow events recorded on 4 and 5 November. CCGSU was observed to flow for most of the year except for three brief periods in March, November, and December.

In 2023, flow at WILGSU ranged between <0.01 and 19 ML/day, whilst WILGSD had slightly higher flows at 0.2 to 47 ML/day, with flow rates at WILGSD directly influenced by RO Plant discharge volumes (SLR 2024).

Table 7-6 presents the calculated daily mean discharge rates at WILGSU, WILGSD and CCGSU for each year since 2013. The average daily flow rate of all creek monitoring points increased from 2019 through 2022 with all sites showing a reduction in daily averages for the 2023 reporting period.

Table 7-6 Calculated daily mean flow rate at Wilpinjong and Cumbo Creeks

Monitoring Location	Average Daily Flow Rate (ML/day)										
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
WILGSU	0.16	0.03	0.24	2.8	0.002	0	0	5.2	5.1	25.8	1.1
WILGSD	0.27	0.22	0.39	5.7	5.9	0.73	0.008	6.0	10.0	70.0	6.3
CCGSU	No data		0.14	1.6	0.6	0.4	0.1	0.9	2.1	20.4	0.95

7.7 Harvestable Rights

WCPL is located within the coastal draining catchments and central inland-draining catchments harvestable rights area. As of September 2023, up to 10% of the average annual regional rainfall runoff may be captured and used for any purpose within this harvestable rights area, as per the Harvestable Right (coastal-draining catchments) Order 2023 (DPE, 2023) under the *Water Management Act 2000* (SLR 2024).

The WCPL landholding area is 20,400 ha. Using a harvestable rights multiplier of 0.07 as per the Department of Planning and Environment (DPE) guidelines, the harvestable right for the site is 1428 ML. Based on rainfall data sourced from the Site AWS, the annual rainfall for the reporting period is 488 mm (SLR 2024).

The calculated Harvestable Rights Position for 2023 is provided in **Table 7-7**. For further information refer to the *Water Balance Model Update 2024* prepared by SLR in **Appendix 3C**.

Table 7-7 Harvestable Rights Position 2023

Parameter	Input Value
Annual Rainfall Depth (mm)	488
Runoff Coefficient (clean catchment)	0.11
Mine Disturbance Area (ha)	2,504
Clean Catchment Draining to WCM (ha)	1,146
Storage / Licence	Estimated / Known Value
Clean Water to WCM (ML)	597
Farm Dam Capacity (ML)	242
WAL Volume (ML)	150
Reporting Volume	Estimated Value
Total Harvested Volume (ML)	839
Surplus Volume (ML)	589
Surplus Volume (with WALs) (ML)	739

The total harvested volume for 2023 is estimated to be 839 ML. Given that the WCPL harvestable right is 1428 ML, there is potential to capture an additional 589 ML on the site which can be used for any purpose. Additionally, WCPL hold 150 ML in WALs. Therefore, the site has a current surplus of 739 ML including these WALs (SLR 2024).

