MAULES CREEK COAL MINE

2024 ANNUAL REVIEW

Whitehaven

Table 1: Annual Review Title Block

Name of Operation	Maules Creek Coal Mine
Name of Operator	Maules Creek Coal Pty Ltd
Development consent / Project Approval #	Project Approval 10_0138
Name of holder of development consent/project approval	Aston Coal 2 Pty Ltd.
Mining lease #	CL 375, ML1719 and ML1701.
Name of holder of mining lease	Maules Creek Coal JV which comprises: Aston Coal 2 Pty Ltd (75%), ICRA MC Pty Ltd (15%), J Power Australia Pty Ltd (10%)
Water Licence #	Refer to Water Licences in Table 2
Name of holder of water licence	Aston Coal 2 Pty Ltd, ICRA MC Pty Ltd, J Power Australia Pty Ltd
FWP start date	January 2024
FWP end date	December 2026
Annual Review Commencement Date	1 January 2024
Annual Review Completion Date	31 December 2024
I, Jorge Moraga, certify that this audit report is a true and accurate record of the compliance status of Maules Creek Coal Mine for the period 1 January 2024 to 31 December 2024, and that I am authorised to make this statement on behalf of Maules Creek Coal Pty Ltd. Note. a) The Annual Review is an 'environmental audit' for the purposes of section 122B (2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, $1 million and for an individual, $250,000. b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or $22,000, or both).	
Name of Authorised Reporting Officer	Jorge Moraga
Title of Authorised Reporting Officer	General Manager
Signature	Signed by: Jorge Moraga AB5810ED4C924F3...

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1 STATEMENT OF COMPLIANCE

This Annual Review has been prepared to provide a summary of the environmental performance of the Maules Creek Coal Mine (MCCM) over the reporting period. The compliance status of the MCCM was assessed against the Environment Protection Licence (No.20221) (EPL), and where required against the Project Approval, specifically Schedule 3, conditions 26, 30, 33 (c), 38 (b) and 40 (b).

Table 2: Statement of Compliance

Were all the conditions of the relevant approvals complied with?	Yes/No
Project Approval PA 10_0138	No
Coal Lease CL 375	Yes
Forward Plan	Yes
Mining Lease ML 1701	Yes
Mining Lease ML 1719	Yes
Exploration Licence A 346	Yes
Environment Protection Licence (No. 20221) (applicable conditions as above)	Yes
90WA801901 DWE Ref no: 90AL801900	Yes
Groundwater Monitoring Bores: 90BL255779, 90BL255780, 90BL255781, 90BL255782, 90BL255783, 90BL255784, 90BL255785, 90BL255786, 90BL255787, 90BL255788, 90WA822412, 90BL255789 and 90BL255790.	Yes
WAL12811	Yes
WAL12791	Yes
WAL29467	Yes
WAL29588	Yes
WAL27385	Yes
WAL12479	Yes
WAL27383	Yes
WAL13050	Yes
WAL41585	Yes
WAL36641	Yes
WAL12491	Yes
WAL12480	Yes
WAL12645	Yes
WAL12718	Yes
WAL12722	Yes

Any non-compliances during the reporting period are detailed in **Error! Reference source not found.** and ranked according to the compliance status key presented in Table 3. Section **Error! Reference source not found.** provides further details of any non-compliance and actions undertaken or proposed for the following reporting period to prevent re-occurrence and mitigate any potential adverse effects.

Table 3: Compliance Status Key

Risk Level	Colour Code	Description
High	Non–compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium	Non–compliant	Non-compliance with: • potential for serious environmental consequences, but is unlikely to occur; or • potential for moderate environmental consequences, but is likely to occur
Low	Non–compliant	Non-compliance with: • potential for moderate environmental consequences, but is unlikely to occur; or • potential for low environmental consequences, but is likely to occur
Administrative non-compliance	Non–compliant	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions)

Table 4: Non-Compliances

Relevant Documentation	Condition. #	Condition Description (Summary)	Compliance Status	Comment	Where addressed in Annual Review
PA10_0138	Schedule 3 Condition 12 a)	Ensure all equipment and noise control measures deliver sound power levels that are equal to or better than the MCC EA.	Non-compliant	Technical non-compliance of one individual fixed plant item. This is a result of in-service testing, the layout and operation of the CHPP which increases background noise levels and reduces the available measurement positions used in the assessment. Overall site sound power level was compliant.	Section 6.4.2
PA10_0138	Schedule 5 Condition 7	The CCC must include at least one member representing the Maules Creek community, one member from Aboriginal stakeholder groups and seek to include some joint membership with CCCs for other operating coal mines within the Leard Forest Mining Precinct, unless otherwise agreed by the Planning Secretary.	Non-compliant	Administrative non-compliance. Whilst MCC has continued to advertise and actively recruit an Aboriginal representative for the CCC, no Aboriginal Representative has agreed to join the committee at this time.	Section 9.5
PA10_0138	Schedule 5 Condition 13 (a)	Make the following information for the project publicly available on its website, on a daily basis and in a clearly understandable form:	Non-compliant	Administrative non-compliance. MCC operates a public website which shows the real time noise and air monitoring data and operational responses,	Section 9.5

Relevant Documentation	Condition. #	Condition Description (Summary)	Compliance Status	Comment	Where addressed in Annual Review
		• real time noise and air quality monitoring data (subject to any necessary caveats) and • any operational responses that were taken in response to the noise and air quality monitoring data		however it was identified that on occasion this was not updated. MCC implemented an automated reporting system which is able to upload noise and air quality data in the event that data is not manually uploaded to the public website.	

2 INTRODUCTION

This is the twelfth Annual Review produced for the Maules Creek Coal Mine (MCCM) and has been prepared in accordance with the NSW Department of Planning, Housing and Infrastructure's (DPHI) Integrated Mining Policy – Annual Review Guideline, October 2015, to satisfy the following requirements:

- the Annual Review requirements of the DPHI under the Project Approval PA 10_0138 (Condition 4 Schedule 5);
- the routine reporting expectations of DCCEEW (NSW).

