



2020 Annual Review

Wilpinjong Coal Mine

Table 1 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
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
MOP start date	01 January 2019
MOP end date	31 December 2020
Annual review start date	01 January 2020
Annual review end date	31 December 2020

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 2020 to 31 December 2020 and that I am authorised to make this statement on behalf of Wilpinjong Coal Pty Limited.


Note.

a) The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental

Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000.

b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G

(Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or \$22,000, or both).

Name of authorised reporting officer	Kieren Bennetts
Title of authorised reporting officer	Environment & Community Manager
Signature of authorised reporting officer	
Date	31 March 2021

This 2020 Annual Review (AR) (this Report) presents a summary of regulatory compliance, environmental performance and community engagement activities for the *review period* from 1 January 2020 to 31 December 2020.

This Report provides the results and assessment of environmental performance relevant to the current development consent approval SSD-6764 for the *review 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 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, Industry and Environment (DPIE).

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

- NSW Department of Planning, Industry and Environment (DPIE);
- DPIE – Resource Regulator (DPIE - RR)¹;
- NSW Environment Protection Authority (EPA);
- NSW Department of Primary Industries – Division of Water (DPI – Water);
- DPIE - Biodiversity, Conservation & Science Directorate (BSC)²;
- Mid-Western Regional Council (MWRC);
- NSW Health;
- Department of Agriculture, Water and the Environment³; and
- The Mine’s Community Consultative Committee (CCC).

In addition, a copy will be made publicly available on the Peabody website: <http://www.peabodyenergy.com/content/427/australia-mining/new-south-wales/wilpinjong-mine/approvals-plans-and-reports-wilpinjong-mine> in accordance with Condition 12(a), Schedule 5 of Development Consent (SSD-6764).

¹ Formally the Division of Resources and Geosciences (DRG)

² Formally the NSW Office of Environment and Heritage (OEH).

³ Formally the Department of the Environment and Energy (DoEE);

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1.0 STATEMENT OF COMPLIANCE

Table 2 Statement of Compliance

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

Notes:* Refer to **Table 3** and **Section 11** for details

Table 3 Non-Compliances

Relevant Approval	Condition	Condition Description	Compliance Status	Comment	Section in AR
SSD-6764	Con. 61, Sch 3	The Rehabilitation Strategy was not finalised.	Non-compliance	Comments received from DPIE and WCPL are now progressing finalisation and resubmission of the Rehabilitation Strategy expected in 2021.	Section 11
	Con 29, Sch 3	Non-compliance with the Water Management Performance Measures in SSD-6764	Non-compliance	Non-compliance with the Water Management Performance Measures in SSD-6764 i.e. Design, install, operation and maintain water management systems in a proper and efficient manner & Design, install and/or maintain mine water storage infrastructure to ensure no discharge of untreated mine water off-site. Refer to Table 36 for further details.	
	Con 29, Sch 3	Non-compliance with the Water Management Performance Measures	Non-compliance	Non-compliance with the Water Management Performance Measures in SSD-6764 i.e. Design, install, operation and maintain water management systems in a proper and efficient manner & Design, install and/or maintain mine water storage infrastructure to ensure no discharge of untreated mine water off-site. Refer to Table 36 for further details	
	Con 30(d)(iii), Sch 3	Non-compliance of Section 8.2.3 of the Site Water Management Plan	Non-compliance	Non-compliance of Section 8.2.3 of the Site Water Management Plan – did not reinstate surface water monitoring SGC_1 as required by Table 21 of the Site Water Management Plan. An alternate surface water monitoring site for SGC_1 to be finalised in 2021 and the Site Water Management Plan to be updated accordingly in 2021.	

Relevant Approval	Condition	Condition Description	Compliance Status	Comment	Section in AR
SSD-6764	Con 30(d)(iii), Sch 3	Non-compliance of Section 5.2 of the Site Water Management Plan	Non-compliance	Non-compliance of Section 5.2 of the Site Water Management Plan - failure of erosion and sediment controls. Refer to Table 36 for further details	
	Con 30(d)(iv), Sch 3	Non-compliance of Section 8.1 of the Groundwater Management Plan	Non-compliance	Non-compliance of Section 8.1 of the Groundwater Management Plan – did not report to the relevant agencies as soon as practicable that an exceedance of the groundwater trigger levels had occurred. Refer to Table 37 for further details.	
	Con 30(d)(iv), Sch 3	Non-compliance of Section 8.1 of the Groundwater Management Plan	Non-compliance	Non-compliance of Section 8.2 of the Groundwater Management Plan – did not report to relevant agencies as soon as practicable that an exceedance of the groundwater quality trigger levels had occurred. Refer to Table 37 for further details.	
	Con 30(d)(iv), Sch 3	Non-compliance of Sections 7.1.2 and 8.2 of the Groundwater Management Plan	Non-compliance	Non-compliance of Sections 7.1.2 and 8.2 of the Groundwater Management Plan – exceeded cease to pump trigger level and did not report to relevant agencies as soon as practicable that an exceedance of the cease to pump trigger levels had occurred. Refer to Table 37 for further details.	
	Con 15, Sch 3	Non-compliance with Section 4.1.1 of the Blast Management Plan	Non-compliance	Non-compliance with Section 4.1.1 of the Blast Management Plan - A vibration exceedance was recorded at a road culvert along the Ulan-Wollar Road on the 11 July 2020 at 13:49. The vibration criteria of 100mm/s as agreed with the MWRC for Public Road Infrastructure was exceeded by 0.18mm/s. Refer to Table 36 for further details.	
	Con 15, Sch 3	Non-compliance with Section 4.1.1 of the Blast Management Plan	Non-compliance	Non-compliance with Section 4.1.1 of the Blast Management Plan - A vibration exceedance was recorded at a road culvert along the Ulan-Wollar Road across from Pit 8 on the 11 November at 11.45am. The vibration criteria of 100mm/s as agreed with the MWRC for Public Road Infrastructure was exceeded by 17.66 mm/s. Refer to Table 36 for further details.	
	Con 7, Sch 3	Non-compliance with Blast Criteria in SSD-6764	Non-compliance	Non-compliance with Blast Criteria in SSD-6764 - An overpressure exceedances recorded at the Wollar Primary School blast monitoring on the 30 November 2020 at 14:53. The overpressure recorded was 123.3dB, exceeding the maximum overpressure criteria of 120dB from a blast in Pit 6.	
EPL12425	M2.2	Requirement to monitor concentration of pollutants discharged	Non-compliance	Three (3) PM10 dust samples were not collected and analysed at monitoring point 13 (HV1). For further details refer to Table 38 .	
	M2.2	Requirement to monitor concentration of pollutants discharged	Non-compliance	One (1) PM10 dust samples were not collected and analysed at monitoring point 20 (HV4). For further details refer to Table 38 .	
	M2.2	Requirement to monitor concentration of pollutants discharged	Non-compliance	Five (5) PM10 dust samples were not collected and analysed at monitoring point 27 (HV5). For further details refer to Table 38 .	

Relevant Approval	Condition	Condition Description	Compliance Status	Comment	Section in AR
EPL12425	M2.2	Requirement to monitor concentration of pollutants discharged	Non-compliance	For the reporting period 2.9%* of the continuous PM10 dust monitoring was rejected or did not occur at monitoring point 25 (TEOM 3). For further details refer to Table 38 .	
	M2.2	Requirement to monitor concentration of pollutants discharged	Non-compliance	For the reporting period 4.9%* of the continuous PM10 dust monitoring did not occur at monitoring point 28 (TEOM 4). For further details refer to Table 38 .	
	M2.2	Requirement to monitor concentration of pollutants discharged	Non-compliance	For the reporting period 2.9%* of the continuous PM2.5 dust monitoring was rejected or did not occur at monitoring point 29 (TEOM 2.5). For further details refer to Table 38 .	
	M4.2	The licensee must use the sampling method, units of measure, averaging period and sample at the frequency specified	Non-compliance	For the reporting period the percentage of continuous monitoring that did not occur for: (i) air temperature, and (ii) wind speed/direction, lapse rate, rainfall and humidity, was 0.8%. For further details refer to Table 38 .	
	L6.2	The overpressure level from blasting operations at the premises must not exceed 120 dB	Non-compliance	Non-compliance with Section 4.1 of the Blast Management Plan - An overpressure exceedance was recorded at the Wollar Primary School blast monitoring on the 30 November 2020 at 14:53. The overpressure recorded was 123.3dBL, exceeding the maximum overpressure criteria of 120dBL from a blast in Pit 6. Refer to Table 38 for further details.	
	O1.1	Licensed activities must be carried out in a competent manner	Non-compliance	Failure of erosion and sediment controls. Refer to Table 38 for further details.	

Table 4 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)⁴. 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**. 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) 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 5**.

Table 5 Mine Contact Details

Name	Position	Contact Details
Ian Livingstone-Blevins	General Manager	Email: ILivingstone-Blevins@peabodyenergy.com
Kieren Bennetts	Environment & Community Manager	Email: kbennetts@peabodyenergy.com
Clark Potter	Senior Environmental Advisor	Email: cpotter@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

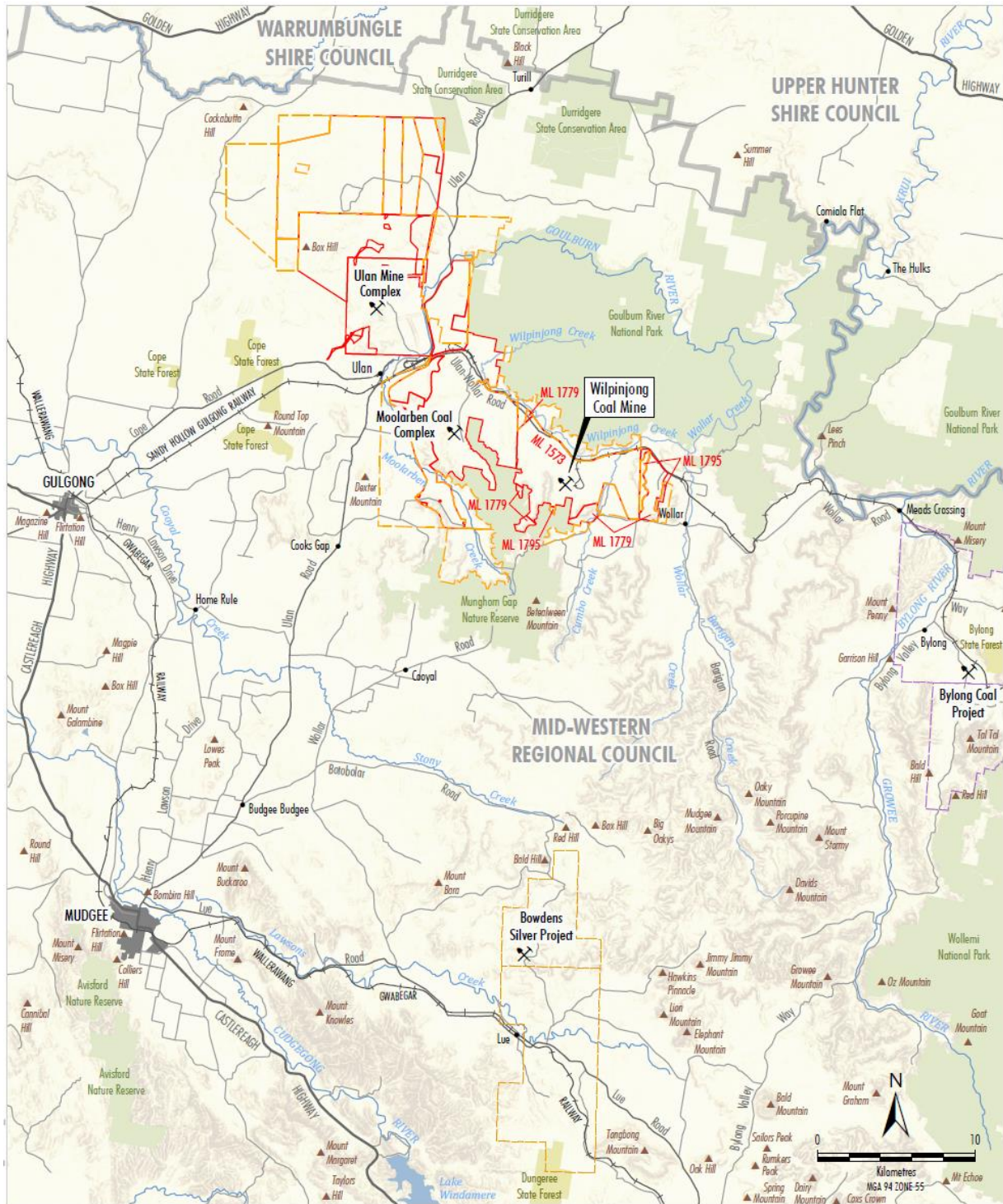
Locked Bag 2005
MUDGE E NSW 2850

Phone Number

Ph:(02) 6370 2500

⁴ 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 1 Locality Plan

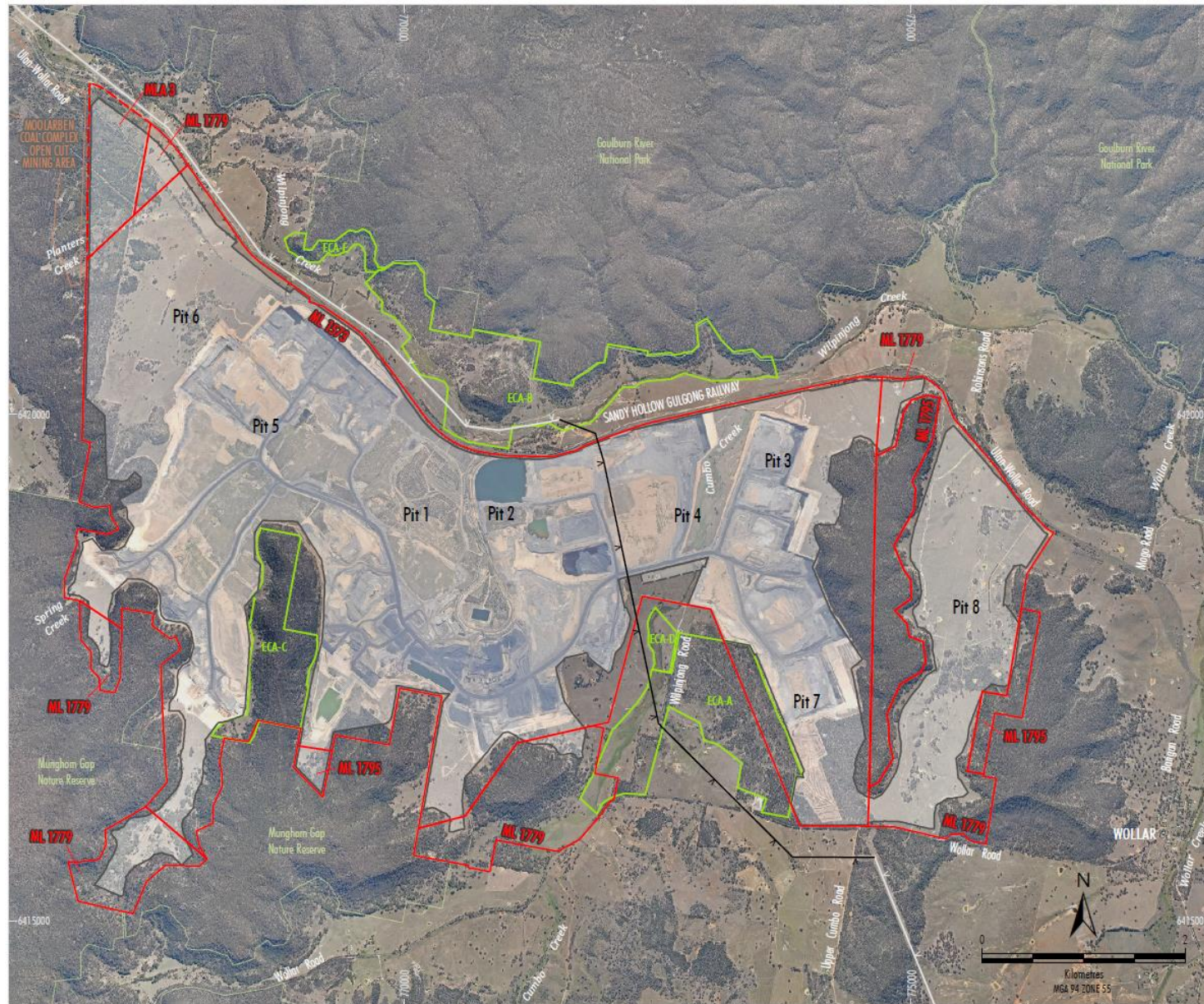


- LEGEND**
- Mining Lease Boundary
 - Exploration Licence Boundary
 - Authorisation Boundary
 - Local Government Boundary
 - NSW State Forest
 - National Park, Nature Reserve or State Conservation Area
 - ✂ Coal Mining Operation

Source: WCPL (2019); Office of Environment & Heritage NSW (2019); NSW Land & Property Information (2017); NSW Dept of Industry (2019); Geoscience Australia (2011)

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WILPINJONG COAL MINE
 Regional Location

Figure 2 The Approved WEP Layout and Surrounds



- LEGEND**
- Mining Lease Boundary
 - Mining Lease Application Boundary
 - Approved/Existing Open Cut and Contained Infrastructure Area *
 - Relocated Block Bank and Cumbro Creek Disturbance Area
 - Enhancement and Conservation Area
 - Approved TransGrid 330 kV ETL Deviation
 - Existing TransGrid 330 kV ETL

* Inclusive of the agreed minor change to the area confirmed by DPIE on 23rd August 2019.

Source: WCPL (2019); NSW Dept of Industry (2019)
Orthophoto: WCPL (March 2018)

Peabody

WILPINJONG COAL MINE
General Arrangement

3.0 APPROVALS

Table 6 presents the current approvals, leases and licences that the Mine operates under.

Table 6 Mine Approvals, Leases and Licences

Relevant Authority	Instrument	Approval/Licence No.	Expiry Date
DPI-E	Development Consent	SSD-6764	28 years from commencement of Project Approval (i.e. 2033)
DPI-RR	Mining Lease	ML1573	February 2027
	Mining Lease	ML1779	20 December 2039
	Mining Lease	ML1795	27 September 2040
	Mining Lease Application 3	(MLA3 yet to be lodged)	Section 3.3
	Exploration Licence	EL 6169	28/11/2022
	Exploration Licence	EL 7091	03/03/2024
	Mine within Wilpinjong B Notification Area	ML 1573	Endorsed DSC 19 February 2013 Approved 24 January 2014
	Mining Operations Plan (MOP)	Approved on the 20/01/2021	31 December 2022
	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 2022
	Explosives Licence	NSW Explosives Act 2003 Part 3 Licence (Licence Number XSTR200024)	24 March 2023
DPI-Water	Water Licences	Refer to Table 22 & Table 23 in Section 7.1	Refer to Table 22 & Table 23 in Section 7.1

Note: Copies of the Development Consent (SSD-6764), EPL 12425 and ML 1573, 1779 & 1795 are available on the Peabody Energy website (<http://www.peabodyenergy.com>)

3.1 Ulan Road Strategy (Summary of Actions 2020)

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.

In 2020, all fifteen properties within the zone for noise mitigation measures have had their respective noise mitigation measures completed. The last remaining properties to finalise noise agreements and complete their noise mitigation measures occurred in April and July 2020.

One property has declined noise mitigation works and two properties are outside the zone for noise mitigation measures.

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

3.2 Changes to Approvals

There was one variation to EPL 12425 during the review period. Licence variation notice 1595197 was issued on the 19 July 2020 by the EPA to include:

- Addition of notes for Conditions M2.4, M4.2 and M7.1;
- Updating volume discharge limit for Condition L3.1;
- Removal of Condition R4.1;
- Insertion of standard Condition G2.1; and
- Removal of expired Condition E1.1.

During the reporting period, WCPL had proposed to modify SSD-6764 known as MOD1, to construct and operate additional water supply infrastructure due to the extended drought conditions. MOD1 was seeking to strengthen the mine sites water supply with the extraction of groundwater under its existing Water Access Licence (WAL) to additional bores to the south of the current Project Approval Area. MOD1 was later withdrawn due to improved rainfall conditions in 2020 providing adequate operational water supply for the foreseeable future.

A new two-year Mining Operations Plan (MOP) was developed and submitted to the NSW Department of Planning, Industry & Environment – Resource Regulator (DPIE-RR) and provided to relevant stakeholders in December 2020 to replace the existing MOP which expired on 31 December 2020. The new MOP has a revised expiring date of 31 December 2022 and was approved by DPIE-RR on the 20 January 2021.

3.3 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**). ML1779 was approved on the 20 December 2018. ML1795 was approved on the 27 September 2019.

No mining activities will occur in the MLA3 area until a new ML is issued, and the current MOP and Wilpinjong's Colliery Holding Boundary is amended and approved by the DPIE-RR.

WCPL will also renew existing ELs and ML1573 as required during the life of the Mine. WCPL submitted ELA5804 (Tralee) Application on the 9 May 2019 under operational allocation.

3.4 Management Plans

WCPL operates an Environmental Management System to manage compliance and advance continual improvement across the Mine. During the 2020 review period all management plans were revised and updated accordingly and submitted for re-approval as required by SSD-6764. A summary of the status of management plans required by SSD-6764 is presented in **Table 7**.

Table 7 Status of Environmental Management Plans

Management Plan	Schedule 3 of SSD-6764	Approval Status
Noise Management Plan	Condition 5	Version 5 approved on 07/09/2020
Blast Management Plan	Condition 14	Version 7 approved on 07/09/2020
Air Quality Management Plan	Condition 20,	Version 6 approved on 07/09/2020
Water Management Plan	Condition 30	Version 6 submitted in August 2020*
Site Water Balance	Condition 30(d)(ii)	Version 4 submitted in August 2020*
Surface Water Management Plan	Condition 30(d)(iii)	Version 4 submitted in August 2020*
Groundwater Management Plan	Condition 30(d)(iv)	Version 4 submitted in August 2020*
Biodiversity Management Plan	Condition 42	Version 6 approved on 07/09/2020
Aboriginal Cultural Heritage Management Plan	Condition 47	Version 7 submitted in August 2020*
Spontaneous Combustion Management Plan	Condition 20(g)	Version 6 approved on 07/09/2020
Historic Heritage Management Plan	Condition 49	Version 4 submitted in August 2020*
Rehabilitation Management Plan	Condition 64	Approved as the MOP
Environmental Management Strategy	Condition 1, Schedule 5	Version 7 approved on 07/09/2020
Social Impact Management Plan	Condition 63	Version 1 approved 21/10/2019

Notes: * Revised and resubmitted in August 2020 and subject to further consultation with NSW Heritage, DPIE Water and NRAR.

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

- The Rehabilitation Management Plan (RMP) as required by Condition 64, Schedule 3 of Development Consent SSD-6764:
 - The RMP was submitted as the MOP in December 2020. DPIE-RR approved the MOP on the 20 January 2021. Comments were received from the DPIE in regards to the RMP requesting additional information. The RMP was revised and resubmitted on the 5 February 2021. At the time of preparing the 2020 AR, the RMP was pending approval from the DPIE.
- The Rehabilitation Strategy as required by Condition 61, Schedule 3 of the Development Consent SSD-6764:
 - Comments received by DPIE and WCPL progressing finalisation and resubmission of the Rehabilitation Strategy expected in 2021.

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

4.0 OPERATIONS SUMMARY

Table 8 displays the production summary for 2020 and the forecast production summary for 2021.

Table 8 Production Summary

Material	SSD-6764 Approved Limit	This Reporting Period (actual)	Next Reporting Period (forecast)
Waste Rock/Overburden	NA	54.51Mbcm	52.20Mbcm
ROM Coal	16 Mtpa	14.74Mt	14.23Mt
Coarse Reject & Tailings (TFP)*	NA	1.81Mt	2.36Mt
Fine Tailings	NA	0	0
Product Coal	NA [#]	12.531Mt [#]	12.03Mt [#]

Notes: *Tailings Filter Press⁵, Million tonnes per annum = (Mtpa), Million bank cubic meters = (Mbcm). [#] Product coal railed.

4.1 Other Operational Conditions

At the end of the 2020 review period, open cut mining operations were located in Pit 1, Pit 2, Pit 3, Pit 4, Pit 5, Pit 6, Pit 7 and Pit 8 as identified in Plan 3B of MOP (as amended) (**Figure 2**).

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.

12.531Mt of product coal was transported from the Mine via rail during the 2020 Annual Review period and involved an average of approximately four train movements per day during 2020 (**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.

Key construction activities in the reporting period included the Ulan Wollar Road Re-alignment, haul road and mine support infrastructure construction in Pit 8.

4.2 Next Reporting Period

The proposed mining locations for the 2021 review period are Pit 1, Pit 2, Pit 3, Pit 4, Pit 5, Pit 6, Pit 7 and Pit 8. The approved new MOP accommodates the recently issued ML1779 which allows open cut mining activities to proceed in Pit 8.

The revised indicative mining schedule and sequence of open cut mining operations are provided MOP Plans 3A (Year 2021) and 3B (Year 2022).

⁵ 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 DPIE and DPIE-RR accepted and approved the 2019 Annual Review on the 08/05/2020. There were no specific actions to be addressed in relation to the 2019 Annual Review other than providing a copy on the Peabody Energy website www.peabodyenergy.com

Table 9 Actions Required from Previous Annual Review

Action required from previous 2019 Annual Review	By Who	Action taken by WCPL
The Department has reviewed the Annual Review and considers it to satisfy the reporting requirements of the approval and the Department's <i>Annual Review Guideline</i> (October 2015). Please make publicly available a copy of the 2019 Annual Review on the company website.	DPIE	2019 Annual Review is available to the public on the Peabody Energy website www.peabodyenergy.com

6.0 ENVIRONMENTAL PERFORMANCE

Environmental management measures undertaken during the 2020 review period have been conducted as required by the MOP (as amended), relevant management plans and monitoring programs developed for the Mine in accordance with SSD-6764 and EPL12425. The 2020 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 2020 review period are provided in **Appendix 3**.

6.1 Meteorological Monitoring

Local meteorological data for 2020 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 month with the highest total rainfall recorded was 161.6mm in December 2020. The least amount of rainfall was recorded in May with 16mm for the month. The total cumulative annual rainfall recorded for 2020 was 915.8mm. This is well above the long-term cumulative annual average rainfall (in the vicinity of the Mine) ranging from 587.7mm to 651.5mm (WEP EA) and well above the annual rainfall record of 265.6mm in 2019 and 487.8mm recorded in 2018. The total cumulative annual rainfall recorded for 2020 was also above the on-site weather station's average short-term (i.e. year 2006 to 2015) cumulative annual average rainfall of 649.7mm (WEP EA). The wetter than average year in 2020 was in contrast to 2019 as the majority of the Central Western region of NSW, including the Wilpinjong and Wollar area were declared either in 'drought' or 'intense drought' by the NSW Department of Primary Industries (www.dpi.nsw.gov.au).