Figure 7-1 Long-term EC Water Quality Results at WIL_NC

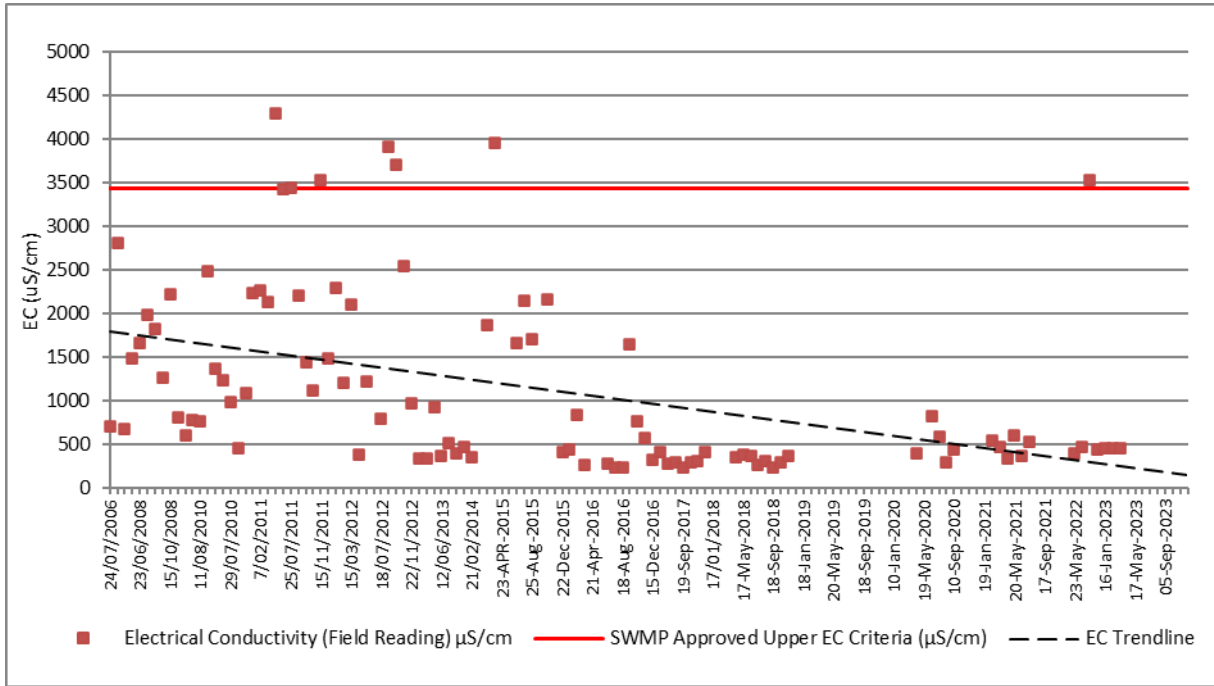


Figure 7-2 Long-term pH & NTU Water Quality Results at WIL_NC

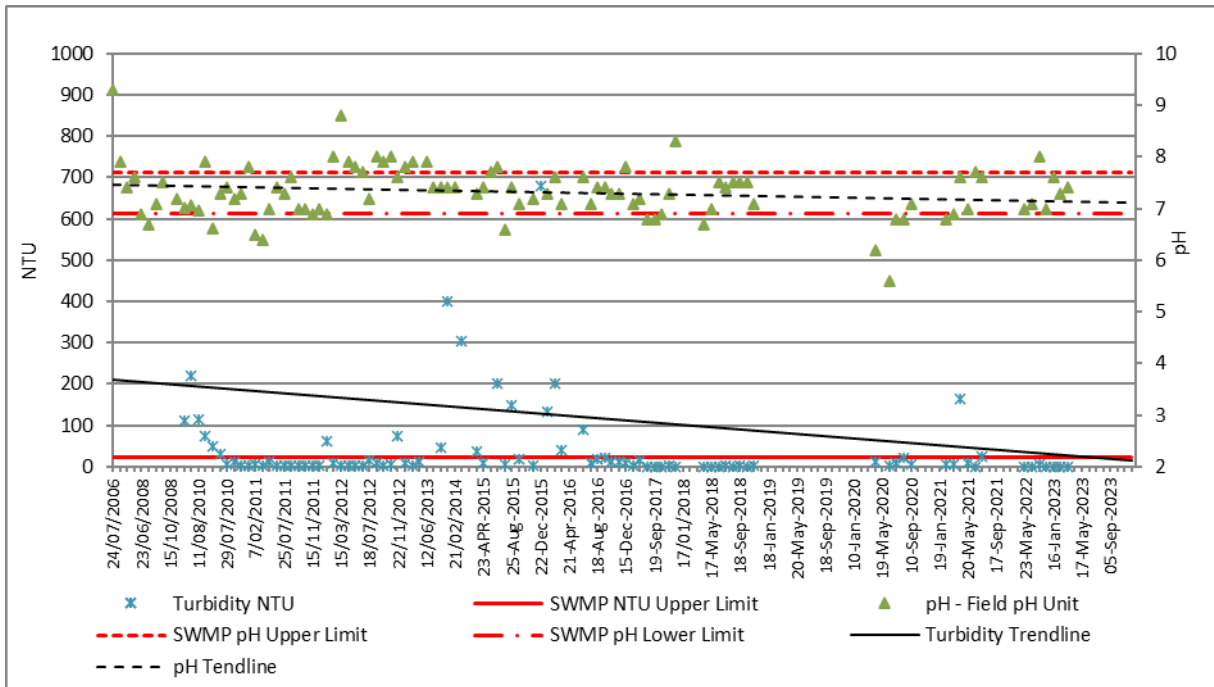


Figure 7-3 Long-term EC Water Quality Results at WIL_D2

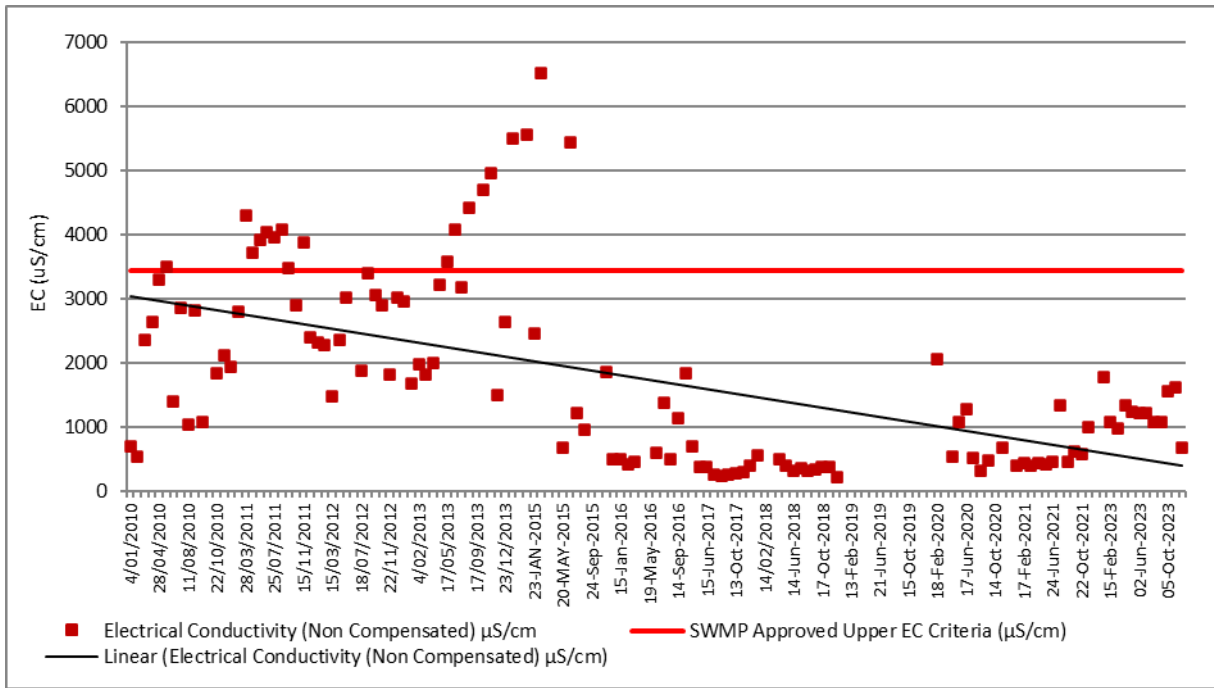


Figure 7-4 Long-term pH & NTU Water Quality Results at WIL_D2

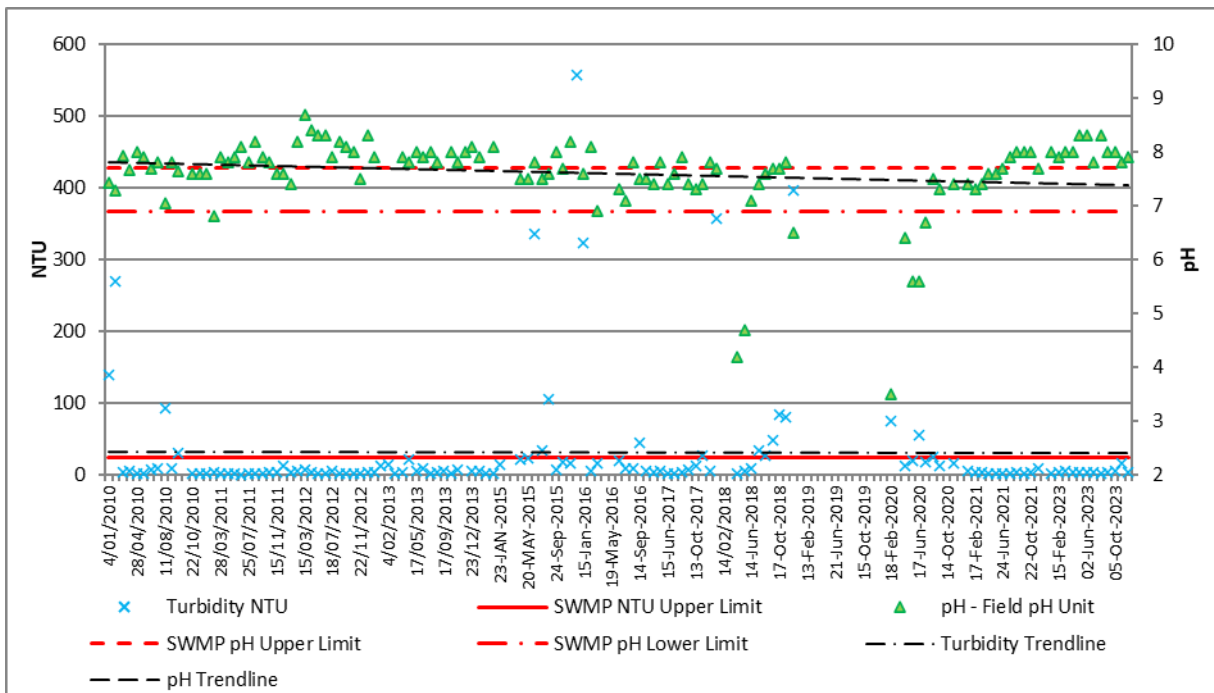


Figure 7-5 Long-term EC Water Quality Results at WIL_D

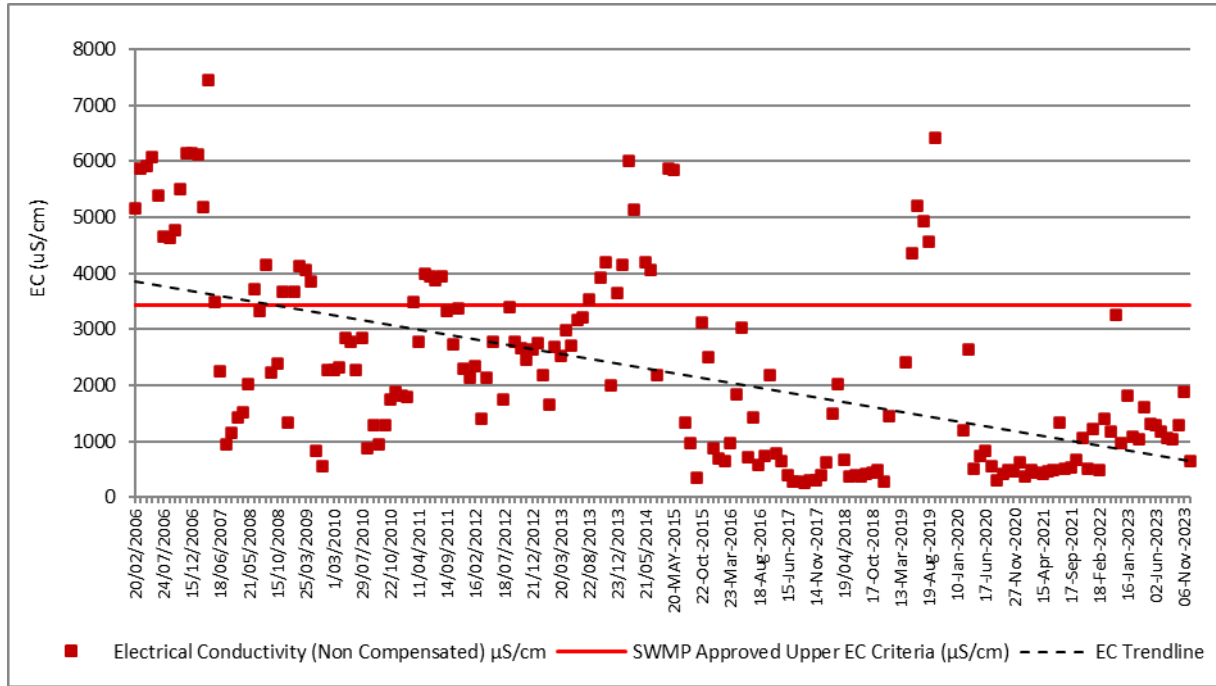


Figure 7-6 Long-term pH & NTU Water Quality Results at WIL_D

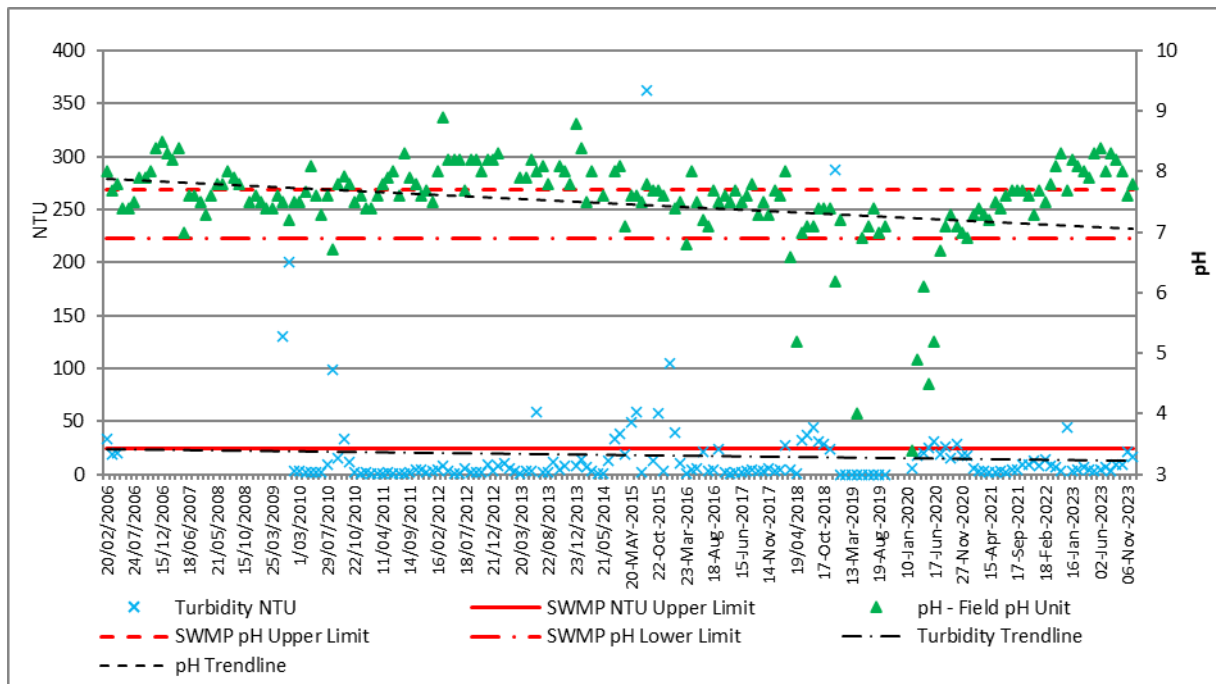


Figure 7-7 Long-term EC Water Quality Results at CC_1

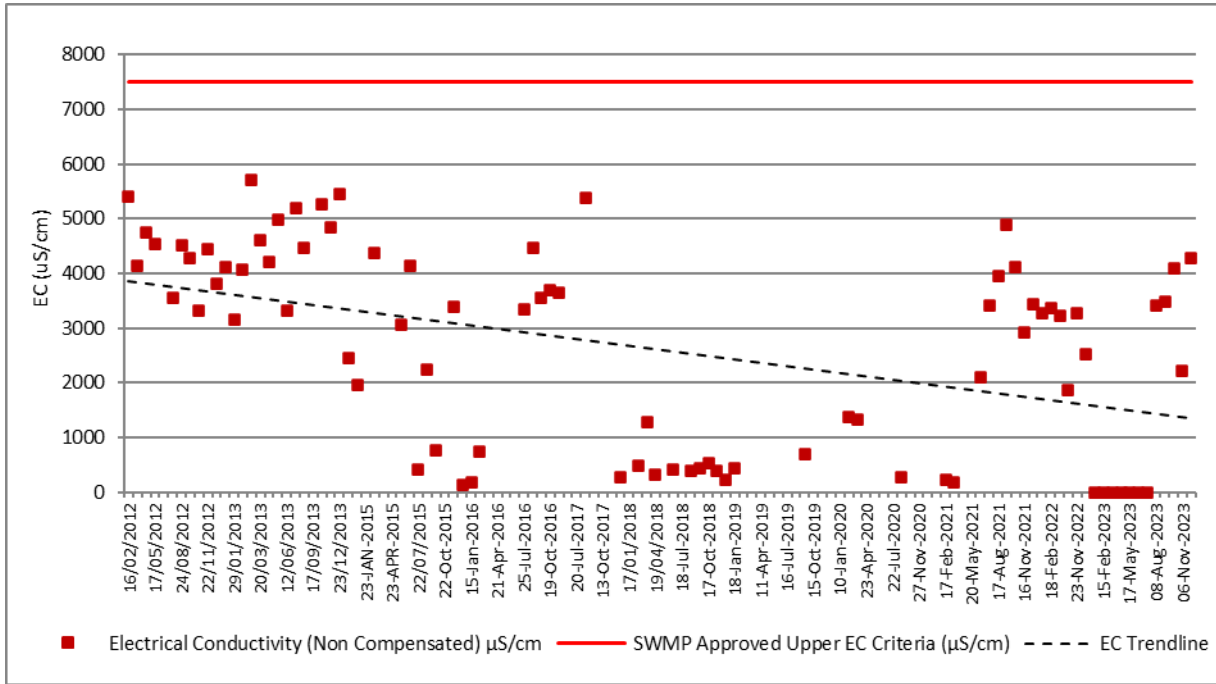


Figure 7-8 Long-term pH & NTU Water Quality Results at CC_1

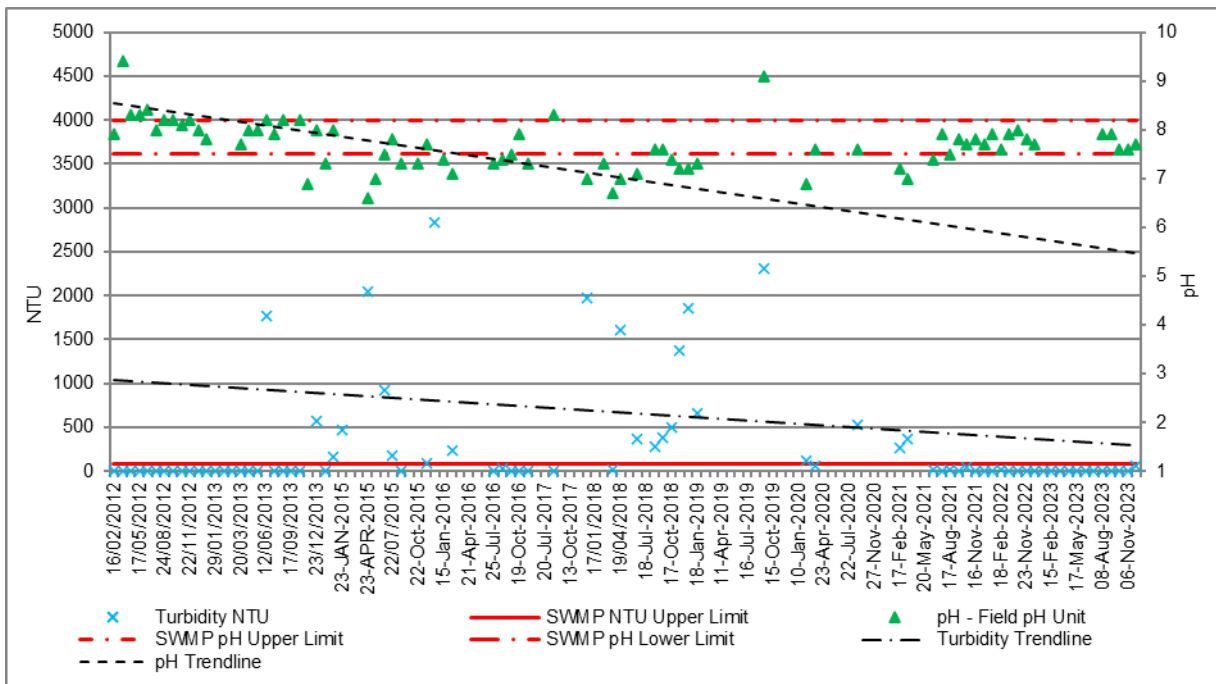


Figure 7-9 Gauging Station Wilpinjong Creek Upstream Long Term Trends

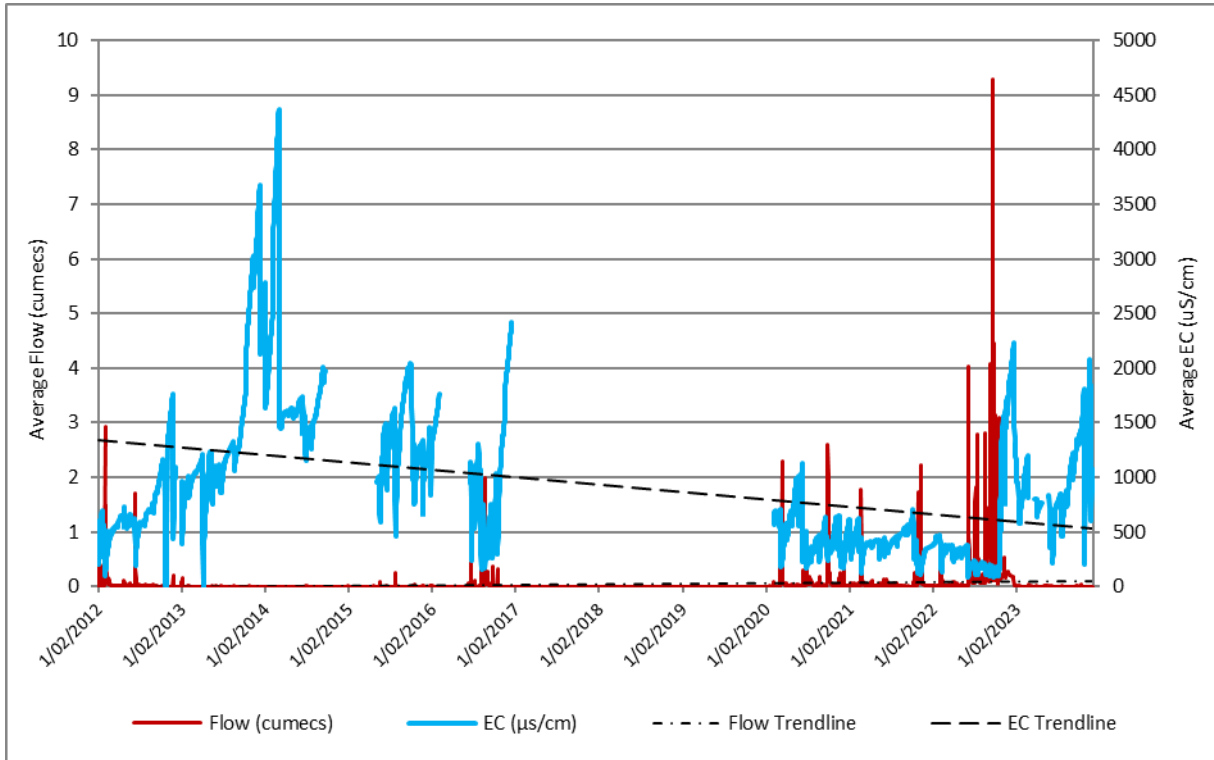


Figure 7-10 Gauging Station Wilpinjong Creek Downstream Long Term Trends

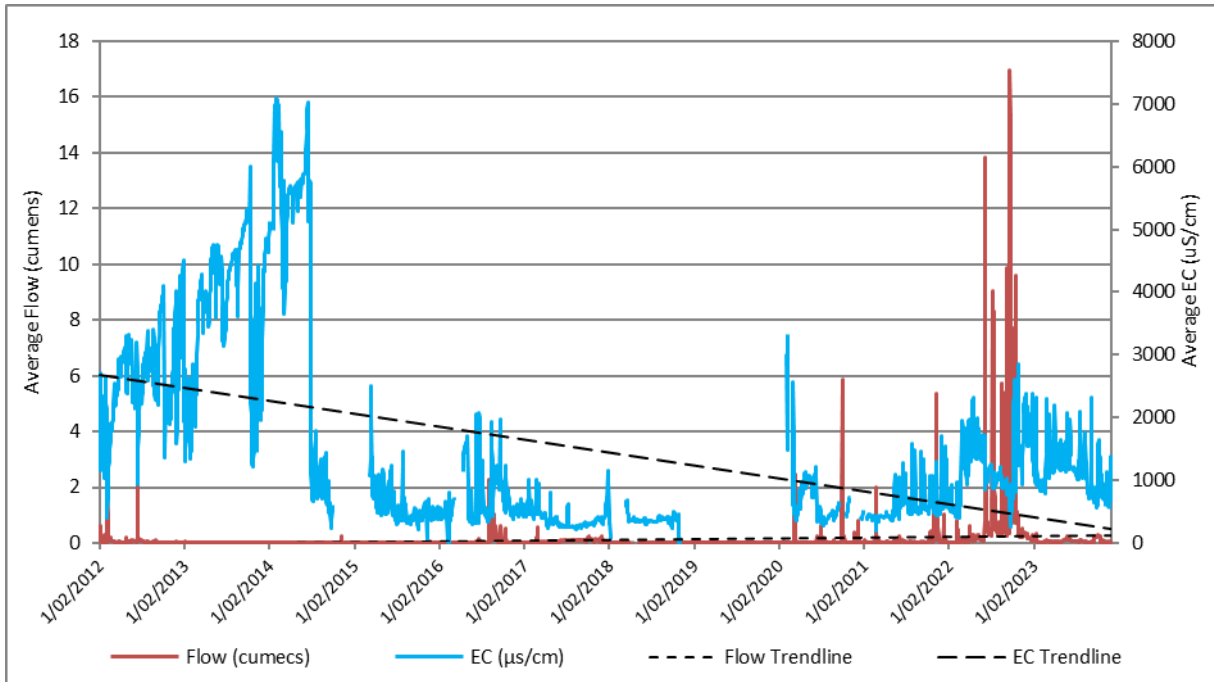
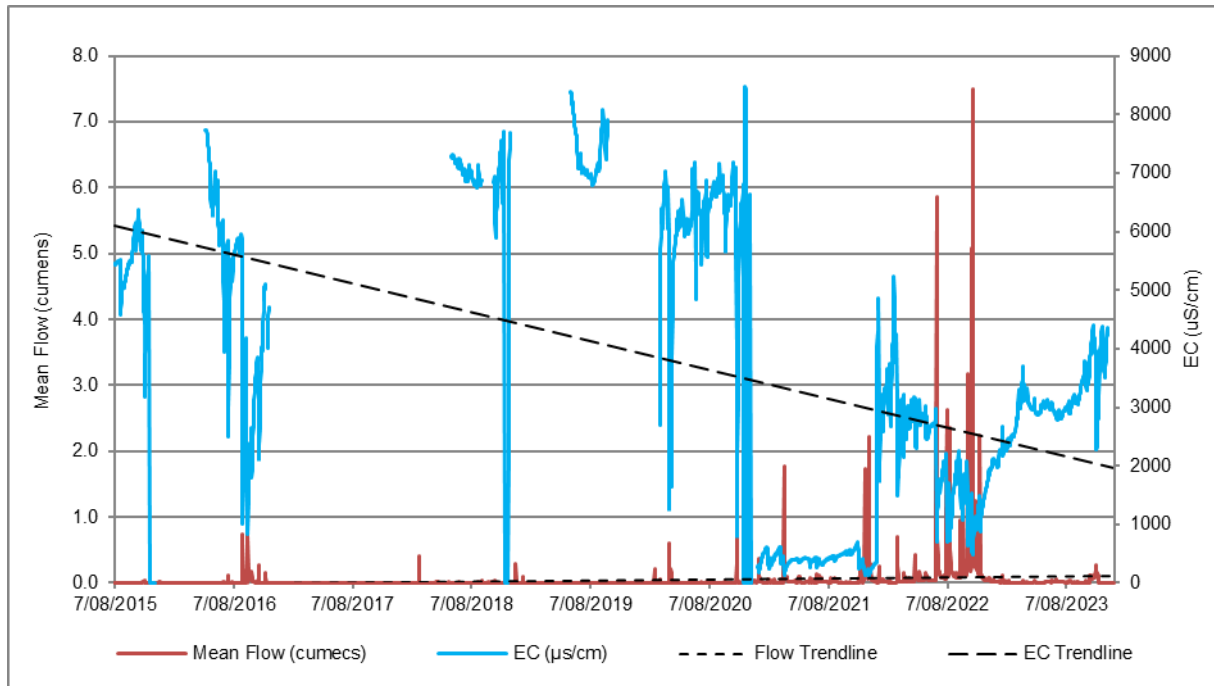


Figure 7-11 Gauging Station Cumbo Creek Long Term Trends



7.8 Site Water Balance

A Site Water Balance (SWB) has been prepared for the Mine. In June 2022 the SWB was revised to include disturbance footprint in Pit 6, updated with 2021 water balance model, calibration of model and forecast of site water inventory for 2021 to 2023 by SLR. At the time of preparing this 2023 Annual Review the SWB (Version 6) was still pending approval.