Though primarily covering the period from 1 January 2024 to 31 December 2024 (the reporting period), where relevant the Annual Review provides information on historical aspects of the Maules Creek Coal Mine. Such as long term trends of environmental monitoring results and provides relevant information on activities to be undertaken in the ensuing reporting periods.

2.1 Project Background and Description

The Maules Creek Coal Mine is located on the north-west slopes and plains of New South Wales (NSW), approximately 18 kilometres (km) North-East of Boggabri within the Narrabri Local Government Area (LGA). The MCCM's regional locality is illustrated in Figure 1.

An Environmental Assessment for the Maules Creek Coal Project (referred to herein as the EA) was prepared by Hansen Bailey (2011) and was assessed under the NSW Environmental Planning and Assessment Act, 1979 (EP&A Act). The NSW Planning Assessment Commission (PAC), as a delegate for the NSW Minister for Planning and Infrastructure, issued the State Environmental Approval for the MCCM on 23 October 2012 (i.e. Project Approval PA 10_0138) for the construction and operation of an open cut coal mine with an approved maximum ROM coal production rate of 13 Mtpa until the end of December 2034. MCCM covers three mining leases CL 375, ML 1701 and ML1719. The Project Boundary (as defined by PA 10_0138) and mining authorities are shown on Figure 1 and Biodiversity Offset areas on Figure 2. The MCCM Commonwealth environmental approval (i.e. EPBC 2010/5566) was granted on 11 February 2013 by the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities.

The operations phase of the MCCM commenced in June 2014, and coal was first transported from the MCCM via the rail spur in December of 2014.

A modification to PA 10_0138 was lodged and approved in 2013 to allow minor adjustments to the alignment of the CHPP infrastructure and the construction and operation of electrical infrastructure.

A second modification to PA 10_0138 was lodged and approved in 2014 to adjust the location of the raw water pipeline and associated pump station.

A third modification to PA 10_0138 was lodged in May 2016 and approved in January 2017 to amend the percentage of employee bus use to better reflect the locally residing workforce and associated transport regime.

A fourth modification to PA10_0138 was lodged in 2017 and withdrawn in 2018 in relation to sound power level conditions.

A fifth modification to PA10_0138 was lodged in December 2019 and approved in January 2020 to allow for the installation of a water pipeline from the nearby, Whitehaven owned Olivedene property to the mining operation.

A sixth modification to PA10_0138 was lodged in December 2019 and approved in January 2020 to allow for the installation of a water pipeline from the nearby, Whitehaven owned Brighton and Roma properties to the mining operation.

A seventh modification to PA10_0138 was lodged in February 2021 and approved in August 2021 allowing for an extension of the Northern Emplacement footprint, and an increase to the maximum height of a section of the Northern Emplacement by 1 metre, incorporating macro and micro relief.

An eighth modification of PA10_0138 was lodged in October 2021 and approved in January 2022 allowing for the use of mobile coal sizing within the MCCM operation and the burial of tyres within the MCCM emplacement areas.

A nineth modification of PA10_0138 was lodged in December 2022 and approved in March 2024 allowing for changes to the existing biodiversity offset strategy, and the construction and use of an electricity transmission line to Roma Bore.

2.2 Mine Contacts

The key operational personnel responsible for environmental management at MCCM during the reporting period included:

Name	Jorge Moraga
Title	General Manager
Address	Therribri Road, Boggabri, NSW 2382
Phone Number	02 6749 7800

Name	Prashant Nath
Title	Senior Operations Manager
Address	Therribri Road, Boggabri, NSW 2382
Phone Number	02 6749 7800

Name	Kent Taylor
Title	Mining Engineering Manager and HSEC Manager
Address	Therribri Road, Boggabri, NSW 2382
Phone Number	02 6749 7800