A maximum temperature of 41.5°C (at 10m) was recorded in January 2020. The lowest minimum temperature was -1.5°C (at 10m) recorded in August. The 2020 average minimum of 5.2°C was slightly higher than the short term (i.e. year 2006 to 2015) average minimum of 3.0°C. The 2020 average maximum of 30.1°C was slightly lower than the short-term average maximum of 31.7°C.

Wind speed recorded during the 2020 review period displayed an average monthly wind speed range between 1.2 metres per second (m/s) to 2.5m/s. The average windspeed in 2020 appeared to be slightly greater than 2019 with average monthly wind speed ranging between 1.0 m/s to 3.0m/s. A maximum wind speed of 6.2m/s was recorded in January and December 2020.

6.2 Air, Blast & Noise Monitoring

Air Quality Monitoring

The Mine has developed and implemented an Air Quality Management Plan (AQMP - Version 6) (**Table 7**). Criteria for airborne particulate matter (i.e. dust) are specified in Condition 17, Schedule 3 of SSD-6764. During the 2020 review 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 10**.

Table 10 Summary of Air Quality Monitoring Program

Monitoring Parameter	Monitoring Locations	Frequency
Dust Deposition	DG4, DG5, DG8, DG10 [^] , DG11 & DG15	Monthly
	DG12 [#] , DG13 [#] and DG14 [#]	Monthly (mining < 1 km of the site)
High-Volume Air Sampling	HV1, HV4 & HV5	24hrs every six-day cycle
TSP	HV3 [^]	24hrs every six-day cycle
TEOM (PM10)	TEOM 3 & TEOM 4	Continuous (24-hour average)
TEOM (PM2.5)	TEOM 5	Continuous (24-hour average)*

Notes: [^] Data from DG10 and HV3 are utilised for management purposes only. Both DG10 and HV3 were decommissioned in 2020.

[#] Aboriginal rock art site monitoring Sites 72, 152 and 153. * TEOM_{2.5} installed and operating prior to 31/12/2017.

Table 12 contains the air quality monitoring results, as well as a discussion of the results for the review period. Further air quality monitoring results for 2020 review period are provided in **Appendix 3B**.

DG10 and HV3 were located in Pit 8 of the approved WEP mining area. Data from DG10 and HV3 was recorded for management purposes, as described in the AQMP. Both DG10 and HV3 were decommissioned in 2020 due to the progression of mining activities in Pit 8.

Spontaneous Combustion

The Mine has developed and implemented a Spontaneous Combustion Management Plan (Version 6) (SCMP) (**Table 7**) as Appendix 3 of the AQMP. The SCMP was reviewed in August 2020. As described in the SCMP there are areas of the mine prone to spontaneous combustions events. During 2020 there was a continued effort in managing those areas prone to an outbreak of spontaneous combustion.

WCPL had a temporary ambient air quality monitoring station in the Village of Wollar as a key management measure⁶ to monitor specified pollutants for spontaneous combustion, during the removal of Keylah Dump. The removal of Keylah Dump was completed during 2017. Monitoring of the specified pollutants for spontaneous combustion in the Village of Wollar was discontinued in January 2018.

There were no reportable incidents as a result of spontaneous combustion in 2020. There were ten unverified odour complaints received during 2020 (**Section 9**), including one complaint via the EPA's Environment Line.

Each of the odour complaints during 2020 received follow up checks by WCPL and were unable to detect the presence or verify the odour. These checks also included a review of the wind speed and wind direction three hours prior to receiving an odour complaint. These investigations determined four of the ten complaints received during 2020 aligned with the applicable SW wind direction to the complainant's location. Further investigations by WCPL were unable to verify odours from the Mine or an outbreak of spontaneous combustion of any extent, on the days of each complaint that would account for any offsite odours. The investigations also determined six of the complaints were at a time when the wind was from an easterly direction, placing the complainant upwind of the Mine. The complainant also declined to discuss any of the odour complaints with a WCPL representative.

Spontaneous combustion propensity testing was undertaken in 2020 within Pit 6 and Pit 8 and scheduled for 2021 when suitable areas become available. 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 11**. Refer to **Section 6.7** for ambient air monitoring program. WCPL will continue to implement the SCMP in 2021.

Table 11 Assessment of Spontaneous Combustion Performance Indicators

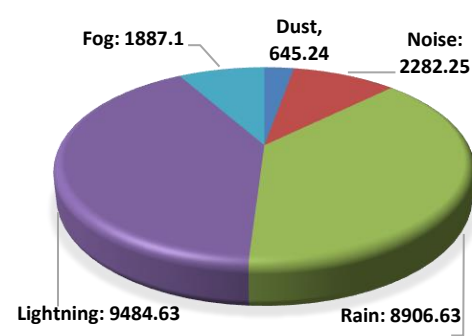
Performance Indicator	2020 Target	2020 Performance
Number of verified complaints received relating to spontaneous combustion	0	0*
Number of incidents relating to spontaneous combustion	0	0
Number of times operations have been shut down as a result of complaints/incidents relating to spontaneous combustion	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).

⁶ Formally required under Special Condition 9, E1 Spontaneous Combustion Air Monitoring within EPL 12425.

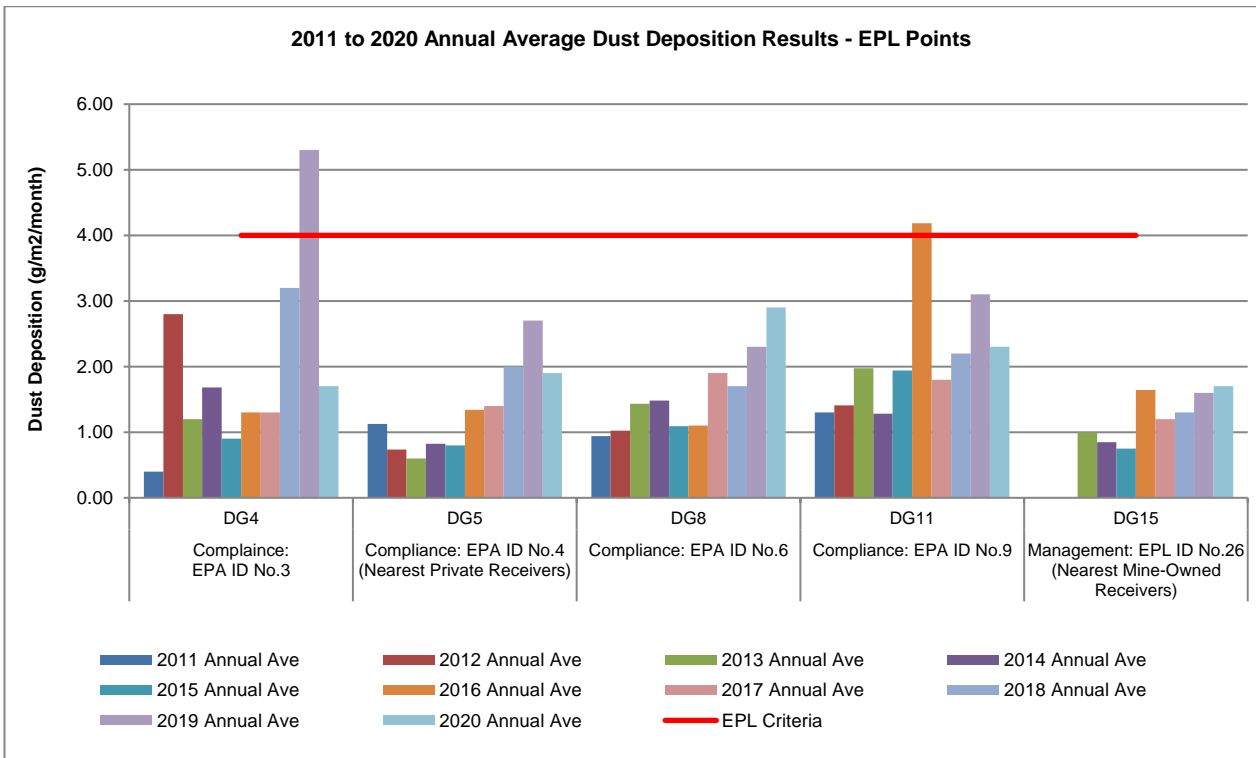
Table 12 Air Quality Monitoring Environmental Performance

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)	1.9g/m ² /month DG4, DG5, DG8, DG11 & DG15	<p>The 2020 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: 1.7 g/m²/month) - DG5 (Ave: 1.9 g/m²/month) - DG8 (Ave: 2.9 g/m²/month) - DG11 (Ave: 2.3 g/m²/month) - DG15 (Ave: 1.7 g/m²/month) <p>The annual average dust deposition results at compliance sites for 2020 recorded decreases at all monitoring sites, compared to the annual average dust deposition results for 2019.</p>	<p>The annual average measured levels in 2020 are generally slightly higher than the model predictions for most of the deposited dust gauges (Todoroski, 2021) (Appendix 3B).</p> <p>There were at least 24 extraordinary days recorded between January and February 2020. The analysis shows that there was generally reasonable agreement between the annual average modelling predictions and the measured results excluding extraordinary event days in 2020 (Todoroski, 2021) (Appendix 3B).</p> <p>We note that deposited dust gauge readings can be significantly influenced by very local sources and this cannot be reasonably factored into any modelling. In addition, drought conditions and extraordinary events would have impacted the background deposited dust levels in 2020. (Todoroski, 2021) (Appendix 3B).</p> <p>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.</p>	<p>The Mine rehabilitated approximately 138ha of mine waste rock emplacement areas in 2020;</p> <p>The Mine is scheduled to complete approximately 86ha of mine waste rock rehabilitation in 2021.</p> <p>In 2020 there were a total of 11 complaints regarding air quality, including:</p> <ul style="list-style-type: none"> - One complaint in relation to dust in January 2020. This is a reduction from five complaints in 2019 - Ten complaints in relation to odour in January (3), October (3) and December (5). An increase from zero complaints in 2019. Refer to Section 6.2 and Section 9 for details. <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.</p> <p>In accordance SSD-6764, WCPL will review, and if necessary revise, the AQMP within three months of the submission of the 2020 Annual Review.</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 above the relevant criterion of 50µg/m³ for a number of days in 2020. The majority of these days were considered to be extraordinary events (e.g. bushfires, dust storms, etc) which are excluded from the air quality criteria:</p> <ul style="list-style-type: none"> - TEOM 3 (Max: 331.0 µg/m³)* (Max: 33.5 µg/m³) ^ - TEOM 4 (Max: 416.2 µg/m³)* (Max: 52.1 µg/m³) ^ - HV1 (Max: 59.1 µg/m³)* (Max: 28.6 µg/m³) ^ - HV4 (Max: 106.0 µg/m³)* 	<p>Appendix 3B presents the measured 2020 annual average PM₁₀ data (excluding extraordinary events) superimposed over the dispersion modelling contours for the Year 2020. The measured and predicted data in the figure includes dust levels from WCM and other sources. The annual average PM₁₀ measured levels in 2020 are generally 4 to 6.5ug/m³ lower than the model predictions, with the exception of TEOM 4 which is consistent with the model predictions (Todoroski, 2021) (Appendix 3B).</p> <p>WCM has conducted investigations to determine the likely cause of elevated readings in 2020. Elevated levels in January and February have been predominantly attributed to smoke associated with the 2019/2020 NSW bushfires. The likely cause of each of</p>	<p>All dust related complaints were responded to in accordance with the Complaints Management Procedure.</p> <p>During the review period the following control measures were implemented in accordance with the MOP and AQMP:</p> <ul style="list-style-type: none"> - Mine managed in 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; - Water sprays were utilised on the ROM coal bins, and on recently stripped areas as required.

Approved Criteria ^D	WEP Predictions	Performance During the Reporting Period	Trend/Key Management Implications	Implemented/proposed Management Actions
		<p>(Max: 64.0 µg/m³) ^ - HV5 (Max: 331.0 µg/m³) * (Max: 33.5 µg/m³) ^ * Includes extraordinary events ^ Excludes extraordinary events</p> <p>The rolling annual average levels in Graph 6 & 7 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 as the majority of the bushfire affected days are no longer included in the rolling annual average.</p>	<p>the elevated PM10 recordings at the WCM monitors during 2020 is provided in Appendix 3B.</p> <p>Note that investigations were not conducted for the HV4 monitor and thus are not included in the table. As 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 (Todoroski, 2021) (Appendix 3B).</p>	<p>In 2020 ≈645hrs of lost time hours associated with implementation of dust management strategies.</p> <p>Breakdown of Lost Time Hours 2020 (Dust)</p>  <p>The pie chart displays the distribution of lost time hours in 2020 due to dust management strategies. The largest category is Lightning at 9484.63 hours, followed by Rain at 8906.63 hours. Other categories include Fog (1887.1), Noise (2282.25), and Dust (645.24).</p>
PM₁₀ (Annual Average Concentrations)				
30 µg/m ³ ^{AE}	15-20 µg/m ³ (for Wollar Road & Village of Wollar)	<p>The 2020 annual average PM₁₀ concentrations for “all days” and excluding extraordinary events were below criterion of 30µg/m³:</p> <ul style="list-style-type: none"> - TEOM 3 (Max: 12.6 µg/m³) * (Max: 9.2 µg/m³) ^ - TEOM 4 (Max: 19.6 µg/m³) * (Max: 15.4 µg/m³) ^ - HV1 (Max: 13.5 µg/m³) * (Max: 11.6 µg/m³) ^ - HV4 (Max: 18.7 µg/m³) * (Max: 15.8 µg/m³) ^ - HV5 (Max: 17.4 µg/m³) * (Max: 15.9 µg/m³) ^ <p>* Includes extraordinary events ^ Excludes extraordinary events</p>	<p>Appendix 3B presents the measured 2020 annual average PM₁₀ data excluding extraordinary events superimposed over the dispersion modelling contours for the Year 2020.</p> <p>The measured and predicted data in the figure include dust levels from WCM and other sources.</p> <p>The annual average PM₁₀ measured levels in 2020 are generally 4 to 6.5ug/m³ lower than the model predictions the with the exception of TEOM 4 which is consistent with the model predictions (Todoroski, 2021) (Appendix 3B).</p>	
PM_{2.5} (24hr & Annual Average Concentrations)				
No criteria established	3-4 µg/m ³ (for Village of Wollar)	<p>The 2020 annual average PM_{2.5} concentrations for “all days” and excluding extraordinary events were below the relevant criterion of 8µg/m³.</p>	<p>Appendix 3B presents an overlay of the measured 2020 annual average PM_{2.5} data over the dispersion modelling predictions for Year 2020. The measured</p>	

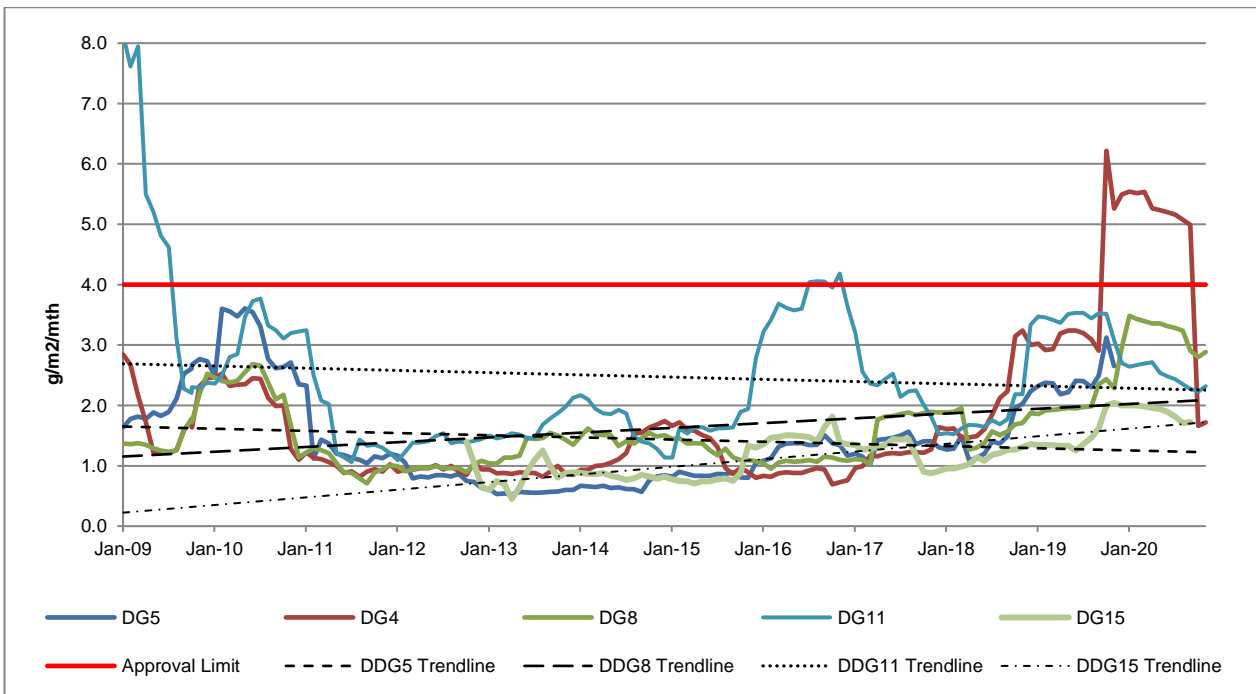
Approved Criteria ^D	WEP Predictions	Performance During the Reporting Period	Trend/Key Management Implications	Implemented/proposed Management Actions
		<p>The 24-hour average PM_{2.5} concentrations were above the relevant criterion of 25µg/m³ for a significant number of days in 2020. The majority of these days were considered to be extraordinary events due to for example bushfires, dust storms, etc</p> <p>Ave (Annual): *6.5µg/m³ ^4.9µg/m³</p> <p>Max (24hr): *81.0µg/m³ ^23.7 µg/m³</p> <p>No. Days >25µg/m³ *11 ^0</p> <p>* Includes extraordinary events ^ Excludes extraordinary events</p> <p>It can be seen in Graph 8 that the 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.</p>	<p>result is below the criteria and is typical of a small village in NSW.</p> <p>The measured level at the Wollar Village is slightly higher than the modelled results by approximately 1µg/m³. The PM_{2.5} monitor would be influenced by non-modelled local PM_{2.5} sources such as combustion engines, transport movements and various human activities.</p> <p>The modelling does not account for excess dust from the human activities in the village. The difference between the measured and modelled results is consistent with the difference in PM_{2.5} levels measured in small populated areas and those outside of the populated areas and near mines in the Hunter Valley (Todoroski, 2021) (Appendix 3B).</p>	
<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>				

Graph 1 Compliance Annual Average Dust Deposition Results 2011 – 2020



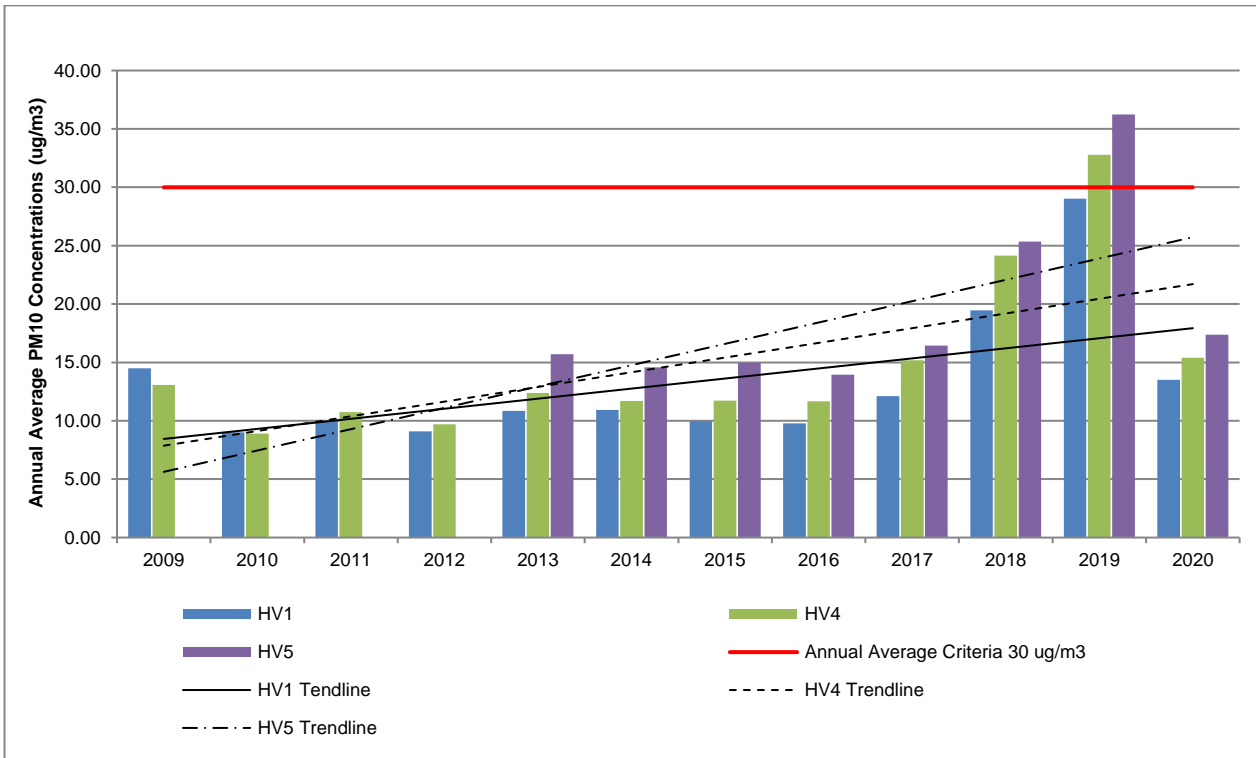
Notes: Based on the positioning of the compliance monitors at WCM, it can be assumed that the DG8 monitor is sufficiently away from mining activity and is generally represented of background levels for the area. On this basis, the potential incremental contribution from WCM can be estimated as the level recorded at the compliance monitors minus the level at DG8 (Todoroki, 2019). The resulting incremental levels would be below the relevant criterion of 2g/m²/month and indicate compliance with the criterion.

Graph 2 Compliance Dust Deposition Trends (Rolling Averages) 2009-2020



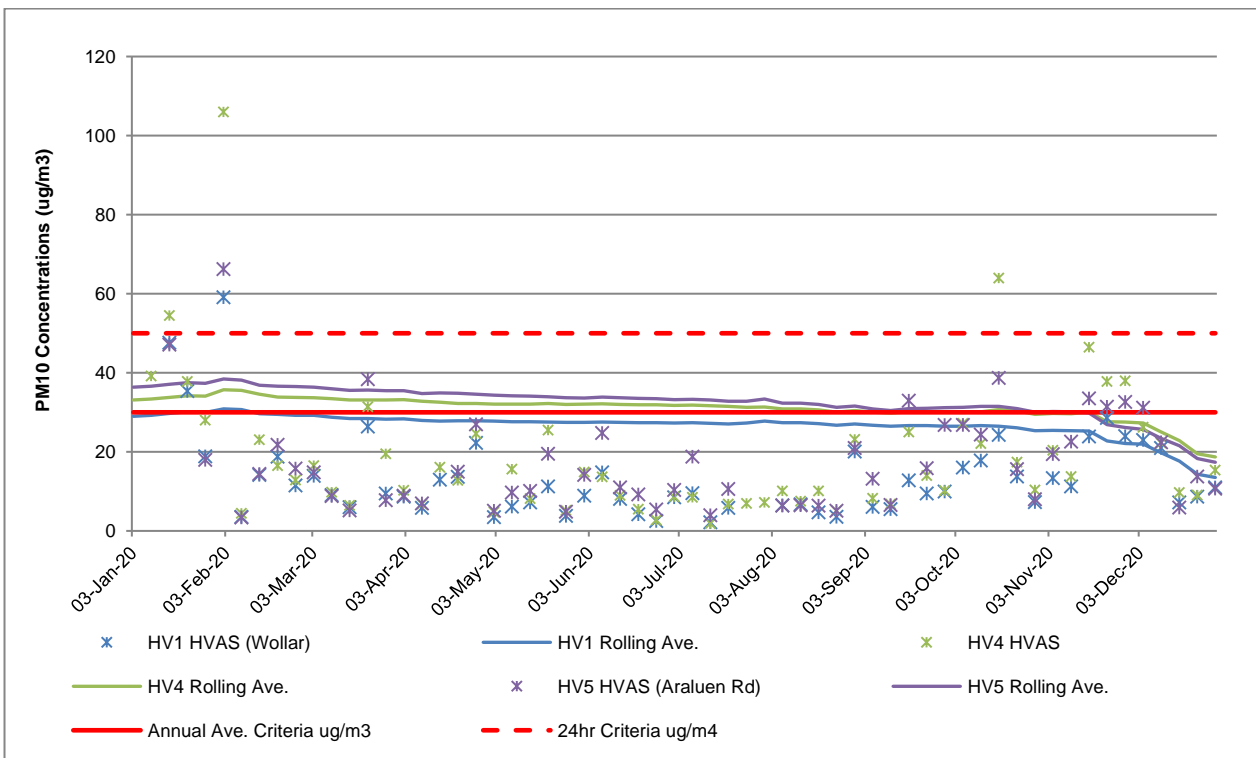
Notes: Drought conditions and extraordinary events would have impacted the background deposited dust levels in 2020. Currently, the nearest privately-owned residence to the DG4 monitor is located over 5km away and thus the DG4 monitor is no longer considered to be representative of dust levels at privately owned residences (Todoroski, 2021) (Appendix 3B).