For 2023, WCPL engaged SLR to complete a *Water Balance Model Update (Appendix 3C)*. The following summary is provided from the SLR report.

WCPL have developed and continue to maintain a water balance simulation model for the WCM. The model was updated and converted to Goldsim software in 2020 by SLR Consulting Pty Ltd (SLR, 2020a), based on calibration against monitoring data collected between January 2018 and December 2019. Prior to this update the model utilised OPSIM simulation software which was calibrated to monitoring data between January 2014 and January 2018. SLR recalibrated the model again during 2023 to provide updated forecasts for WCM, and for the 2023 annual review process (SLR 2024).

WCPL are required to prepare a site water balance in accordance with Condition 30(d)(ii), Schedule 3 of Development Consent SSD-6764. WCPL have engaged SLR to review and update the WCPL Water Balance Model (WBM) to capture changes to the site water catchments and management system during 2023 and calibrate the WBM using monitoring data collected up to the end of December 2023 (SLR 2024).

The Water Balance Model Update Report (the report) documents the model update process and outcomes, including:

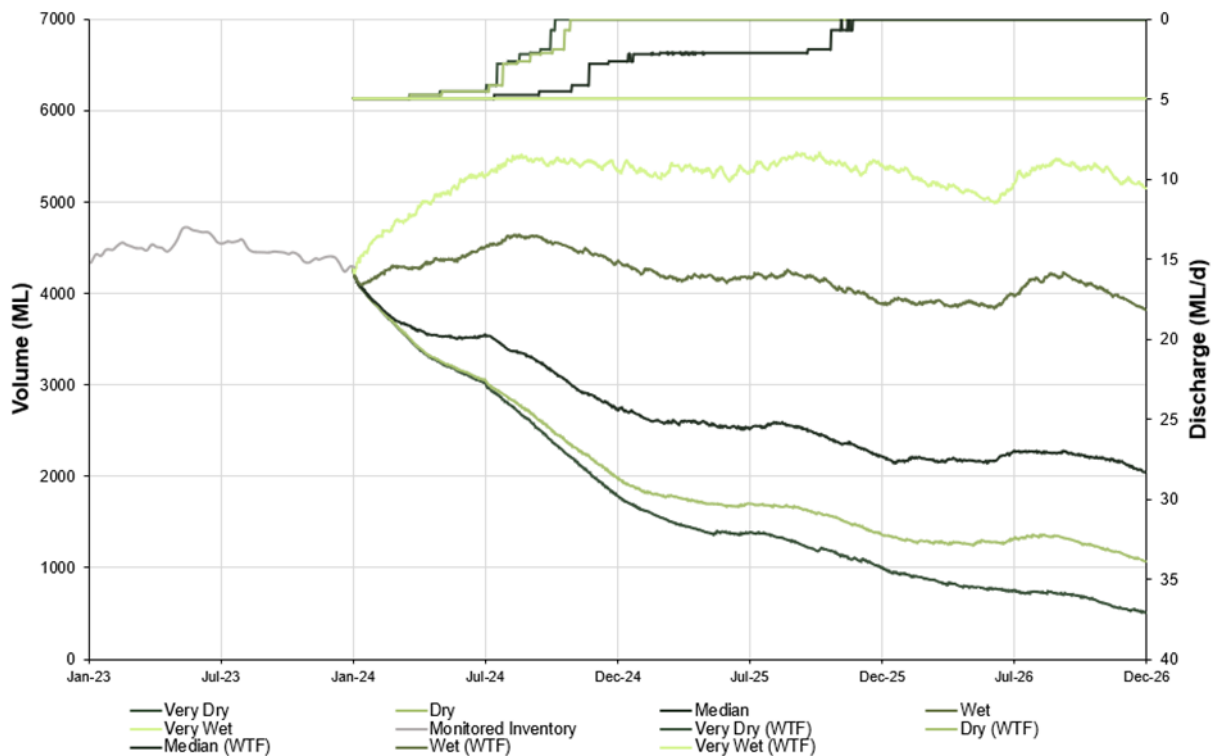
- Collation and review of historical water monitoring data;
- Review of WCPL's harvestable rights for 2023;
- Updated catchment and land use mapping and changes incorporated to the Water Management System (WMS) in 2023;
- Calibration of WCPL's Goldsim model against the 2023 Goldsim output and data collected between January 2018 and December 2023;
- Description of the Goldsim model, operating rules, and model schematic; and

- Forecast of site water behaviour for the next three years (2024 to 2026).

The intent of this report is to document the basis of the updated WCPL Goldsim model, assess the predicted water balance versus actual monitored water inventory during 2023, and to provide a 3-year forward projection of water balance at WCM (SLR 2024).

Model simulated volumes have been forecast for the period 1 January 2024 to 31 December 2026. Results have been plotted for the combined water inventory in the WMS (comprising Pit 2W, Pit 1S, RWD, CWD, Pit 5N, Pit 4 and Pit 3). **Figure 7-12** shows the forecasted total site inventory and associated WTF discharge for the period 1 January 2024 to 31 December 2026 through varying climatic conditions (SLR 2024).

Figure 7-12 Forecast Water Inventory 2024-2026



7.9 Water Treatment Facility

Construction of the Water Treatment Facility (WTF) was completed in June 2012 and approved water releases commenced on 16 June 2012 in accordance with EPL 12425. Under EPL 12425, WCPL are approved to discharge treated water from Licensed Discharge Point 24 (LDP24). The maximum volume of water discharge shall not exceed 5ML/day.

On the 6 October 2022, WCPL sought to vary licence condition L3.1 to increase the daily discharge rate at LDP Point 24 from 5 ML/day to 6.5 ML/day in response to ongoing increased rainfall associated with the La Nina weather conditions (**Section 7.4.1**). The variation to increase to 6.5ML/day was approved by the EPA on the 10 October 2022. Water quality concentration limits (i.e., 100 percentile concentration limit) for LDP24 include:

- Electrical conductivity (EC) not to exceed 500 $\mu\text{S}/\text{cm}$ (continuous monitoring);
- Oil and grease (O&G) not to exceed 10mg/L (grab sample weekly during any discharge);
- pH range of 6.5 to 8.5 (continuous monitoring); and
- Total suspended solids (TSS) not to exceed 50mg/L (grab sample weekly during any discharge).

During 2023 WCPL complied with EPL water quality and quantity limits for LDP Point 24 (**Figure 7-13** and **Figure 7-16**).

Figure 7-13 RO Daily Discharge Volumes

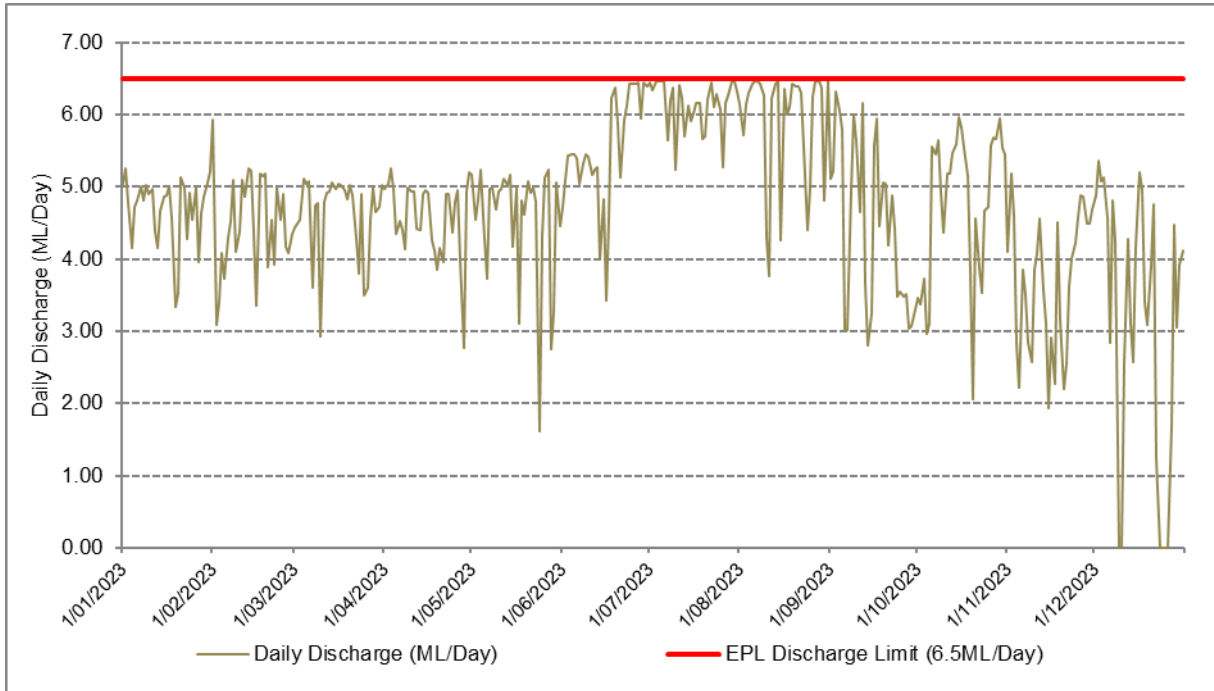


Figure 7-14 RO Daily pH

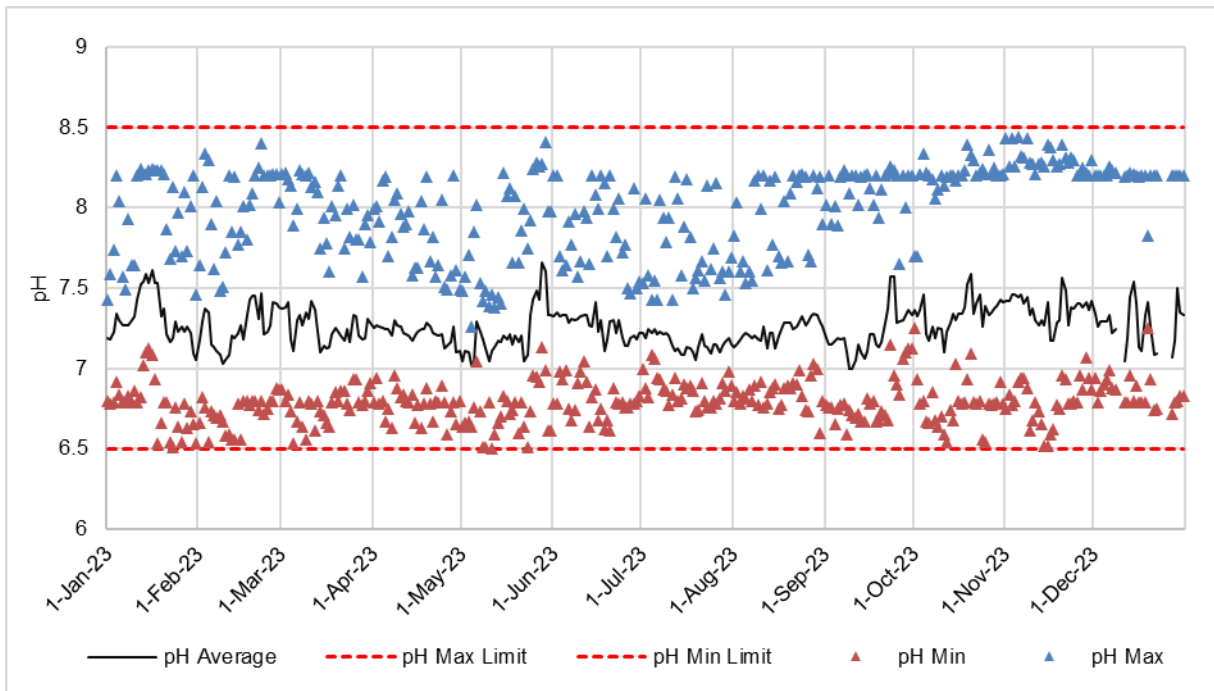


Figure 7-15 RO Daily EC

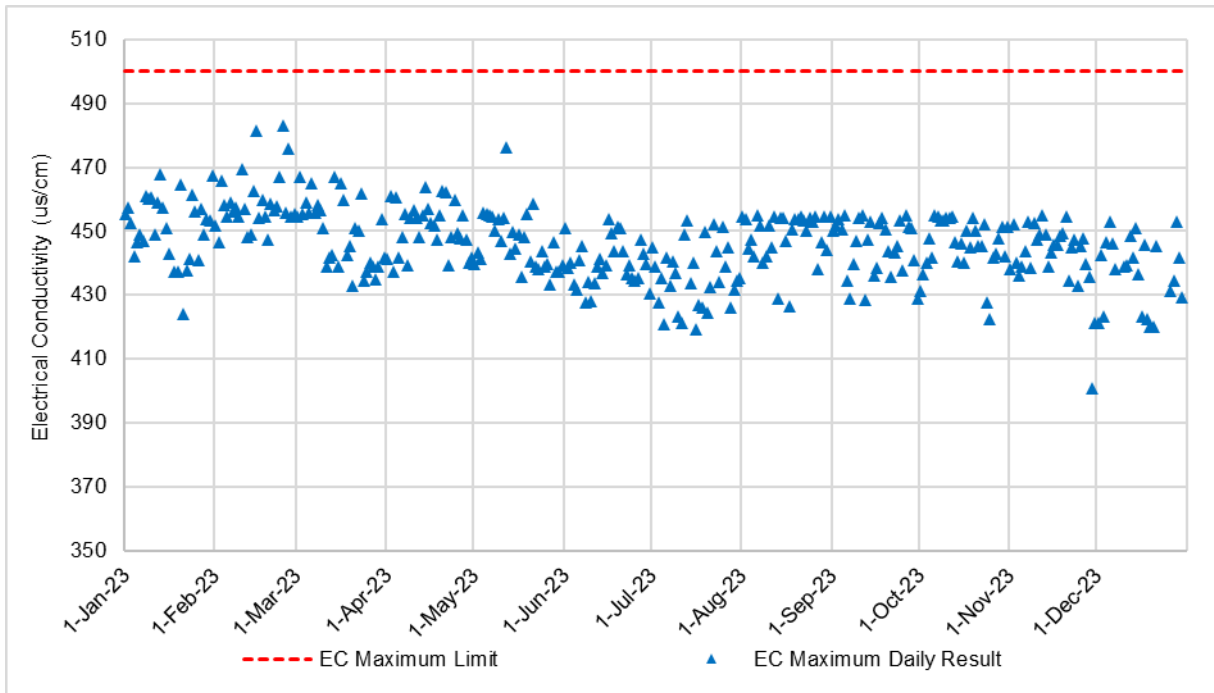
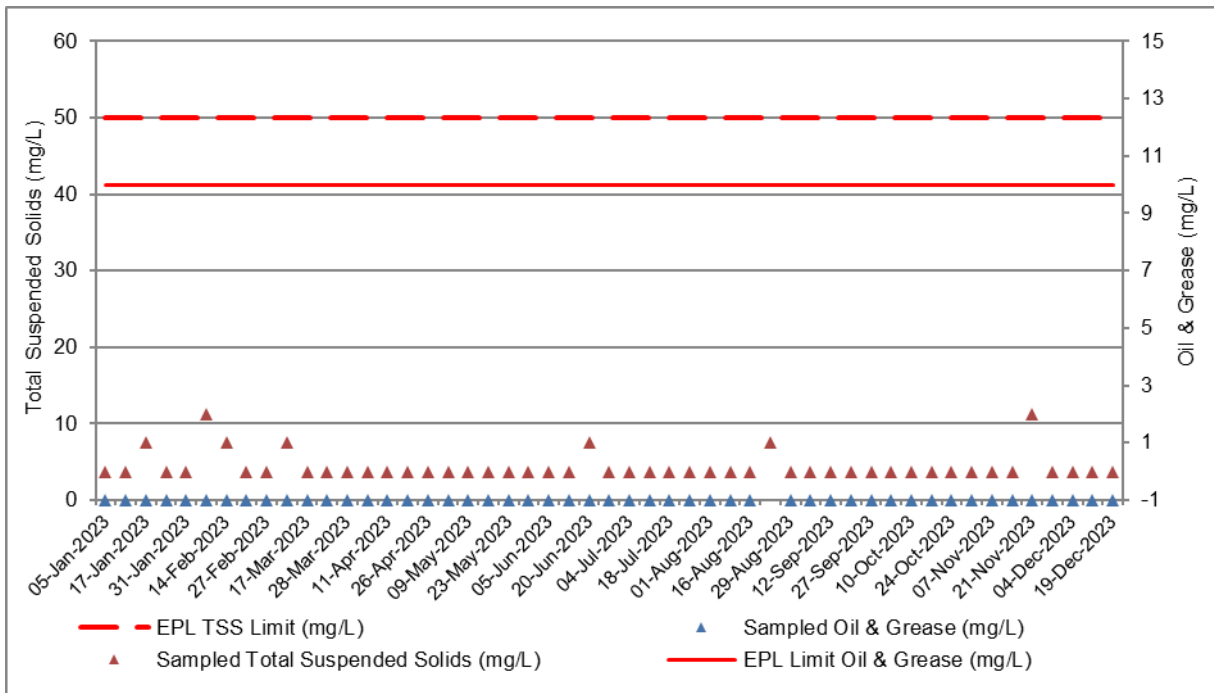


Figure 7-16 RO Daily TSS & Oil and Grease



For the complete assessment of WCPL’s licence discharges under EPL12425 from the 2023 Reporting Period by SLR refer to **Appendix 3C** for the *Annual Review 2023 – Surface Water Compliance*.