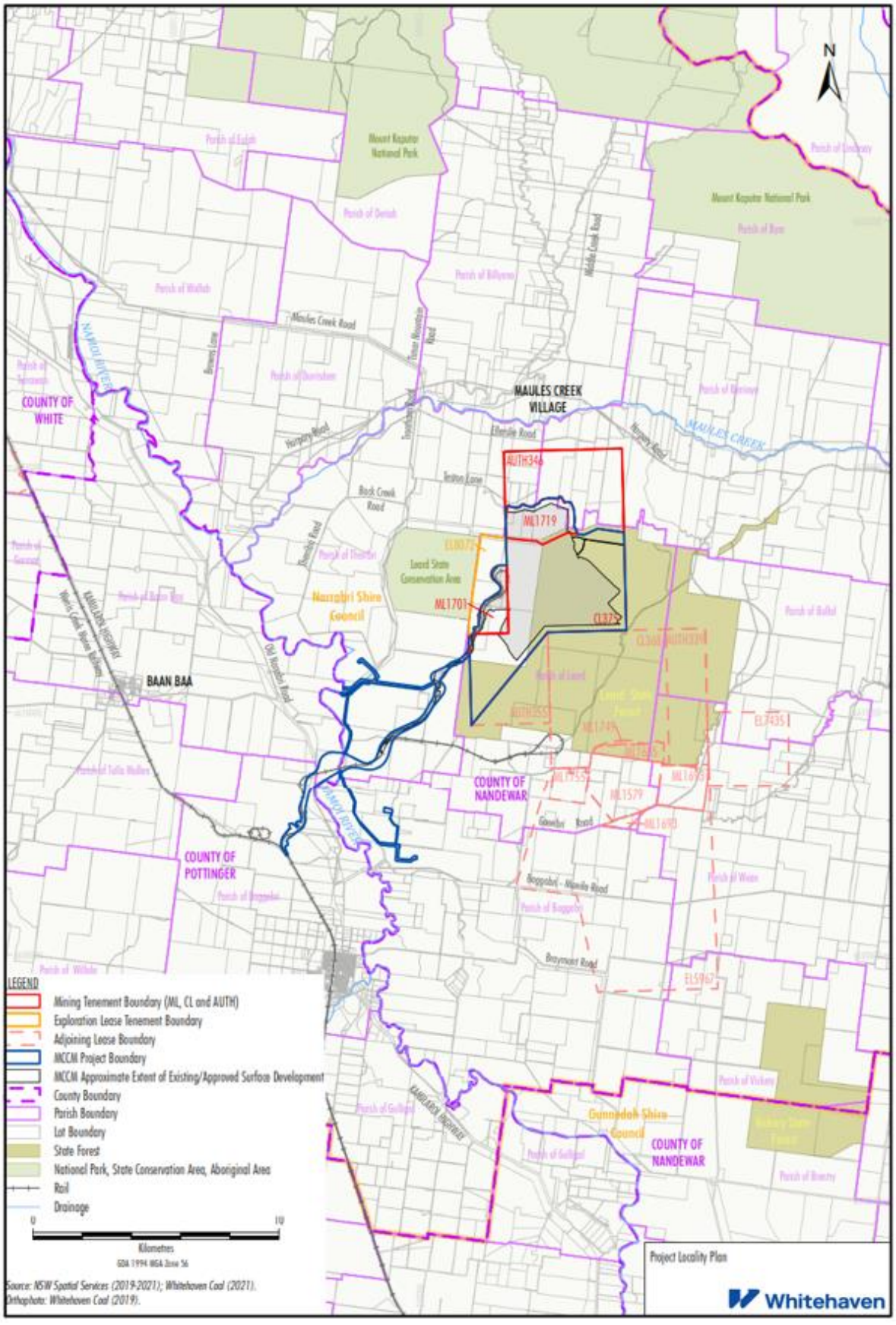


Figure 1: Project Locality Plan

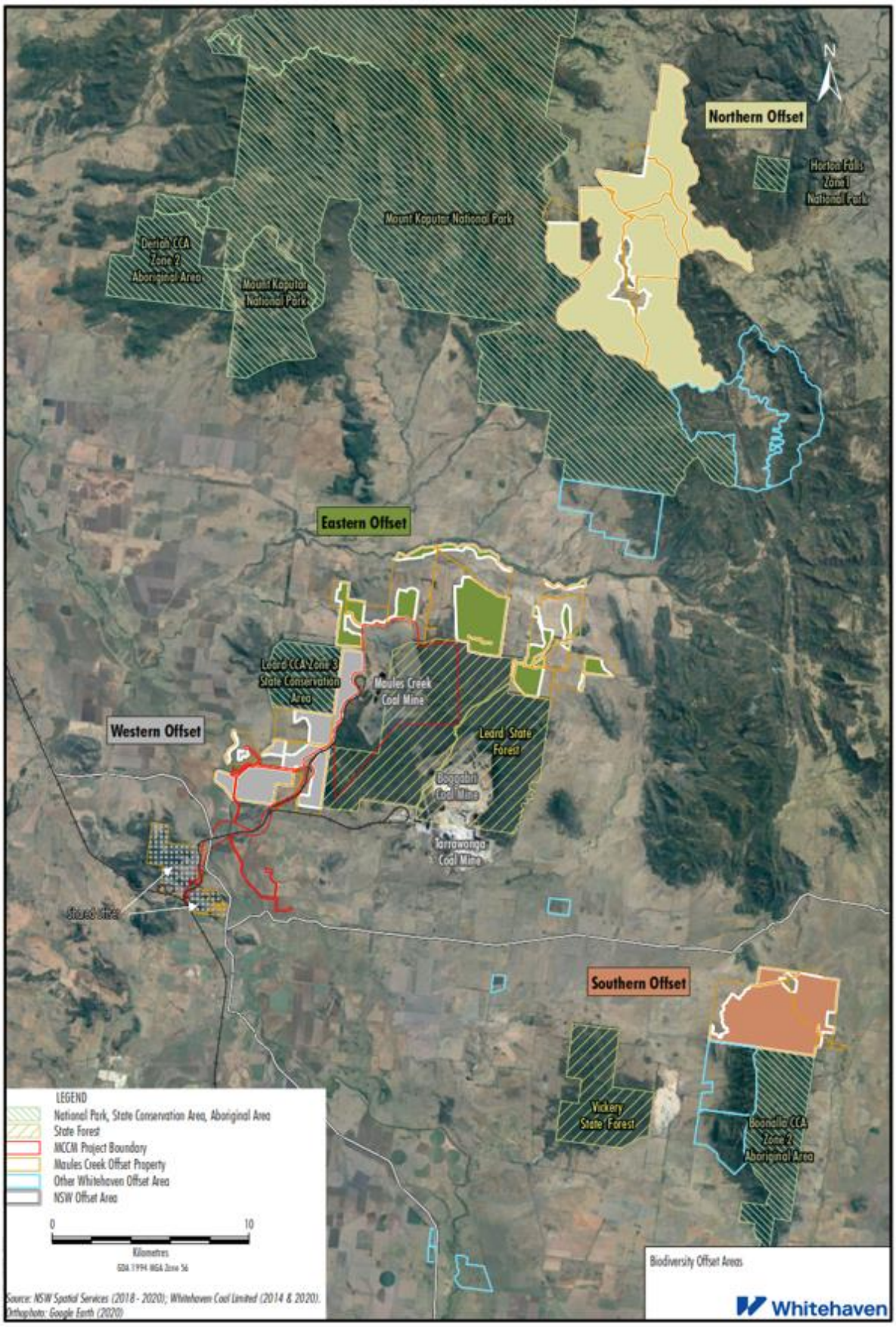


Figure 2: Biodiversity Offset Areas

3 APPROVALS

Table 5 provides a summary of the key licences, leases and approvals that have been obtained for the MCCM to enable the construction and operation of the mine.