Graph 3 Compliance HVAS Annual Average PM₁₀ Results and Trends 2009 – 2020



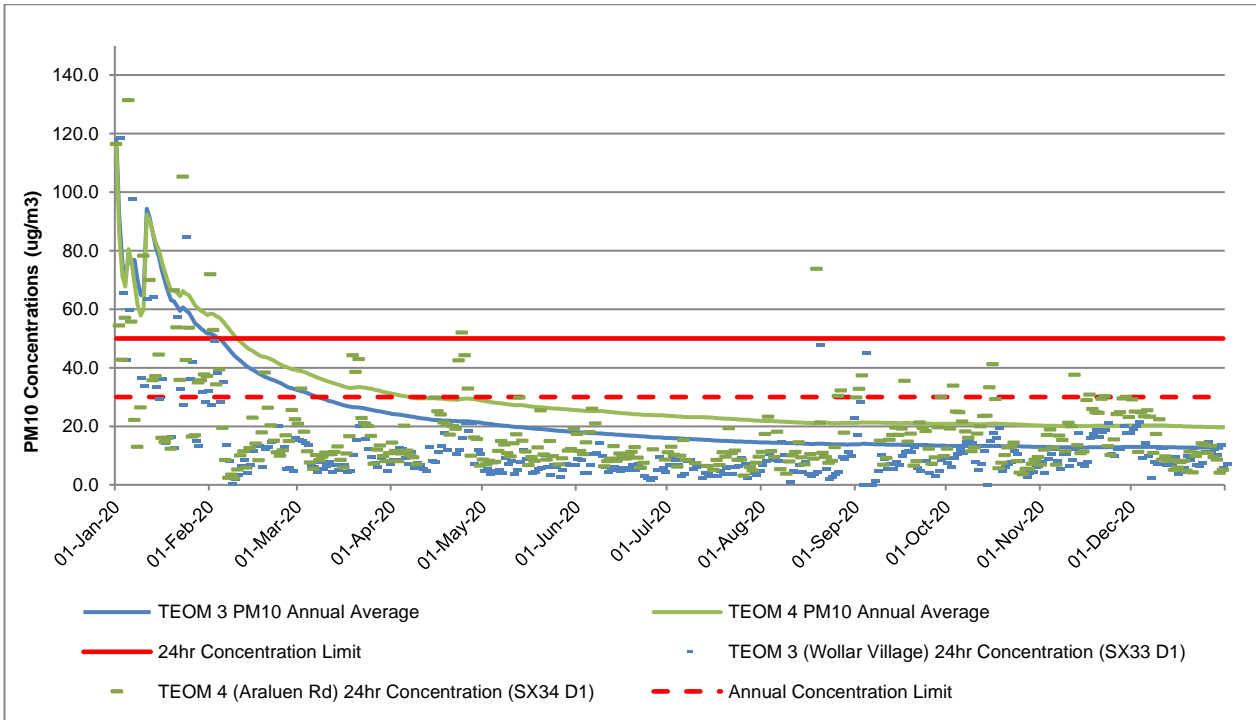
Notes: Elevated results in 2019 were caused by regional extraordinary events as described the 2019 Annual Review.

Graph 4 Compliance HVAS (Rolling Averages) Annual Average & 24hr 6-Day Cycle PM₁₀ Results 2020



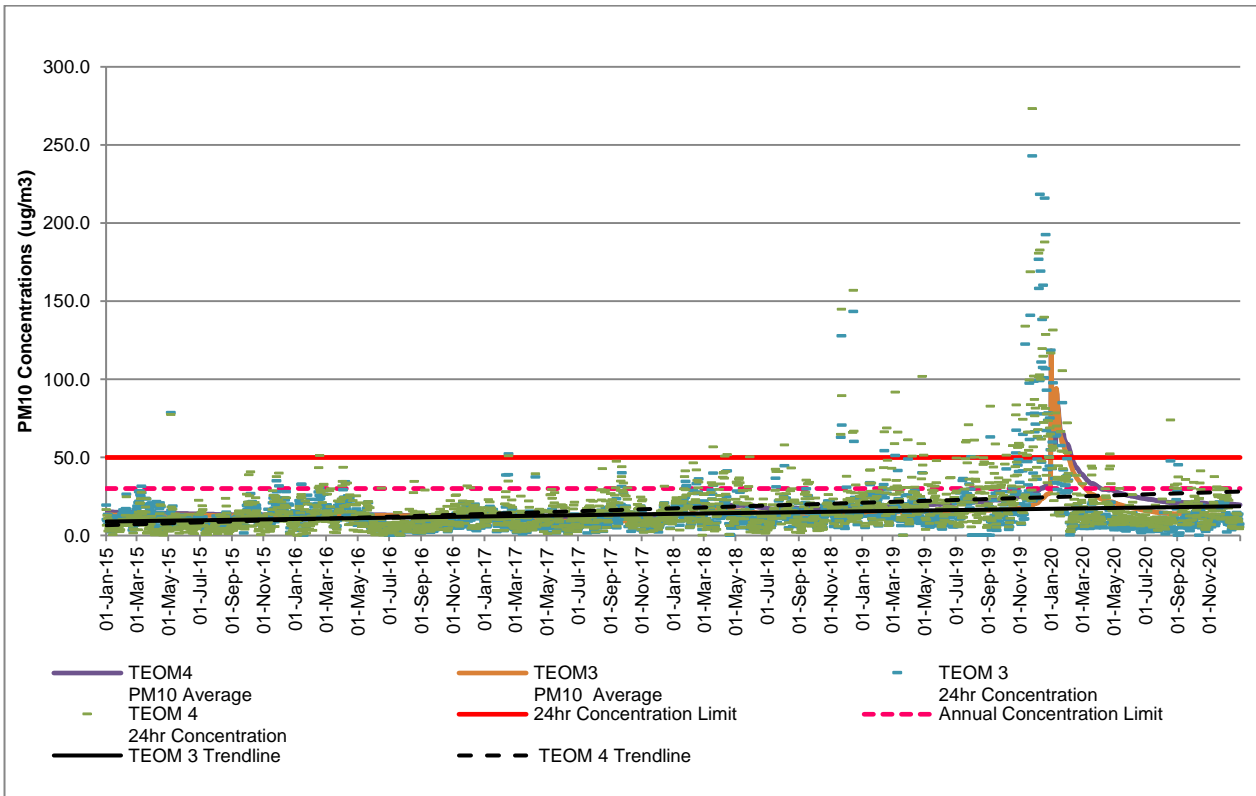
Notes: Extraordinary events recorded on the 2 February 2020. The nearest private residence to the HV4 monitor is located over 5km away from the monitor, the private residency response protocol (which includes an investigation of elevated readings at monitors representative of privately owned residences) 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 (Todoroski, 2021) (**Appendix 3B**).

Graph 5 Compliance TEOM 24hr & Annual Average PM₁₀ Results 2020



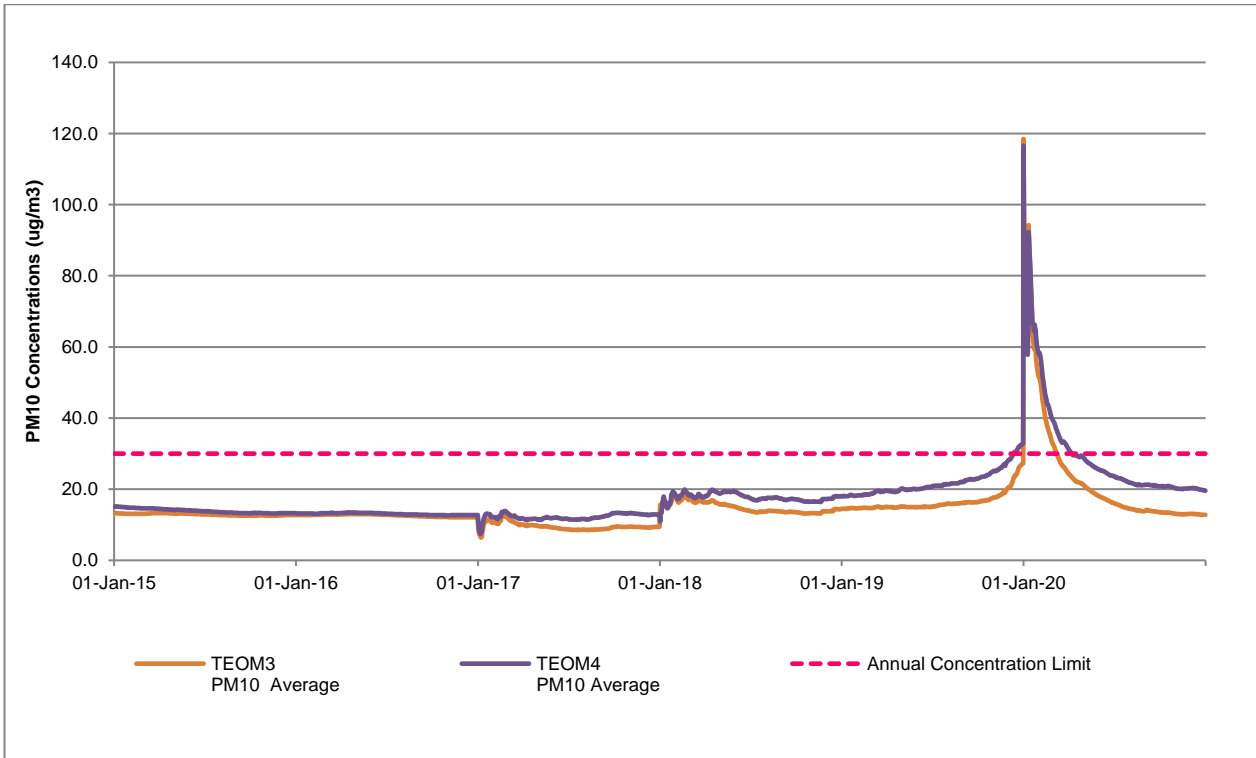
Notes: Elevated levels in January and February have been predominantly attributed to smoke associated with the 2019/2020 NSW bushfires. Elevated result for TEOM 4 in April relates to a temperature inversion trapping dust generated by local traffic on unsealed section of Araluen Road. Elevated result for TEOM 4 in August relates to a regional dust event (Todoroski, 2021) (**Appendix 3B**).

Graph 6 Compliance TEOM PM₁₀ 24hr Results and Trends (Rolling Averages) 2015-2020



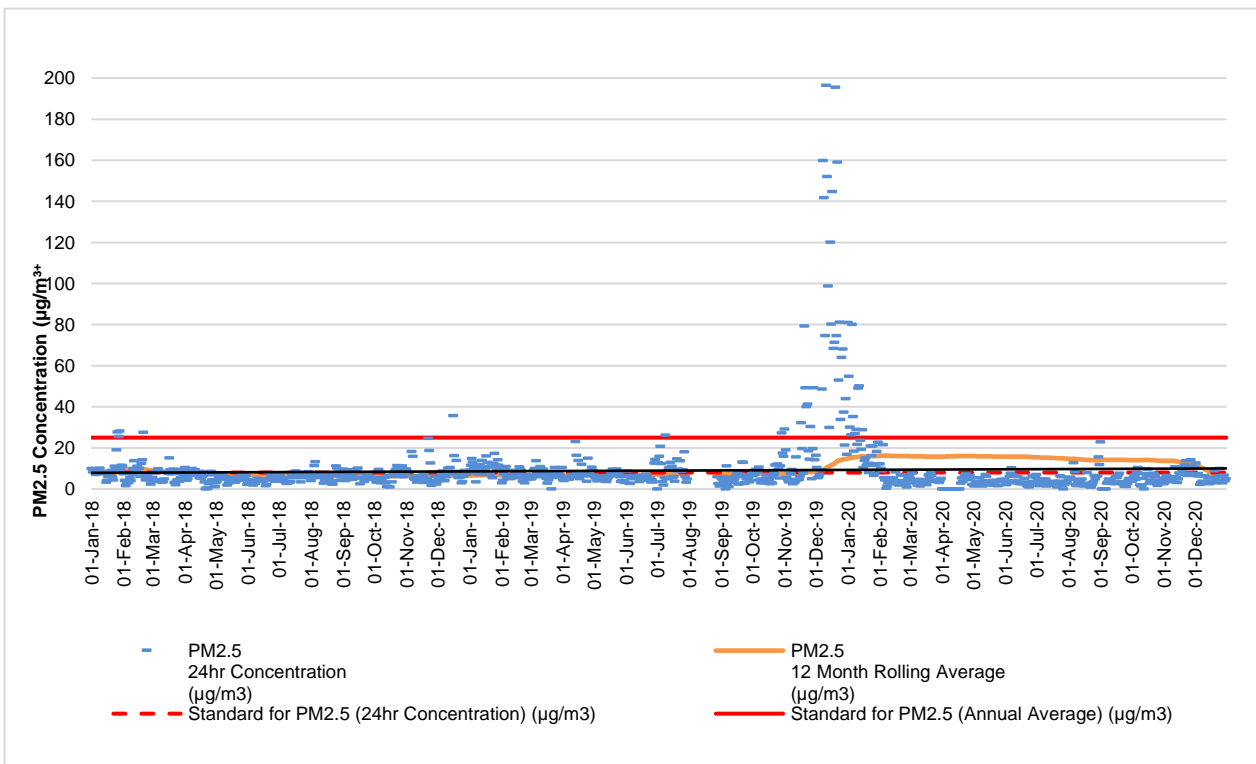
Notes: The rolling annual average levels in generally show a trend of increasing levels, with the monitors all showing a sudden increase in levels at the end of 2019 associated with the 2019/2020 NSW bushfires and a sharp drop towards the end of 2020. Elevated result for TEOM 4 in August relates to a regional dust event (Todoroski, 2021) (**Appendix 3B**).

Graph 7 Compliance TEOM PM₁₀ (Rolling Averages) 2015-2020



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 (Todoroski, 2021) (**Appendix 3B**).

Graph 8 Compliance TEOM PM_{2.5} 24hr Results and Trends (Rolling Averages) 2018-2020



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 (Todoroski, 2021) (**Appendix 3B**).

Blast Monitoring

The Mine has developed and implemented a Blast Management Plan (**Table 7**). 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 2020 review 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 13**.

Table 13 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[^] & WE77[^]	Ground Vibration	Every blast within 1km of Aboriginal sites
Historical Mine Adit	Ground Vibration	Every blast within Pit 8
Railway Line/ Culvert	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*

Notes: * During the reporting period monitoring was not required as the trigger for blast monitoring was not either within the range.
[^] 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.

Table 14 Blast Monitoring Environmental Performance (Wollar School)

Approved Criteria				Performance During the Reporting Period	Trend/Key Management Implications	Implemented/proposed Management Actions
Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance	<p>With the exception of one blast on the 30 November 2020, all other blast monitoring results for the reporting period complied (Graph 9 & Appendix 3G) 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: 123.3 dBL - Max: 3.78 mm/s <p>An overpressure value of 123.3dBL was recorded from a blast fired on 30 November 2020. This was the only blast to exceed the 115dBL (i.e. for 5% of blasts) limit for overpressure. This represents 0.46% of the total number of blasts for the 12 months, which is below the 5% allowable over 115dBL limit within a 12-month period, however it exceeded the 120dBL limit.</p> <p>There was a total of 215 blasts for the 2020 reporting period</p> <p>No blasts were >5mm/s limit for ground vibration and therefore no blasts were >10mm/s for 2020.</p> <p>Two fume events were reported on the 28 February and 10 June 2020 in accordance with the Blast Management Plan due to their fume rating >3. Both fume events were contained and diminished on site.</p> <p>For further information regarding the overpressure exceedance and reportable fume events, refer to Section 11.</p>	<p>All blast monitoring on privately owned land was undertaken in accordance with the Blast Management Plan in 2020.</p> <p>There were 5 blasting related community complaints in 2020 compared to 6 complaints in 2019.</p> <p>All blasting events during the review 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 2020 review period.</p> <p>There were no more than two blasts per day (max. of 2 allowed) and an average of 4.8 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 August 2020 (Version 7) to include ML1795, update reporting protocols, clarify vibration monitoring and revise the blast fume management strategy as a result of the two fume events. The Blast Management Plan reviewed in August 2020 (Version 7) included the following fume mitigation measures:</p> <ul style="list-style-type: none"> - Installation of Blastshield - a lining for blast holes that provides a barrier to stop the ingress of water and potential product degradation; and - A trailer mounted blast hole dewatering pump has been sourced, to pump water from blast holes, allowing for the installation of the Blastshield. <p>As a result of the overpressure event on the 30 November 2020 the Blast Management Plan will be reviewed and revised after the submission of the 2020 Annual Review. This review of the Blast Management Plan will include:</p> <ul style="list-style-type: none"> - A requirement to review blasting procedures for the loading of overburden shots. - Stemming horizons less than 3.7m will trigger a shot firer/blast controller review prior to stemming to ensure the correct ratio of stemming product prior to loading of stemming.
Residence on privately owned land	115	5	5% of the total number of blasts over a rolling period of 12 months			
	120	10	0%			
All public infrastructure	-	50 <i>(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)</i>	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.

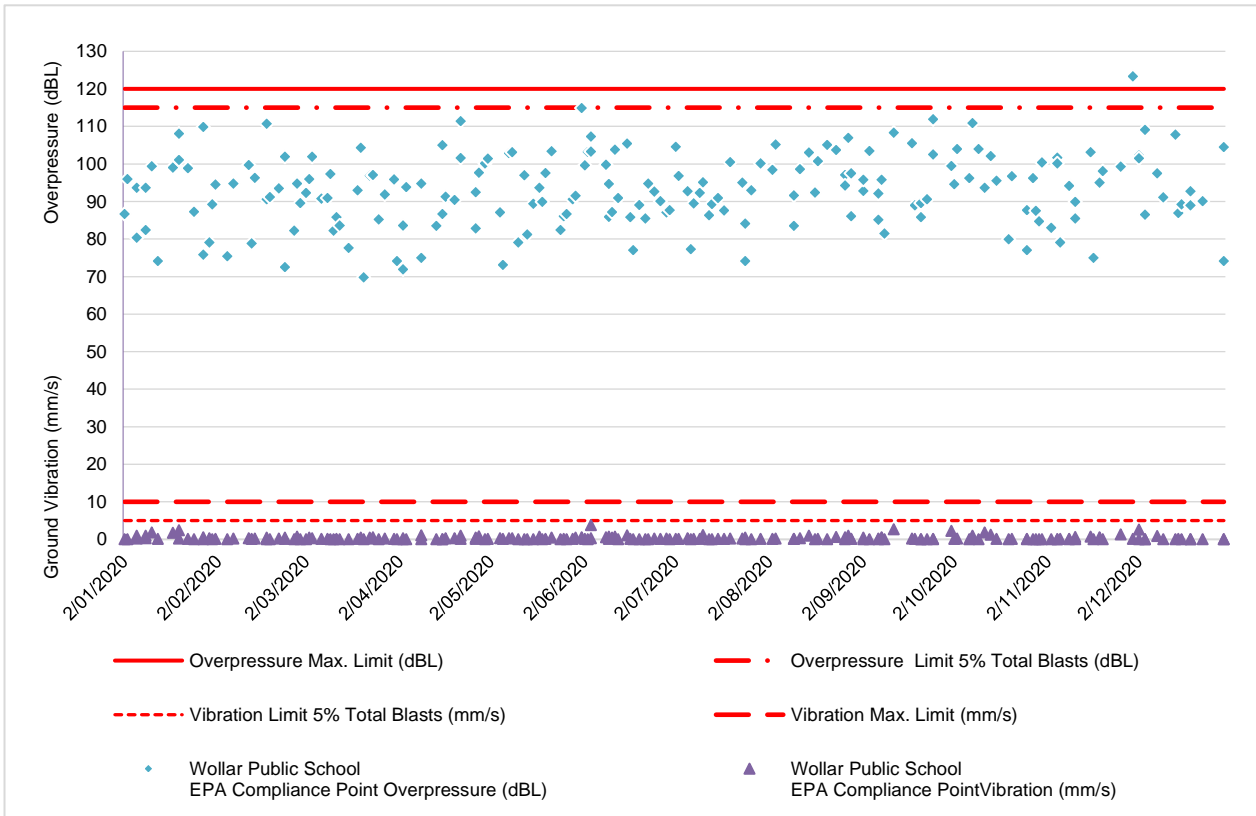
Table 15 Blast Monitoring Environmental Performance (Public Infrastructure)

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.	The Blast Management Plan was reviewed in August 2020 (Version 7) to include ML1795, update reporting protocols, clarify vibration monitoring and revise the blast fume management strategy as a result of the two fume events.
Tailings Dam¹	50	0%	<ul style="list-style-type: none"> - Max: 97.51 mm/s - Ave: 4.53 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;	As a result of the vibration exceedances on the 11 July and 11 November 2020, the Blast Management Plan will be reviewed and revised as required after the submission of the 2020 Annual Review, to the satisfaction of the Secretary.
Railway Lines²	200	-	Blast monitoring results for the reporting period complied with the approved criteria of 100mm/s at a 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: 97.51 mm/s - Ave: 4.53 mm/s 	With the exception of two blast monitoring results on the 11 July and 11 November 2020, 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 8. Notification of these exceedances were reported to MWRC in accordance with the Blast Management Plan.	Review geology of the western side of Pit 8, as current assumptions are based on exploration program information as mining hasn't progressed to allow pit wall to be reviewed for geological features.
Public Road⁴	200	-	With the exception of two blast monitoring results on the 11 July and 11 November 2020 all other blast monitoring results for the reporting period complied with the approved criteria of 100mm/s at a Public Road Culvert opposite (Pit 8):	Condition inspection of the Ulan Wollar Road culvert by WCPL's Technical Services Manager was undertaken after each vibration exceedance with no damage to the culvert observed.	Continue to update the predictive parameters of the vibration model for Pit 8 blasting using data obtained from all blasts in Pit 8.
Public Road Infrastructure⁵	100	-	Two exceedances of the 100mm/s vibration criteria at a concrete culvert opposite Pit 8 along the Ulan Wollar Road occurred on the 11 July and 11 November of 100.18mm/s and 117.66mm/s respectively. For further information regarding these vibration exceedances refer to Section 11 .	WCPL commissioned an independent condition inspection of the culvert by Bamson's - Principal Civil Engineer who concluded the culverts sustained no damage from either of the vibration events.	Review Blast Logic loading parameters specifically in relation to blast vibration sensitive shots.
Transgrid Powerline⁶	50	-	No blasting monitoring was required at TD6 as all blasts during 2020 were outside the DSC Approval Area.		Blasting personnel to undertake additional training in Blast Logic software – inclusive of quality assurance components relating to blast design vs actual.
<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>			No blasting monitoring was required along the Transgrid Powerline as all blasts during 2020 were not within 100m of this infrastructure.		Review blast designs based on the information gained from the points above.

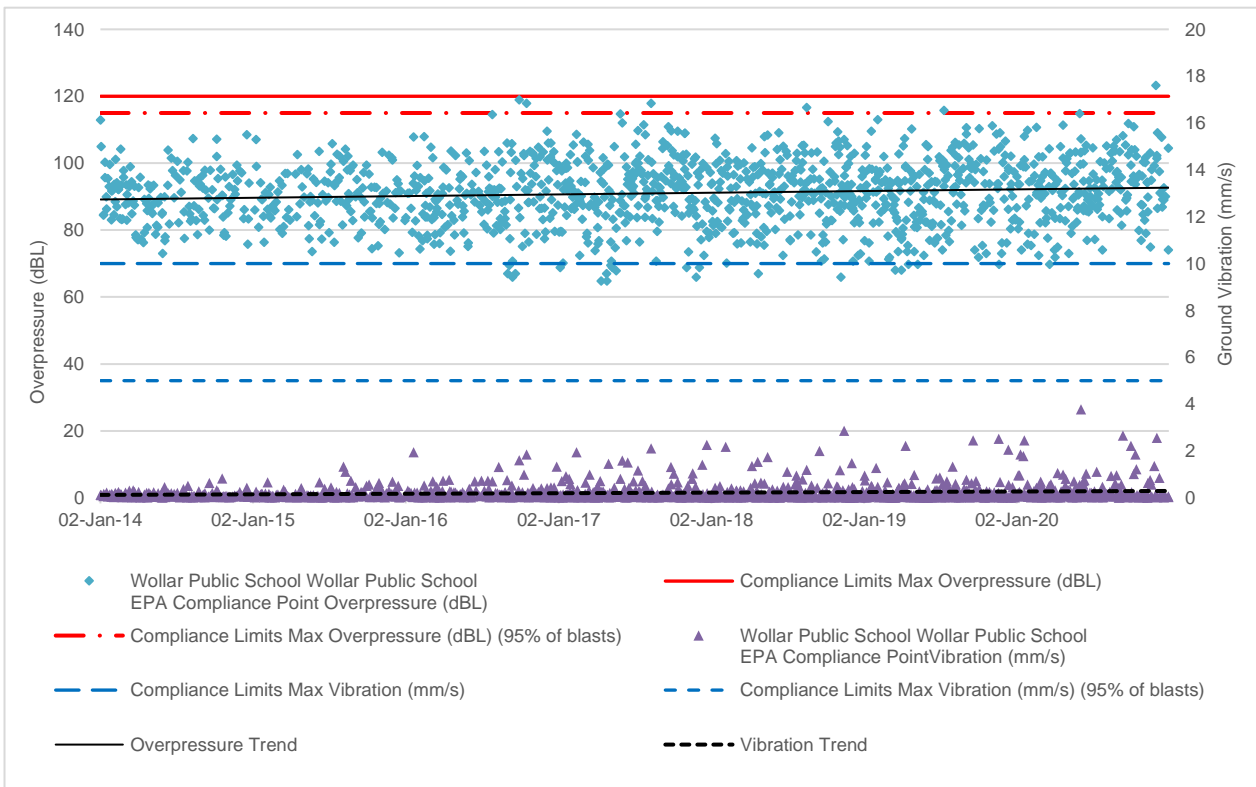
Table 16 Blast Monitoring Environmental Performance (Heritage Sites)

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, WE40 & WCP535:	All blast monitoring requirements of Aboriginal Heritage Sites were undertaken in accordance with the Blast Management Plan in 2020.	The Blast Management Plan was reviewed in August 2020 (Version 7) to include ML1795, update reporting protocols, clarify vibration monitoring and revise the blast fume management strategy as a result of the two fume events.
Archaeological Sites 72, 152 and 153 within ML	Performance Indicator	80 ¹	- (Site 72) Max: 19.12 mm/s - (Site 72) Ave: 0.60 mm/s	The Blast Management Plan will be reviewed and revised as required after the submission of the 2020 Annual Review, to the satisfaction of the Secretary.
	Damage Criteria	250 ¹	- (Site 152) Max: 11.09 mm/s - (Site 152) Ave: 0.84 mm/s	
Archaeological Sites WE7, WE10 & WCP535 in the Munghorn Gap Nature Reserve	Performance Indicator	80 ²	- (Site 153) Max: 10.66 mm/s - (Site 153) Ave: 1.06 mm/s	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 review period.
	Damage Criteria	250 ²	- (Site WE7) Max: 34.44 mm/s - (Site WE7) Ave: 3.01 mm/s	
Archaeological Sites WE76 & WE77 in the Munghorn Gap Nature Reserve	Performance Indicator	80 ²	- (Site WE10) Max: 39.32 mm/s - (Site WE10) Ave: 12.22 mm/s	Site inspection on the 26 November at Castle Rock by Navin Officer Heritage Consultants determined minor changes identified to the rock shelter were a result of natural erosion, fallen tree limbs, vegetation growth, animal impacts and not mining vibration.
	Damage Criteria	250 ²	- (Site WCP535) Max: 18.69 mm/s - (Site WCP535) Ave: 1.48 mm/s	
Mine Adit	-	80 ³	Blast monitoring results for the reporting period complied with the approved criteria of 80mm/s at the Slate Gully Mine Adit:	All vibration results were below the performance criteria of 80mm/s of the historical Mine Adit in Slate Gully in 2020;
1) When blasting within 1 km 2) Representative site when blasting within 1 km 3) When blasting in Pit 8			- (Mine Adit) Max: 76.41 mm/s - (Mine Adit) Ave: 2.48 mm/s	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.
				Monitoring for microbats utilising the historical Mine Adit in Slate Gully continued in 2020 as required by the Biodiversity Management Plan and the Blast Management Plan.