7.10 Stream Health & Channel Stability Monitoring

Channel Stability Monitoring

Channel stability monitoring (CSM) was completed by Eco Logical Australia (ELA) on behalf of Wilpinjong Coal Pty Ltd (WCPL) between 18 December and 20 December 2023.

The CSM program aims to provide quantitative and qualitative measures of channel stability along Wilpinjong and Cumbo Creeks. Monitoring was undertaken across a total of 59 permanent monitoring locations, including 49 on Wilpinjong Creek and 10 on Cumbo Creek. Consistent with previous monitoring, methods included surveying the designated reach of each monitoring site (approximately 100 m) and completing the Bank Erosion Hazard Index (BEHI) assessment, along with visual and photographic comparative assessment with data from previous years (ELA, 22 March 2024).

CSM results in 2023 were largely consistent with previous years, with only 10 sites seeing a change to BEHI scores, indicating the unchanged nature of the target creeks. For Wilpinjong Creek, BEHI ratings improved at five (5) sites, declined at (5) sites, and remained unchanged at 39 sites, whilst for Cumbo Creek, ratings remained unchanged at all 10 sites. Slight decreases in bank vegetation ground cover, as well as greatly reduced water levels and stream flow, were observed at most sites. Sites with a decline in channel stability between 2022 and 2023 are likely related to erosion caused by high flow events throughout 2022, combined with reduced vegetation cover following dry conditions in 2023. Despite this, some sites did experience an increase in channel stability BEHI scores, indicating that the impacts of preceding climatic conditions over the previous two years were not uniform throughout the catchment (ELA, 22 March 2024).

Identified historical erosion points were monitored in 2023, with some sites experiencing minor erosion in 2023, however all sites were largely stable. Overall, erosion points require ongoing monitoring, and additional revegetation and remediation works are recommended to allow for channel bank stability. Specifically, reshaping and contouring of the bank, followed by revegetation is recommended at multiple erosion points, including E1, E3, E4, E6, E9 and E11 (ELA, 22 March 2024).

The results of the 2023 CSM support conclusions made in previous monitoring and assessments that ongoing mining operations are not causing stability issues within the target creek systems. Both Wilpinjong and Cumbo Creeks are typical of ephemeral creek systems in agricultural landscapes of the surrounding region, with channel stability issues within these creeks reflecting historical disturbances and land use practices, rather than contemporary mining operations (ELA, 22 March 2024).

Refer to **Appendix 5** for the complete *Wilpinjong Coal Mine 2023 Channel Stability Monitoring* (ELA, 22 March 2024) completed by ELA.

Stream Health Monitoring

Stream health monitoring (SHM) was undertaken by ELA during spring 2023 within the catchments surrounding Wilpinjong Coal Mine (WCM). A total of nine permanent sites were monitored along Wilpinjong, Wollar and Cumbo creeks, as well as one control site located along Barigan Creek. One site along Wilpinjong Creek and one control site along Barigan Creek had no surface water at the time of surveying, therefore water quality testing and macroinvertebrate sampling were not undertaken there (ELA, 05 March 2024).

The monitoring results were largely consistent with previous years' results. Most sites recorded mid-range RCE (Riparian, Channel and Environmental) scores, typical of catchments in the region. Water quality results were recorded for various parameters and differed markedly across most sites in comparison with previous years. Parameters were inside Australian and New Zealand Environmental and Conservation Council (ANZECC) guidelines at all sites for pH and were within or close at eight sites for turbidity, likely as a result of decreased runoff and stream flow leading up to the monitoring period (ELA, 05 March 2024).

Water quality results for temperature, electrical conductivity (EC), and dissolved oxygen (DO) fluctuated considerably across monitoring years, during times of variable stream flow and at sites both upstream and

downstream of the WCM licensed discharge point. As such, these results indicate that natural factors and fluctuating climatic conditions, rather than mining operations are the primary influences on water quality in the catchments surrounding the WCM (ELA, 05 March 2024).

Across all monitoring sites, a total of 15 macroinvertebrate Orders and 51 Families were recorded. Stream invertebrate grade number average level (SIGNAL2) scores were generally low in 2023, with all sites but one showing a decrease in comparison to the 2022 SHM period. A combination of low levels of flowing water, higher water temperature, and low DO likely limited the diversity of macroinvertebrate communities. In line with previous years, SIGNAL2 scores were <4.0 for all sites, which is indicative of severely disturbed systems. The overall temporal and spatial consistency of these macroinvertebrate results indicate that historical disturbances, combined with fluctuating climatic conditions within the larger catchments surrounding the WCM, are the main factors responsible for current stream health conditions (ELA, 05 March 2024).

Refer to **Appendix 5** for the complete *WCPL 2023 Stream Health Monitoring Report* (ELA, 05 March 2024) completed by ELA.

7.11 Groundwater

The GWMP outlines WCPL’s Groundwater Monitoring Program. In June 2022, the GWMP (Version 6.1) was updated to include addressing the 2021 IEA recommendations, additional groundwater monitoring bores as required by DPE Water and address other DPE Water comments during post consultation from April 2022 and August 2022. A further revision of the GWMP (Version 6.2) was completed in June 2023 to address additional comments from the DPE from February 2023. Approval of the revised GWMP (Version 6.2) was pending at the time of preparing the 2023 Annual Review.

A summary of the groundwater monitoring program is presented in **Table 7-8**. A summary of the groundwater monitoring results against applicable groundwater triggers is provided in **Table 7-9**.

A summary of the groundwater monitoring results for 2023 Reporting Period is provided in **Section 7.13**, with the complete groundwater assessment report by SLR Consulting Australia Pty Ltd (SLR) provided in **Appendix 3D**.

Table 7-8 Groundwater Monitoring Program

Monitoring Locations		Frequency	Parameters ^{1,2}
Open Cut Operations	Main pit sump(s)	Monthly	Volume of water extracted.
		Quarterly	pH, EC, TDS, Na, K, Mg, Ca, Cl, HCO ₃ , CaCO ₃ , SO ₄ and Metals (Cu, Zn, Fe, Al, Ni, Mn, Ba, Sr, Pb, As and Se).
Water Supply Bores³	GWs10, GwS11, GWs12, GWs14, GWs15	Monthly (During Extraction)	Water level, field pH and EC. Volume of water extracted.
Alluvial Bores	GWa10, GWa11, GWa12, GWa14, GWa15, GWa16, GWa22, GWa32	12 Hr (logger)	Water level, Pressure, Temperature
	GWa1, GWa2, GWa3, GWa4, GWa5, GWa6, GWa7 ⁵ , GWa8 ⁵ , GWa9, GWa10, GWa11, GWa12, GWa14, GWa15, GWa16, GWa22, GWa32, GWa33 ⁵	Monthly	Water level, temperature field pH and EC.
		Quarterly	TDS, Na, K, Mg, Ca, Cl, HCO ₃ , CaCO ₃ , SO ₄ and Metals (Cu, Zn, Fe, Al, Ni, Mn, Ba, Sr, Pb, As and Se).
Coal Measures Bores	GWc10, GWc11, GWc12, GWc14, GWc15, GWc16, GWc17, GWc18, GWc22, GWc23, GWc24, GWc25, GWc26, GWc27, GWc28, GWc29, GWc30, GWc31, GWc32 ⁵	Daily (logger)	Water level, Pressure, Temperature
	GWc1, GWc2, GWc3, GWc4 ⁵ , GWc5 ⁵ , GWc10, GWc11, GWc12, GWc14, GWc15, GWc16, GWc17, GWc18, GWc19, GWc20, GWc22, GWc23, GWc24, GWc25, GWc26, GWc27, GWc28, GWc29, GWc30, GWc31, GWc33, GWc32 ⁵ , GWc34, GWc35	Monthly	Water level, temperature, field pH and EC.
		Quarterly	TDS, Na, K, Mg, Ca, Cl, HCO ₃ , CaCO ₃ , SO ₄ and Metals (Cu, Zn, Fe, Al, Ni, Mn, Ba, Sr, Pb, As and Se).
Landholder bores, wells and waterholes⁴		As required	To be determined

Notes: 1) Parameters will be analysed provided sufficient volumes of water can be collected. 2) Na = Sodium, Ca = Calcium, HCO₃ = Bicarbonate, SO₄ = Sulphate, K = Potassium, Mg = Magnesium, Cl = Chloride and Total Fe = Total Iron. 3) Water supply bores not currently in operation. 4) Monitoring may be undertaken, as required, in consultation with individual landholders. Parameters to be monitored will be determined following consideration of the landholder's concerns. 5) Regional bore – not expected to be affected by mining.

7.12 Compensatory Water Supply

In accordance with Condition 24, Schedule 3 of SSD-6467 WCPL shall compensate potentially affected landowners with privately owned groundwater bore within the predicted drawdown impact zone identified in the EA. During the 2023 Reporting Period this condition was not triggered. There are no privately-owned bores within this predicted impacted zone.

7.13 Groundwater Monitoring Review

SLR Consulting Australia Pty Ltd (SLR) was commissioned by WCPL to conduct *the Annual Review – Wilpinjong Coal Mine 2023 Groundwater Compliance* (the groundwater review). The groundwater review for 2023 is provided in **Appendix 3D** and summarised below:

Previous reporting (HydroSimulations, 2015a; Peabody, 2016) has utilised the HydroSimulations (2013) and (2015b) groundwater model to assess likely impacts of WCM and ensure sufficient water licences are purchased prior to a water year (SLR 2024).

This groundwater model was converted from the original numerical groundwater model used by AGE (2005). The 2015 version of the groundwater model (HydroSimulations, 2015b) was updated in 2020 by SLR (2020a), in line with the recommendations from the 2018 Annual Review (HydroSimulations, 2019). These changes aimed to verify if the model calibration was still appropriate by updating climatic inputs, updating available groundwater level observations, and revising mine progression to reflect actual extraction (SLR 2024).

As is required by the GWMP (Peabody, 2017), the following section reports on the new model (SLR, 2020a) and presents the results of the model verification. SLR is also required to assess the performance and suitability of the model triennially to ensure predictions are consistent with observed data. A new groundwater model commenced construction in 2023 and is currently being developed to support proposed changes and extensions of mining operations. It is anticipated that this model will be used for the 2024 Annual Groundwater Monitoring Report and satisfies the GWMP requirement for triennial updates (SLR 2024).

7.14 Groundwater Model Verification

Hydrographs of observed and modelled groundwater levels are presented in **Appendix D**. The following section contains an assessment of the modelled vs observed groundwater levels where potential mining impacts are observed. It is noted that climatic conditions from 2020 to 2023 are not captured in the model used for this verification exercise. The model updates were completed in early 2020. Updated climate and stream flow series, and actual and proposed mining will be included in the next model update, which commenced in 2023. The updated model is intended to be used for future reviews (SLR 2024).

Predictions at Alluvial Bores

The SLR (2020a) modelling predictions are consistent with HydroSimulations (2015b) predictions at the alluvial monitoring sites along Wilpinjong Creek, with approximately 1 m drawdown for the life of approved mining (GWa6 has the maximum predicted drawdown in an alluvial monitoring bore of about 1.5 m occurring in 2029) (SLR 2024).

The timing of the mining effects modelled at the alluvial monitoring bores shows good correlation with the observed effect and often indicates a repressed response to rainfall that is also seen in the observed data. Most of the modelled groundwater levels at the alluvial monitoring bores respond to the updated (SLR, 2020a) modelled rainfall recharge series (SLR 2024).

Groundwater levels along Wilpinjong Creek and Cumbo Creek are generally well represented in the alluvium (GWA1, GWA2, GWA5, GWA6, GWA12, GW14 and GWA15) although recent observations in the shallow bores are not well replicated by the groundwater model due the above average rainfall conditions not being captured in the model (which was developed in early 2020). The groundwater model commenced updates in 2023 and will better reflect recent climatic conditions. It is anticipated the ability of the updated model to replicate observed groundwater elevations from 2020 to 2023 is likely to improve (SLR 2024).

The observed desaturation of the alluvium (GWA4, GWA5, GWA6, GWA12, GWA14) occurs earlier than was predicted by the model, while differences between observations and the model simulation at GWA6, GWA12, and GWA14 are similar for a majority of the WCM alluvial monitoring locations. The decline in observed groundwater level from 2013 to 2016 and from 2017 to 2020 is about 1.5 m greater than that predicted by the model, with dry observations during these periods of below average rainfall not being replicated by the model. This may be attributed to differences between actual and modelled alluvial thickness, or the bed elevation of creeks as represented in the model. Some improvements to model performance may be made by making minor revisions to the aquifer properties and geometry of the alluvium (with a focus on including information from any recent drilling). The current updates to the numerical model which commenced in 2023 will include a rebuild of model geometry and recalibration of hydraulic parameters which is anticipated to improve the match between modelled and observed groundwater elevations at these locations (SLR 2024).

Observed drawdown at GWA5 is approximately 1.5 to 2.5 m greater than the drawdown predicted by the model for the period between 2013 and the end of 2021. Previous reporting sighted a lack of inflow at Cumbo Creek due to reduced rainfall and a possible under-prediction of Pit 3 and Pit 7 mining impacts as the reason for the difference (HydroSimulations, 2018, 2019 and SLR, 2020b) (SLR 2024).

Additional investigation at GWA5 undertaken in 2021 was not able to explicitly determine whether it is still connected to the Cumbo Creek alluvial aquifer and returning representative data. The installation of a supplementary bore should be considered in this area to help understand potential impacts to the Cumbo Creek alluvium (SLR 2024).

While the model captures alluvial groundwater response for periods of above average rainfall, low water/dry observations in drier periods such as 2015 and 2017-2020 are often not well represented in the modelling. The relationship between different recharge sources to the alluvium (i.e. flow from Permian strata, surface water flow, rainfall recharge) will be considered in the current revision and recalibration of the groundwater model (SLR 2024).

Predictions at Coal Measures Bores

The largest drawdowns predicted by the model were during the excavation of Pit 3 and Pit 4, with continued drawdown predicted at several bores following mining at Pit 5. Noting the uncertainty in distinguishing between climate and mining-related drawdown in the observed data, modelled groundwater levels at the coal monitoring bores generally show a good correlation with the timing and magnitude of observed drawdown (SLR 2024).

It is noted that many bores within the coal measures have significantly recovered in response to above average rainfall in 2020, 2021 and 2022. As this above average rainfall has not been captured within the SLR (2020a) updated model, similar responses are not expected within the modelled groundwater levels. The relationship between coal measures bores and WCM site water storages has been suggested for further investigation (Section 2.3.2.1), with water storages being considered for inclusion in updated model (SLR 2024).

The revised groundwater model (SLR, 2020a) predicts a reduction in the rate of drawdown between 2006 and 2009 (when mining starts at Pit 1, 2 and 5) at GWc2, GWc3, GWc12, GWc14 and GWc15. The timing of drawdown is still captured in (SLR, 2020a) for these bores and the simulated groundwater levels match the observed levels prior to the extraction of Pit 4 in 2013. The model (SLR, 2020a) better captures the maximum drawdown following mining at Pit 1 and 2 at GWc1 and GWc11 located near Pit 2, although the groundwater level recovers quicker and above the observed levels (SLR 2024).