Table 5: Licences, Leases and Approvals

Approval	Reference	Detail	Validity Dates
Project Approval	PA 10_0138	Pursuant to the Project EA, the PAC approval of the MCCM referred to in Schedule 1 subject to the conditions in Schedules 2 to 5.	23 October 2012 to December 2034
Project Approval Modification	PA 10_0138 (MOD1)	Pursuant to the Maules Creek Project Approval Modification Environmental Assessment, the Modification was granted to allow modifications to infrastructure requirements.	Granted on 25 July 2013
Project Approval Modification	PA 10_0138 (MOD2)	Pursuant to the Maules Creek Project Approval Modification Environmental Assessment, the Modification was granted to allow the design of key water related infrastructure to be optimised.	Granted on 10 March 2014
Project Approval Modification	PA 10_0138 (MOD3)	Pursuant to the Maules Creek Project Approval Modification Environmental Assessment, the Modification was granted to amend the employee bus use percentage to better reflect the locally residing workforce and associated transport regime.	Granted on 13 January 2017
Project Approval Modification	PA 10_0138 (MOD5)	Pursuant to the Maules Creek Project Approval Modification Environmental Assessment, the Modification was granted to allow the installation of a water pipeline from the nearby Whitehaven owned Olivedene property to the mining operation.	Granted on December 20 2019
Project Approval Modification	PA 10_0138 (MOD6)	Pursuant to the Maules Creek Project Approval Modification Environmental Assessment, the Modification was granted to allow the installation of a water pipeline from the nearby, Whitehaven owned Brighton and Roma properties to the mining operation.	Granted on December 20 2019

Approval	Reference	Detail	Validity Dates
Project Approval Modification	PA 10_0138 (MOD7)	Pursuant to the Maules Creek Project Approval Modification Environmental Assessment, the Modification was granted to allow for an extension of the Northern Emplacement footprint, and an increase to the maximum height of a section of the Northern Emplacement by 1 metre, incorporating macro and micro relief.	Granted on August 2021
Project Approval Modification	PA 10_0138 (MOD8)	Pursuant to the Maules Creek Project Approval Modification Environmental Assessment, the Modification was granted to allow for improved operating efficiencies through the use of mobile coal sizing equipment and mobile rock crushing equipment, as well as disposal of waste heavy vehicle tyres in the waste rock emplacement areas.	Granted on January 2022
Project Approval Modification	PA 10_0138 (MOD9)	Pursuant to the Maules Creek Project Approval Modification Environmental Assessment, the Modification was granted to allow for changes to the existing biodiversity offset strategy and the construction and use of an electricity transmission line to the Roma Bore.	Granted on March 2024
Coal Lease	CL 375	Covers an area of approximately 4,200 hectares (ha). The southern part of the lease covers rights to mine from the surface to unlimited depth (~2,500 ha). The northern part of the lease covers rights to mine from 20 metre (m) depths to unlimited depth (~1,700 ha).	4 June 1991 to 4 June 2033
Authorisation	A 346	Covers the rights of the northern part of CL 375 from the surface to 20 m depth (1270 ha).	Renewed 2016 Expires 28 February 2028
Mining Lease	ML 1719	Covers the area to the north of the surface rights of CL 375, over a portion of A 346 that will accommodate part of the Northern Overburden Emplacement Area (OEA) for the MCCM.	Granted 11 November 2015 to 11 November 2036

Approval	Reference	Detail	Validity Dates
Mining Lease	ML 1701	Covers the area to the west of CL 375 within the Project Boundary that will facilitate the extraction of some coal and accommodate some mine related infrastructure.	Granted 9 October 2014 to 9 October 2035
Exploration Lease	EL 8072	Covers an area west of ML1701 (303 ha)	Renewal pending
Environment Protection Licence	EPL 20221	The NSW Environment Protection Authority (EPA) issues environment protection licences to the owners or operators of various industrial premises under the *Protection of the Environment Operations Act, 1997* (POEO Act).	Issued 2 May 2013
Environment Protection Licence Variation	EPL 20221	Variation of the EPL to allow for tyre burial in the MCCM pit	Approved 30 March 2022
Maules Creek Coal Complex Forward Plan	January 2024 – January 2026	Details mining and rehabilitation activities during the applicable period at MCCM	Approved In February 2024
Forest Corporation NSW Compensation	N/A	Agreement applies to part of Leard State Forest No. 420 that occurs within CL 375 and any mining lease pursuant to MLA 404 being ML1719.	Updated 1 July 2021
Emergency Tailings Emplacement	N/A	Notification of High Risk Activity – Emergency Tailings Emplacement	Notification provided April 2015.
Surface Water Licence Water Supply Works and Water Use Approval	WAL41585	Previously 90SL101060. Water supply for mining and irrigation one overshot dam and a 150 millimetre (mm) Centrifugal Pump. 30 units. Under works approval 90CA834999	Converted to WAL41585 Renewed 1 July 2017. Expires 9 November 2025
Water Supply Works Approval	90WA801901 DWE Ref no: 90AL801900	Allows construction of a 610 mm Axial Flow Pump located on the Namoi River.	Issue date: 1/07/2004 Expiry date: 30/06/2027
Water Access Licence	WAL12811	135 ML with works approval 90CA807230. Upper Namoi Zone 5 Namoi Valley (Gins Leap to Narrabri) Groundwater Source.	Issue Date: 1/11/2006 Expiry Date: 6/11/2030
Water Access Licence	WAL12791	112 ML with works approval 90CA807180. Upper Namoi Zone 5, Namoi Valley (Gins Leap to Narrabri) Groundwater Source.	Issue Date: 1/11/2006 Expiry Date: 31/10/2026