Graph 9 Blasting Monitoring Results for 2020 (Wollar School)



Graph 10 Blasting Monitoring Trends 2014 to 2020 (Wollar School)



Noise Monitoring

The Mine has developed and implemented a Noise Management Plan (NMP) (**Table 7**). During the 2020 review 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 17**).

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 18**.

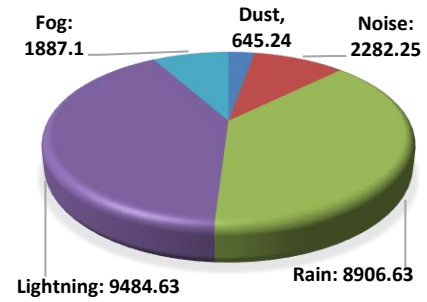
Further noise monitoring results for 2020 review period, including figures with noise monitoring locations are provided in **Appendix 3F**.

Table 17 Summary Noise Monitoring Program

Location	Monitoring Site	Parameter	Frequency
St Laurence O'Toole Church [^]	N6	Attended Noise	Monthly
Coonaroo [^]	N13	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
Barrigan Valley*	N18	Attended Noise	Monthly
Mogo Rd	N19	Attended Noise	Monthly
Ringwood Rd	N20	Attended Noise	Monthly
Wandoona*	N21	Attended Noise	Monthly
WCPL Rail Loop	-	Meteorology & Inversion	Continuous
Wollar Village	-	Real-Time Noise - Fixed	Continuous
Araluen Rd*	-	Real-Time Noise - Fixed	Continuous
Mogo Rd	-	Real-Time Noise - Fixed	Continuous
Ringwood Rd	-	Real-Time Noise - Fixed	Continuous
Wandoona**	-	Real-Time Noise - Mobile	Continuous

Notes: * Removed from the noise monitoring program in 2019 as a result of SSD-6764 and the revised Noise Management Plan, however monitoring continued until July 2020. [^] Owned by WCPL. ** Monitor renamed Tichular and relocated further south in August 2020 as required by the latest version of the NMP.

Table 18 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 2020 was undertaken monthly during the night periods of:</p> <ul style="list-style-type: none"> - 15/16 January - 5/6 February - 11/12 March - 20/21 April - 11/12 May - 16/17 June - 15/16 July - 18/19 August - 1/2 September - 6/7 October - 11/12 November - 9/10 December 	<p>All noise monitoring was undertaken in accordance with the Noise Management Plan in 2020. The frequency of attended monitoring was monthly during the 2020 review period.</p> <p>Attended monitoring at these locations indicated that WCP complied with noise consent limits during the 2020 review period.</p> <p>It is noted that the approved criteria may not always be applicable due to meteorological conditions at the time of monitoring.</p> <p>Validation reports of real time noise monitoring are now conducted monthly and are provided in Appendix 3F.</p> <p>There was an increase of noise complaints in 2020. A total of 88 noise complaints were recorded in 2020, as opposed to 6 complaints in 2019.</p> <p>Operational activities in Pit 8 commenced in late 2019 and are now closer to those residences along Barigan & Mogo Road. However, real-time noise investigations at the time of each complaint confirmed that the low frequency (LF) noise levels recorded by the real-time noise monitors were compliant. Attended monitoring also complied with noise consent limits.</p> <p>As discussed in Section 9.0, all noise complaints were responded to as required by WCPL.</p>	<p>The Noise Management Plan was reviewed in August 2020 (Version 5) to include ML1795, update property ownership and update figures and text accordingly.</p> <p>In accordance with Condition 5, Schedule 5 of SD-6764, WCPL will review, and if necessary revise, the Noise Management Plan within three months of the submission of this Annual Review.</p> <p>Continue to implement the Noise Management Plan (NMP) in accordance Condition 5, Schedule 3 of SSD-6764.</p> <p>In 2020 there were approximately 2282 hours of lost time (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> <p>Breakdown of Lost Time Hours 2020 (Noise)</p> 
	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{A1} (1 minute)			
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	40 (internal) When in use			-			

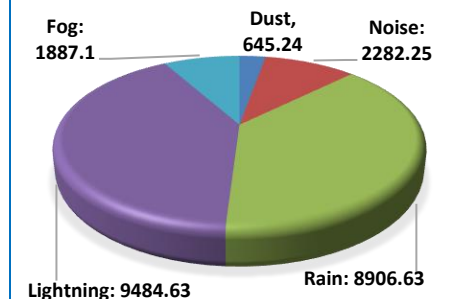
Notes: 1) To interpret the locations refer to **Table 18** and **Appendix 3F**. 2) Day is defined as the period from 7 am to 6 pm Monday to Saturday and 8 am to 6 pm Sunday and Public Holidays. 3) Evening is defined as the period 6 pm to 10 pm. 4) Night is defined as the period from 10 pm to 7 am Monday to Saturday and 10 pm to 8 am Sunday and Public Holidays. 5) Wollar Village EPL intrusive noise limits are currently day 36dBA, evening 35dBA and night 35dBA. 6) Both Properties 150A and 900 are owned by WCPL. Both buildings have been deconsecrated and are no longer places of worship.

Attended monitoring noise levels from WCPL complied with approved criteria and EPL noise limits at all sites during attended noise monitoring undertaken in 2020 (**Appendix 3F**).

Low frequency assessments were carried out in accordance with the EPA 'Noise Policy for Industry' (NPI).

Low frequency modification factors were implemented when applicable and did not result in any exceedances of WCP noise limits (**Appendix 3F**).

Breakdown of Lost Time Hours 2020 (Noise)



6.3 Heritage

The Mine has developed and implemented an Aboriginal Cultural Heritage Management Plan (ACHMP) (**Table 7**). Four Cultural Heritage meetings were undertaken in 2020 (inclusive of RAPCC) in March, July, September and November. 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 August 2020 (Version 7) with minor amendments including reference to new ML1795, updating table of known Aboriginal heritage sites and figures accordingly. During the 2020 review period, a number of archaeological surveys, due diligence surveys, surface salvage works and other programs and investigations were carried out, including monitoring rock art sites (Sites WCP72, also known as 'Castle Rock', WCP152 and WCP153), Pit 3 PAD excavation and clearance and Slate Gully salvage and clearance.

Photo 1 Aerial View of Castle Rock September 2020



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 2020 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.

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 (refer to **Table 16**). During 2020 the HHMP was revised and updated to include results of completed ARD in 2019, archival recording of the Historic Shale Oil Mine Complex and include ML1795 and update figures accordingly. At the time of preparing the 2020 Annual Review the latest revision of the HHMP (i.e. Version 4) was pending approval.

6.4 Biodiversity

A Biodiversity Management Plan (BMP) (**Table 7**) has been prepared and implemented for the Mine. 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) (**Appendix 5**). 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 (**Appendix 5**) 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 criteria⁷ 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 Domains⁸.

A summary of the 2020 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 2020 biodiversity monitoring reports, prepared by Ecological Australia (ELA) and Biodiversity Monitoring Services, refer to **Appendix 5**.

Biodiversity monitoring was undertaken during Autumn and Spring under the methodology prescribed in the BMP. Monitoring was undertaken at established monitoring sites across the Management Domains, including Biodiversity Offset Areas, Enhancement and Conservation Areas, Regeneration and Rehabilitation areas. A series of Reference sites were monitored to provide comparative results.

Vegetation monitoring was undertaken within the WCPL Rehabilitation Areas. All sites recorded improved Site Value Score (SVS), with three of the four sites meeting the Moderate to Good benchmark for the SVS, when compared against the WCPL performance criteria.

Landscape Function Analysis (LFA) monitoring was also completed within the Rehabilitation Areas. Landscape Organisation Index (LOI) scores increased compared to 2019 results, attributable to above average rainfall during 2020 resulting in increased groundcover. Stability scores continue to score highly with most of the sites reaching the relevant completion criteria. Infiltration and nutrient cycling scores are consistently below the completion criteria with some sites exhibiting an overall declining trend. All sites monitored in 2020 recorded a <5% annual improvement from the previous monitoring period in at least one Soil Surface Assessment (SSA) measure and as such, review of the relevant Trigger Action Response Plan (TARP) is required.

Fauna monitoring recorded a total species richness of 133 species, comprising of 111 birds, one (1) amphibian, nine (9) reptiles, and eleven (11) positively identified Microchiroptera (microbat) species across all Management Domains. Thirteen species (10 bird species and three positively identified microbat species) listed as threatened under the *NSW Biodiversity Conservation Act 2016 and/or the Commonwealth*

⁷ As discussed in the 2018 AR, the 2018 Biodiversity Monitoring Program utilised the previously approved completion criteria and interim performance targets in the currently approved BMP (Version 4).

⁸ Mine closure or rehabilitation domains are identified in the WCPL's MOP.

Environmental Protection and Biodiversity Act 1999 were observed across the Wilpinjong Management Domains during 2020 monitoring.

A series of recommendations have been provided to ensure the continual improvement of the monitoring program. Recommendations include re-evaluating the current LFA monitoring. As part of the required TARP review for LFA results, it is recommended that consideration is given to the management aims for which LFA monitoring seeks to evaluate, and the efficacy of the LFA method to inform the achievement of these aims. A range of alternative methods are proposed for consideration.

Slate Gully Mine Adit Monitoring

An abandoned underground oil shale mine at Slate Gully, 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.

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 2**).

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. Bats within the workings have been or will be subject to vibration and noise. There is also the potential for dust and fumes associated with the open cut operations.

The following summary details the results of automated monitoring over a 12-month period from January 2020 to December 2020, as well as concurrent monthly hand counts of bats exiting the workings.

Looking at bat activity before and after blasts showed mixed results. The small changes relative to normal nightly variation in activity suggest no impact from blasting in Pit 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 December 2020, mining activity is approximately 600m from the adit. As the mine moves closer in 2021, monitoring should be able to detect any potential impacts to occupation/activity of the two cave dwelling microbat species (refer to **Appendix 5**).

Monitoring will continue throughout 2021 (**Photo 3**) to evaluate bat activity and the effectiveness of the restructured adit entrance.

Photo 2 Culvert Support of the Oil Shale Adit 2019 & Removal of Excess Material Above Adit 2020



Photo 3 Detector & Solar Panel setup 20m in front of Adit



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;
 - 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 19 & Graph 11**) in the 2020 Annual Review. During the reporting period approximately 78% of the total waste removed from the Mine was recycled. **Appendix 3G** has the complete summary of waste statistics for the 2020 annual review period.

Approximately 341 tonnes of tyres were buried in-Pit during 2020, which included 55 tonnes in Pit 6 Strip 14, 120 tonnes in Pit 1 Strip 46 and 164 tonnes in Pit 6. WCPL are permitted to dispose of building and demolition waste in-pit, in accordance with EPL 12425.

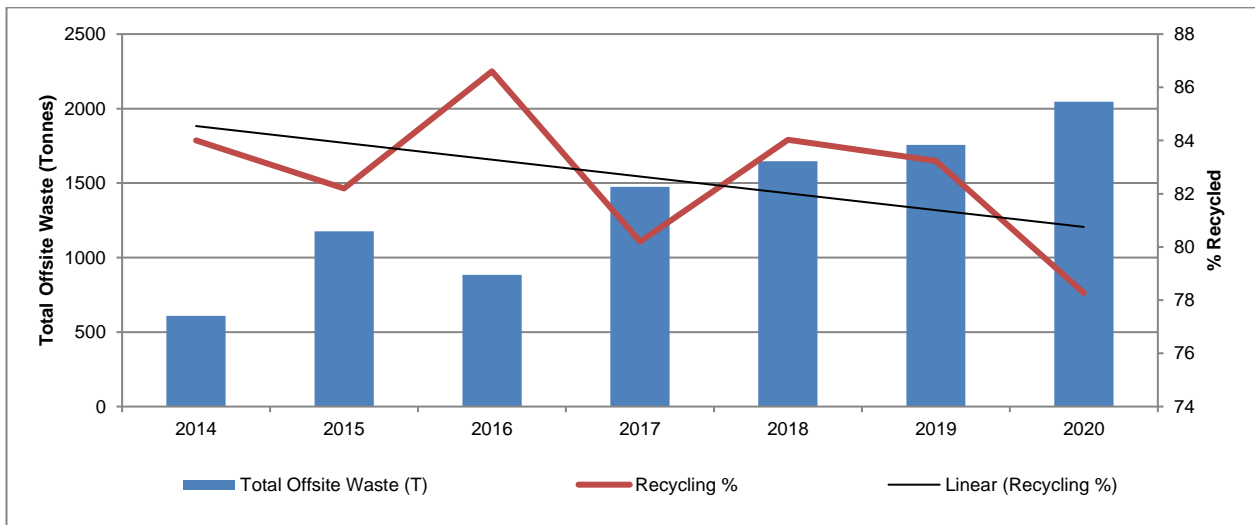
In 2020 there was no disposal of building and demolition waste within the Mine, however five WCPL owned dilapidated properties were demolished in 2020 and approximately 67 truck loads of inert waste material

was trucked to the Mine in early 2021 for disposal. Asbestos recovered from the properties in 2020 was removed and disposed by WCPL’s licensed contractor.

Table 19 Summary of Monthly Waste Statistics for 2020

Totals	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Totals
Total Offsite Waste (T)	201.6	159.3	182.6	156.6	169.9	229.8	157.2	143.9	175.6	149.4	178.7	140.8	2045.6
Recycled Waste (T)	172.1	132.5	149.2	126.1	121.0	131.6	119.8	115.6	143.9	126.6	153.6	108.9	1601.1
Recycling %	85.35	83.16	81.73	80.50	71.20	57.26	76.23	80.33	81.98	84.76	85.93	77.39	78.27

Graph 11 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 2020 review 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 the 2020 review period are presented in **Table 20**.

Table 20 Estimated Wilpinjong Coal Mine Greenhouse Gas Emissions

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

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 and 14.53Mt ROM coal respectively.

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 PA05-0021 and 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.

Spontaneous combustion propensity testing was undertaken in 2020 and scheduled for 2021 when suitable areas become available (**Section 6.2**).

The Mine has developed and implemented a Spontaneous Combustion Management Plan (Version 6) (SCMP) (**Table 7**) as Appendix 3 of the AQMP. The SCMP was reviewed in August 2020. As described in the SCMP there are areas of the mine prone to spontaneous combustions events. During 2020 there was a continued effort in managing those areas within the mine prone to an outbreak of spontaneous combustion as identified in the SCMP.

There were no reportable incidents as a result of spontaneous combustion in 2020. There were ten unverified odour complaints received during 2020. 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 7). 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 August 2020.

7.1 Water Licences

Table 21 presents the relevant entitlement volume for the consolidated licence, the estimated inflow or ‘take’ for 2019-20 and several previous Water Years. Table 22 lists the converted water entitlement licenses to Water Access License (WAL) that occurred during October 2017.

Table 21 Summary of Annual Volume of Inferred Maximum Groundwater Take for 2019/2020 Water Year

LICENSE	Pit	Limit ML/A	Inferred Groundwater Inflow [ML]																	
			2012-2013	2013-2014	2014-2015		2015-2016		2016-2017		2017-2018		2018-2019	2019-2020						
					WRM inflow pro-rata w/ modelled	Modelled inflow (HS, 2015b)	Pit License Consolidated		Hatch (2017)	Modelled inflow (HS, 2015b)	WRM inflow (2018)	Modelled inflow (HS, 2015b)	WRM Inflow (2019)	Modelled inflow (HS, 2015b)	Licence Consolidated – WAL41862		WRM Inflow (2019)	Modelled inflow (HS, 2020)	SLR Water Balance Inflow (SLR, 2021)	Modelled inflow (SLR, 2020)
20BL173517	Pit 1	1	0	0	6-11	13														
20BL173516	Pit 2	190	<1	<1	4-7	9														
20BL173515	Pit 3	680	38-54	890-1270	210-351	433			1600	1043	1009	1033	815	980			730	797	620	740
	Pit 7		10 to 16#	10 to 16#	20#															
20BL173514	Pit 4	350	136-273	345-695	100-168	207														
20BL176513	Pit 5	800	160-453	140-405	347-579	714														
-	Pit 6	-	Not yet mined (commencement in 2019)																	
Dewatering Bores		770	No pumping recorded at bores												56.1	275.6*				
TOTAL		2,021 (pits) + 770 (bore)	335-780	1380-1794	678-1133	1397			1600	1043	1009	1033	815	980	3,121		786	848	621	740
Full year (or scaled full year) of pumping data assessed: Compliant (based on available pumping data)																				

Notes: # Pit 7 inflow should be considered under the Pit 3 license (680 ML/a) *Volume of water pumped from dewatering bores [ML] for the water year 2019-20

Table 22 Summary of WAL Held by WCPL

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

*Notes: Water entitlement held under NSW *Water Management Act, 2000* is granted in perpetuity. One 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*

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 2019 to 30 June 2020 is 3,121 ML/year. SLR completed a review of estimated groundwater take for the 2019/2020 Water Year (**Table 22**). The following summary is provided from SLR's (**Appendix 3D**) review:

- For the 2019-2020 water year the groundwater model predicts an inflow of 740 ML/a. These estimates are marginally greater than the 621 ML/a estimated by SLR for the 2019-2020 water year (SLR, 2020); and
- Inflows predicted by both the groundwater model (SLR, 2020a) and the independent water balance assessments (SLR, 2020c) are all below the licenced allocation of 3,121 ML/a.

For the 2019-2020 water year the additional alluvial water loss, over and above what occurs naturally, is estimated to be about 0.23 ML/day from Wilpinjong Creek alluvium and about 0.18 ML/day from Cumbo Creek alluvium.

This gives a predicted alluvial groundwater take of about 150 ML/year. WCPL holds 474 ML of groundwater licence from the Wollar Creek Water Source under the Water Sharing Plan for the Hunter Unregulated and Alluvial Sources, 2009. 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 21 & Section 7.2**).
- The volume of water taken in the water year must be recorded (Complied – refer to **Table 21 & 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 2019/2020).

7.4 Water Management System

Water management activities were undertaken during the 2020 review period in accordance with the Mine's water management system outlined in the MOP and the WMP. 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
- Discharge of treated water via a water treatment facility to Wilpinjong Creek in accordance with EPL 12425.

7.5 Erosion and Sediment Control

An erosion and sediment control measures are described in the SWMP (**Table 7**) for the Mine. During the 2020 review 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.

As described in Section 11, there were two reportable incidents in relation to an unauthorised water discharge on the 9 and 19 February 2020. Both incidents occurred during higher than forecast severity and duration rainfall events. An assessment of the potential water quality impacts is provided in **Appendix 3C**. For a summary of the incidents and management measures to prevent further occurrences refer to **Table 36**.

A clean water diversion 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 clean water diversion in Pit 8 will progress with the advancing pit. WCPL has sort (2 March 2021) a variation to EPL12425 to allow the rain water collected by the diversion upstream of Pit 8 to discharge to Wilpinjong Creek under various water quality conditions.

WCPL propose to install a strategic clean water diversion or diversions (dependant on Pit 6 mining sequence) in Pit 6 in the north western area of Pit 6 to reduce surface water from undisturbed water catchments that will otherwise report into the Pit 6 disturbance footprint.

WCPL are scheduled to continue revegetation of the visual bund along the northern boundary of the Mine. Pit 7 and Pit 8 visual bund were hydroseeded in 2020 with native seed (Yellow Box Community). Other sections of the visual bund will be re-vegetated in 2021 as required.

7.6 Surface Water

In August 2020, WCPL completed a review of the SWMP (Version 4) to include ML1795, update figures and text accordingly, provide a status of stage clean water diversions for Pit 6 and Pit 8 and an additional monitoring point upstream of Wilpinjong Extension Project Pit 6 i.e. WILU3. WILU3 is located at Moolarben Coal Operations surface water monitoring site (SW18). At the time of preparing this 2020 Annual Review the SWMP (Version 4) was still pending approval.

A summary of the surface water monitoring program is presented in **Table 23**. A summary of the surface water monitoring results assessed against each relevant water quality impact criteria from the SWMP is provided in **Table 25**. Further water monitoring results for 2020 review period, including figures with surface water quality monitoring locations are provided in **Appendix 3C**.

Table 23 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)	
Cumbo Creek	CC1, CC2 and CC3 ²	Monthly	Field pH and EC, turbidity ³ , and SO ₄
		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	

Monitoring Locations		Frequency	Parameters ¹
	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.

7.7 Harvestable Rights

An assessment of WCPL’s harvestable rights position was undertaken based on WCPL current landholdings, offset areas, current disturbances at the Mine to the end of 2020 and the inclusion of Pit 6 and development of Pit 8 (Table 24). The harvestable rights areas and the rules for capturing rainfall runoff in those areas are specified in Harvestable Rights Order.

Table 24 Harvestable Rights Position 2020

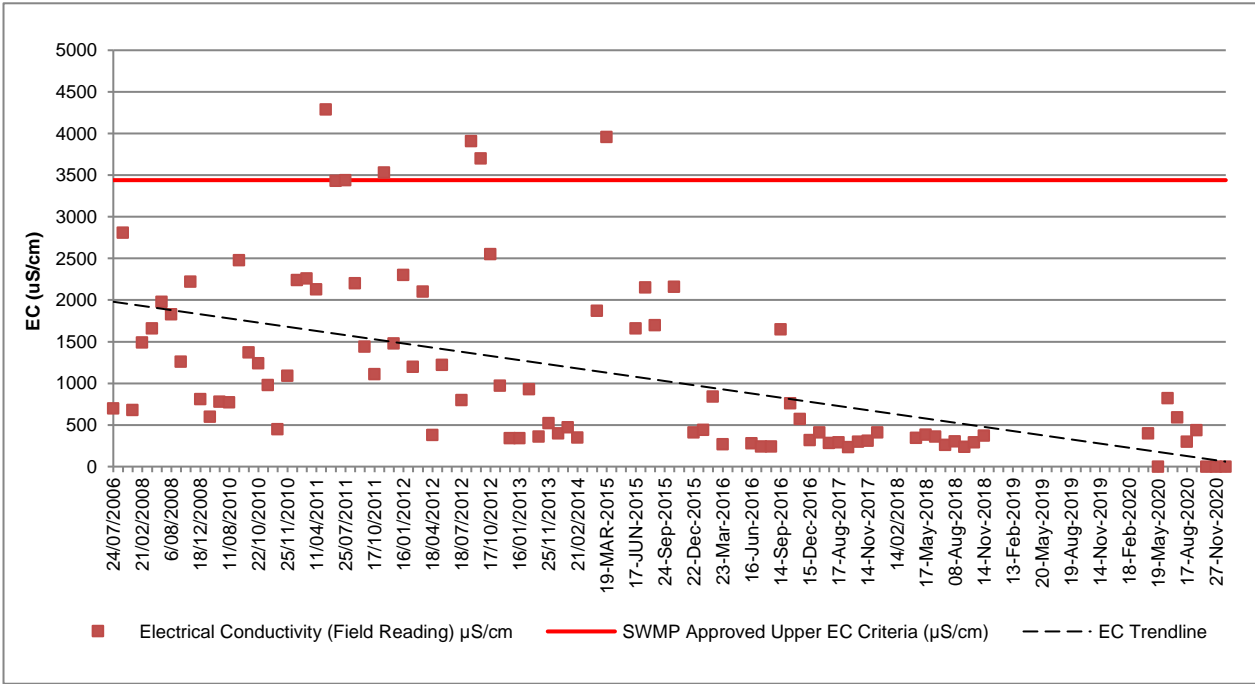
Total Area (ha)	Exempted			Included		Hydrology		Licences		Calculations		
	Undisturbed Catchment diverted externally (ha)	WCPL Project disturbance area limit (ha)	Undisturbed catchment draining internally (ha)	Disturbed catchment area downstream of 3rd order Stream (ha)	Farm Dams (unlicensed) Volume (ML)	Average Rainfall (m)	Runoff Co-efficient	WAL volumes (ML)	Harvestable right (ML)	WCPL Harvested volume (ML)	Surplus position without WALs (ML)	Surplus position with WALs (ML)
20389	425	3050	2022	0	256.0	0.5868	0.1067	150	1427	1522	-95	55

Table 25 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	During the 2020 monitoring period, EC observations at Wilpinjong Creek Downstream monitoring sites are well below the 80th percentile baseline as well as below the trigger level (3440 µS/cm). Overall, the observations seem to reach equilibrium at around 500 µS/cm as the rainfall trend increases in 2020 (SLR, 2021).	WCPL will continue to implement the approved WMP and SWMP in accordance with Condition 30, Schedule 3 of SSD-6764. 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. This review will consider the recommendations made by SLR in their assessment of the 2020 Annual Review for surface water, the relocation of surface water monitoring site SGC1 as it was consumed by mining due to the expansion of mining in Pit 8 in 2020. 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.
	Turbidity (NTU)	24 NTU For 3 consecutive readings	No exceedance of triggers ³	During 2020, turbidity observations at Wilpinjong Creek Downstream monitoring sites are close to the 80th percentile baseline (28 NTU) and trigger level (24 NTU) with 5-10 observations for WIL-D, WIL-D2 and WILGSD above the trigger level in 2020. However, three consecutive readings were not observed above the trigger level in 2020, and the observations are very similar to those recorded at upstream monitoring sites (SLR, 2021).	
	pH (lower)	6.9 pH For 3 consecutive readings	No exceedance of triggers ⁴	During 2020 pH observations at Wilpinjong Creek Downstream monitoring sites are below the lower trigger level at the beginning of the year, before increasing to values within the trigger level bounds. A similar trend was observed at Wilpinjong Creek Upstream monitoring sites, it is likely that the low pH readings are likely to be related to catchment response to the 2019 drought rather than a WCM mine impact	
	pH (upper)	7.7pH For 3 consecutive readings	No exceedance of triggers	During 2020 During 2020, EC observations at Cumbo Creek Downstream monitoring sites are mostly well below the trigger level (7510 µS/cm) with one reading just above 6270 µS/cm at CCGSD. While turbidity observations at Cumbo Creek Downstream monitoring sites in 2020 are mostly above the trigger level (77 NTU) three consecutive observations above the trigger level were not observed. pH observations at Cumbo Creek Downstream monitoring sites during 2020 are mostly within the defined trigger levels band with only a single observation at three sites with a pH below the lower trigger for 2020 (SLR, 2021).	
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	Analysis of the available surface water quality data in 2020 is not indicating observable impacts from WCM mining operations into the adjacent creek lines. Additionally, the water quality impact assessment criteria were not exceeded during this reporting period (SLR, 2021).	
	Turbidity (NTU)	77 NTU For 3 consecutive readings	No exceedance of triggers ⁵		
	pH (lower)	7.5 pH For 3 consecutive readings	No exceedance of triggers ⁶		
	pH (upper)	8.2 pH For 3 consecutive readings	No exceedance of triggers		

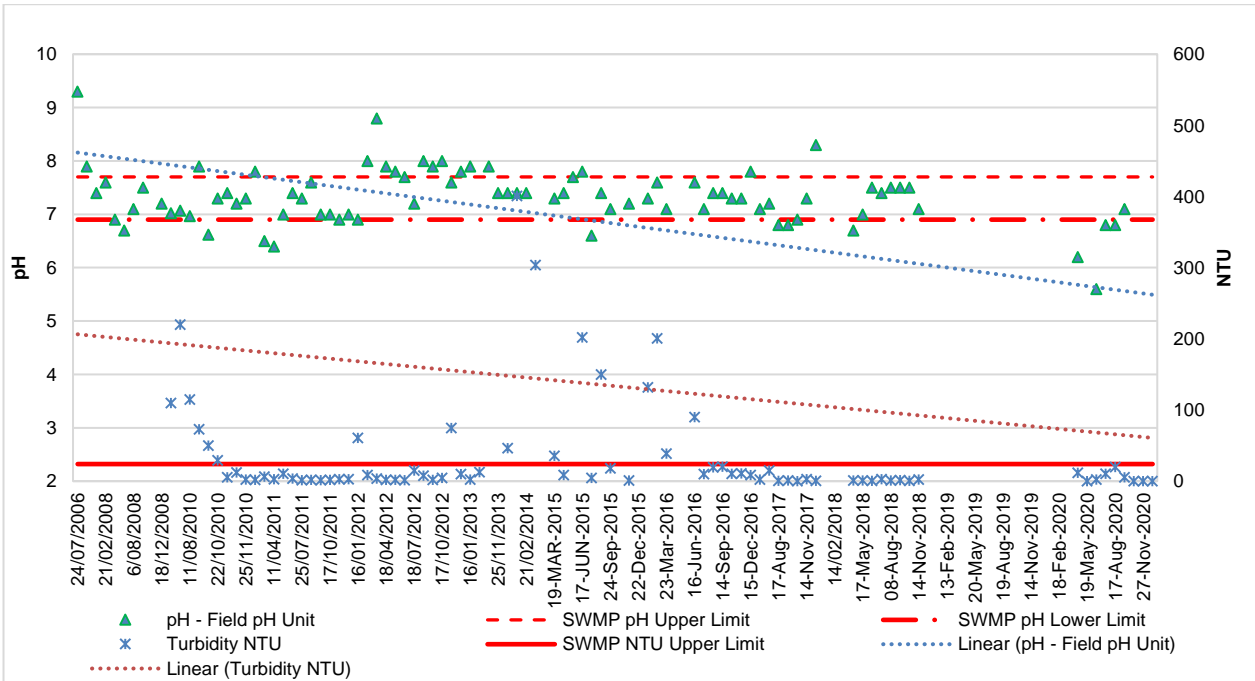
Note: ¹ Trigger is only considered to have been exceeded if the recorded value at monitoring site is greater than (or less than for lower pH Trigger) all values from the upstream monitoring sites sampled on the same day. In the event that a single result is recorded above/below the 80th/20th percentile 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. ³ Three consecutive readings were not observed. Observations consistent with upstream sites. ⁴ Observations below trigger level but consistent with upstream sites. ⁵ Three consecutive readings were not observed above the trigger level during the 2020 monitoring period. ⁶ Three consecutive readings were not observed above the trigger level during the 2020 monitoring period.