Revised model predictions (SLR, 2020a) improved the timing of drawdown after mining Pit 4 and following below average rainfall conditions at GWc1 and GWc2. The maximum predicted drawdown better aligns with the observed depressurisation at GWc3 (Cumbo Creek) and matches the drawdown gradient at GWc15 following the mining of Pits 4, 3 and 7. The observed data at Pit 8 monitoring bores GWc28 and GWc29 is relatively well matched by the model although observed drawdown is greater than the model predicts (SLR 2024).

The simulated depressurisation of the coal seams in the revised model (SLR, 2020a) between 2013 and 2019 is generally lower than the observed data at GWc12, GWc15, GWc14, GWc28 and higher at GWc1, GWc2 and GWc3. Predicted recovery from 2020-22 and ongoing in 2023 is generally less than that observed at all coal monitoring bores, as discussed above (SLR 2024).

Table 7-9 Groundwater Performance

Location		Approved Criteria		Performance During the Reporting Period			Trend/Key Management Implications	Implemented/ proposed Management Actions
Groundwater Monitoring (Alluvium)				Assessment of Triggers				
	Water Levels (mAHD)	EC (µS/cm)	pH (range)	Water Level (mAHD)	EC (µS/cm)	pH		
				Dry in 2022 and 2023			<p>Below average rainfall conditions were experienced in 2023 following above average rainfall from conditions from 2020-2022. This has resulted in the stabilisation or decline in groundwater levels across many alluvial and coal measures monitoring sites compared to increasing groundwater levels in previous years (SLR 2024).</p> <p>Throughout 2023 WCPL notified the DPE of EC and water level trigger exceedances as required by the GWMP.</p> <p>The following assessment has been made with respect to compliance triggers:</p> <ul style="list-style-type: none"> Alluvium bores GWa3, GWa12, GWa14, and GWa15 have exceeded the lower depth-to-water trigger level during 2023. This review has identified that these sites GWa3, GWa12, and GWa15 may be silted-up or obstructed, or not responding as expected to climatic trends (GWa14) and should be investigated and/ or purged and redeveloped in 2024. Coal measures bores GWc3 and GWc5 have exceeded the EC trigger level during 2023. EC at GWc3 may be influenced by downwards seepage from overlying strata, lateral flow from backfilled open cuts, or related to difficulties in removing stagnant water from the bores to gain representative groundwater samples. Replacement of GWc3 and further investigation into groundwater quality trends is scheduled for 2024. GWc5 has been recording stable observations above the trigger level since 2015 and shows limited impacts from WCM operations. The trigger level at GWc5 will be updated to reflect 80% of available data in the next revision of the Groundwater Management Plan (GWMP). No pumping occurred from the WCPL supply borefield in 2023 and none of the cease-to-pump trigger levels were exceeded. 	<p>WCPL will continue to implement the approved GWMP, monitor and evaluate the groundwater systems over the 2023 Reporting Period.</p> <p>As required by the GWMP, notification to the DPE regarding upper EC limits triggered at GWc1, GWc3, GWc4 and GWc5 and water level triggers at GWa12, GW14 and GW15 were provided in writing on the 11 September 2023, 3 October 2023, 9 November 2023 and 21 December 2023.</p> <p>WCPL commissioned SLR to complete the <i>EC Trigger Investigation of GWc1, GWc3, GWc4 and GWc5 (Appendix 3D)</i>. The recommendations provided by SLR will be carried out by WCPL during the 2024 Reporting Period.</p> <p>In accordance with Condition 5, Schedule 5 of Development Consent SSD-6764, WCPL will review and revise the GWMP within three months of the submission of this Annual Review.</p> <p>During the review of the GWMP, WCPL will also consider the recommendations made by SLR (Appendix 3D) during their annual review of groundwater.</p>
GWa1^	N/A#	12,272	6.5 - 8					
GWa2	373.4	2,280	6.5 - 8	N	N	N		
GWa3	360.5	1,970	6.5 - 8	Y	Y	Y		
GWa4^	353.8	2,596	6.5 - 8	N	N	N		
GWa5	372.8	13,926	6.5 - 8	N	N	N		
GWa6	N/A#	6,720	6.5 - 8	N/A#	N	N		
GWa7	N/A#	10,126	6.5 - 8	N/A#	nd	nd		
GWa8	353.3	2,898	6.5 - 8	N	N/A#	N/A#		
GWa10	367.1	N/A#	N/A#	N	N/A#	N/A#		
GWa11	365.2	N/A#	N/A#	N	N/A#	N/A#		
GWa12	362.3	N/A#	N/A#	Y	N/A#	N/A#		
GWa14^	358.0	N/A#	N/A#	Y	N/A#	N/A#		
GWa15	355.0	N/A#	N/A#	Y	N/A#	N/A#		
Groundwater Monitoring (Coal)								
GWc1	N/A#	2,844	6.5 - 8	N/A#	N	N		
GWc2	N/A#	1,290	6.5 - 8	N/A#	N	N		
GWc3	N/A#	3,304	6.5 - 8	N/A#	Y	N		
GWc4	N/A#	2,412	6.5 - 8	N/A#	N	N		
GWc5	N/A#	4,798	6.5 - 8	N/A#	Y	N		
Groundwater Production Bores								
GWs10	346	#	#	**	#	#		
GWs11	348.5	#	#	**	#	#		
GWs12	332.5	#	#	**	#	#		
GWs14	319.5	#	#	**	#	#		
GWs15	314.5	#	#	**	#	#		

Notes: N/A# = No trigger defined, Y= Yes (trigger exceedances recorded), N= No (trigger exceedances not recorded) nd* = no data/ bore dry

8.0 REHABILITATION

8.1 Rehabilitation Activities

To minimise the area of disturbance at any one time, rehabilitation occurs progressively at the Mine as ancillary disturbance areas and final mine landforms become available for revegetation. The mine waste rock emplacements behind the advancing open cut are constructed to approximate the pre-mining topography or the final landform which was initially approved by Project Approval PA 05-0021.

The Development Consent (SSD-6764) has superseded the Project Approval (05-0021). WCPL are finalising a revised Rehabilitation Strategy to address Condition 61, Schedule 3 of Development Consent (SSD-6764) which will present a revised final landform that builds on the rehabilitation objectives in Table 11 of Development Consent (SSD-6764).

As part of the WEP EIS, WCPL identified an opportunity to prioritise woodland establishment within the existing mine rehabilitation areas where rehabilitation to date has focussed on the establishment of productive pasture for grazing since 2008. WCPL conducted a re-evaluation of the previous rehabilitation areas against contemporary BVT classifications to prioritise Regent Honeyeater habitat establishment within existing mine rehabilitation areas. Therefore, the revised entire post mining land use is now woodland.

Until the performance and completion criteria for BVT and Regent Honeyeater habitat relevant to the Mine's rehabilitation areas was approved on the 24 April 2019, cover crops were established as a way of providing stabilisation and soil improvement during this transition. Of the historical completed landforms to date that are currently under pasture or considered not woodland, these landforms will be progressively upgraded with relevant woodland species to meet the BVT requirements.

8.1.1 Status of Mining & Rehabilitation

During the 2023 Reporting Period, the Rehabilitation Management Plan (RMP) was implemented by WCPL in accordance with the NSW Resources Regulator (NSW RR) *Form and Way-Rehabilitation Management Plan for Large Mines (NSW RR, July 2021)*.

The RMP was also developed to satisfy the requirements of Condition 64, Schedule 3 of Development Consent (SSD-6764). The development of the RMP also satisfies the requirements of Mining Leases (ML) ML1573, ML 1779, ML1795. The RMP (Version 1) was approved by the DPE on the 25/01/2023.

A revision to the RMP (Version 2) within inclusion of ML1846 and supported by amendments to the Annual Rehabilitation Report and Forward Program (ARRFP)⁶ was completed and resubmitted in September 2023. The revised RMP (Version 2) was pending approval at the time of preparing the 2023 Annual Review.

The indicative three-year mining sequence and rehabilitation sequence within the ARRFP, was based on the financial year Reporting Period, which involves primarily the rehabilitation of mine waste rock emplacements as they become available within the overburden emplacement area mining domain. The ARRFP is scheduled to be updated and resubmitted by the 2nd of March 2024 with a revised three-year mining sequence and rehabilitation sequence based on calendar year.

The predictive versus actual cumulative and rehabilitation progression for Year 1 (i.e. Plan 2A) as presented in the current ARRFP completed during the Reporting Period is provided in **Table 8-1** and **Figure 8-1**.

To avoid reporting duplication, the rehabilitation reporting requirements for Annual Rehabilitation Report component will be provided in the ARRFP and the rehabilitation reporting requirements for the Annual Review are provided below. The revised ARRFP will be submitted to the NSW Resources Regulator via the www.minerehabilitationportal.nsw.gov.au by the 2nd of March 2024.

⁶ Provides indicative three-year mining sequence and rehabilitation sequence was provided in plans Plan 2A Mining and Rehabilitation Year 1, Plan 2B Mining and Rehabilitation Year 2 and Plan 2C Mining and Rehabilitation Year 3.

Table 8-1 Predictive Versus Actual Disturbance and Rehabilitation Progression During the Reporting Period

Year	Year 1 (2022) Forecast	Year 1 (2022) Actual
Total Disturbance Footprint – Surface disturbance (ha)	2823	2762
Underground Mining Area (ha)	NA	NA
Total Active Disturbance (ha)	293.31	70.92
Rehabilitation - Land Preparation (ha)	79.98	77
Ecosystem and Land Use Establishment (ha)	59.32	73.99

Due to mine plan changes throughout the year, there were only minor changes to rehabilitation land preparation areas completed in 2023, as proposed in Year 1 of the ARRF. These changes relate to variances in the completed rehabilitated surface areas at several rehabilitation locations, which minorly affected the total hectares completed against the hectares proposed in the ARRF (Figure 8-1) and considered generally consistent with the rehabilitation scheduled and targets proposed for Year 1 (Plan 2A). WCPL consider the rehabilitation program proposed in the ARRF has been achieved for Year 1.

As displayed in Table 8-2, approximately 1020 ha of completed landforms have been rehabilitated as of the 31 December 2023 (Figure 8-2). No rehabilitated landforms are yet considered ready for formal sign off by the NSW Resource Regulator in terms of meeting the relevant completion criteria as provided in the RMP.

As discussed in Section 8.1, WCPL have transition to a BVT performance and completion criteria relevant to the rehabilitation areas which were developed in accordance with Schedule 3, Condition 37 of the Development Consent SSD-6764.

Table 8-2 Rehabilitation Status

Mine Area Type	2015 Reporting Period (Actual)	2016 Reporting Period (Actual)	2017 Reporting Period (Actual)	2018 Reporting Period (Actual)	2019 Reporting Period (Actual)	2020 Reporting Period (Actual)	2021 Reporting Period (Actual)	2022 Reporting Period (Actual)	2023 Reporting Period (Actual)	Next Reporting Period (Forecast)
A. Total Mining Lease footprint (ha)	2857.3	2857.3	2857.3	2857.3	3725.30*	3725.30*	3725.30*	3725.30*	3791.93^	3791.93^
B. Total active disturbance (ha)	1478	1562	1686	1840	2013	2190	2324	2530	2762	2835
C. Land being prepared for rehabilitation (ha)	43	70	82	98	121	138	86	47	77	120
D. Land under active rehabilitation (ha)	304	374	456	556	677	815	901	948	1020	1102
E. Completed rehabilitation (ha)	0	0	0	0	0	0	0	0	0	0

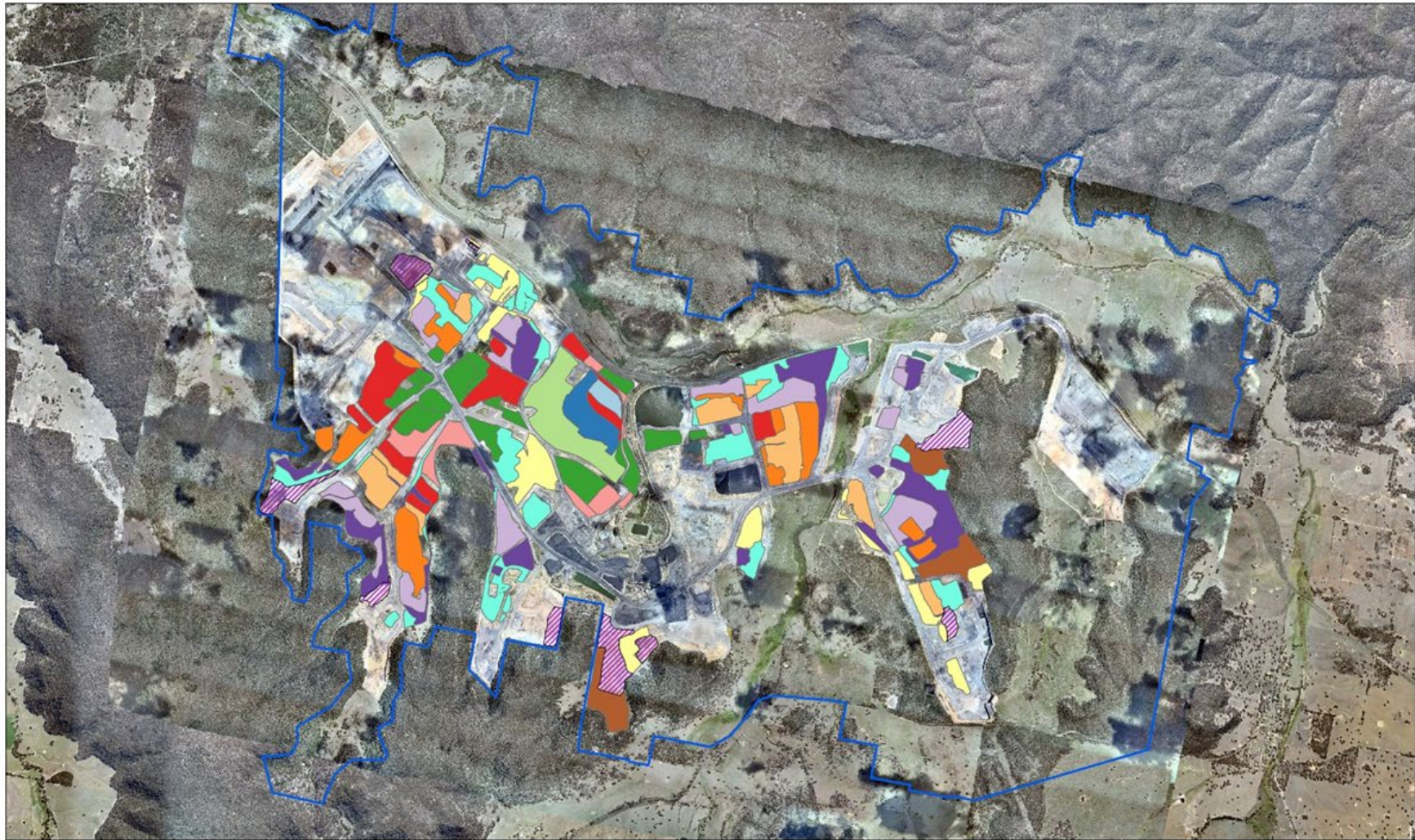
Notes: * Increase in total mine footprint now incorporates the additional hectares in ML1779 and ML1795. ^ Increase in total mine footprint now incorporates the additional hectares in ML1846.