Approval	Reference	Detail	Validity Dates
Water Access Licence	WAL29467	306 ML water licence from porous rock water source for construction purposes. Refer 90WA822412	Issue Date: 16/01/2012 Expiry Date: 6/06/2025
Water Access Licence	WAL 27385	38 ML water licence from Namoi Groundwater Zone 4.	Granted 24 April 2012 for perpetuity.
Water Access Licence	WAL12479	78 ML water licence from Namoi Groundwater Zone 11 under works approval 90CA807652.	Issue Date: 1/11/2006 Expiry Date: 31/10/2029
Water Access Licence	WAL27383	0 ML water licence from Namoi Groundwater Zone 11.	Spare WAL. Granted 24 October 2011 for perpetuity.
Water Access Licence	WAL13050	3000 ML water licence from Lower Namoi Regulated River Water under works approval 90WA801901.	Issue Date: 1/07/2004 Expiry Date: 30/06/2027
Water Access Licence	WAL36641	800 ML water licence from Gunnedah-Oxley Basin MDB groundwater source.	Perpetuity
Water Access Licence	WAL12491	77 ML water licence from Upper Namoi Zone 11 under works approval 90CA807676	Issue Date: 1/11/2006 Expiry Date: 31/10/2029
Water Access Licence	WAL12480	215 ML water licence from Upper Namoi Zone 11 under works approval 90CA807654.	Issue Date: 1/11/2006 Expiry Date: 31/10/2029
Water Access Licence	WAL12645	35 ML water licence from Upper Namoi Zone 4, Namoi Valley (Keepit Dam to Gin's Leap). Under works approvals 90CA806981	Issue Date: 1/11/2006 Expiry Date: 31/10/2026
		35 ML water licence from Upper Namoi Zone 4, Namoi Valley (Keepit Dam to Gin's Leap). Under works approvals 90CA806830 & 90WA807004	Issue Date: 1/11/2006 Expiry Date: 31/10/2029
Water Access Licence	WAL12718	102 ML Water licence from the upper Namoi Zone 4 Namoi Valley (Keepit Dam To Gin'S Leap) Groundwater Source. Under works approval 90CA807012	Issue Date: 1/11/2006 Expiry Date: 19/05/2031
Water Access Licence	WAL12722	77 ML water licence from Upper Namoi Zone 4 Namoi Valley (Keepit Dam To Gin's Leap) Groundwater Source. Under works approval 90CA807023	Issue Date: 1/11/2006 Expiry Date: 27/05/2031

Approval	Reference	Detail	Validity Dates
Bore Licence	90CA807230	Bore Constructed in the Upper Namoi Zone 5 Namoi Valley (Gin's Leap to Narrabri) Groundwater Source. Works approval for WAL12811.	Issue Date: 1/11/2006 Expiry Date: 6/11/2030
Bore Licence	90CA807180	Bore Constructed in the Upper Namoi Zone 5 Namoi Valley (Gin's Leap to Narrabri) Groundwater Source. Works approval for WAL12791.	Issue Date: 1/11/2006 Expiry Date: 31/10/2026
Bore Licence	90WA822412	Previously 90BL255704. Gunnedah – Oxley Basin Murray Darling Basin Groundwater Source. Works approval for WAL29467.	Granted 16 January 2012 to 06 June 2025
Bore Licence	90CA807652	Upper Namoi Zone 11, Maules Creek Groundwater Source. Works approval for WAL12479.	Issue Date: 1/11/2006 Expiry Date: 31/10/2029
Bore Licence	90WA801901	Lower Namoi Regulated River Water Source. Works approval for WAL13050.	Issue Date: 1/07/2004 Expiry Date: 30/06/2027
Bore Licence	90CA807676	Upper Namoi Zone 11, Maules Creek Groundwater Source. Works approval for WAL12491.	Issue Date: 1/11/2006 Expiry Date: 31/10/2029
Bore Licence	90CA807654	Upper Namoi Zone 11, Maules Creek Groundwater Source. Works approval for WAL12480.	Issue Date: 1/11/2006 Expiry Date: 31/10/2029
Bore Licence	90CA807012	Bore Constructed in the Upper Namoi Zone 4 Namoi Valley (Keepit Dam To Gin'S Leap) Groundwater Source. Works approval for WAL12718.	Issue Date: 1/11/2006 Expiry Date 19/05/2031
Bore Licence	90CA807023	Bore constructed in the Upper Namoi Zone 4 Namoi Valley (Keepit Dam To Gin'S Leap) Groundwater Source. Works approval for WAL12722.	Issues Date: 1/11/2006 Expiry Date: 27/5/2031
Bore Licence	90WA809127	Bore constructed in the Upper Namoi Zone 4 Namoi Valley (Keepit Dam to Gins Leap) Groundwater Source.	Commencement 1 November 2006
Bore Licence	90WA820120	Previously 90BL001144. Gunnedah – Oxley Basin Murray Darling Basin Groundwater Source.	Granted 28 February 1939 for perpetuity. Converted 16 January 2012.
Bore License	90MW8333037	Gunnedah - Oxley Basin Murray Darling Basin Groundwater Source. Works approval for WAL36641	Perpetuity

Approval	Reference	Detail	Validity Dates
Bore Licences	90BL255779 90BL255780 90BL255781 90BL255782 90BL255783 90BL255784 90BL255785 90BL255786 90BL255787 90BL255788 90BL255789 90BL255790	For the purpose of Monitoring Bores.	Granted 25 August 2010 for perpetuity.
Bore Licence	90WA809078	Bore constructed in the Upper Namoi Zone 4 Namoi Valley (Keepit Dam to Gins Leap) Groundwater Source.	Commencement 1 November 2006
Bore Licence	90WA809079	Bore constructed in the Upper Namoi Zone 4 Namoi Valley (Keepit Dam to Gins Leap) Groundwater Source.	Commencement 1 November 2006
Bore Licence	90WA809300	Bore constructed in the Upper Namoi Zone 4 Namoi Valley (Gins Leap to Narrabri) Groundwater Source.	Commencement 1 November 2006

4 OPERATIONS SUMMARY

4.1 Exploration Activities

Exploration drilling was undertaken during the reporting period in accordance with the approved Forward Program to further assist production planning and assess coal reserves within CL 375. Core and chip holes were undertaken to further define coal quality, geotechnical and structural information.