Graph 12 Long-term EC Water Quality Results at WIL_NC



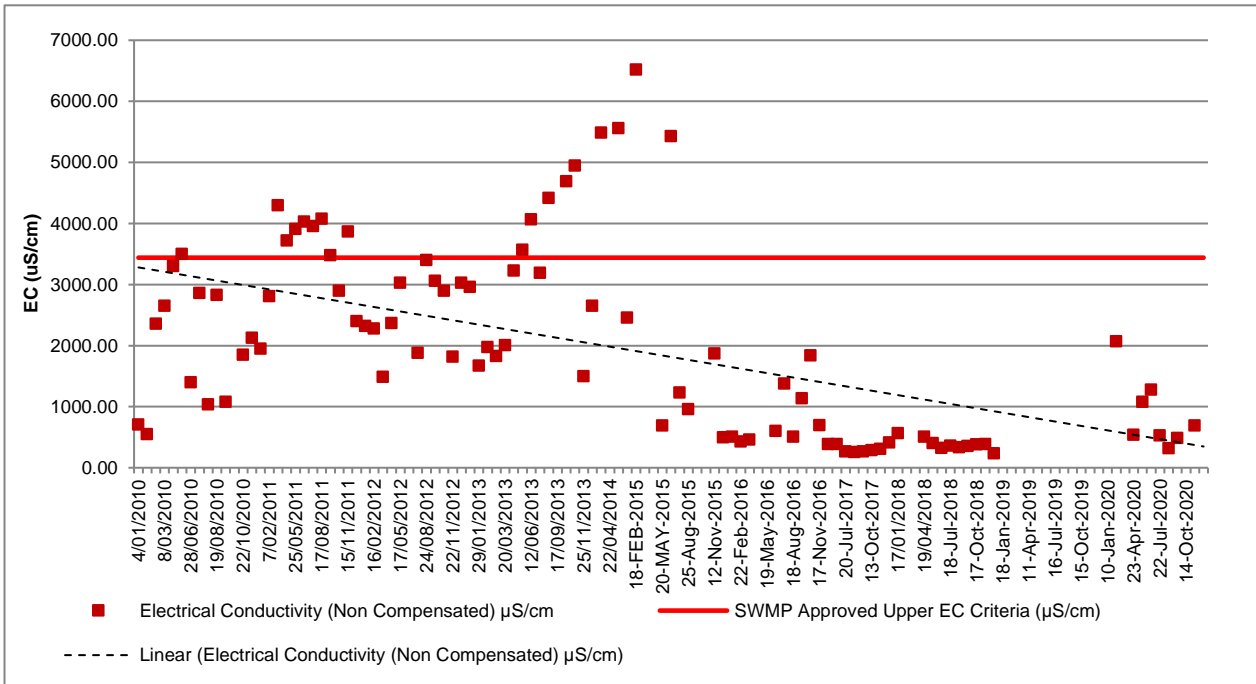
Notes: During the 2020 monitoring period, EC observations at Wilpinjong Creek Downstream monitoring sites are well below the 80th percentile baseline as well as below the trigger level (3440 $\mu\text{S}/\text{cm}$). While historical observations have been above the defined trigger level, these have not been assessed as exceedances related to WCM mining activity. EC observations at Wilpinjong Creek upstream monitoring sites during these periods were also elevated and reasonably consistent with observations at the downstream monitoring sites (SLR, 2021). No available water samples at WIL_NC during the 2019 reporting period were available for sampling due to the prolonged drought conditions.

Graph 13 Long-term pH & NTU Water Quality Results at WIL_NC



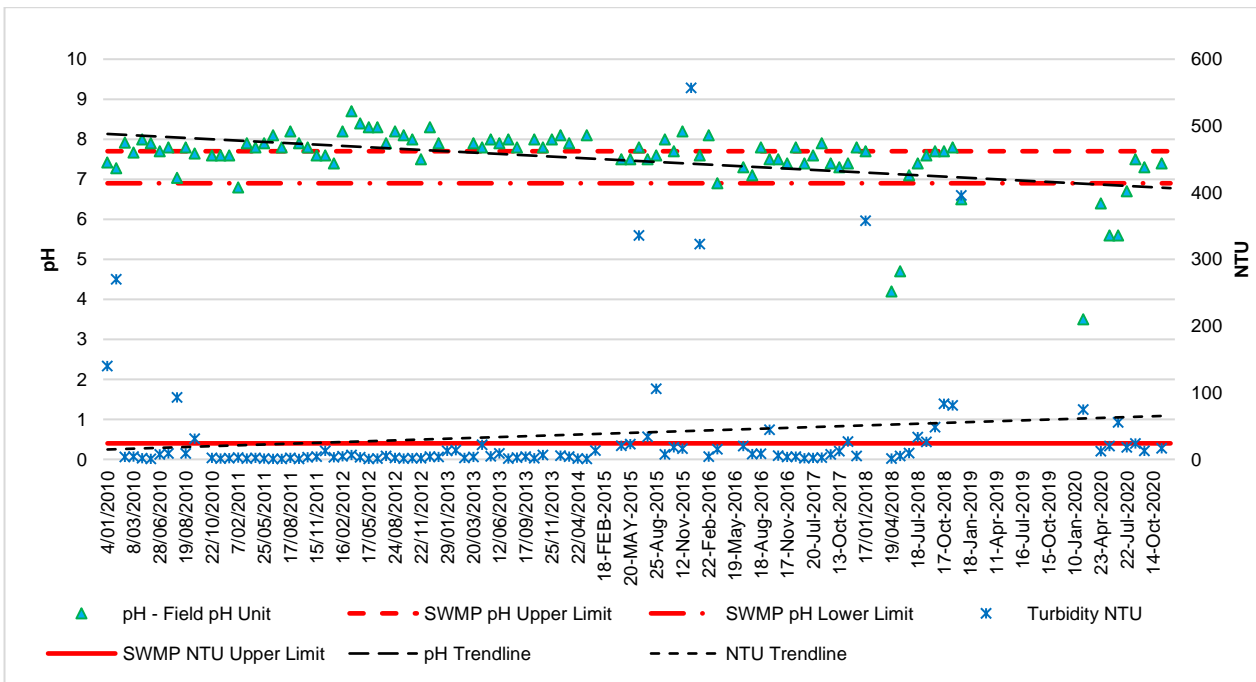
Notes: During 2020 pH observations at Wilpinjong Creek Downstream monitoring sites are below the lower trigger level at the beginning of the year, before increasing to values within the trigger level bounds. A similar trend was observed at Wilpinjong Creek Upstream monitoring sites, it is likely that the low pH readings are likely to be related to catchment response to the 2019 drought rather than a WCM mine impact (SLR, 2021). No available water samples at WIL_NC during the 2019 reporting period were available for sampling due to the prolonged drought conditions.

Graph 14 Long-term EC Water Quality Results at WIL_D2



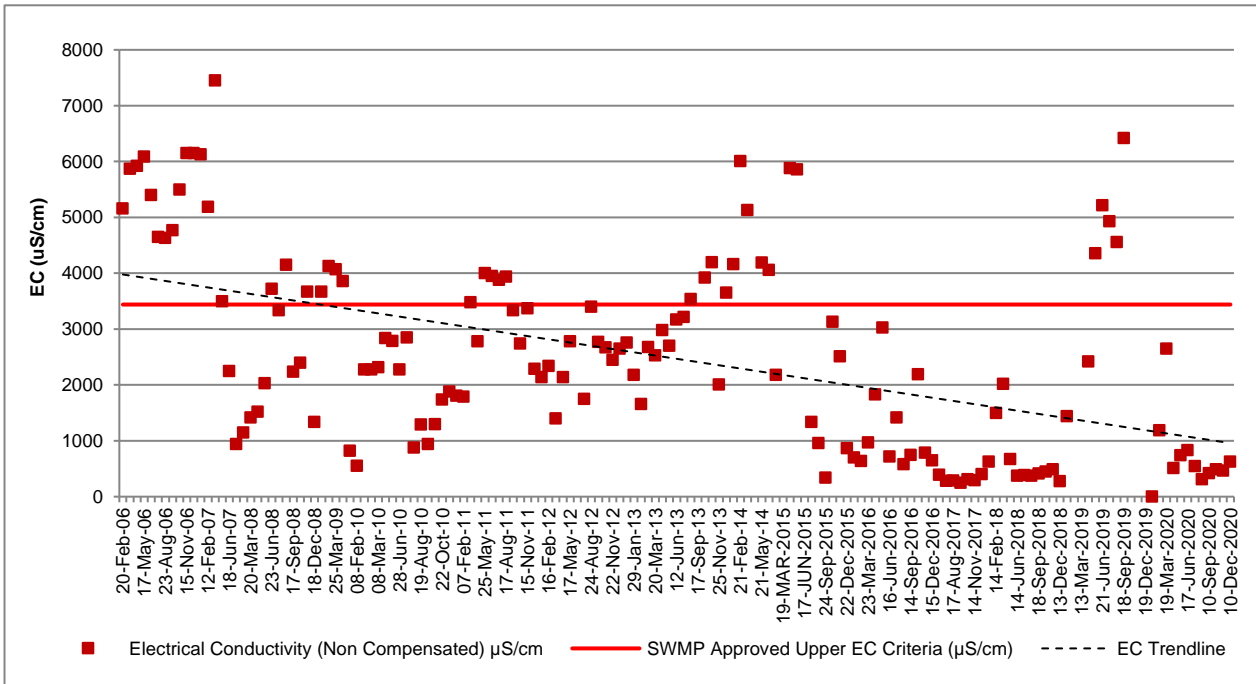
Notes: During the 2020 monitoring period, EC observations at Wilpinjong Creek Downstream monitoring sites are well below the 80th percentile baseline as well as below the trigger level (3440 µS/cm). While historical observations have been above the defined trigger level, these have not been assessed as exceedances related to WCM mining activity. EC observations at Wilpinjong Creek upstream monitoring sites during these periods were also elevated and reasonably consistent with observations at the downstream monitoring sites (SLR, 2021). No available water samples at WIL_D2 during the 2019 reporting period were available for sampling due to the prolonged drought conditions.

Graph 15 Long-term pH & NTU Water Quality Results at WIL_D2



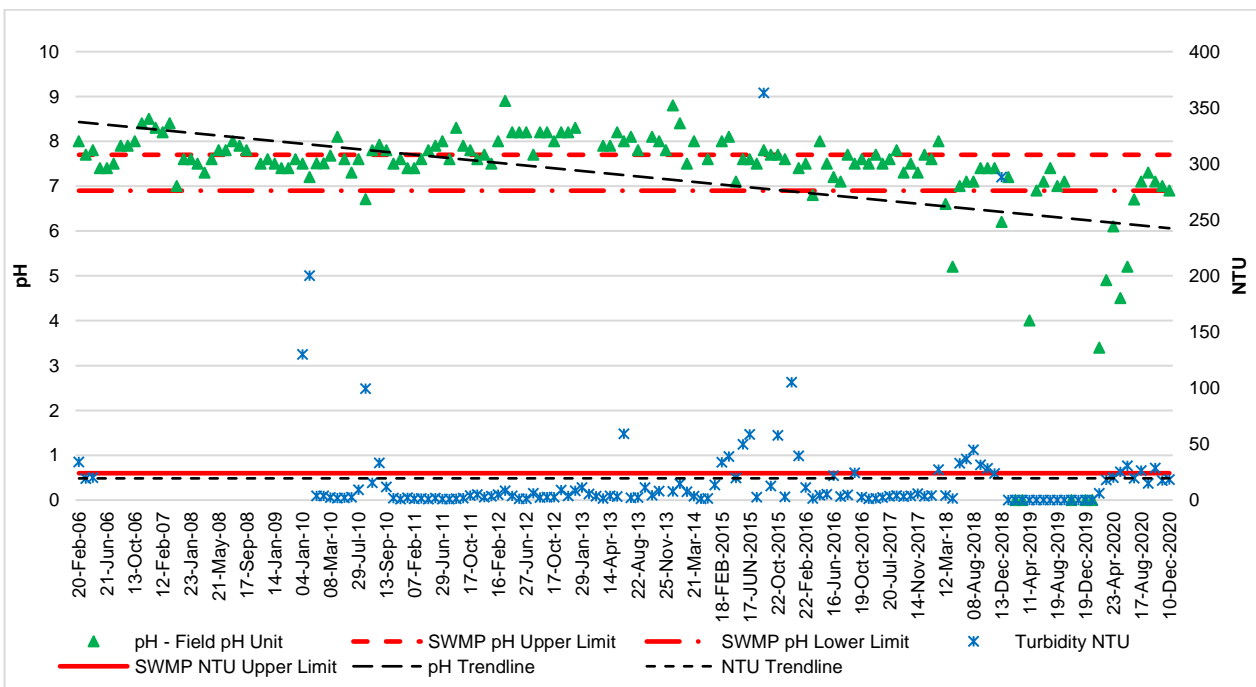
Notes: Three consecutive NTU readings were not observed above the trigger level in 2020, and the observations are very similar to those recorded at upstream monitoring sites. During 2020 pH observations at Wilpinjong Creek Downstream monitoring sites are below the lower trigger level at the beginning of the year, before increasing to values within the trigger level bounds. A similar trend was observed at Wilpinjong Creek Upstream monitoring sites, it is likely that the low pH readings are likely to be related to catchment response to the 2019 drought rather than a WCM mine impact (SLR, 2021). No available water samples at WIL_D2 during the 2019 reporting period were available for sampling due to the prolonged drought conditions.

Graph 16 Long-term EC Water Quality Results at WIL_D



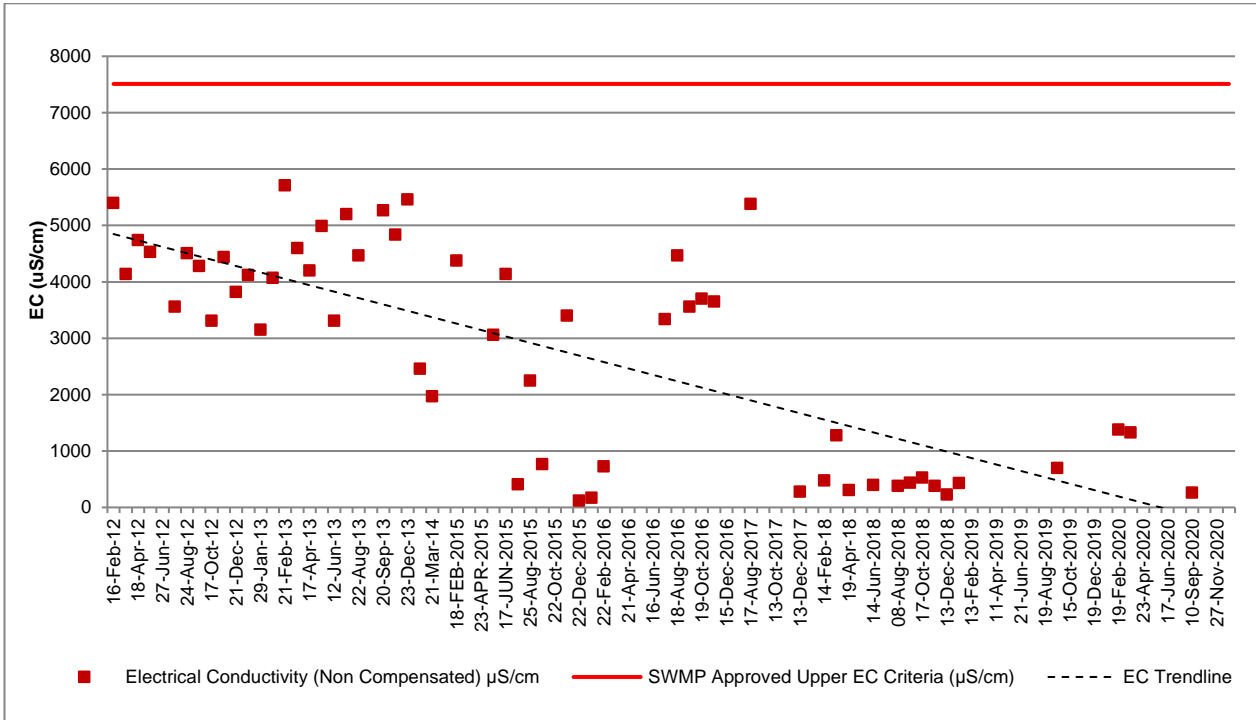
Notes. During the 2020 monitoring period, EC observations at Wilpinjong Creek Downstream monitoring sites are well below the 80th percentile baseline as well as below the trigger level (3440 µS/cm). While historical observations have been above the defined trigger level, these have not been assessed as exceedances related to WCM mining activity. EC observations at Wilpinjong Creek upstream monitoring sites during these periods were also elevated and reasonably consistent with observations at the downstream monitoring sites (SLR, 2021).

Graph 17 Long-term pH & NTU Water Quality Results at WIL_D



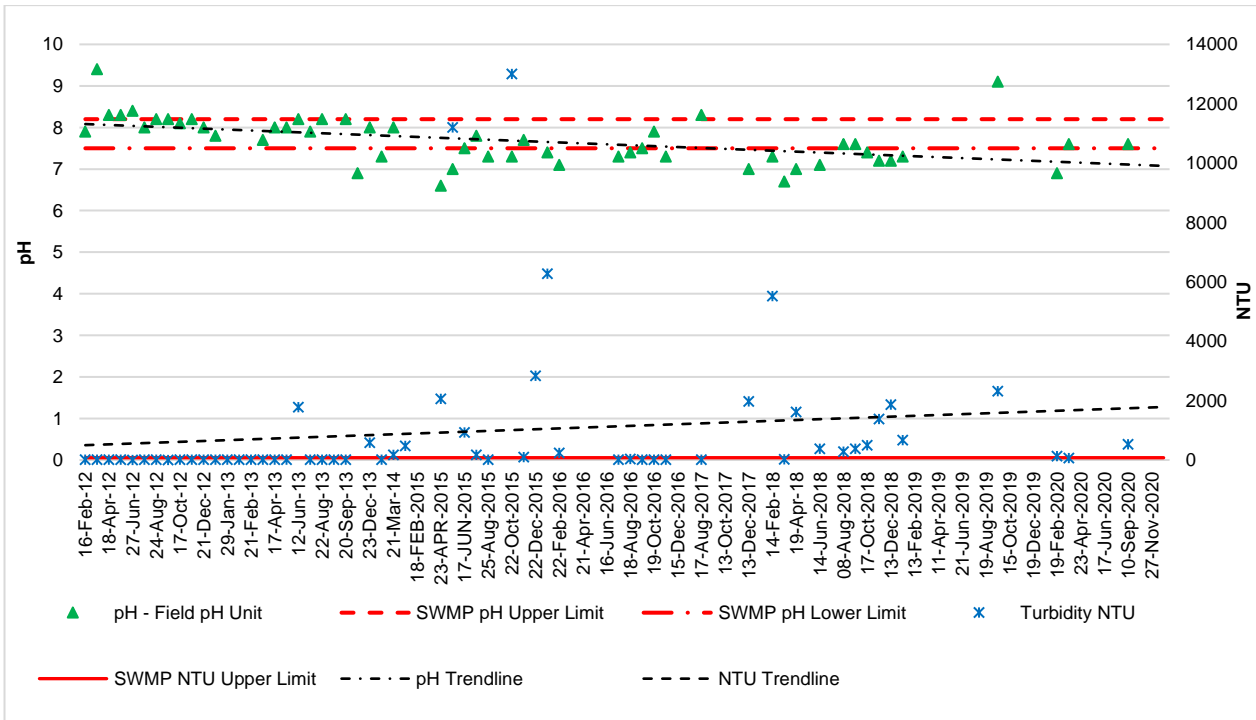
Notes: Three consecutive NTU readings were not observed above the trigger level in 2020, and the observations are very similar to those recorded at upstream monitoring sites. During 2020 pH observations at Wilpinjong Creek Downstream monitoring sites are below the lower trigger level at the beginning of the year, before increasing to values within the trigger level bounds. A similar trend was observed at Wilpinjong Creek Upstream monitoring sites, it is likely that the low pH readings are likely to be related to catchment response to the 2019 drought rather than a WCM mine impact (SLR, 2021).

Graph 18 Long-term EC Water Quality Results at CC_1



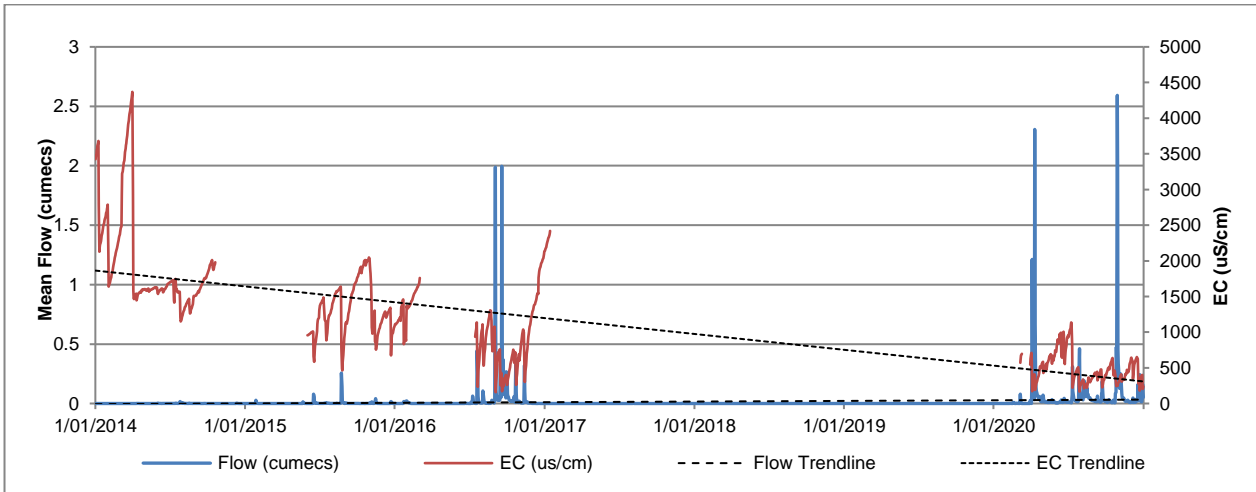
Notes: EC observations at Cumbo Creek Downstream monitoring sites show considerable variation from 2015 to 2020 (<1000 µS/cm to ~6400 µS/cm) but have not recorded an observation above the trigger level since 2015. During 2020, EC observations at Cumbo Creek Downstream monitoring sites are mostly well below the trigger level (7510 µS/cm) with one reading just above 6270 µS/cm at CCGSD (SLR, 2021).