Figure 8-1 Rehabilitation Forecast Vs Actual 2023



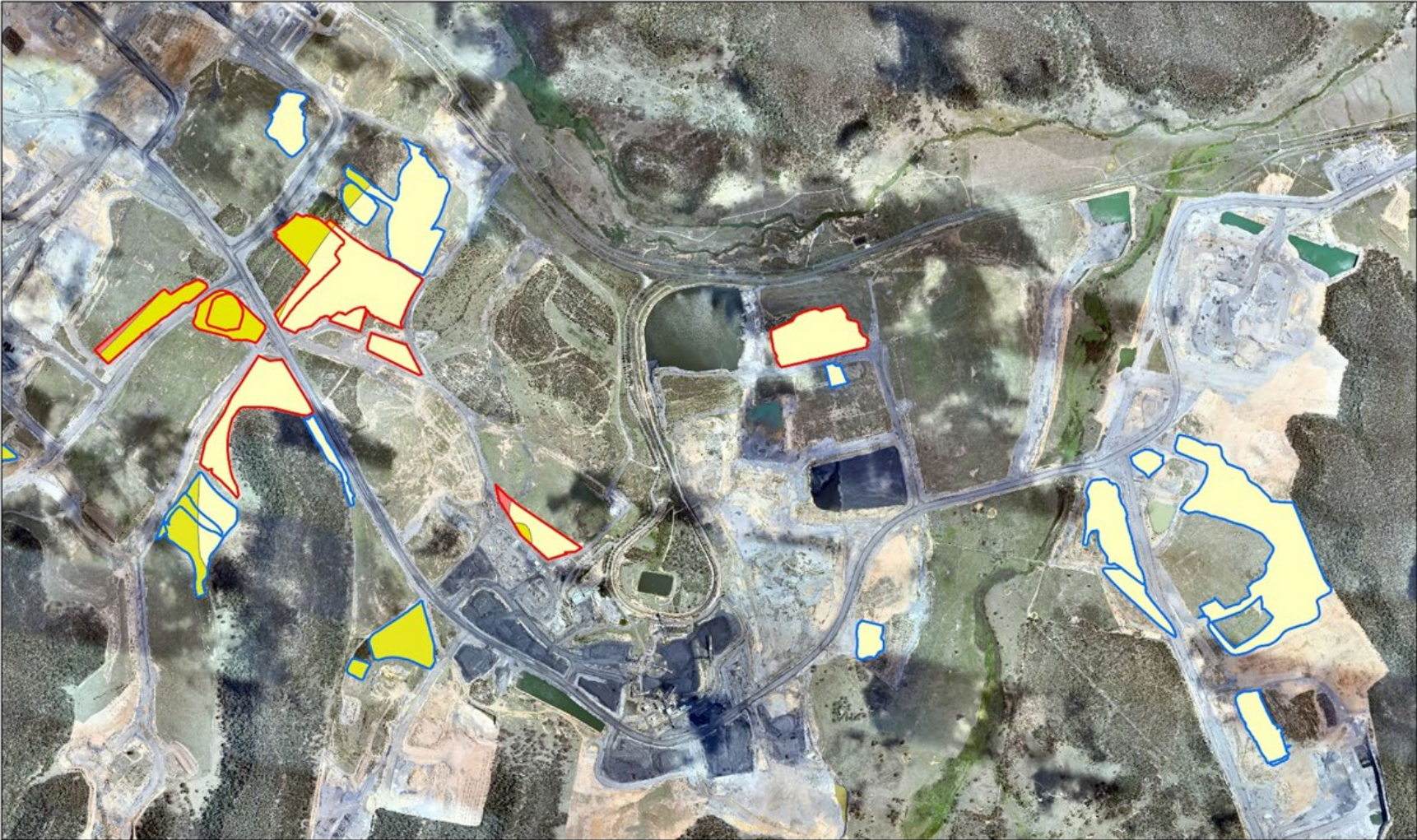
<p>Legend</p> <ul style="list-style-type: none"> 2023 RMP Ecosystem and Land Use Establishment Areas (59.32Ha) 2023 Claimed Ecosystem and Land Use Establishment Areas (73.99Ha) SSD-6764 Disturbance Boundary SSD6764 Project Approval Boundary <p>0.85 0.42 0 0.85 1.7 2.55 3.4 Kilometers</p>		<p>Wilpinjong Coal 2023 Rehabilitation Domains</p> <table border="1"> <tr> <td data-bbox="1131 1300 1332 1385">SpatialReference Name:GDA1994MGAZone65</td> <td data-bbox="1332 1300 1433 1385">Review ID: 1</td> <td data-bbox="1433 1300 1534 1385">DateExported: 12/02/2024 12:52PM</td> <td data-bbox="1534 1300 1612 1385">Drawn By: JH</td> <td data-bbox="1612 1300 1724 1385">Drawing No. KB_DWH-30</td> </tr> </table>	SpatialReference Name:GDA1994MGAZone65	Review ID: 1	DateExported: 12/02/2024 12:52PM	Drawn By: JH	Drawing No. KB_DWH-30	<p><small>Peabody makes every effort to ensure the quality of the information available on this map. Before relying on the information on this map, users should carefully evaluate its accuracy, currency, completeness and relevance for their purposes, and consult with any appropriate professional advisor relevant to their particular use. Peabody cannot guarantee and assumes no responsibility for the accuracy, currency or completeness of the information and for using this map you accept the Peabody has no liability for any loss or damage in any form whatsoever caused directly or indirectly by the use of this map.</small></p>
SpatialReference Name:GDA1994MGAZone65	Review ID: 1	DateExported: 12/02/2024 12:52PM	Drawn By: JH	Drawing No. KB_DWH-30				

Figure 8-2 Annual Rehabilitation Status 2008-2023



Legend SSD-6764 Project Approval Boundary Year Completed 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023			Wilpinjong Coal 2023 Rehabilitation Domains				
0.6 0.3 0 0.6 1.2 1.8 2.4 Kilometers		SpatialReference Name:GDA1994MGAZone55	Review ID: 1	DateExported: 12/02/2024 1:03PM	Drawn By: JH	Drawing No. KB_PA2020	

Figure 8-3 Rework Areas in 2022 and 2023



Legend 2023 Completed Rehabilitation Rework (78Ha) ■ HU732 2022 Completed Rehabilitation Rework(101Ha) ■ HU824 BVT ■ HU697		 0.3 0.15 0 0.3 0.6 0.9 1.2 Kilometers	Wilpinjong Coal 2023 Rehabilitation Rework Areas				
SpatiaReference Name: GDA1994MGAZone65			Review ID: 1	DateExported: 14/02/2024 7:25AM	Drawn By: JH	Drawing No: OSP_JF	

8.1.1.1 Decommissioning

There was no decommissioning of major mining related infrastructure undertaken at the Mine in 2023.

8.1.1.2 Landform Establishment

All 2023 rehabilitation landforms were designed in accordance with the approved RMP. All rehabilitation areas were developed with carbonaceous material being progressively placed back in-pit once the coal has been mined before a minimum of a 2m inert encapsulation layer is placed on top. This formation stage, Final Surface Level (FSL) is -3m to previous landform contour. With the encapsulation layer placed, topsoil is then placed on top at a depth of 100mm to 300mm.

Mine waste dumps were constructed using existing mine equipment including truck dumped material before being shaped using the Mine dozer fleet using Lecia technology to design. Overburden and interburden material was progressively placed back into mined out voids. This included reject material from the CHPP being hauled back into the mine and deposited below the natural surface in the mined-out voids as close to the pit floor as practically possible. Reject material is dispersed throughout the overburden within the mine waste rock emplacements to manage its geochemical characteristics.

All rehabilitated slopes constructed during the 2023 reporting period were shaped to no greater than 1:6 (10 degrees or 17%) across areas – with the exception of a small section of rehabilitation in Pit 5 south west. This section married the newly rehabilitated landform into the existing natural landform. The surface of mine waste rock emplacements were constructed to approximate the existing topographic form of the shallow valleys which drain the Mine area. Mine waste rock emplacement surfaces are ripped to a depth of approx. 150mm to ensure the topsoil was bounded with the underlying inert material and allow infiltration of water into the constructed landform.

During 2023, a combination of approximately 66ha within the Mining Domain of overburden emplacement areas were completed in preparation for topsoil placement, ripping and seeding (**Figure 8-1**).

8.1.1.3 Growth Medium Development

Topsoil placement involved dozers and graders to spread to the desired depth. Direct placement is undertaken where possible and conducted by rear dump trucks before final trimming conducted by dozers and graders. Topsoil was placed on top of the final landform to act as germination medium for vegetation and as a seed source from the natural seed bank present at the time of topsoil stripping. Topsoil placement was conducted upon the completion of final landform and major drainage works (i.e. graded banks, drainage channels and rock waterways if required). All topsoil was sourced from existing topsoil stockpiles or via direct placement during topsoil stripping activities.

Soil testing within the proposed areas for rehabilitation was conducted in 2023 which indicated or identified deficiencies requiring the application of lime, gypsum soft rock phosphate, bio-stimulant and organic matter. All ameliorants were spread and incorporated into the topsoil prior to native seeding. Various amelioration rates were used to address the deficiencies including;

- Lime 10.5t/ha;
- Soft rock phosphate: 250kg/ha;
- Compost: 1t/ha; and
- Liquid organic matter: 21L/ha.

During 2023, a combination of approximately 74ha within the Mining Domain of overburden emplacement areas were topsoiled and ameliorated (**Figure 8-1**).

8.1.1.4 Ecosystem Establishment

Previously undertaken and as discussed in **Section 8.1.1**, cover crops were established on rehabilitation areas as a way of providing stabilisation and soil improvement. This method was undertaken in rehabilitation areas during the transition from Project Approval 05_0021 to SSD_6764 and the subsequent conversion from improved pastures and woodland corridors to specific BioMetric Vegetation Types (BVTs). The

previous method of cover cropping typically dominant with annual cereal pastures has not been undertaken since 2020.

Areas rehabilitated in 2023 were directly seeded with specific native seed species aligning to particular BVTs (**Figure 8-1**). These BVT mixes did include a small ratio of cover crops (cereals) to provide quick germination, soil stability and structure. Of the 74ha rehabilitated in 2023, a total of 2 BVT's were established onsite with specific BVT seed mixes, these included;

- HU732 – Yellow Box Grassy Woodland
- HU824 – White Box – Black Cypress Pine Shrubby Woodland

78ha hectares of existing rehabilitation was reworked in 2023 to convert from cover crops and improved pasture species to a BVT HU732 and HU824 (**Figure 8-3**). This was achieved by spreading via a conventional fertiliser spreader attached to a tractor, with land prepared via spraying, fertiliser application and tilling prior to seeding.

WCPL continued to maintain a native seed inventory partly collected from locally native seed sources carried out by suitably qualified personnel which will be used in rehabilitation activities.

Table 8-3 Typical BVT Seed Mix Rates in 2023

Pasture Species	Average Rates (kg/ha)
HU732	18kg
HU824	18kg

8.1.1.5 Ecosystem Sustainability

During 2023, Ecosystem Sustainability activities occurred within Final Land Use Domains which primarily included monitoring, applying biometric assessments as described below and minor maintenance activities.

Existing rehabilitation domains were monitored in accordance with the BMP and compared BVT Performance and Completion Criteria (Approved by DPIE, April 2019). Irrespective of the monitoring results, all rehabilitation areas across WCPL are required to be ‘re-worked’ to develop these sites from agricultural and non-specific Plant Community Types to prescribed BVT Communities aligning to Development Consent conditions. Monitoring and maintenance activities are ongoing with the results assessed and used to refine rehabilitation techniques.

In 2023, WCPL carried out monitoring within the area sown by a drone in 2021 and 2022, as part of the Drone Seeding Trial in Pit 5 South. At this stage, conclusions are difficult to draw from the plot parameters due to the impact vertebrate pest herbivory is having across the site, and to a lesser extent weed competition in specific sections. Germination of seeded species has been recorded across all plots; however, growth levels are unable to be gauged due to grazing and browsing across all plots to a greater or lesser extent. Therefore, conclusions as to soil ameliorants and additives to seed coating to enhance germination and subsequent initial establishment of seedlings are unable to be drawn as there can be little to no comparison on growth due to the continuous herbivory affecting establishing plants. The inspection undertaken December 2023 showed emerging new germinants of seeded native species across all sites, as well as increasing growth on many. For further photographic monitoring refer to **Appendix 4**.

Landscape Function Analysis (LFA)

Progress towards the Performance and Completion Criteria is also measured using Landscape Function Analysis (Tongway & Hindley 2004) and the BioMetric methodology (WCPL 2014).

In 2023, ELA completed LFA monitoring in accordance with the current BMP. The complete report and result are attached as **Appendix 5**, a summary of the LFA results by ELA is provided. In addition, photographic monitoring of the rehabilitation at established and newly established sites was completed in 2023 as provided in **Appendix 4**.

A self-sustaining ecosystem is deemed to have been achieved when soil surface assessment (SSA) scores of 50 or more are recorded (the LFA Completion Criteria, expected to be achieved by Year 10 of the management cycle).

Incremental improvement toward that target is expected with each year of monitoring. Failure to achieve an increase of 5% in the annual LFA scores represents a trigger for implementation of the Landscape Stability LFA TARP described in Table 21 of the BMP (WCPL, 2021). Comparative annual results have been colour-coded to provide a visual indicator, with green reaching or exceeding the incremental increase of 5% or more, and red showing an increase of less than 5% (or in some cases, a reduction from the previous year). Red colour-coded cells indicate the TARP needs to be implemented. Results maintained at or above the Completion Criteria (50%) have been coded green regardless of comparative incremental increases or decreases from previous monitoring periods.

The LOI data captured during 2023 observed overall lower LOI scores due to increases in bare soil and thus decreases perennial vegetation cover when compared to 2022 monitoring. All stability scores are close to, or just above completion criteria, indicating low erosion levels. However, none of the rehabilitation sites met the completion criteria for infiltration or nutrient cycling, (except R6 which had a 5% increase in scores from 2022). Nevertheless, these results are consistent with the five reference sites monitored during spring 2023 (ELA 2024).

The LOI and SSA scores for these sites are presented in **Table 8-4**.

Given that the sites have not met the 5% yearly increase towards completion criteria, these results have triggered the relevant TARP. It is recommended that the TARP review include consideration of the management aims for which LFA monitoring seeks to address, and the efficacy of the LFA method to inform achievement of these aims. The use of remote sensing (e.g. LiDAR and Digital Elevation Models [DEMS]) can be used to assess slope, gradient and erosion at high resolution across rehabilitated areas in addition with erosion and stability transects which can mirror the BioMetric transects utilised for floristic monitoring.

In accordance with the TARP for LFA, WCPL will review these scores and assess if remedial actions are required to address declining scores in consideration of the LFA method to inform the achievement of these aims.

Table 8-4 LOI and SSA Results for Rehabilitation Area Transects

Site	Monitoring Season	Landscape Organisation Index (%)	Soil Surface Assessment		
			Stability	Infiltration	Nutrient cycling
R6	Spring 2023	0.56	45.9	27.2	19.6
	Spring 2022	0.85	48.9	25.6	18.5
	Annual incremental increase		-3	1.6	1.1
R9	Spring 2023	0.86	49	25.7	19.2
	Spring 2022	1	50.3	26.1	23.1
	Annual incremental increase		-1.3	-0.4	-3.9
2021_2	Spring 2023	0.71	44.6	24.6	16.4
2021_7	Spring 2023	0.98	45.2	33.7	29.3
2021_8	Spring 2023	0.8	46.4	26.1	21.9

Three of these sites (2021_2, 2021_7 and 2021_8) are in their first round of LFA monitoring and are considered baseline data. Spring 2023 monitoring results show decreases in LOI from spring 2022 monitoring at the two established rehabilitation sites R6 and R9. The LOI is heavily influenced by climatic conditions and the associated generation of litter and plant cover, which was observed to be low in the hot and dry conditions leading up to the 2023 monitoring, resulting in patches of bare ground and resulting low LOI scores (ELA 2024).

Assessment against Rehabilitation BVT Benchmarks

Vegetation monitoring results for the Rehabilitation Areas were assessed against the WCPL Rehabilitation Performance Criteria and the Local Reference Site BVT Benchmarks (see **Appendix 5**). A Site Value Score (SVS) was calculated for each site using the BioMetric Tool (NSW Department Environment Climate Change and Water, DECCW 2011) which combines the quality and quantity of native vegetation by measuring ten condition variables within a plot compared to the pre-European benchmarks for the BVT.

Table 8-5 and **Table 8-6** present the individual site attribute and SVS for each 2023 rehabilitation monitoring site.

Table 8-5 presents comparison of sites against the approved WCPL Performance Criteria and **Table 8-6** presents comparison of sites against the Local Reference Site BVT Benchmarks.

SVS which do not meet the BVT Benchmark Targets or Performance Criteria are highlighted in red – monitoring results from these sites trigger the Interim Rehabilitation Performance Criteria (Years 1 – 10) Trigger Action Response Plan (TARP) detailed in Table 19 of the BMP (WCPL, 2021).

Amber is not applied to the SVS as anything below the Benchmark Target or Performance Criteria is considered LOW. A colour coding system has been applied to all site attribute results.

- **GREEN** indicates site attributes that have met the relevant Benchmark Targets or Performance Criteria (indicating that no additional management intervention is required).
- **AMBER** indicates site attributes that have not met the relevant Benchmark Targets or Performance Criteria but are within 50 - <100% of the targets.
- **RED** indicates site attributes that are <50% of the relevant Benchmark Targets or Performance Criteria.