4.2 Construction

During the reporting period the following construction works occurred:

- Installation of pedestrian access ramp and stairs at the Production Hub
- Install new 3000lt septic tank
- Install new 10m light post in OCE car park
- Install 12m light post in OCE car park area
- Install new Emeco demountable site office
- Upgrade Emeco workshop with diamond grid flooring
- Install new boom gates and solar skid in build pad area

- Reshape build pad and LV park up bays
- Replace store ASG igloo dome cover and office
- Construct a new crane access road to the crusher
- Install multiple LV park up bays with diamond grid flooring and steel bollards
- Install diamond grid flooring to the Critical storage shed front apron
- Main access road pot hole maintenance
- New kitchen upgrade and meeting room repairs
- Replace end walls to workshop igloo
- River pump installation and mid-point upgrade
- Install storge container and connect power and lighting
- Install 40' archive container and awning

4.3 Mining Operations

Pre-mining clearance activities including ecological, archaeological and soil analysis were undertaken in line with the relevant approvals and management plans. The 2024 vegetation clearing activities were completed during the approved annual clearing period (15th February to the 30th April 2024).

Topsoil was reclaimed and stockpiled for later use on rehabilitation areas. Overburden was blasted prior to being removed by loaders and excavators then transported by haul trucks to both in and out of pit dumps, allowing for coal extraction. Reject material from washed coal was dumped in designated areas in line with the relevant waste and dump management plans. Table 6 below presents the production summary for the 2023, 2024 and 2025 reporting periods.

Table 6: Production Summary

Material	Approved limit	2023 (actual)	2024 (actual)	2025 (forecast)
Waste Rock/ Overburden	71,000,000m^3 (FWP Year 1, 2024))	62,178,549	68,477,293	68,458,377
ROM Coal	13 Million Tonnes (PA10_0138 Sch. 2 Cond.6) > 5 Million Tonnes handled (EPL 20221)	11,653,467	10,505,995	12,144,597
Reject Material	NA	2,961,698	2,329,152	3,028,568

Saleable Product	12.4 Million Tonnes (PA 10_0138 Sch.2 Cond.9) > 5 Million Tonnes produced (EPL 20221)	7,217,970	8,098,040	7,876,848

4.4 Coal Handling and Processing

Product coal generated by the MCCM includes bypass coal (i.e. ROM coal that is crushed and screened but not washed in the CHPP) and washed coal that is processed in the CHPP. The product coal is stockpiled and then reclaimed and fed via conveyors to the train loading facility. Once loaded, trains travel from the MCCM via the Maules Creek Rail Spur, the shared rail spur with Boggabri Coal and the Werris Creek to Mungindi Railway Line to the Port of Newcastle for export.

4.5 Other Operations

4.5.1 Hours of Operation

Mining operations are conducted up to 24 hours per day, seven days per week.

4.5.2 Transport Rates

All coal produced by MCCM is transported from site via the Maules Creek rail spur, and the shared portion of the Boggabri Coal rail spur in accordance with PA 10_0138 (Schedule 2, Condition 8 and 9; Schedule 3, Condition 65) (Table 7). Appendix B details the coal transport records in accordance with the reporting requirements under Condition 65 (a) and (b) of PA 10_0138.

Table 7: Coal Transport

Parameter	Criteria	Total
Maximum number of laden trains from the site in any one day	10	8
Maximum number of laden trains from the site in a day when averaged over a calendar year	7	2.84
Maximum Tonnes of product coal transported from the site (Mt)	12.4	8.70

4.6 Next Reporting Period

4.6.1 Exploration

Exploration drilling will continue to be undertaken at MCCM to further assess the coal reserves within the tenements, focusing on further exploration within ML 1701.

4.6.2 Construction Activities

- Commissioning of the life of mine pumping circuit.
- Splash curtains on reject bin.
- In pit dam

4.6.3 Mine Operations

The mine production rates are planned to achieve approximately 11.5 Mtpa of ROM coal and approximately 66 million bank cubic metres (Mbcm) of overburden during 2025.

Vegetation clearing activities in mining areas over the next reporting period will be conducted in accordance with relevant Environmental Management Plans as the north eastern section of the pit extends. The clearing program will be undertaken during the annual clearing period from the 15 February to the 30 April, except under exceptional circumstances and with the approval by the Secretary of the DPHI.

4.6.4 Overburden Emplacements

The OEA and north pit expansion will continue to develop in accordance with Project Approval PA 10_0138 and the MCC Forward Program which are available on the Whitehaven Coal website.

4.6.5 Mining Fleet Upgrades

The mobile mining fleet configuration was stable with no changes during 2024. Additional procurement of mining fleet will be subject to mine planning requirements in 2025.

5 ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

The DPHI requested provisions of two sections in the Annual Review. Appendix G includes a table summarising the feedback and the relevant sections where this is addressed.

6 ENVIRONMENTAL PERFORMANCE

The following sub-sections report on the environmental performance achieved during the reporting period and provides a summary of the environmental monitoring data compared to data predictions, trends and management measures.

6.1 Meteorological Monitoring

Meteorological monitoring is conducted onsite in accordance with Schedule 3 Condition 35 of the PA 10_0138 at the MCC Automatic Weather Station (AWS), the location of the AWS is depicted in Figure 3. The total annual rainfall recorded for 2024 was approximately 720.4 millimetres (mm).

The temperature records and wind patterns on site are relatively consistent with the long term climatic data recorded at nearby BOM sites, and the EA predictions. The average temperature during the reporting period was 18.9°C, the minimum temperature was -3.7°C, recorded in July and a maximum temperature of 41.6°C in January. The average wind direction for the reporting period was from the southern quadrant, predominately from the south, south west.

6.2 Air Quality

6.2.1 Environmental Management

Potential impacts to air quality are managed in accordance with the:

- Air quality criteria prescribed under schedule 3 condition 29 of the Project Approval;
- Relevant EPL conditions; and
- The MCC Air Quality and Greenhouse Gas Management Plan (AQGHGMP).

Maules Creek Coal Mine implements a range of controls to manage dust, including but not limited to:

- Utilising water carts across site with water fill points appropriately positioned for efficient coverage.
- Use of a dust suppressant additive on targeted haul roads;
- Visual dust assessments regularly undertaken on haul roads;
- Modification of work practices where required including changing dumping strategies;
- Temporary cessation of operational equipment as required;
- Predictive controls and Air Quality Trigger Action Response Plan (TARP) together with the daily risk report presented to key operational personnel;
- Pre-strip areas are kept to a minimum and mulch cover used on cleared areas ahead of mining activities where possible;
- Operation of a real time SMS alarming system notifying of elevated dust levels;
- Site vehicles restricted to designated routes, with speed limits enforced;
- Blasting activities restricted to suitable weather conditions;
- Notification to key stakeholders and residents of planned blasts;
- Water suppression on conveyor transfers and stockpiles at the CHPP;
- Additional units within the air quality monitoring network; and
- Meteorological monitoring system used to identify conditions pertaining to elevated dust risk.