Graph 19 Long-term pH & NTU Water Quality Results at CC_1



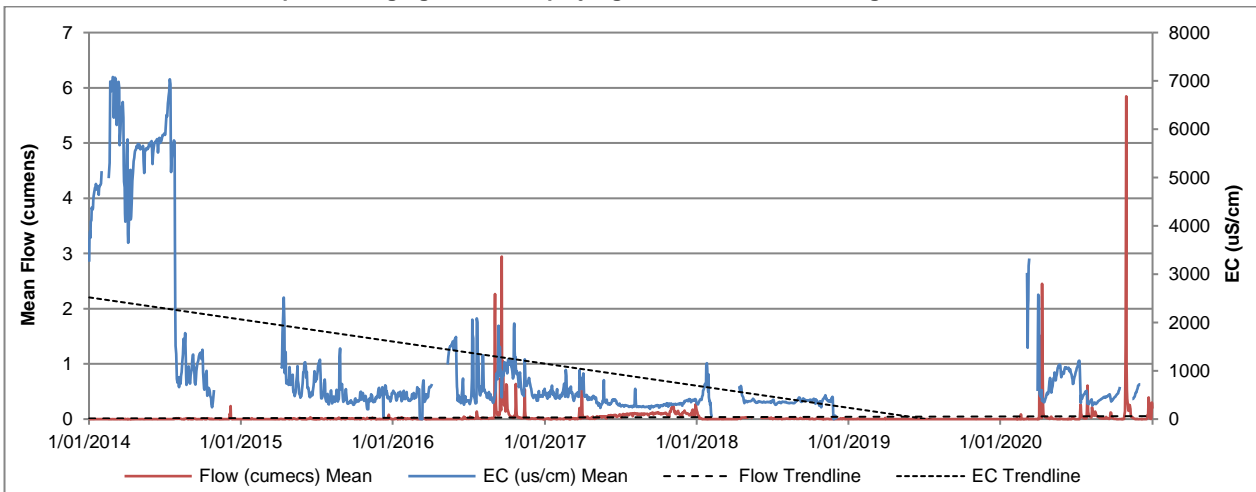
Notes: While turbidity observations at Cumbo Creek Downstream monitoring sites in 2020 are mostly above the trigger level (77 NTU) three consecutive observations above the trigger level were not observed, therefore not constituting an exceedance. The influence of Ulan-Wollar Road or site activity should be investigated further if trigger exceedances continue in to 2021. pH observations at Cumbo Creek Downstream monitoring sites during 2020 are mostly within the defined trigger levels band with only a single observation at three sites with a pH below the lower trigger for 2020 (SLR,2021).

Graph 20 Gauging Station Wilpinjong Creek Upstream Long Term Trends



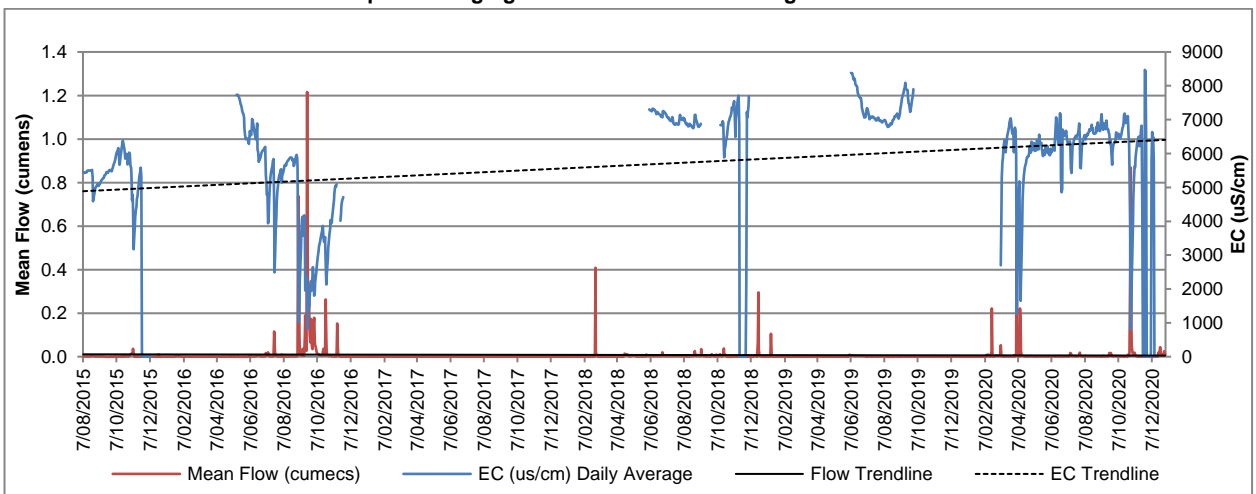
Notes: Flows at both gauges, upstream (WILGSU) and downstream (WILGSD), show correlation with the long-term rainfall trend, with a decline from 2012 to July 2014 as well as 2017 to 2019 (Figure 2) in line with below average rainfall conditions. Flows at both gauges are also observed to increase in late 2016 and from early 2020, consistent with periods of above average rainfall (SLR,2021).

Graph 21 Gauging Station Wilpinjong Creek Downstream Long Term Trends



Notes: Correlation between the flows at the two gauges is high, with essentially a 1:1 relationship until about April-June 2012 when the WTF begins discharging to Wilpinjong Creek. During periods of discharge from the RO Plant, flows at WILGSD are consistently higher than those at WILGSU (SLR,2021).

Graph 22 Gauging Station Cumbo Creek Long Term Trends



Notes: The Cumbo Creek gauging station (CCGSU), which commenced monitoring in August 2015, flow is maintained during for a longer duration during periods of below average rainfall when compared with Wilpinjong Creek gauging stations (SLR,2021).

7.8 Site Water Balance

A Site Water Balance (SWB) (**Table 7**) has been prepared for the Mine. WCPL have developed and continue to maintain a water balance simulation model. The model was updated and converted to Goldsim software in 2020 by SLR Consulting Pty Ltd (SLR, 2020), 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.

WCPL engaged SLR to calibrate the Goldsim model against the 2020 Goldsim output and data collected between January 2018 and December 2020 for the 2020 Annual Review. A summary of the SLR report is provided. For further details refer to the complete report in **Appendix 3C**.

Two scenarios were assessed for the operation of the WTF during the forecast period which required changes to the operating rules within the WBM. Adjustments to the WBM for each scenario are as follows:

- **Scenario 1:** No changes to the WTF were made, operating rules remain consistent with **Section 6**; and
- **Scenario 2:** A second WTF is commissioned and an additional increment to the feedwater flow rate relationship, has been added to allow for the increased capacity of 5ML/d to be discharge when the site inventory is greater than 4,000 ML.

Review of **Scenario 1** shows the following:

- The 1%ile (very dry climatic conditions) results in a total site water decrease to 2010 ML at the end of 2021, 1474 ML at the end of 2022 and 767 ML at the end of 2023;
- The 10%ile (dry climatic conditions) results in a total site water decrease to 1822 ML at the end of 2021, 1460 ML at the end of 2022 and 1695 ML at the end of 2023;
- The 50%ile (median climatic conditions) results in a total site water decrease to 2415 ML at the end of 2021, 2373 ML at the end of 2022 and 2003 ML at the end of 2023;
- The 90%ile (wet climatic conditions) results in a total site water increase to 3172 ML at the end of 2021, 3385 ML at the end of 2022, 2724 ML at the end of 2023; and
- The 99%ile (very wet climatic conditions) results in a total site water increase to 3213 ML at the end of 2021, 4160 ML at the end of 2022 and 4843 ML at the end of 2023.

Review of **Scenario 2** shows the following:

- The 1%ile (very dry climatic conditions) results in a total site water decrease to 1870 ML at the end of 2021, 1366 ML at the end of 2022 and 728 ML at the end of 2023;
- The 10%ile (dry climatic conditions) results in a total site water decrease to 1777 ML at the end of 2021, 1439 ML at the end of 2022 and 1660 ML at the end of 2023;
- The 50%ile (median climatic conditions) results in a total site water decrease to 2382 ML at the end of 2021, 2094 ML at the end of 2022 and 1849 ML at the end of 2023;
- The 90%ile (wet climatic conditions) results in a total site water increase to 2746 ML at the end of 2021, followed by a decrease to 2561 ML at the end of 2022 and 2076 ML at the end of 2023; and
- The 99%ile (very wet climatic conditions) results in a total site water increase to 2695 ML at the end of 2021, 3409 ML at the end of 2022 and 3794 ML at the end of 2023.

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.

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).

In the 2019 reporting period, there were no discharges to Wilpinjong Creek from the WTF.

In the 2020 reporting period discharging recommenced on the 29, 30 and 31 December 2020 with total daily volumes of:

- 29 December 2020: 2.1061ML (EC Max: 425.42us/cm) (pH range 6.66 - 7.47)
- 30 December 2020: 2.1034ML (EC Max: 426.11us/cm) (pH range 6.69 - 7.17)
- 31 December 2020: 0.7886ML (EC Max: 444.84us/cm) (pH range 7.0 - 7.07)
- Grab sampling results for 29 December 2020: (Oil and grease 5mg/L) (TSS <1mg/L)

7.10 Stream Health & Channel Stability Monitoring

Channel Stability Monitoring

In accordance with the SWMMP, channel stability monitoring is undertaken along sections of Wilpinjong and Cumbo Creeks. Channel stability monitoring (CSM) was undertaken in 2020 by ELA (**Appendix 3C**) to provide an assessment of overall riparian stability and health within the Wilpinjong Coal Mine (WCM) and surrounds.

Monitoring was undertaken across a total of 59 permanent monitoring locations – 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 assessments with data from previous years.

CSM results in 2020 were largely consistent with previous years, reflecting continued stability of the target creeks. For Wilpinjong Creek, BEHI ratings remained unchanged at 47 sites and declined at two sites, whilst for Cumbo Creek, ratings remained unchanged at all 10 sites. Site comparisons showed little observable change in the overall morphology of the channels. All sites showed a clear increase in both in-stream and bank vegetation ground cover, as well as in water levels and stream flow.

Identified historical erosion points were monitored in 2020 with sites E2, E4 and E11 experiencing minor active erosion in 2020. Overall, erosion points appear mostly consistent with previous years but require ongoing monitoring. Revegetation of the creek bank adjacent to E6, E7, E8 and E9 utilising native riparian woodland species was completed in 2019 with additional revegetation and remediation works recommended.

The results of 2020 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.

Stream Health Monitoring

Stream health monitoring (SHM) was undertaken during spring 2020 within the WCM surrounding catchments. A total of eleven (11) permanent sites were monitored along Wilpinjong, Wollar and Cumbo creeks, as well as two control sites located along Barigan Creek.

The aquatic habitat assessment recorded mid-range scores, typical of catchments in the region. Results were largely consistent with previous years, with minor differences attributable to changes in stream bed macrophyte and groundcover, as a result of fluctuating water levels and climatic conditions.

Water quality results were recorded across various parameters and consistent with previous years, were outside Australian and New Zealand Environmental and Conservation Council (ANZECC) guidelines across the majority of sites for dissolved oxygen (DO) and electrical conductivity (EC). Water quality results have been shown to fluctuate considerably across monitoring years, during times of variable stream flow levels and at sites both upstream and downstream of the WCM licensed discharge point. As such, these results indicate that natural factors rather than mining operations are key in determining water quality in the catchments surrounding the WCM.

Across all monitoring sites, a total of 20 macroinvertebrate Orders and 56 Families were recorded. Stream invertebrate grade number average level (SIGNAL2) scores increased in 2020, following declines recorded since 2016, in which habitat quality and availability also declined due to prolonged drought conditions. In line with previous years, SIGNAL2 scores were <4.0 for all but two sites, indicative of severely disturbed systems in which the sites are located. The temporal and spatial consistency of these macroinvertebrate results indicates that historical disturbances within the catchments surrounding the WCM and monitored as part of the SHM program, are the main factors responsible for current stream health conditions.

7.11 Groundwater

The GWMP outlines WCPL's Groundwater Monitoring Program (**Table 7**). In August 2020, the GWMP (Version 4) was reviewed and revised with recommendations provided by SLR. A summary of the groundwater monitoring program is presented in **Table 27**. A summary of the groundwater monitoring results against applicable groundwater triggers is provided in **Table 28**. A summary of the groundwater monitoring results for 2020 review 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 27 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 GWA1, GWA2, GWA3, GWA4, GWA5, GWA6, GWA7 ⁵ , GWA8 ⁵ , GWA9, GWA10, GWA11, GWA12, GWA14, GWA15, GWA16, GWA22, GWA32, GWA33 ⁵	12 Hr (logger)	Water level, Pressure, Temperature
		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 GWC1, GWC2, GWC3, GWC4 ⁵ , GWC5 ⁵ , GWC10, GWC11, GWC12, GWC14, GWC15,	Daily (logger)	• Water level, Pressure, Temperature
		Monthly	• Water level, temperature, field pH and EC.

Monitoring Locations		Frequency	Parameters ^{1,2}
	GWc16, GWc17, GWc18, GWc19, GWc20, GWc22, GWc23, GWc24, GWc25, GWc26, GWc27, GWc28, GWc29, GWc30, GWc31, GWc33, GWc32 ⁵ , GWc34, GWc35	Quarterly	<ul style="list-style-type: none"> TDS, Na, K, Mg, Ca, Cl, HCO₃, CaCO₃, SO₄ and Metals (Cu, Zn, Fe, Al, Ni, Mn, Ba, Sr, Pb, As and Se).
Landholder bores, wells and waterholes ⁴		As required	<ul style="list-style-type: none"> 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 2020 review 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 2020 review of key groundwater level and groundwater quality data (**Appendix 3D**) including:

- Reporting against the commitments in the WCM Groundwater Monitoring Program (GWMP)⁹ – 01 January 2020 to 31 December 2020.
- Reporting against water licence conditions for WAL41862 – 01 July 2019 to 30 June 2020 with review of inferred inflows from water balance and groundwater modelling.

It should also be noted that cause and effect analysis and assessment against water level and quality triggers during 2020 has occurred during a year of above average rainfall. Previously, over the period from 2017 to 2019, there was an extended period of persistent dry conditions that made the separation of mining versus climatic effects difficult to analyse and interpret.

Table 29 presents an assessment of applicable trigger level exceedances for the 2020 monitoring period.

Summary of Groundwater Level Data (Alluvial)

The numerical modelling conducted for the Wilpinjong Coal Mine predicts minimal drawdown (approximately 1 m) in the aquifers of the shallow alluvial groundwater system along Wilpinjong Creek. Drawdowns are predicted to be even less pronounced in the more distant alluvial aquifers associated with Wollar Creek. Numerical modelling predicts a substantial reduction in potentiometric head in the deeper porous rock groundwater system (Illawarra Coal Measures) in the near vicinity of the Wilpinjong Coal Mine because of cumulative mining activities. Accordingly, trigger levels for water levels in the coal measures are not considered to be warranted (SLR,2021a).

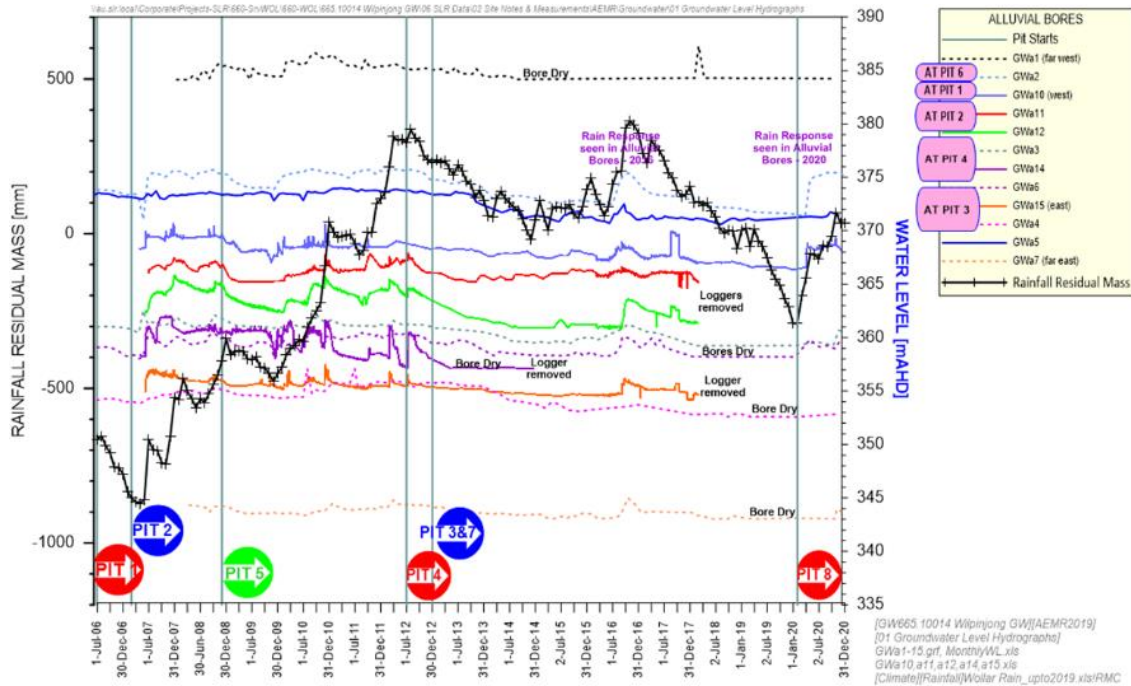
Figure 3 presents the groundwater hydrographs for all alluvial bores from the west (higher elevations) to the east (lower elevations), in relation to the long-term rainfall trend, along Wilpinjong Creek. The groundwater table in the alluvium varies between approximately 385 mAHD and 345 mAHD over approximately 8.4 km, from GWA1 to GWA7, with a hydraulic gradient of 0.5% (0.005). Groundwater responds to this gradient by flowing to the east through the alluvium (SLR,2021a).

Water table rises are evident at most bores in correlation with rises in the rainfall trend. This confirms the expectation that rainfall is an important source of recharge for the alluvial aquifer. Given the proximity of

⁹ Currently approved GWMP (Version 3) August 2017

the alluvium to the elevated Goulburn River National Park (GRNP) to the north, groundwater discharge from the GRNP Narrabeen sediments will provide another stable source of recharge to the alluvium (SLR,2021a).

Figure 3 Transition in Alluvial Bore Groundwater Levels from West to East along Wilpinjong Creek



Based on the analysis of the hydrographs, some mining effects are considered to have occurred, or be ongoing, at the following bores located in the Wilpinjong alluvium and Cumbo Creek alluvium (albeit these effects are minor and therefore are difficult to discern from climatic variations). A mining effect is considered to have occurred when a groundwater level decline occurs outside of normal climatic variation, and in the absence of other known stresses. A lack of increase, or muted response in groundwater level associated with a period of rainfall can also be interpreted as a mining effect at GWA3, GWA14, GWA5, GWA4, GWA15, GWA6, GWA10, GWA11 and GWA12 (SLR,2021a).

In general, alluvial the bores exceeded the water level triggers for the first three months in 2020, before a rapid groundwater recovery above trigger levels from April onwards, to either levels consistent with historical data and/or consistent with approved mining impacts which require no further investigations, including GWA2, GWA3, GWA6, GWA8, GWA10, GWA11, GWA12, GWA14 and GWA15.

GWA32 and GWA34 both have probable mining effects though monitoring has only been present since 2014. Therefore, no pre-mining data is available to determine potential influence of mining at these monitoring locations. GWA32 shows a groundwater level response to rainfall levels in 2020, whereas GWA34 shows no response to rainfall events in 2020. The other bore hydrographs from the Wilpinjong Creek alluvium e.g., GWA2, GWA7, GWA8 show no discernible mining effects. Water levels in GWA2 and GWA7 have recovered by 3.5 m and 1 m respectively across 2020. GWA8 did not shown a significant climate response to the 2017-2019 drought, and groundwater levels in 2020 have not changed noticeably from seasonal variations in earlier years (SLR,2021a).

Summary of Groundwater Quality Data (Alluvial)

Groundwater electrical conductivity (EC) statistics have been computed from 1,680 measurements from April 2006 to December 2020. The median value of the measurements at the 13 monitoring sites is about 2,500 micro Siemens per centimetre (µS/cm). The average for all monitoring sites is approximately 4,100 µS/cm, considerably higher than the median. However, the standard deviation of approximately 3,400 µS/cm is commensurate with the mean. The lowest mean salinity in the alluvium monitoring bores is 1,500 µS/cm at GWA2, whereas the highest mean is 10,600 µS/cm at GWA5. The lowest mean salinity in the coal monitoring bores is 1,200 µS/cm at GWC2, whereas the highest mean is 5,100 µS/cm at GWC5. Overall,

groundwater at alluvial monitoring sites is more saline than groundwater at coal seam monitoring sites. This suggests that the alluvial waters are sourced from Permian sediments and are concentrated through evapotranspiration which is expected to be an active process (SLR,2021a).

7.14 Groundwater Model Verification

The SLR (2020a) modelling predictions are consistent with HydroSimulations (2015) 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). However, substantial drawdowns of more than 2 m are expected at most of the coal monitoring bores.

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 new modelled rainfall recharge series included into the model. The performance of the SLR (2020a) model has improved at GWA3 (Wilpinjong Creek) and GWA6 (Cumbo Creek) where modelled groundwater levels better capture the observed groundwater responses to rainfall recharge after 2015 and in 2020.

Amplitudes and overall base levels are generally well represented for the alluvium monitoring bores along Wilpinjong Creek, for example GWA1, GWA2 (in the west) through GWA10, GWA12, GW14 and GWA15. Groundwater levels along Cumbo Creek are generally well represented in the alluvium (GWA5 and GWA6), although the recent observations at GWA5 are not well replicated by the groundwater model due to an underestimation of Pit 3 and 7 impacts, or unreliable data being collected from GWA5.

Table 28 Groundwater Performance

Location		Approved Criteria		Performance During the Reporting Period			Trend/Key Management Implications	Implemented/ proposed Management Actions
Groundwater Monitoring (Alluvium)				Assessment of Triggers			<p>The persistent dry period that occurred from 2017 to early 2020 had caused bores not impacted by mining, such as GWA7, to go dry and exceed the defined trigger level, as reported in the 2019 AR (SLR, 2020b). Groundwater levels have since recovered across most alluvial bores across WCM, including GWA7, which observed a recovery with groundwater levels being 1 m above the base of the bore at the end of 2020 (SLR,2021a).</p> <p>In general, alluvial bores exceeded the water level triggers for the first three months in 2020, before a rapid groundwater recovery above trigger levels from April onwards, to either levels consistent with historical data and/or consistent with approved mining impacts which require no further investigations, including: GWA2, GWA3, GWA6, GWA8, GWA10, GWA11, GWA12, GWA14 and GWA15.</p> <p>Other alluvial bores which did not display either a significant groundwater recovery and/or may be indicating a greater than predicted drawn down effect, which require further investigations in 2021 to determine if the bore is functioning correctly or understand why observed impacts are potentially greater than predicted impacts including: GWA1, GWA4, GWA5 and GWA7.</p> <p>Only two alluvial bores exceeded the EC criteria in 2020 including GWA5 and GWA7. Both bores are subject to further investigation in 2021 to determine if the bore is functioning correctly.</p> <p>Trigger exceedances for coal monitoring bores are observed in GWc1, GWc2, GWc3, and GWc5. EC triggers for GWc1, GWc3 and GWc5 are recommended to be revised based on 80th percentiles of the full monitoring record at each site. These revised values are well below the values in naturally found in the alluvium and below the guideline value.</p> <p>No exceedances of pH trigger levels were observed during the 2020 AR monitoring period.</p>	<p>WCPL will continue to implement the approved GWMP, monitor and evaluate the groundwater systems over the 2021 review period.</p> <p>In accordance with Condition 5, Schedule 5 of Development Consent SSD-6764, WCPL will review and, if necessary, revise the GWMP within three months of the submission of this Annual Review.</p> <p>WCPL will also consider the recommendations made by SLR to improve the quality of the manually recorded groundwater level data, including: groundwater level loggers are reinstalled in the monitoring bores where they have previously been removed; and GWA4, GWA5, and GWA7 undergo further investigation to determine if they are functioning correctly and are representative of the aquifer they are monitoring</p>
	Water Levels (mAHD)	EC (µS/cm)	pH (range)	Water Level (mAHD)	EC (µS/cm)	pH		
GWA1^	-	12,272	6.5 - 8	#	No data in 2020			
GWA2	373.4	2,280	6.5 - 8	Y	✓	✓		
GWA3	360.5	1,970	6.5 - 8	Y*	✓	✓		
GWA4^	353.8	2,596	6.5 - 8	Y*	No data in 2020			
GWA5	372.8	13,926	6.5 - 8	Y	Y	✓		
GWA6	-	6,720	6.5 - 8	#	✓	✓		
GWA7	-	10,126	6.5 - 8	#	Y	✓		
GWA8	353.3	2,898	6.5 - 8	✓*	✓	✓		
GWA10	367.1	#	#	Y	#	#		
GWA11	365.2	#	#	Y*	#	#		
GWA12	362.3	#	#	Y	#	#		
GWA14^	358.0	#	#	Y*	#	#		
GWA15	355.0	#	#	Y*	#	#		
Groundwater Monitoring (Coal)								
GWc1	#	2,844	6.5 - 8	#	Y	✓		
GWc2	#	1,290	6.5 - 8	#	Y	✓		
GWc3	#	3,304	6.5 - 8	#	Y	✓		
GWc4	#	2,412	6.5 - 8	#	Y	✓		
GWc5	#	4,798	6.5 - 8	#	Y	✓		
Groundwater Production Bores								
GWs10	346	#	#	✓**	#	#		
GWs11	348.5	#	#	Y	#	#		
GWs12	332.5	#	#	Y	#	#		
GWs14	319.5	#	#	✓	#	#		
GWs15	314.5	#	#	✓	#	#		

Notes: GWA1 and GWA7 both had 'dry' observations prior to mining. No effective trigger level could be developed for these bores. No trigger defined in GWMP for GWA6. *Historical observations at these groundwater bores have indicated SWLs that represent less than 1 m of head in the bore. Therefore, these bores could go dry without indicating a mining effect that exceeds the predicted 1 m drawdown. (✓) Represent no trigger exceedance, # = Not applicable, Y= Yes (trigger exceedance recorded), ^ Bore was dry or near dry most of 2020, **No Pumping from Bores in Water Year 2019/2020

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 (**Table 33**) were established as a way of providing stabilisation and soil improvement during this transition. Of the historical completed landforms to date (**Figure 6**) 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 Summary of Performance

The relevant MOP for the 2020 Annual Review period was a two-year MOP (as amended), which outlined WCPL's forecasted rehabilitation commitments for calendar years 2019 and 2020. At the completion of the MOP at 31 December 2020, a total of approximately 259ha of waste rock emplacement areas was rehabilitated. A summary of the rehabilitation performance against the previous MOP forecast rehabilitation is provided in **Table 29** and displayed in **Figure 6**.

A new MOP for 2021 to 2022 was approved by the DPIE-RR on the 20 January 2021. Mining and progressive rehabilitation activities over the term of this MOP are shown in Plans 3A to 3B. During the new MOP term, WCPL are scheduled to rehabilitate selected areas of waste rock emplacements areas (i.e. Domain 5) located in Pit 1, Pit 2, Pit 3, Pit 4, Pit 5, Pit 6, Pit 7.