When assessed against the WCPL Rehabilitation Performance Criteria, R6 and R9 are at or above the Moderate to Good SVS, even when SVS had decreased when compared to 2022 monitoring. When assessed against the local reference site benchmarks, both sites were Low in autumn and Moderate to Good SVS in Spring. Encouragingly, exotic cover decreased significantly since 2022 monitoring.

Within the newly established rehabilitation sites, all sites recorded SVS considered Moderate to Good with NSR, NGCG and EC all within benchmark range. When compared to the WCPL Performance Criteria, all sites also met the NGCS criteria and most met the NGCO criteria.

All sites had relatively high native species richness and several surviving canopy species. Only three of the seven sites had FL and it is recommended that felled timber be placed at the remaining sites. In general, sites currently indicate that SVS and other BioMetric attributes could continue to increase long-term with little intervention.

Table 8-5: Assessment against Local Reference Site BVT Benchmarks* for Rehabilitation Sites within their respective BVT

BVT	Season	Site	Vegetation Condition	SVS	Site attributes (% cover)									
					NSR	NOC	NMC	NGCG	NGCS	NGCO	EC	NTH (Count)	OR	FL (M)
HU824	Autumn	R6	Low	26	26	11	0	1	1	0	23	0	1	1
	Spring	R6	Mod to good – poor	44	20	8.5	8.5	13	0	0	4	0	0.8	1
	Autumn	R9	Low	31	28	17.1	0	2	0	1	16	0	0	25
	Spring	R9	Mod to good – medium	55	17	21.5	5.2	3	0	1	2	0	1	34
	Autumn	2021_6	Low	18	16	0	0	20	0	2	16	0	0	0
	Autumn	2021_7	Low	24	27	0	0	7	0	9	16	0	0	0
	Spring	2021_7	Low	21	22	0	0	2	0	0	16	0	1	0
	Autumn	2021_8	Low	24	28	0	0	14	0	5	17	0	0	0
	Spring	2021_8	Low	27	27	0	0	2	0	0	13	0	1	0
HU697	Autumn	2021_1	Low	26	23	0	0	5	0	5	27	0	0	0
	Autumn	2021_2	Mod to good – poor	44	24	0	1	3	0	4	20	0	0	0
	Spring	2021_2	Low	25	25	0	0	2	0	0	9	0	0	0
HU732	Autumn	2021_3	Mod to good – high	65	36	0	0	8	0	10	2	0	0	130
	Autumn	2021_4	Mod to good – high	65	30	0	0	11	0	13	4	0	0	75
	Autumn	2021_5	Mod to good – medium	51	23	0	0	16	1	2	21	0	0	0

Notes: SVS = Site Value Score, NSR = Native Plant Species Richness, NOC = Native Overstorey Cover, NMC = Native Midstorey Cover, NGCG = Native Ground Stratum Cover (grasses), NGCS = Native Ground Stratum Cover (shrubs), NGCO = Native Ground Stratum Cover (other), EC = Exotic Plant Cover, NTH = Number of Trees with Hollows, OR = Overstorey Regeneration and FL = Length of Fallen Logs

*BVT Benchmarks are taken from Local Reference Sites and was approved by DPIE on June 2021, and is incorporated into the BMP (WCPL, 2021)

Table 8-6: Assessment against WCPL Rehabilitation Performance Criteria * for Rehabilitation Sites within their respective BVT

BVT	Season	Site	Vegetation Condition	SVS	Site attributes (% cover)									
					NSR	NOC	NMC	NGCG	NGCS	NGCO	EC	NTH (Count)	OR	FL (M)
HU824	Autumn	R6	Mod to good – medium	49	26	11	0	1	1	0	23	0	1	1
	Spring	R6	Mod to good – high	69	20	8.5	8.5	13	0	0	4	0	0.8	1
	Autumn	R9	Mod to good – medium	52	28	17.1	0	2	0	1	16	0	0	25
	Spring	R9	High – benchmark	89	17	21.5	5.2	3	0	1	2	0	1	34
	Autumn	2021_6	Low	29	16	0	0	20	0	2	16	0	0	0
	Autumn	2021_7	Low	29	27	0	0	7	0	9	16	0	0	0
	Spring	2021_7	Low	32	22	0	0	2	0	0	16	0	1	0
	Autumn	2021_8	Low	29	28	0	0	14	0	5	17	0	0	0
	Spring	2021_8	Low	32	27	0	0	2	0	0	13	0	1	0
HU697	Autumn	2021_1	Low	24	23	0	0	5	0	5	27	0	0	0
	Autumn	2021_2	Mod to good – poor	40	24	0	1	3	0	4	20	0	0	0
	Spring	2021_2	Low	24	25	0	0	2	0	0	9	0	0	0
HU732	Autumn	2021_3	Mod to good – high	65	36	0	0	8	0	10	2	0	0	130
	Autumn	2021_4	Mod to good – high	65	30	0	0	11	0	13	4	0	0	75
	Autumn	2021_5	Mod to good – medium	51	23	0	0	16	1	2	21	0	0	0

Notes: SVS = Site Value Score, NSR = Native Plant Species Richness, NOC = Native Overstorey Cover, NMC = Native Midstorey Cover, NGCG = Native Ground Stratum Cover (grasses), NGCS = Native Ground Stratum Cover (shrubs), NGCO = Native Ground Stratum Cover (other), EC = Exotic Plant Cover, NTH = Number of Trees with Hollows, OR = Overstorey Regeneration and FL = Length of Fallen Logs

*Rehabilitation Biometric Performance Criteria was approved by DPIE on June 2021, and is incorporated into the BMP (WCPL, 2021)

8.1.2 Summary of Rehabilitation Activities Next Reporting Period

WCPL are scheduled to complete and rehabilitate a total of 82.1ha of mine waste rock emplacements during 2024 within the Mining Domain of overburden emplacement area (**Appendix 4**). These areas will be sown with the appropriate BVT species.

Historical rehabilitation areas currently consisting of improved pasture and mixed woodland community species, not categorised as a desirable mine closure BVT, are proposed to be progressively converted to appropriate BVT communities aligning to the WCPL performance and completion criteria from 2021.

In 2024 WCPL propose to complete approximately 72ha of reworking existing rehabilitation areas towards the applicable BVT. The rehabilitation progress against the RMP and ARRF will be provided in the next Annual Review.

8.2 Other Rehabilitation Activities

During the 2023 Reporting Period 71ha of existing rehabilitation was reworked to convert from cover crops and improved pasture species to a BVT HU732, HU697 and HU824 (**Figure 8-3**). WCPL also addressed areas identified as heating (spontaneous combustion) in Pit 2 South with additional inert material placed and compacted to exclude oxygen.

8.2.1 Alternate Seed Supplier

During the 2023 Reporting Period, WCPL enlisted the services of Fields Environmental Solutions exclusively for the provision of locally gathered native grass and tree seeds for ongoing progressive rehabilitation. The decision to change seed supplier was made due to their meticulous record-keeping and the high quality of their seeds, which, following independent germination and viability testing, yielded favourable outcomes.

8.2.2 Pit 5 South West Drone Seeding Trial

In November 2023, approximately 10.8ha of land in Pit 5 South West was prepared for rehabilitation and seeded to the correct Biometric Vegetation Type (HU732 Yellow Box grassy woodland) using an XAG P30 drone (**Photo 3**).

Native grass seed is notorious for its inability to flow through a spreader or auger. For this reason, the seed was pre-coated to form a harder shell, and cracked lupins were mixed through the seed to increase the overall flowability. This application is part of a trial which investigates the value of utilizing drones for seeding and maintenance on rehabilitation slopes and areas deemed a risk for wheeled equipment to access.

Photo 3 XAG P30 Drone Seeding Trial



8.3 Land Management Activities

Pest and Weed Management

WCPL completed pest management works on WCPL owned properties during 2023. Activities included:

- Fox and wild dog control was conducted in conjunction with the local wild dog group, Local Land Services and National Parks and Wildlife Services control programs.
- Aerial dog bating. This program was coordinated by Local Land Services (LLS) as a result of known wild dog activity in the local area; and
- Lessees across the broader company landholdings also continued with ongoing vertebrate pest management.
- WCPL continued with weed spraying program throughout 2023.

9.0 COMMUNITY

A protocol for the management and reporting of community complaints has been developed as a component of the Mine’s EMS. In accordance with Condition M6.1 of EPL 12425, a dedicated telephone number (ph.: **1300 606 625**) for the provision of comments or complaints is maintained by WCPL. In addition, a separate hotline for blasting information is also maintained by WCPL (ph.: **1800 649 783**).

In accordance with Condition M6.2 of EPL 12425, these telephone numbers are advertised via the Wilpinjong Community Newsletter, via the Wilpinjong Community Consultative Committee and on the Peabody website:

<https://www.peabodyenergy.com/Operations/Australia-Mining/New-South-Wales-Mining/Wilpinjong-Mine>

WCPL records and responds to all complaints and maintains a community complaints register on its website. The complaints are managed in accordance with the WCPL Complaints Management Procedure. The Complaints Management Procedure outlines WCPL reporting requirements as follows:

- A summary of complaints received is reported monthly on the Peabody website;
- A summary of complaints received and actions taken is presented to WCPL’s CCC as part of the operational performance review;
- A summary of complaints received and actions taken is included in the Annual Review and the Annual Return to the EPA.

During the 2023 Reporting Period, 76 community complaints were received by WCPL (**Appendix 6**) as opposed to 58 community complaints in 2022. **Figure 9-1** presents a comparison of the environmental complaints received by WCPL over the period 2015 to 2023.

Figure 9-1 Summary of Community Complaints and Issues Raised by Complainants 2015 – 2023

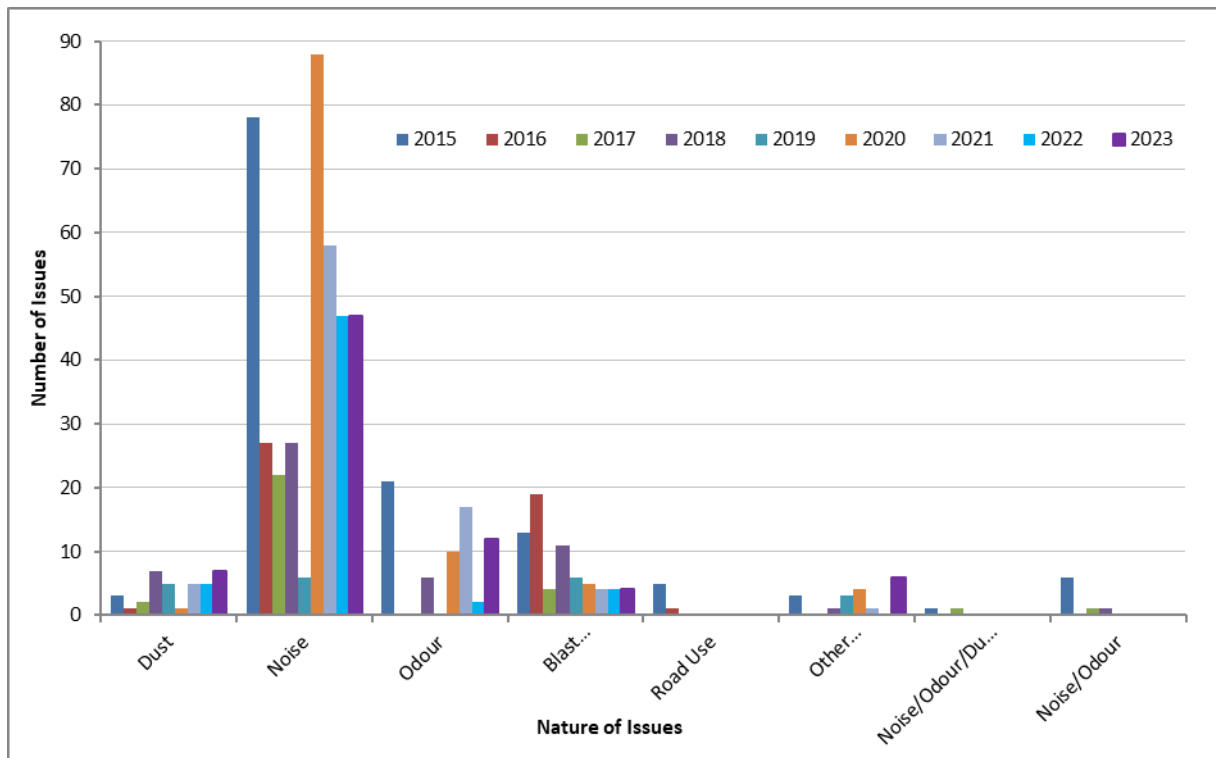


Figure 9-2 Percentage Breakdown of Community Complaints in 2023

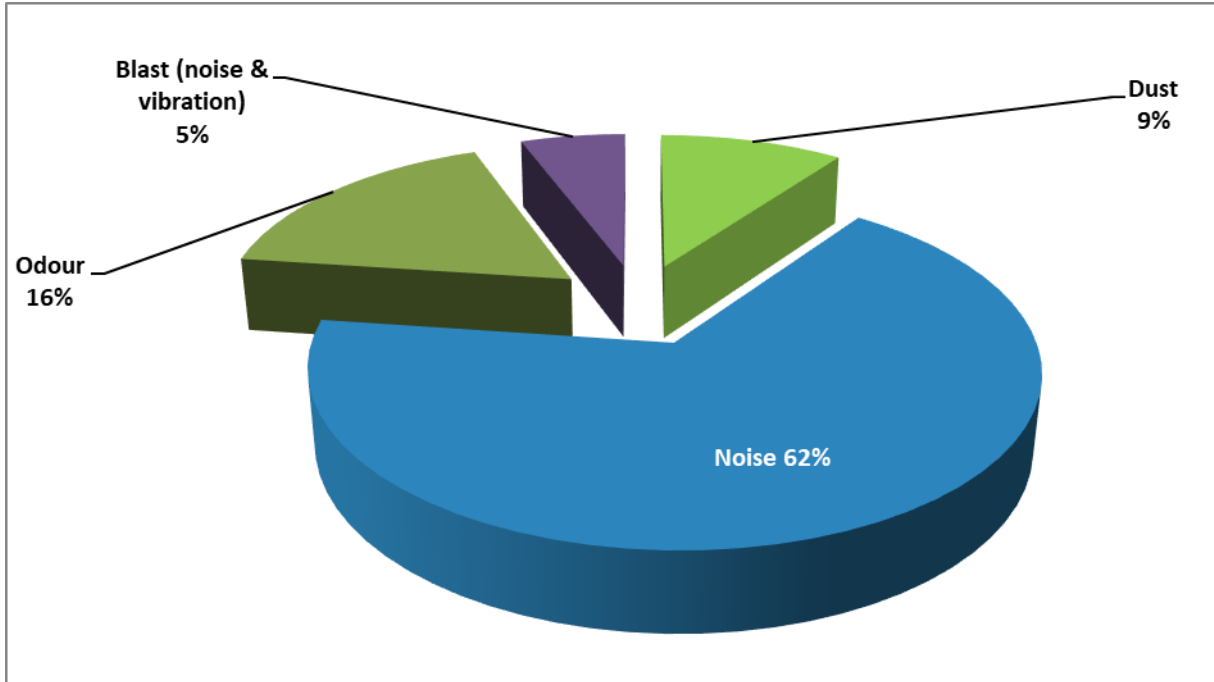
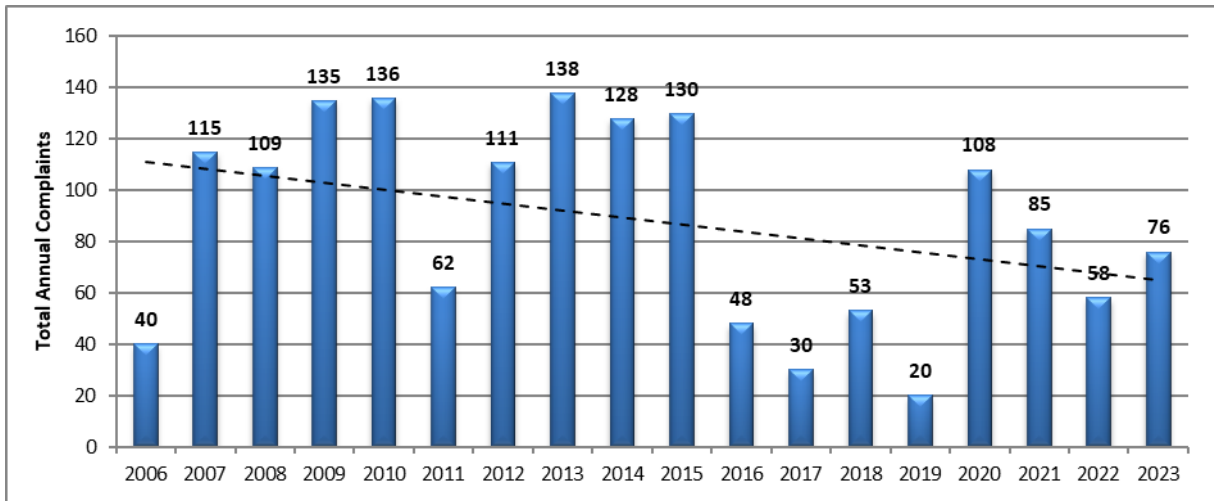


Figure 9-3 Total Annual Complaints 2006 - 2023



Community Consultative Committee

In accordance with Condition 7, Schedule 5 of SSD-6764, the Community Consultative Committee (CCC) (**Table 9-1**), continued to meet during the 2023 Reporting Period.