The MCC Air Quality Monitoring network is illustrated in Figure 3 and includes:

- Continuous monitoring of PM_{10} levels at TEOM1 and TEOM3. These results for TEOM1 are available publicly via the EPA website.
- TEOM2, shown in Figure 3**:** is located on WHC land and the results are used by MCC for internal management purposes only.
- PM_{10} levels are also measured at a High Volume Air Sampler (HVAS) on a twenty-four hour basis every six days. Total Suspended Particulate Matter (TSP) is inferred from the measured PM_{10} data.
- A network of four depositional dust gauges (DDG's), measuring deposited dust and particulates on a monthly basis.
- Additional sampling units (E-sampling trailer units) to provide input data for the predictive air quality monitoring software.

In addition to the above, the Boggabri - Tarrawonga - Maules Creek (BTM) Air Quality Management Strategy (AQMS) was approved in 2017. Predictive air quality modelling simulation software is fully implemented to inform operational risk.

The NSW Office Environment & Heritage (OEH) and the NSW EPA installed a number of TEOM monitoring units in late 2017. The Namoi Region Air Quality Advisory Committee was established by the Minister for the Environment of which Whitehaven Coal is a stakeholder on the committee.

Daily ambient air quality data for PM10 and PM2.5 particulate sizes from the Maules Creek TEOM1 monitoring unit is provided and published on the OEH managed air quality website. This has occurred since 2016 prior to the establishment of the Namoi Region Air Quality Monitoring Project.

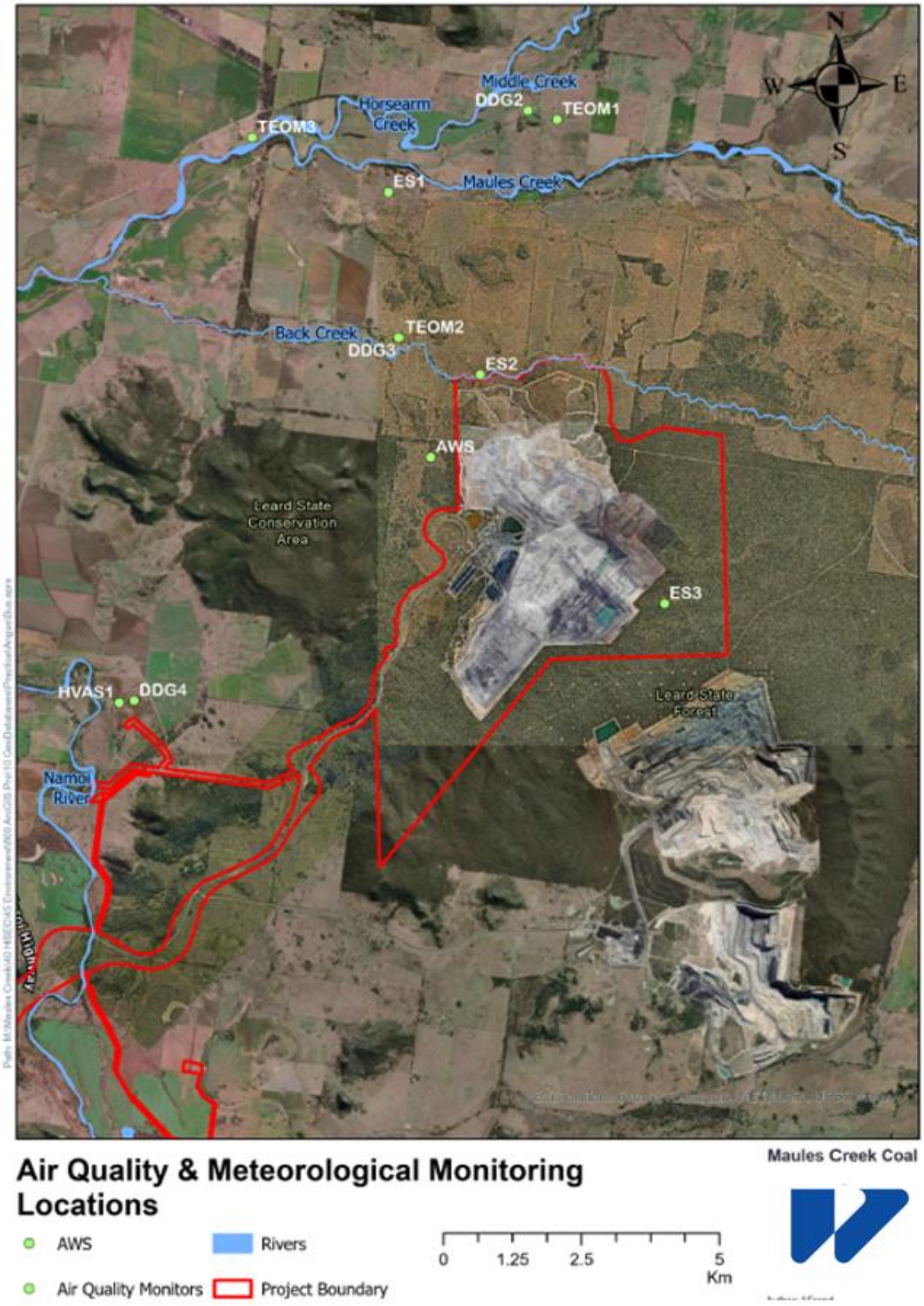


Figure 3: Air Quality and Meteorological Monitoring Locations

6.2.2 Environmental Performance

A summary of the depositional dust air quality monitoring results at MCCM for the 2024 reporting period is provided in Table 8.