Table 29 Status of Proposed MOP Rehabilitation

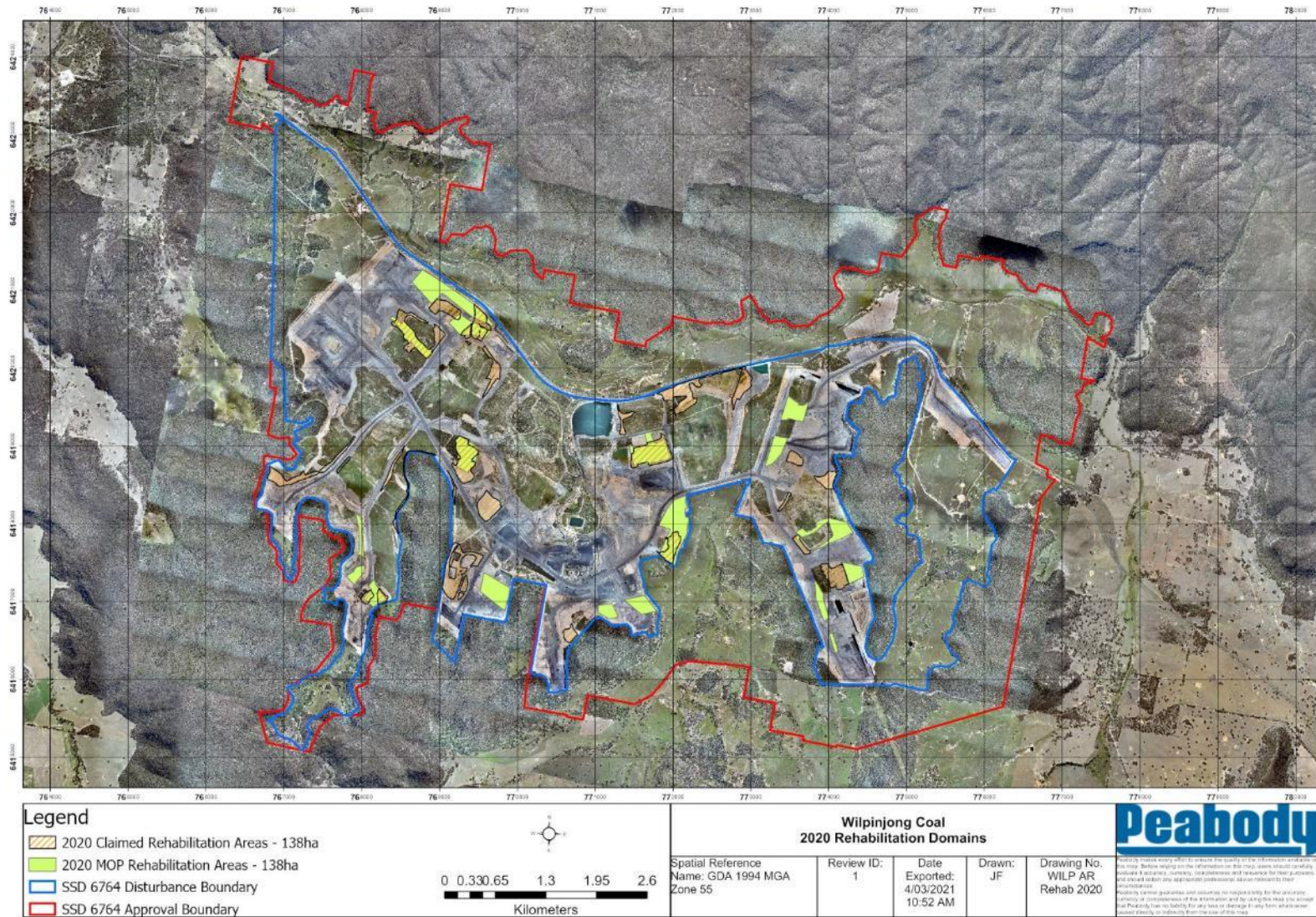
Year	MOP Proposed Rehabilitation	Status of Rehabilitation	Comments
Year 1: 2019	121ha	121ha	Rehabilitation of Overburden emplacement areas in Pit: 1, 3, 4, 5, 6, 7, TD3 and TD4*
Year 2: 2020	138ha	259ha	Proposed rehabilitation of overburden emplacement areas in Pit: 1, 2, 3, 5, 6, 7 and TD5*.

Note: * Although previously rehabilitated, required additional rehabilitation activities in some areas.

Figure 4 Annual Rehabilitation Status 2008-2020



Figure 5 Rehabilitation Forecast Vs Actual 2020



There were only minor changes to rehabilitation areas completed in 2020, as proposed in Year 2 (Plan 3B) of the MOP (2019). These changes relate to variances in the completed rehabilitated surface areas at several rehabilitation locations, which did not affect the total hectares completed against the hectares proposed in the MOP (**Figure 7**) and considered generally consistent with the rehabilitation scheduled and targets proposed in the MOP for Year 2 (Plan 3B). WCPL consider the approved rehabilitation program proposed in the 2019-2020 approved MOP has been achieved for Year 2.

As displayed in **Table 30**, approximately 815ha of completed landforms have been rehabilitated as of the 31 December 2020 (**Figure 6**). No rehabilitated landforms are yet considered ready for formal sign off by the DRG in terms of meeting the relevant completion criteria as provided in the MOP. 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 30 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)	Next Reporting Period (Forecast)
A. Total Mining Lease footprint (ha)	2857.34	2857.34	2857.34	2857.34	3725.30*	3725.30*	3725.30*
B. Total active disturbance (ha)	1148.6	1147.4	1297.4	1441.2	1627.2	1795.2	1937.3
C. Land being prepared for rehabilitation (ha)	43	70	82	98	121	138	86
D. Land under active rehabilitation (ha)	304	374	456	556	677	815	901
E. Completed rehabilitation (ha)	0	0	0	0	0	0	0

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

Other rehabilitation commitments in the MOP term included:

- Construction of the Elevated Waste Dump in Pit 2 to RL450m then back down to RL430m;
- Temporarily vegetating a number of selected batters for several long term mine waste rock emplacement areas including Duffy Dump and Pit C Dump; and
- Commencing a series of upslope water diversion banks.

Due to changes in the long term mine plan, construction of Elevated Waste Dump in Pit 2 to RL450m then back down to RL430m is still unlikely to occur during this MOP term. However Elevated Waste Dump in Pit 2 will continue to receive lower than predicted volumes of overburden material during the MOP term.

Other commitments including temporarily vegetating a number of selected batters for several long term mine waste rock emplacement areas were scheduled to occur in 2019, however due to unfavourable ongoing drought conditions the temporary vegetation of the batters was postponed. WCPL are developing an action plan which includes studies such as soil testing on emplacement areas and identifying flora species required to be used in the temporary works, with works to commence in 2021.

A series of upslope clean water diversions (i.e. separation of undisturbed and disturbed area runoff using upslope diversions) in accordance with the approved SWMP have been implemented. For more details refer to **Section 7.5**.

8.1.2 Summary of Rehabilitation Activities During the Reporting Period

The MOP describes the proposed rehabilitation phases within Primary Domains during the MOP term. In accordance with the MOP, landform establishment, growth medium development, ecosystem establishment

was undertaken during 2020 in Domain 5 (i.e. Waste Rock Emplacement Areas) and Domain 6 (i.e. Tailings Emplacement Areas).

Photos of rehabilitation activities during the reporting period are provided in **Appendix 7**. Ecosystem Development in the form of monitoring and minor maintenance activities were completed in Domain 8 and Domain 9.

The following rehabilitation phases during 2020 within Domains 5 and 6 included:

8.1.2.1 Decommissioning

There was no decommissioning of mining related infrastructure activities undertaken at the Mine in 2020.

8.1.2.2 Landform Establishment

All 2020 rehabilitation landforms were designed in accordance with the approved MOP. 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 2020 reporting period were shaped to no greater than 1:6 (10 degrees or 17%) across areas. 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 2020, a combination of approximately 138ha across Domain 5 and Domain 6 of final landforms were completed in preparation for topsoil placement, ripping and seeding.

8.1.2.3 Growth Medium Development

Topsoil placement involved utilising scrapers, dozers and graders to spread to the desired depth. Direct placement was undertaken where possible and conducted by scrapers 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.

In consideration for soil ameliorates required for rehabilitation areas, topsoil sampling was undertaken across all proposed rehabilitation area with results indicating the requirement for ameliorates in all areas.

Soil testing was conducted in 2020 throughout 2020 rehabilitation domains, which indicted deficiencies requiring the application of lime, gypsum 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 0.5t/ha;
- Gypsum 3t/ha; and
- Organic matter 5t/ha.

8.1.2.4 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 method of cover cropping typically dominant with annual cereal pastures was not undertaken in 2020. Areas rehabilitated in 2020 were directly seeded with specific native seed species aligning to particular BVTs. These BVT mixes did include a small ratio of cover crops (cereals) to provide quick germination, soil stability and structure.

Of the 138ha rehabilitated in 2020, a total of 3 BVT's were established onsite with specific BVT seed mixes, these included;

- HU697 – Mugga Ironbark – Black Cypress Pine Shrub/Grass Open Forest – 9.66ha
- HU732 – Yellow Box Grassy Woodland – 39.25ha
- HU824 – White Box – Black Cypress Pine Shrubby Woodland – 89.09ha

Thirty-three hectares of existing rehabilitation was reworked in 2020 to convert from cover crops and improved pasture species to a specific BVT aligning with WCPLs Performance and Completion Criteria. This was achieved by a Drone Native Seeding Trial, with land prepared via spraying, fertiliser application and tilling prior to seeding. The seed mix spread was specific to the BVT HU732 Yellow Box Grassy woodland which was cleaned, coated with fertilisers and microbes and applied aerially via a drone (**Section 8.1**).

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 31 Typical BVT Seed Mix Rates

Pasture Species	Average Rates (kg/ha)
HU697	23kg
HU732	30kg
HU824	25kg

8.1.2.5 Ecosystem Sustainability

During 2020, Ecosystem Sustainability activities occurred across Domain 8 (i.e. Rehabilitation Areas Pre-MOP) 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 to Approved WEP 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. WCPL has developed measurable, quantitative interim Completion Criteria that will support the agreed final land use for the Mine. Performance Targets have been developed to ensure that the Mine is progressing towards the Completion Criteria and overall mine closure objectives and are outlined in the Biodiversity Management Plan (BMP).

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

Landscape Function Analysis

During 2020, WCPL undertook monitoring in accordance with the current BMP. The complete report and result are attached as **Appendix 5**, a summary of the LFA results from 2020 include:

- Six LFA monitoring sites are located within rehabilitation areas, including R6; R8; R9; R10; R11 and R13. The LOI and SSA results for the sites are presented in **Appendix 5**.
- Spring 2020 monitoring results indicate that all Rehabilitation Area transects with exception to R11 experienced an increase in LOI scores in comparison to 2019 results.
- Increases are likely the result of greater perennial ground cover resulting from increased rainfall in 2020.
- The Soil Stability scores recorded at sites R6, R8, R9, R10, R11 and R13 exceeded the Completion Criteria.
- The Soil Infiltration and Nutrient cycling scores for all the Rehabilitation Area transects were below the Completion Criteria, although R11 and R13 recorded increases in 2020.
- Most sites recorded relatively high LOI scores (>0.80), indicating stable, functioning landform covered predominantly by perennial vegetation cover. LOI scores below 0.80 were recorded at sites R6 and R10, although R6 has more than doubled compared to 2019.
- Infiltration and Nutrient cycling indices were lower, with no site achieving the Completion Criteria target. Sites R13, R11 and R4_100 achieved the annual incremental increase for Infiltration, with site R11 also meeting the annual incremental increase for Nutrient cycling.

Assessment against Rehabilitation BVT Benchmarks

Vegetation monitoring results for the Rehabilitation Areas were assessed against the WCPL Rehabilitation Performance Criteria and the OEH BVT Benchmarks. 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.

Tables 32 & 33 present the individual site attribute and site value scores for each 2020 rehabilitation monitoring site. **Tables 32 & 33** presents both comparison of sites against the approved WCPL BVT Performance Criteria and presents comparison of sites against OEH BVT Benchmarks (taken from OEH 2017). A colour coding system has been applied to all site attribute results:

- **GREEN** indicates site attributes that have met the relevant PTs (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.

Table 32: Assessment against 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-Good-Medium	50	15	0.2	3.2	2	0	2	14	0	0	0
	Spring	R8	Low	32	6	0	0	0	0	24	56	0	0	0
HU732	Spring	R10	Mod to Good-Good	64	15	0	0	2	2	8	34	0	0	5
	Spring	R11	Mod to Good-Poor	44	23	0	14.5	0	0	2	34	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 23 April 2019, and is incorporated into the BMP

Table 33: Assessment against OEH 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	14	15	0.2	3.2	2	0	2	14	0	0	0
	Spring	R8	Low	14	6	0	0	0	0	24	56	0	0	0
HU732	Spring	R10	Low	19	15	0	0	2	2	8	34	0	0	5
	Spring	R11	Low	24	23	0	14.5	0	0	2	34	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 OEH (2017)

With the exception of one site, R8, all rehabilitation sites surveyed in 2020 met the Moderate to Good SVS. All sites met the performance criteria for Native Species Richness (NSR) and most sites met the other criteria, however, none of the sites met the benchmark for Native Overstorey Cover (NOC), which is to be expected, as canopy species present in these sites have not yet reached maturity. R8 was slightly high for exotic cover and low in native grasses, and accordingly was the only site to be classified as LOW condition in 2020. Comparison against the Rehabilitation Performance Criteria is temporary until sites are reworked to adhere to their target BVT and finalised Performance Criteria are established using locally established Reference site data.

None of the sites met the SVS when assessed against the relevant OEH BVT Benchmarks, with NOC, Native Ground Cover Grass (NGCG), Number of Trees with Hollows (NTH), Overstorey Regeneration (OR) and Fallen Logs (FL) not met for most sites. All sites except for R11 with a score of 56% recorded less exotic species than the maximum allowable under the benchmark. Comparison against these BVT Benchmarks is temporary until sites are reworked to adhere to their target BVT and compared against local benchmarks developed from Reference sites.

8.1.3 Summary of Rehabilitation Activities Next Reporting Period

WCPL are scheduled to complete and rehabilitate a total of 86ha of mine waste rock emplacements during 2021 (Year 1) (Domain 5) within Pit 1, Pit 2, Pit 3, Pit 4 Pit 5 and Pit 7 (**Appendix 8**). 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.

The rehabilitation progress against the MOP will provided in the next Annual Review.

8.2 Other Rehabilitation Activities

Ozothamnus tessellatus

WCPL commenced undertaking a seed collection campaign in late 2018 to harvest *Ozothamnus tessellatus* seed from areas within WCPL owned land. *Ozothamnus tessellatus* is listed as 'Vulnerable' under both the TSC Act and EPBC Act. Seeds of the threatened *Ozothamnus tessellatus* will be collected and propagated for use in the Rehabilitation and Regeneration Areas in accordance with the BMP.

WCPL also collaborated with the University of Wollongong (UoW) to assist with seed collection and research on this data deficient species. UoW was contracted by the Australian Botanic Gardens to assist with seed collection of this species and to undertake scientific research on the species such as propagation trials and viability testing. WCPL will continue to assist UoW in this study.

Propagation trials commenced in 2019 by WCPL in germination trays with various soils and treatments. As this species produces thistle-type seeds, tube stock is anticipated to be the most appropriate method for propagation. In summary:

- 3 grams of *Ozothamnus tessellatus* seeds were harvested in 2019;
- 1 gram of *Ozothamnus tessellatus* seeds were sown to grow seedlings in 2019 (**Photo 4**);
- On 26 September 2019, 30 *Ozothamnus tessellatus* seedlings were planted in ECA_C;
- Grazing pressure from native/feral animals and the ongoing drought resulted in 100% mortality; and
- Seed Collection in 2020 did not occur due to the source plants not flowering or producing a nondetrimental harvestable quantity. Harvesting the small available seed would have been detrimental to the local seed source and such a practice would have been against industry standard and FloraBank guidelines.
- Seed collected in 2019 was stored for propagation and planting trials in 2021.



Photo 4 *Ozothamnus tessellatus* propagated seedlings 2019

Microbes

WCPL is investigating the use of microbes within areas which have had green manure crops and pasture species established. WCPL believes this is a natural beneficial process in assisting to break down newly created organic matter leading to building an improved soil structure. Initial testing has been completed with results indicating levels of initial rehabilitation and activity, in response to recent disturbance

Tree Planting

Throughout 2020 a total of 10,875 tubestock were planted across various land management domains (new and replacement), specifically Enhancement and Conservation Areas (ECA) A, ECA B, Regeneration Area 2, Regeneration Area 4 & Regeneration Area 5.

770 replacement plantings were conducted in ECA B subsequent to an observed 50% mortality of plants planted in 2019 due to drought stress and intense grazing pressures from native and feral animals.

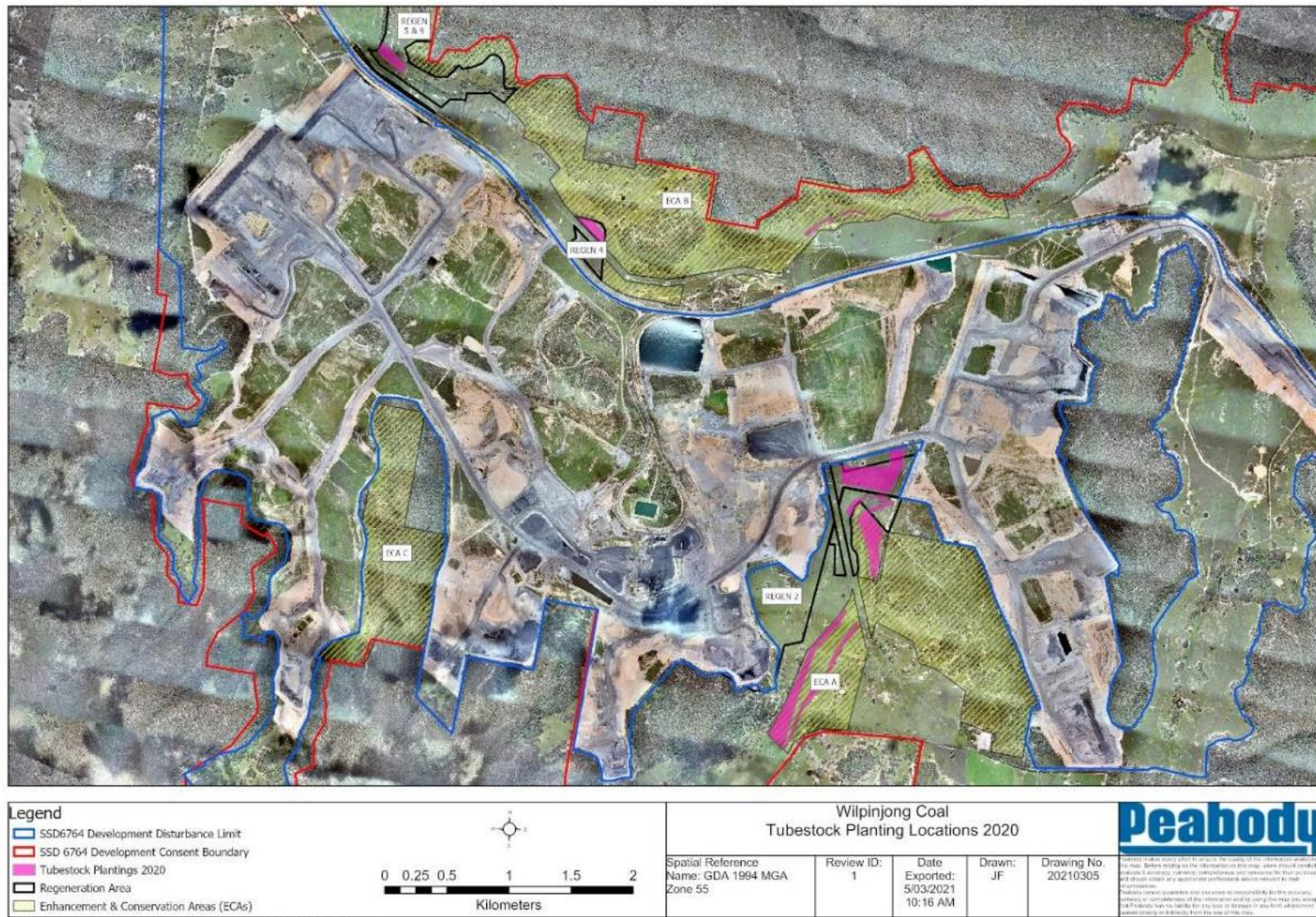
Tubestock were planted adjacent to Cumbo and Wilpinjong Creeks to enhance landscape stability and enhance ecological resilience. A collective total of 5kms (or 34ha) of creek bank was rehabilitated subsequent to these works throughout 2020. With 1km planted along Wilpinjong Creek (**Figure 8**) & (**Photo 5**).

Planting locations aligned with the three-year management schedule as documented within Appendix 6 of the WCPL Biodiversity Management Plan (BMP). Species planted in 2020 included, *Acacia decora*, *Acacia implexa*, *Allocasuarina luehmannii*, *Angophora floribunda*, *Casuarina cunninghamiana*, *Eucalyptus blakelyi*, *Eucalyptus melliodora*, *Lomandra longifolia*

Photo 5 Regeneration Area 2 – Tubestock Planting in 2020



Figure 6 2020 Tubestock Planting Locations



Habitat Augmentation

To meet the requirements of the BMP, WCPL continued with the relocation of surplus trees removed from the mining footprint for mine site rehabilitation and re-establishment as log habitat. Logs were also imported to site sourced from the Mid-Western Regional Council (MWRC) Wollar /Munghorn Gap Road Upgrade Project.

Photo 6 Log Stockpiles on Site



Photo 7 Logs spread on Rehabilitation



Drone Seeding Trial

A total of 33ha of existing rehabilitation under cover crop and improved pastures conforming to previous Project Approval (PA05_0021) rehabilitation criteria was reworked in 2020 to transition to the current SSD_6764 Biodiversity Offset Strategy and Rehabilitation Performance and Completion Criteria. The native seed mix conformed to BVT HU732 – Yellowbox Grassy Woodland species. Prior to seeding the trial area, the site was prepared, and soil ameliorants applied. Logs were also spread across the trial area to provide habitat features within the area and also assist with site stability. Seed applied to the 33ha was inoculated with microbes and fertilisers and coloured for ease of identification. Monitoring is to continue throughout 2021.

Photo 8 Drone Seeding Trial



Photo 9 Seed Coated and Distribution on Ground



Existing Rehabilitation Areas - Tree Thinning

Parcels of WCPL rehabilitation areas are densely vegetated with trees and shrubs which were established prior to the approval of SSD-6764. These areas were rehabilitated to provide woodland corridors and link the Munghorn Gap Nature Reserve to the Goulburn River National Park.

WCPL has the opportunity to transform these existing woodland areas/corridors from current species and community compositions to prescribed BVTs aligning to SSD_6764 Rehabilitation and Offset Strategies. Tree thinning works were conducted subsequent to ecological assessments in some areas in efforts to remove undesirable species and convert to a specific BVT. These works will continue based on further ecological assessments planned for 2021.

Photo 10 Tree Thinning Works



Sapling Transplant Trial

Existing woodland rehabilitation established onsite comprises of multispecies and are not classified as specific vegetation communities. Conforming to the SSD-6764 Rehabilitation Strategy and BMP Performance and Completion Criteria, 45 *Eucalyptus albens*, were identified as a trial to be transplanted from one area of rehabilitation to another to align to final landform and final vegetation community placement on rehabilitation.

Further to salvaging established trees within rehabilitation, 20 *Eucalyptus albens* saplings were transplanted from pre-strip areas in Pit 8 to an area on the mine site as a trial to determine feasibility and compare translocation results to trees translocated from mining rehabilitation.

The trial aims to establish a variety of ages and heights in stratum within the rehabilitation areas which would be eventually seeded and reworked to transform from either cover crops or improved pastures consistent to SSD-6764 Performance and Completion Criteria.

Photo 11 Sapling Transplant Trial



Native Seed Collection and Propagation

During the 2020 reporting period WCPL collected a variety of BVT species (where available) including *Dodonaea viscosa*, *Acacia implexa*, *Acacia decora* and *Acacia ixiophylla*. Approximately 5000 of the following species were propagated at a local nursery in Wollar including *Eucalyptus melliodora*, *Angophora floribunda*, *Acacia decora* and *Acacia implexa*.

Photo 12 *Dodonaea viscosa* (Hop Bush)

8.3 Land Management Activities

Pest and Weed Management

WCPL completed pest management works on WCPL owned properties during 2020 including BOA's, Regeneration and ECA areas. Activities included:

- Feral pig trapping along Cumbo Creek within ECA A.
- Fox and wild dog control was conducted in conjunction with the local wild dog group and Local Land Services control programs. Wild Dog trapping was undertaken in ECA B and in areas adjacent to BOA 2;
- Aerial dog bating. This program was coordinated by Local Land Services (LLS) as a result of know wild dog activity in the local area; and
- Lessees across the broader company landholdings also continued with ongoing vertebrate pest management.

WCPL completed a Weed Monitoring program in 2020, which identified various weed infestations across BOAs, ECAs and Regeneration Areas. WCPL continued with an extensive weed spraying program throughout 2020 of which incorporated and targeted species and locations identified in the monitoring program, regular internal inspections and annual MWRC inspections using selective herbicides.

Weed control and maintenance also aligned with Australian Rail Track Corporation (ARTC) weed control undertaken in adjacent and local areas (**Appendix 7**). Target weed species included Sweet Briar, Blue Heliotrope, African Boxthorn, Prickly Pear, Pattersons Curse, Noogoora Burr, Tree of Heaven; and Blackberry.