The CCC for the Mine is operated in general accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects* (Department of Planning, 2007).

Consistent with the requirements of the CCC Guidelines, the committee is comprised of one independent chairperson, and representatives of the MWRC, NPWS, WCPL and members of the general community. The CCC meetings were held in March, June, September and November 2023. WCPL has undertaken individual consultation with private landholders and lessees that reside in the vicinity of the mine to discuss the ongoing development of the Wilpinjong Coal Mine, the WEP and proposed modifications. **Table 9-2** provides a summary of the CCC meetings held during the 2023 Reporting Period.

Table 9-1 CCC Members for the 2023

Name	Organisation
Des Kennedy	Mid Western Regional Council (MWRC)
Katie Dicker	MWRC Councillor (alternate for Des Kennedy)
Lisa Andrews	CCC Independent Chair Person
Rod Pryor	Community Representative
Brian McDermott	Community Representative
Bev Smiles	Community Representative and Mudgee District Environmental Group Representative
Bruce Hughes	Community Representative
Kim Peach	Community Representative
Lisa Menke	NSW National Parks and Wildlife Service Representative
Scott Lillis	Community Representative
Maata Ti Kira	Community Representative

Table 9-2 Summary of CCC Meetings in 2023

Date	Key Outcomes
6 March	Environmental monitoring results, reviewed complaints since last CCC, water discharge update, operational downtime, heritage regarding Rocky Hill announcement, rehabilitation update, animal and weed control programs, community donations and support update, summary of complaints. Approval updates included approval of the revised rehabilitation strategy, MLA616 now ML1846, EL9399 exploration program update, property management in Wollar and RFS participation.
5 June	Environmental monitoring results, reviewed complaints since last CCC, water discharge update, water incident in May 2023, operational downtime, heritage regarding Rocky Hill announcement, rehabilitation update, animal and weed control programs, community donations and support update, summary of complaints. Approval updates included transfer of land to NPWS, EL9399 exploration program and baseline studies update, property management in Wollar and RFS participation.
4 September	Environmental monitoring results, reviewed complaints since last CCC, water discharge update, operational downtime, heritage regarding Rocky Hill announcement, rehabilitation update, animal and weed control programs, community donations and support update, summary of complaints. Approval updates included modification to SSD-6764 regarding amendment to the DA boundary and accommodation facility, completion of the land transfer to NPWS, EL9399 exploration program update, property management in Wollar and RFS participation.
27 November	Environmental monitoring results, reviewed complaints since last CCC, water discharge update, operational downtime, heritage regarding Rocky Hill announcement, rehabilitation update, animal and weed control programs, community donations and support update, summary of complaints. Approval updates included modification (MOD 2) to SSD-6764 regarding amendment to the DA boundary and accommodation facility, proposed MOD 3 to extend Pit 3 and Pit 8, EL9399 exploration program update, property management in Wollar and RFS participation.

Community Support Program

During the 2023 reporting period, WCPL continued its support of local community groups and sporting associations, schools and charitable organisations (total amount in 2023 was approximately \$117,370), including local schools, Community Groups, Charities and sporting groups. More information regarding WCPL's community support program is provided in **Appendix 6**.

Have a Chat Meeting

WCPL also provided an information newsletter regarding upcoming 'have a chat' sessions, held at the Wollar Store 1st Thursday of the month from 1:30pm to 4:30pm. The initiative aims at providing the community a casual setting to ask questions or raise concerns relation to the Mine's operations (**Appendix 6**).

Access to Information

Condition 12, Schedule 5 of SSD-6764 details the requirements for access to information applicable to the Mine, and outlines the documents required by the Project Approval to be made publicly available on the Peabody website www.peabodyenergy.com

Employment Status

At the end of the 2023 reporting period there were 449 full time equivalent employees at WCPL, 92 staff and 164 full time equivalent contractors.

Family Day

On the 29 October 2023, WCPL held a Family Day at the Mine. This was a great event to show family members an up-close opportunity of an operating coal mine.



Bike Donation to Gulgong Public School

During 2023, WCPL were able to organise a donation of a number of bicycles to be delivered and provided to the Special Education Unit within Gulgong Public School.



Green Day 2023

In 2023, WCPL sponsored and assisted with Green Day. Green Day is all about local Mudgee school kids from Years 5 and 6 learning educational programs about environmental themes, such as biodiversity, energy, waste and water.



10.0 INDEPENDENT AUDIT

10.1 Independent Environmental Audit

As required by Condition 10, Schedule 5 of SSD-6764, WCPL are required to complete an Independent Environmental Audit (the IEA) of the development within a year of commencing the development. The Notice of Commencement to the DPIE, as required by Condition 8, Schedule, 2 of SSD-6764 was confirmed by WCPL with its intention to commence the approved development on the 19 September 2017.

In consultation with the DPE, RPS Australia East Pty Ltd (RPS) and their specialists were endorsed by the Secretary on the 26 February, 11 May and 9 September 2021 to undertake the 2021 IEA in accordance with Condition 10(a), Schedule 5 of SSD-6764.

The previous 2018 IEA covered the period from 19 September 2017 to 24 August 2018. The Audit Period to which the 2021 IEA applied is inclusive of the period from 25 August 2018 to 23 September 2021.

As required by Condition 11, Schedule 5 of SSD-6764, WCPL submitted a copy of the 2021 IEA to the Secretary and responses to any recommendations contained in the IEA, with a timetable for implementation within 3 months of the IEA on the 22 December 2021. A copy of the 2021 IEA and timetable to implement actions was provided in the 2021 Annual Review.

Additional opportunities for improvement (OFIs) that were identified in the IEA will be reviewed on a case-by-case basis for constructiveness and incorporated as necessary, into the relevant management plan as required under SSD-6764.

The completion status to address the remaining 2021 IEA actions/OFI was provided in the previous 2022 Annual Review. The 2021 IEA is also publicly available on WCPL's website as required by Condition 12, Schedule 5 of SSD-6764 at:

<https://www.peabodyenergy.com/Operations/Australia-Mining/New-South-Wales-Mining/Wilpinjong-Mine/Approvals,-Plans-Reports>

As required by Condition 10, Schedule 5 of SSD-6764, WCPL are required to complete an IEA during the next Reporting Period (2024).

11.0 INCIDENTS & NON-COMPLIANCES

11.1 Reportable Incidents

There was one reportable incident in May 2023. At 12:15pm on 19 May 2023, a small split in poly pipe was identified in Pit 3 North that caused water to spray into the nearby area. The split was small and it is estimated that at most, water leaked from the poly pipe at a rate of 2-3 L/min. The water from the poly pipe flowed through heavily vegetated area towards a catchment dam. However, some of this water passed through a low point in the containment bund resulting in water reporting offsite.

WCPL enacted its Pollution Incident Response Management Plan (PIRMP) in accordance with section 153F of the *Protection of the Environment Operations Act 1997*. The outcomes of WCPL’s investigations concluded here was no discernible change in water chemistry detected at the Wilpinjong Creek downstream gauging station (“WIL_GS_D”), which is less than 100m from the entry point; and there was no evidence of a change in the aquatic macroinvertebrate indices (*Wilpinjong Creek Aquatic Macroinvertebrate Survey - May 2023*) completed by BIO-ANALYSIS Pty Ltd.

On the 24 November 2023, the EPA considered the circumstances relating to the incident, and noted corrective actions have already been undertaken that should prevent a recurrence of the scenario that led to the incident. Having regard to the circumstances and the corrective actions, the EPA advised WCPL regulatory action would not be taken in relation to this matter. The corrective actions implemented included:

- Isolating and locking out the pump supplying the water to the poly pipe was completed immediately upon identifying the split pipe and the water leak was rectified;
- Additional controls have been implemented with respect to the containment topsoil stockpiles;
- In addition to visual inspections, walking inspections of the topsoil stockpiles were conducted to ensure that there were no further low points that needed to be rectified; and
- Walking inspections will be undertaken on regular basis to ensure there are no unexpected changes in stockpile height.

The unintentional movement of soil on the topsoil stockpile caused the low point in the topsoil stockpile. Accordingly, WCPL will discuss this event with the workforce to reinforce and educate the importance of not making alterations to water control structures however minor those alterations may appear.

11.2 Non-Compliances

There was a total of two non-compliances as identified in **Table 11-1** against SSD-6764, and one administrative non-compliance against Schedule 8A of the *Mining Regulation 2016*, during the 2023 Reporting Period.

Table 11-1 Non-compliance SSD-6764

Relevant Approval	Date of	Details of Non-Compliance	Cause of Non-Compliance	Action to Address Non-Compliance
Con 25 Sch 3 ⁷	19 May 2023	Unlicensed discharge (refer to Section 11.1).	A small split in a poly pipeline allowed mine water to report off site (refer to Section 11.1).	Refer to Section 11.1 for implemented corrective actions.
Con 29 Sch 3 ⁸	19 May 2023	Unlicensed discharge (refer to Section 11.1).	A small split in a poly pipeline allowed mine water to report off site (refer to Section 11.1).	Refer to Section 11.1 for implemented corrective actions.

⁷ The Applicant must not discharge any water from the site or irrigate any waste water on site except as may be expressly provided by an EPL or in accordance with Section 120 of the POEO Act.

⁸ **Water Management Performance Measures: Mine Water Storages** - Design, install and/or maintain mine water storage infrastructure to ensure no discharge of untreated mine water off-site. Discharge treated mine water in accordance with an EPL or in accordance with Section 120 of the POEO Act.

Relevant Approval	Date of	Details of Non-Compliance	Cause of Non-Compliance	Action to Address Non-Compliance
Mining Regulation 2016	31 March 2023	Wilpinjong Coal Mine did not submit a Rehabilitation Cost Estimate (RCE) required with the submission of a Forward Program (FWP), to the NSW Resource Regulator (NSW RR) by the 31 March 2023.	WCPL was notified of this oversight upon receipt of an email notification from NSW RR received on the 20 October 2023, of failure to comply with Schedule 8A of the <i>Mining Regulation 2016</i> .	WCPL promptly addressed the issue through submitting a revised RCE via the NSW Resource Regulator (NSW RR) portal on 7 November 2023. WCPL received a caution notice from the NSW RR on the 7 December 2023.

Table 11-2 includes non-compliances identified against EPL 12425.

Table 11-2 Details of Non-Compliances (EPL12425)

Relevant Approval	Date of	Details of Non-Compliance	Cause of Non-Compliance	Action to Address Non-Compliance
O2.1	19 May 2023	Unlicensed discharge (refer to Section 11.1). The discharge point was not from licensed discharge points 24 or 30.	A small split in a poly pipeline allowed mine water to report off site (refer to Section 11.1)	Refer to Section 11.1 for implemented corrective actions.
L1.1	19 May 2023	Unlicensed discharge (refer to Section 11.1). Water quality discharge electrical conductivity (EC) was greater than 500 µS/cm.	A small split in a poly pipeline allowed mine water to report off site (refer to Section 11.1)	Refer to Section 11.1 for implemented corrective actions.
M2.2	Within the period: 8 February 2023 to 7 February 2024	For the reporting period 2.5% of the continuous PM10 dust monitoring did not occur at monitoring point 25 (TEOM 3).	Unplanned maintenance	TEOM3 checked remotely each day to identify potential faults, onsite each month and following power outages or when unusual data recorded.
M2.2	Within the period: 8 February 2023 to 7 February 2024	For the reporting period 1.0% of the continuous PM10 dust monitoring did not occur at monitoring point 28 (TEOM 4).	Unplanned maintenance	TEOM4 checked remotely each day to identify potential faults, onsite each month and following power outages or when unusual data recorded.
M2.2	Within the period: 8 February 2023 to 7 February 2024	For the reporting period 2.5% of the continuous PM2.5 did not occur at monitoring point 29 (TEOM 2.5).	Unplanned maintenance	TEOM2.5 checked remotely each day to identify potential faults, onsite each month and following power outages or when unusual data recorded.
M4.2	Within the period: 8 February 2023 to 7 February 2024	For the reporting period 0.3 % of continuous monitoring for: air temperature, wind speed/direction, lapse rate, rainfall and humidity did not occur at monitoring point 21.	Continuous data was not recorded by the meteorological weather station due to unplanned equipment maintenance.	Weather station checked remotely each day to identify potential faults

12.0 ACTIVITES FOR NEXT REPORTING PERIOD

Activities proposed to be carried out by WCPL at the Mine during the 2024 Reporting Period (i.e. 1 January 2024 to 31 December 2024) include the following:

- Undertake an Independent Environmental Audit (the IEA), as required by Condition 10, Schedule 5 of SSD-6764;
- Continuation of rehabilitation works in completed mined areas;
- Inspection and review of rehabilitation areas to assess maintenance requirements;
- Continued weed and animal pest control across WCPL-owned land.
- Continued stock exclusion in the ECAs to promote regeneration.
- Ongoing demolition of WCPL owned derelict houses in Wollar, including in-pit disposal of inert building material.
- Continued consultation with surrounding landholders.
- Ongoing CCC meetings, including continued publication of the meeting minutes on the Peabody website.
- Continuation of Wollar “Have-a-chat” sessions on a monthly basis;
- Undertake geochemical analysis through the geological profile;
- Continue the Spontaneous Combustion Propensity testing regime;
- Complete 120ha of rehabilitation in 2024, in accordance with Forward Program.

In accordance with Condition 5, Schedule 5 of Development Consent SSD-6764 WCPL will review, and if necessary, revise the strategies, plans and programs required under the Project Approval within three months following submission of this Annual Review and Environmental Management Report or as otherwise specified in the Project Approval.

13.0 REFERENCES

- *2023 Annual Biodiversity Monitoring Report*, Eco Logical Australia Pty Ltd (March 2024).
- *Wilpinjong Coal 2023 Stream Health Monitoring Report*, Eco Logical Australia Pty Ltd (March 2024).
- *Wilpinjong Coal 2023 Channel Stability Monitoring Report*, Eco Logical Australia Pty Ltd (March 2024).
- *Annual Biodiversity Offset Area Bird Monitoring*, Eco Logical Australia Pty Ltd (March 2024).
- *Wilpinjong Coal Mine Annual Biodiversity Monitoring Nest Box Inspections*, Eco Logical Australia Pty Ltd (March 2024).
- *Monitoring of Microbats at Slate Gully Adit (Pit 8), Wilpinjong Coal Mine*, Biodiversity Monitoring Services (February 2024).
- *Ultrasonic Bat Call Analysis Report* Eco Logical Australia Pty Ltd (February 2024).
- *Environmental Noise Monitoring* (January 2023 to December 2023), (EMM).
- *Annual Environmental Monitoring Report 2023, EMM* (February 2024).
- *Annual Review 2023 – Surface Water Compliance, SLR* (March 2024).
- *Wilpinjong Creek Surface Water pH Trigger Exceedance Investigation*, SLR (October 2023).
- *Water Balance Model Update 2024, SLR* (March 2024).
- *EC Trigger Investigation of GWc1, GWc3, GWc4 and GWc5, SLR* (December 2023).
- *Annual Environmental Monitoring Groundwater Review – Groundwater Compliance 2023, SLR* (March 2024)
- *Water Balance Model Update 2023 – Model Update & Calibration Report, SLR* (March 2024)

Appendices

Appendix 1

Rail Haulage

Appendix 2

Exploration

Appendix 3

Environmental Performance

Appendix 3A Meteorological Data

Appendix 3B Air Quality Monitoring Data

Appendix 3C Surface Water Monitoring Data

Appendix 3D Groundwater Monitoring Data

Appendix 3E Blast Monitoring Data

Appendix 3F Noise Monitoring Data

Appendix 3G Waste

Appendix 4

Land Management

Appendix 5

Biodiversity

Appendix 6

Community