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 lines are advertised in local newspapers quarterly, via the Wilpinjong Community Newsletter, via the Wilpinjong Community Consultative Committee and on the Peabody website:

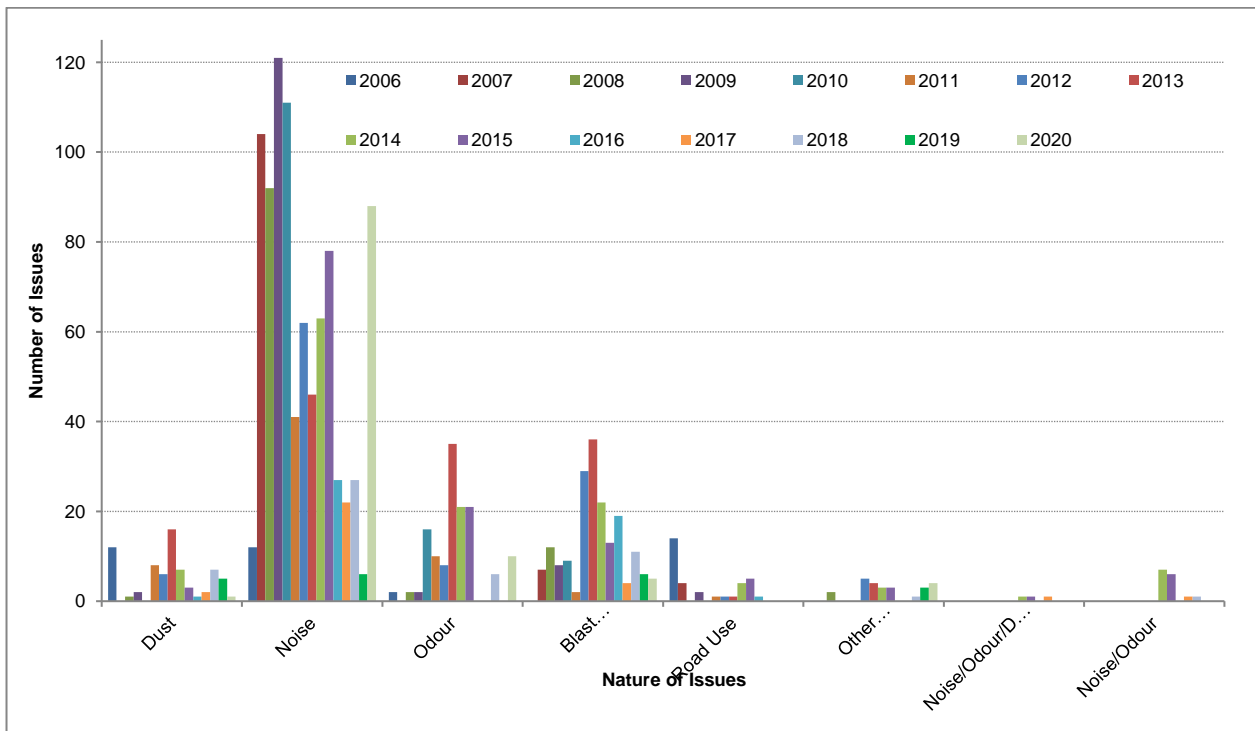
<https://www.peabodyenergy.com/Operations/Australia-Mining/New-South-Wales-Mining/Wilpinjong-Mine>

WCPL records and responds to all complaints and maintains a 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:

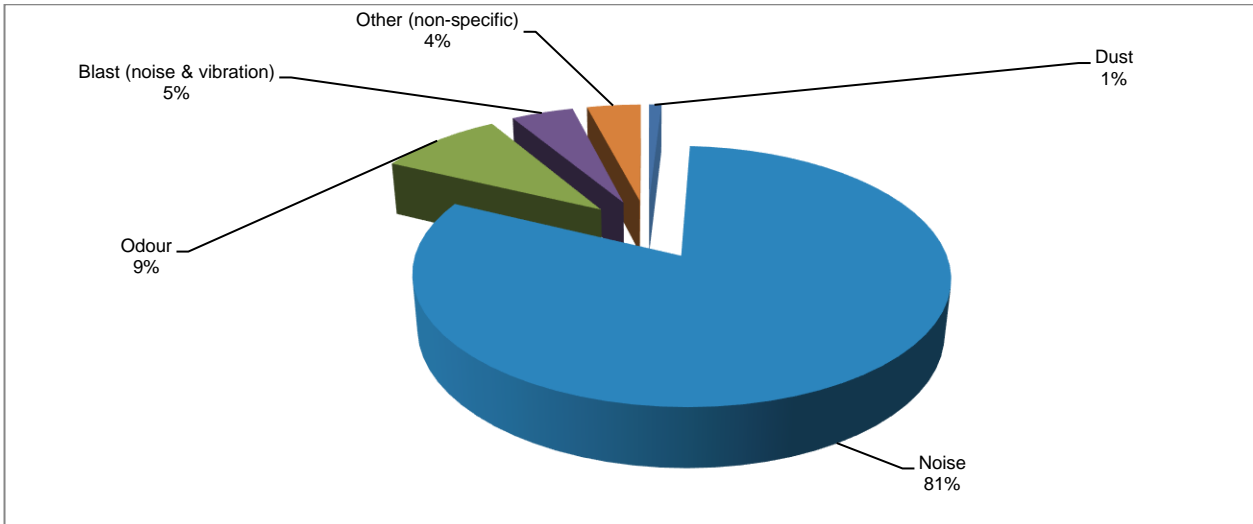
- A summary of complaints received is reported monthly on the Peabody website;
- A summary of complaints received and actions taken is presented to the WCPL CCC as part of the operational performance review;
- A summary of complaints received and actions taken is included in the Annual Review and the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

During the 2020 review period, 108 community complaints were received by WCPL (**Appendix 6**) as opposed to 20 community complaints in 2019. **Graph 23** presents a comparison of the environmental complaints received by WCPL over the period 2006 to 2020.

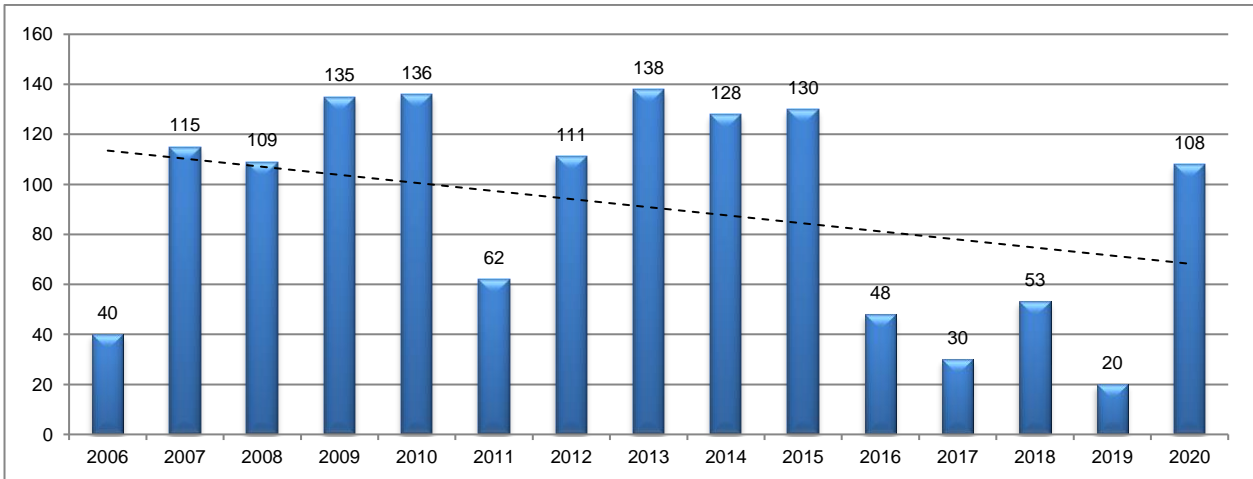
Graph 23 Summary of Community Complaints and Issues Raised by Complainants 2006 – 20120



Graph 24 Percentage Breakdown of Community Complaints in 2020



Graph 25 Total Annual Complaints 2006 - 2020



Community Consultative Committee

In accordance with Condition 7, Schedule 5 of SSD-6764, the Community Consultative Committee (CCC) (**Table 34**) continued to meet during the 2020 review 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. Consultation regarding the WEP was undertaken at the CCC meetings in March, June, September and November 2020.

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 and the WEP. **Table 35** provides a summary of the CCC meetings held during the 2020 review period.

Table 34 CCC Members for the 2020

Name	Organisation
Des Kennedy	Mid Western Regional Council
Lisa Andrews	CCC Independent Chair Person
Colin Faulkner	Community Representative
Scott Lillis	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

Table 35 Summary of CCC Meetings in 2020

Date	Key Outcomes
16 March	Environmental monitoring results, reviewed complaints since last CCC, water event update, operational downtime, 2020 exploration program, rehabilitation update, MOD 1 update, EL Application, community donations and support update, summary of complaints.
1 June	Environmental monitoring results, reviewed complaints since last CCC, operational downtime, 2020 exploration program, rehabilitation update, Pit 8 Bat Adit Monitoring, property management, EL Application, community donations and support update, summary of complaints.
14 September	Environmental monitoring results, reviewed complaints since last CCC, management plan update, operational downtime, 2020 and 2021 exploration program, rehabilitation update, WEP Offset Package update, MOD 1 water supply, property management, proposed demolition of 6 derelict structures in Wollar, EL Application, community donations and support update, summary of complaints.
23 November	Environmental monitoring results, reviewed complaints since last CCC, management plan update, operational downtime, 2020 and 2021 exploration program, rehabilitation update, MOD 1 water supply withdrawn, WEP – Social Impact Management Plan, property management, proposed demolition of 6 derelict structures in Wollar, EL Application, Local Lands Services aerial shooting, RFS participation, community donations and support update, summary of complaints

Community Support Program

During the 2020 reporting period, WCPL continued its support of local community groups and sporting associations, schools and charitable organisations (total amount in 2020 was approximately \$111,000.00), 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.

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 2020 reporting period there were 471 full time equivalent employees at WCPL, 87 staff and 101 full time equivalent contractors.

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.

Section 3.4 provides the status of the one remaining action (Rehabilitation Strategy as required by Condition 61, Schedule 3 SSD-6764) from the previous 2018 IEA. WCPL are scheduled to undertake and complete the forthcoming IEA in 2021. The details of 2021 IEA will be provided in the next 2021 AR.

11.0 INCIDENTS & NON-COMPLIANCES

11.1 Reportable Incidents

There were seven reportable incidents during the 2020 review period, for details refer to **Table 36**.

Table 36 Summary of Reportable Events in 2020

Reported Event	Date of	Details	Mitigation Measures Implemented
Water Discharge	9 February 2020	<p>Water was observed flowing (through and underneath) a sedimentation fence at the Slate Gully/Pit 8 North development area at approximately 14:40 on 9 February 2020 after heavy rainfall. The estimated water released was approximately 200m³. The released water was captured downstream within a Peabody owned farm dam and did not leave the premises as defined by EPL12425 and SSD-6764.</p> <p>25 May 2020 - The EPA determined that Wilpinjong generally complied with the Wilpinjong Coal Surface Water Management Plan (WI-ENV-MNP-0040, August 2017)</p>	<p>A review of the water management for Pit 8 North was completed.</p> <p>Commencement of works to upgrade the Bund along Pit 8 North.</p> <p>A review of the PIRMP was also undertaken.</p>
Water Discharge	19 February 2020	<p>Water was observed flowing (through and underneath) a sedimentation fence at the Slate Gully/Pit 8 North development area at approximately 01:55 on 19 February 2020 after heavy rainfall, whilst mitigation measures to address the previous event on the 9 February were being carried out.</p> <p>The estimated water released was approximately 495m³. Lightning associated with the rainfall event hampered WCPL personnel to effectively control the water.</p> <p>The released water flowed overland onto Peabody owned land and likely mixed with water from the undisturbed catchment to the north of Wilpinjong Coal. During inspection of the drainage line north of the event area there was vegetation debris and pooled water suggesting that the drainage line had recently flowed into Wilpinjong Creek</p> <p>25 May 2020 - The EPA determined that Wilpinjong generally complied with the Wilpinjong Coal Surface Water Management Plan (WI-ENV-MNP-0040, August 2017)</p>	<p>As a result of the event, the following remedial works have been undertaken:</p> <ul style="list-style-type: none"> • The Bund was reconstructed and incorporated into a dam bank; • A dam with automatic pumping has been constructed immediately upslope of the event site with a 2 megalitre capacity; • An 80 litre per second pump delivering captured water to Pit 3 and into the mine water management system; • A review of the water management for Pit 8 North was completed; and • A review of the PIRMP was also undertaken.
Fume Rating <3	28 February 2020	<p>Fume (rated 4A) was released during a blast on the 28 February 2020 in Pit 3. The fume was contained and dissipated within WCPL's</p>	<p>The Blast Management Plan was reviewed in August 2020 (Version 7) to include ML1795, update reporting</p>

Reported Event	Date of	Details	Mitigation Measures Implemented
		approved mining boundary. The event was reported in accordance with the Blast Management Plan.	protocols, clarify vibration monitoring and revise the blast fume management strategy as a result of the two fume events. The Blast Management Plan reviewed in August 2020 (Version 7) included the following fume mitigation measures:
Fume Rating <3	10 June 2020	<p>Fume (rated 4C) was released during a blast on the 10 June 2020 in Pit 8 at 15.21. The fume was contained and dissipated within WCPL's approved mining boundary. The event was reported in accordance with the Blast Management Plan.</p> <p>24 July 2020 – NSW DPIE formally notified "The Department has carefully reviewed the report and requests no further information in relation to the matter".</p>	<ul style="list-style-type: none"> - Installation of Blastshield - a lining for blast holes that provides a barrier to stop the ingress of water and potential product degradation; and - A trailer mounted blast hole dewatering pump has been sourced, to pump water from blast holes, allowing for the installation of the Blastshield.
Vibration Exceedance	11 July 2020	<p>A blast related ground vibration level of 100.18mm/s (PPV) was recorded at the nearest Public Road Infrastructure on Ulan Wollar Road 11 July 2020 at 13:49. Wilpinjong Coal has an agreed limit of 100mm/s with Mid-Western Regional Council (MWRC) for Public Road Infrastructure when blasting within 350 meters.</p> <p>The investigation found that structural geology of the Pit 8 overburden shot on 11 July 2020 was a contributing factor to the elevated vibration level monitored.</p> <p>4 August 2020 – NSW DPIE formally notified "...WCPL failed to implement the requirements of the BMP which is non-compliant with Schedule 3 Condition 15 of the Consent.</p> <p>The non-compliance has been assessed in accordance with the Department's Compliance Policy, with the Department on this occasion, determining to record the breach with no further enforcement action...".</p>	<p>Condition inspection of the Ulan Wollar Road culvert by Wilpinjong Coal Technical Services Manager – no damage to the culvert observed.</p> <p>WCPL commissioned an independent condition inspection of the culvert by Barnson's - Principal Civil Engineer who concluded the culverts sustained no damage from the vibration event.</p> <p>WCPL completed a review of predictive blast modelling, review of the geology and review blast design.</p>
Vibration Exceedance	11 November 2020	<p>A blast related ground vibration level of 117.66mm/s (PPV) was recorded at the nearest Public Road Infrastructure on Ulan Wollar Road 11 November 2020 at 11:45. Wilpinjong Coal has an agreed limit of 100mm/s with Mid-Western Regional Council (MWRC) for Public Road Infrastructure when blasting within 350 meters.</p> <p>The investigation found potential increased confinement of the vibration associated with a number of holes and a change in the blasting product decreases the modelled K Factor from the original design were contributing factors to the elevated vibration level monitored.</p> <p>10 December 2020 - NSW DPIE formally notified "...WCPL failed to implement the requirements of the BMP which is non-compliant with Schedule 3 Condition 15 of the Consent".</p>	<p>Condition inspection of the Ulan Wollar Road culvert by Wilpinjong Coal Technical Services Manager – no damage to the culvert observed.</p> <p>WCPL commissioned an independent condition inspection of the culvert by Barnson's - Principal Civil Engineer who concluded the culverts sustained no damage from the vibration event.</p> <p>Continue to update the predictive parameters of the vibration model for Pit 8 blasting using data obtained from all blasts in Pit 8.</p> <p>Review Blast Logic loading parameters specifically in relation to blast vibration sensitive shots.</p> <p>Blasting personnel to undertake additional training in Blast Logic software – inclusive of quality assurance components relating to blast design vs actual.</p>
Overpressure Exceedance	30 November 2020	<p>A blast related overpressure of 123.3dBL was recorded at WCPL's approved blast monitoring location (approximately 50m west of the Wollar</p>	<p>WCPL implemented an additional interim quality control review of all blasts with a hole charge volume greater than 650 kilograms</p>

Reported Event	Date of	Details	Mitigation Measures Implemented
		<p>Primary School grounds) 30 November 2020 at 14:53 from a blast in Pit 6.</p> <p>The most probable cause of the overpressure measured in Wollar was an outburst (compromised confinement) on the eastern end of the blast.</p> <p>18 January 2021 - NSW DPIE formally notified "The Department has carefully reviewed the details of the non-compliance with Schedule 3, Condition 7 of the Consent, in which the resultant overpressure (being 123.3 dB) is greater than the criteria of 120dB at this location.</p> <p>The Department has decided on this occasion to record the non-compliance with the Consent with no further enforcement action".</p>	<p>WCPL reviewed blasting procedures for the loading of overburden shots. Stemming horizons less than 3.7m will trigger a shot firer/blast controller review prior to stemming to ensure the correct ratio of stemming to product prior to loading of stemming. This additional control will be included in a revision of WCPL's Blast Management Plan.</p>

11.2 Non-Compliances

There were a total of eleven non-compliances as identified in **Table 37** against SSD-6764, identified during the 2020 review period. **Table 38** includes non-compliances identified against EPL 12425.

Table 37 Non-compliance SSD-6764

Relevant Approval	Date of	Details of Non-Compliance	Cause of Non-Compliance	Action to Address Non-Compliance
Con. 61, Sch 3	2020 Reporting Period	The Rehabilitation Strategy was not finalised.	Ongoing consultation with departments in 2020. As of the end of the 2020 reporting period The Rehabilitation Strategy was not finalised.	Comments received from DPIE and WCPL are now progressing finalisation and resubmission of the Rehabilitation Strategy expected in 2021.
Con 29, Sch 3	9 February 2020	Non-compliance with the Water Management Performance Measures in SSD-6764 i.e. Design, install, operation and maintain water management systems in a proper and efficient manner & Design, install and/or maintain mine water storage infrastructure to ensure no discharge of untreated mine water off-site.	Refer to Table 36	Refer to Table 36
Con 29, Sch 3	19 February 2020	Non-compliance with the Water Management Performance Measures (As Above).	Refer to Table 36	Refer to Table 36
Con 30(d)(iii), Sch 3	February 2020	Non-compliance of Section 8.2.3 of the Site Water Management Plan – did not reinstate surface water monitoring SGC_1 as required by Table 21 of the Site Water Management Plan.	Surface water monitoring site SGC_1 was consumed by mining in the Pit 8 mining area. An alternate site was not finalised in 2020.	An alternate surface water monitoring site for SGC_1 to be finalised in 2021 and the Site Water Management Plan to be updated accordingly in 2021.
Con 30(d)(iii), Sch 3	28 October 2020	Non-compliance of Section 5.2 of the Site Water Management Plan - failure of erosion and sediment controls.	Following an intense 50mm rainfall event, water was observed to be flowing over a control structure in Pit 3 north. The water was contained onsite and did not leave the premises as defined by EPL12425 and SSD-6764.	The activation float for the pump was lowered to allow pumping to commence at low levels to provide maximum dam capacity and pumping efficiency. No further events have been recorded at this location.

Relevant Approval	Date of	Details of Non-Compliance	Cause of Non-Compliance	Action to Address Non-Compliance
Con 30(d)(iv), Sch 3	2020 Reporting Period	Non-compliance of Section 8.1 of the Groundwater Management Plan – did not report to the relevant agencies as soon as practicable that an exceedance of the groundwater trigger levels had occurred.	In general, a number of bores exceeded the water level triggers for the first three months in 2020, before a rapid groundwater recovery above trigger levels from April 2020 onwards. The groundwater assessment is carried out annually by WCPL's specialist groundwater consultants, which identified the potential source of the trigger exceedances in the majority of bores to be non-mine related due to extreme ongoing climatic conditions experienced in 2019/2020 period.	Due to the difficulty of separating mining from climatic related declines in groundwater levels for the past 3 Annual Review reports (2017, 2018, 2019), SLR recommends that a trigger investigation be undertaken that incorporates 2020 monitoring data. Quarterly reviews to identify earlier trends and exceedances. Update TARP and the GWMP as required.
Con 30(d)(iv), Sch 3	2020 Reporting Period	Non-compliance of Section 8.2 of the Groundwater Management Plan – did not report to relevant agencies as soon as practicable that an exceedance of the groundwater quality trigger levels had occurred.	Two alluvial bores exceeded the EC criteria in 2020 including GWA5 and GWA7. Trigger EC exceedances for coal monitoring bores were observed in GWc1, GWc2, GWc3, and GWc5 The groundwater assessment is carried out annually by WCPL's specialist groundwater consultants, which identified the potential source of the trigger exceedances in the majority of bores to be non-mine related due to extreme ongoing climatic conditions experienced in 2019/2020 period.	GWA5 and GWA7 are subject to further investigation in 2021 to determine if the bores are functioning correctly. EC triggers for GWc1, GWc3 and GWc5 are recommended to be revised based on 80th percentiles of the full monitoring record at each site. These revised values are well below the values in naturally found in the alluvium and below the guideline value. Quarterly reviews to identify earlier trends and exceedances Update TARP and the GWMP as required.
Con 30(d)(iv), Sch 3	2020 Reporting Period	Non-compliance of Sections 7.1.2 and 8.2 of the Groundwater Management Plan – exceeded cease to pump trigger level and did not report to relevant agencies as soon as practicable that an exceedance of the cease to pump trigger levels had occurred.	Groundwater level observations at GWc11 were below the Cease-to-Pump trigger level for both the January and February 2020 observations, by 0.54 m and 0.91 m respectively.	The exceedance in January and February 2020 is likely related to a combination of severe below average rainfall conditions from 2017 to early 2020, nearby open-cut mining operations, and extraction from GWs11, PB1 and the 'Turkey's Nest' bores. While the magnitude of the exceedance is minor, and recovery above the cease to pump trigger was observed when pumping stopped and rainfall increased in March 2020. Implementation of SLR's recommendations. Quarterly reviews to identify earlier trends and exceedances Update TARP and the GWMP as required.
Con 15, Sch 3	11 July 2020	Non-compliance with Section 4.1.1 of the Blast Management Plan - A vibration exceedance was recorded at a road culvert along the Ulan-Wollar Road on the 11 July 2020 at 13:49. The vibration criteria of 100mm/s as	Refer to Table 36	Refer to Table 36

Relevant Approval	Date of	Details of Non-Compliance	Cause of Non-Compliance	Action to Address Non-Compliance
		agreed with the MWRC for Public Road Infrastructure was exceeded by 0.18mm/s.		
Con 15, Sch 3	11 November 2020	Non-compliance with Section 4.1.1 of the Blast Management Plan - A vibration exceedance was recorded at a road culvert along the Ulan-Wollar Road across from Pit 8 on the 11 November at 11.45am. The vibration criteria of 100mm/s as agreed with the MWRC for Public Road Infrastructure was exceeded by 17.66 mm/s.	Refer to Table 36	Refer to Table 36
Con 7, Sch 3	30 November 2020	Non-compliance with Blast Criteria in SSD-6764 - An overpressure exceedance recorded at the Wollar Primary School blast monitoring on the 30 November 2020 at 14:53. The overpressure recorded was 123.3dBL, exceeding the maximum overpressure criteria of 120dBL from a blast in Pit 6.	Refer to Table 36	Refer to Table 36

Table 38 Details of Non-Compliances (EPL12425)

Relevant Approval	Date of	Details of Non-Compliance	Cause of Non-Compliance	Action to Address Non-Compliance
M2.2	09 Jan 2020 25 Jul 2020 31 Jul 2020	Three (3) PM10 dust samples were not collected and analysed at monitoring point 13 (HV1).	The high-volume air sampler (HV1) did not operate due to planned/unplanned power outages	HV1 checked after every sample date and following power outages.
M2.2	3 Jan 2020	One (1) PM10 dust samples were not collected and analysed at monitoring point 20 (HV4).	The high-volume air sampler (HV4) did not operate due to planned/unplanned power outages and instrument fault.	HV4 checked after every sample date and following power outage and/or instrument fault.
M2.2	9 Jan 2020 21 Jan 2020 14 Apr 2020 25 Jul 2020 31 Jul 2020	Five (5) PM10 dust samples were not collected and analysed at monitoring point 27 (HV5).	The high-volume air sampler (HV5) did not operate due to planned/unplanned power outages.	HV5 checked after every sample date and following power outages.
M2.2	Within the Report Period	For the reporting period 2.9%* of the continuous PM10 dust monitoring was rejected or did not occur at monitoring point 25 (TEOM 3).	Cause was instrument/software faults causing lost or inaccurate data.	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 Report Period	For the reporting period 4.9%* of the continuous PM10 dust monitoring did not occur at monitoring point 28 (TEOM 4).	Cause was instrument/software faults causing lost or inaccurate data.	TEOM4 checked remotely each day to identify potential faults, onsite each month and following power outages or when unusual data recorded.

Relevant Approval	Date of	Details of Non-Compliance	Cause of Non-Compliance	Action to Address Non-Compliance
M2.2	Within the Report Period	For the reporting period 2.9%* of the continuous PM2.5 dust monitoring was rejected or did not occur at monitoring point 29 (TEOM 2.5).	Cause was instrument/software faults causing lost or inaccurate data.	TEOM2.5 checked remotely each day to identify potential faults, onsite each month and following power outages or when unusual data recorded.
M4.2	Up to 7 February 2020	For the reporting period the percentage of continuous monitoring that did not occur for: (i) air temperature, and (ii) wind speed/direction, lapse rate, rainfall and humidity, was 0.8%.	General maintenance (including calibrations) or equipment failure/repair.	Meteorological equipment checked remotely each day, following any repair work and during annual inspection.
L6.2	30 November 2020	Refer to Table 36	Refer to Table 36	Refer to Table 36
O1.1	9 Feb 2020 19 Feb 2020	Refer to Table 36	Refer to Table 36	Refer to Table 36

* Excludes planned maintenance/calibration and planned/unplanned electricity supply interruptions.

12.0 ACTIVITIES FOR NEXT REPORTING PERIOD

Activities proposed to be carried out by WCPL at the Mine during the 2021 review period (i.e. 1 January 2021 to 31 December 2021)¹⁰ include the following:

- Construction of the remaining WEP related infrastructure (Pit 6 Pre-Start Facility);
- Finalise Rehabilitation Strategy;
- Revise the BMP accordingly, subject to finalisation of the Rehabilitation Strategy;
- Transfer of the WEP Biodiversity Areas;
- Closure of the Wollar Store at the end of 2021 as discussed and notified with CCC;
- Continued exploration activities in EL 6169 and EL 7091;
- Carry out the Independent Environmental Audit (IEA) in 2021;
- Continued exploration drilling within MLs (including both infill drilling and lower density drilling).
- 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 derelict houses, 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 86ha of rehabilitation in 2021 – in accordance with approved Mine Operations Plan.
- 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.

¹⁰ Subject to the controls in place to manage the risk of Coronavirus. This may limit achieving the activities in 2021. WCPL will continue to consult with the relevant government departments on this matter.

13.0 REFERENCES

- Wilpinjong Coal Mine – 2020 Annual Biodiversity Monitoring Report, Eco Logical Australia Pty Ltd (March 2021)
- Wilpinjong Coal 2020 Stream Health Monitoring Report, Eco Logical Australia Pty Ltd (March 2021)
- Wilpinjong Coal 2020 Channel Stability Monitoring Report, Eco Logical Australia Pty Ltd (March 2021)
- Environmental Noise Monitoring (January 2020 to December 2020), Global Acoustics Pty Ltd
- Air Quality Monitoring Data Review Wilpinjong 2020, Todoroski Air Sciences (March 2021)
- Wilpinjong Annual Review - Groundwater, SLR (March 2021)
- Surface Water 2020 Annual Monitoring Review, SLR (March 2021)
- Water Balance Model Update 2021 – Model Update & Calibration Report, SLR (March 2021)

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
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