Table 8: Deposited Dust Monitoring Results 2024

Month	MC1 (g/m^2)	MC2 (g/m^2)	MC3 (g/m^2)	MC4 (g/m^2)
January	4.1	1.0	2.2	1.6
February	7.5c	5.3	2.8	3.7c
March	31.9c	9.1c	2.6	1.5
April	21.5c	2.6	2.5	0.9
May	7.2c	0.7	1.9	0.5
June	7.8c	1.9	1.2	0.5
July	38.0c	6.8c	1.8	0.6
August	0.8	8.1c	0.9	2.0
September	0.5	2.4	4.5c	4.1c
October	15.9c	3.1	9.0c	0.5
November	11.6c	2.6	2.3	1.8
December	32.4c	8.1c	1.5	15.3c
Annual Average	1.8	2.5	2.0	1.1

C = Results contaminated by deposits deemed unrelated to mining activities (bird droppings, insects and vegetation).

Table 9: Deposited Dust Annual Average Monitoring Results 2022 – 2024

	2022	2023	2024
MC1 (g/m^2)	1.52	1.7	1.8
MC2 (g/m^2)	2.12	2	2.5
MC3 (g/m^2)	1.63	1.9	2
MC4 (g/m^2)	1.15	1.2	1.1

Deposited dust monitoring data remained compliant with the Project Approval (<4g/m2 averaged annually) throughout 2024. Dust gauge results can be significantly impacted by localised sources (e.g. dust from livestock, agriculture, lawn mowers, cars travelling on local dirt roads, etc.) and are susceptible to contamination from organic material (such as plant detritus and droppings from birds which often perch on the gauges). As dust fallout generally occurs within close proximity to sources, elevated dust gauge results are often caused by

localised sources near to the monitor. During certain meteorological conditions results can also be influenced by sources further afield and larger scale events such as regional dust storms.

The annual average deposited dust levels measured during 2024 have been compared with the modelling predictions for Year 10 of the EA excluding contaminated data. The measured annual average deposited dust levels in 2024 were elevated when compared with the modelling predictions. It is noted that modelling predictions from the AQA used an annual average deposited dust background (contribution from non-mining sources) of 0.5 g/m2 /month, whilst the historical pre mining era deposited dust monitoring data (collected from 1982 to 1986) presented in the AQA show an annual average of 1.9g/m2 /month. Therefore it is considered that the background deposited dust concentration was potentially underestimated in the modelling. If an approximate background of 1.9g/m2 /month were adopted in the predicted levels, the measured annual average deposited dust levels (excluding contaminated data) in 2024 would generally be aligned with the predicted levels.

PM_{10} 24Hr and Annual Average (TEOM1)

The results collated from TEOM1 did not exceed the 24Hr criteria of 50 µg/m^3 or the rolling average criteria of 30 µg/m^3 (Figure 4), excluding extraordinary weather events which were reported to DPHI. The collated data displays a slow downward trend in 2024, a result of the increased rainfall in 2024 in comparison to the previous reporting period.

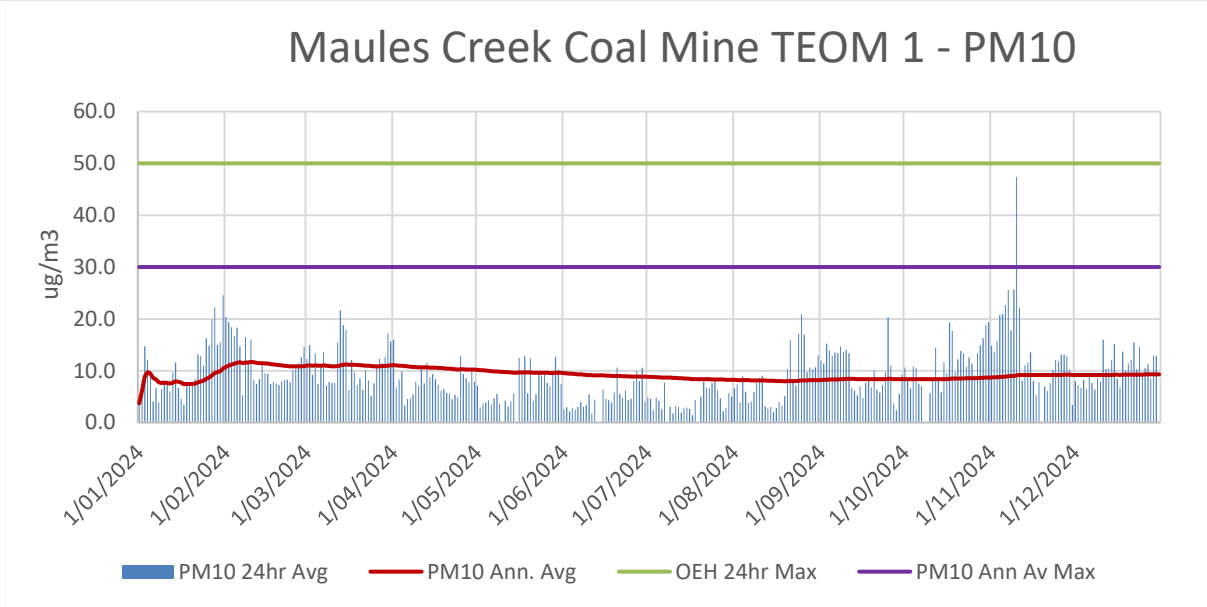


Figure 4: 24Hr and Annual Average PM_{10} (TEOM1) 2024

Table 10: Historical Air Quality Averages TEOM1

Year	TEOM 1 PM10 Annual Average
2020	12.5
2021	6.6

2022	5.1
2023	11.9
2024	9.3

PM_{10} 24Hr and Annual Average (TEOM3)

The results collated from TEOM3 did not exceed the 24-hour criterion of 50 µg/m³ or the rolling average criterion of 30 µg/m³ (Figure 5), excluding extraordinary events or non-mine related events previously reported to DPHI. The data shows a gradual downward trend due to increased rainfall in 2024 compared to the previous reporting period.

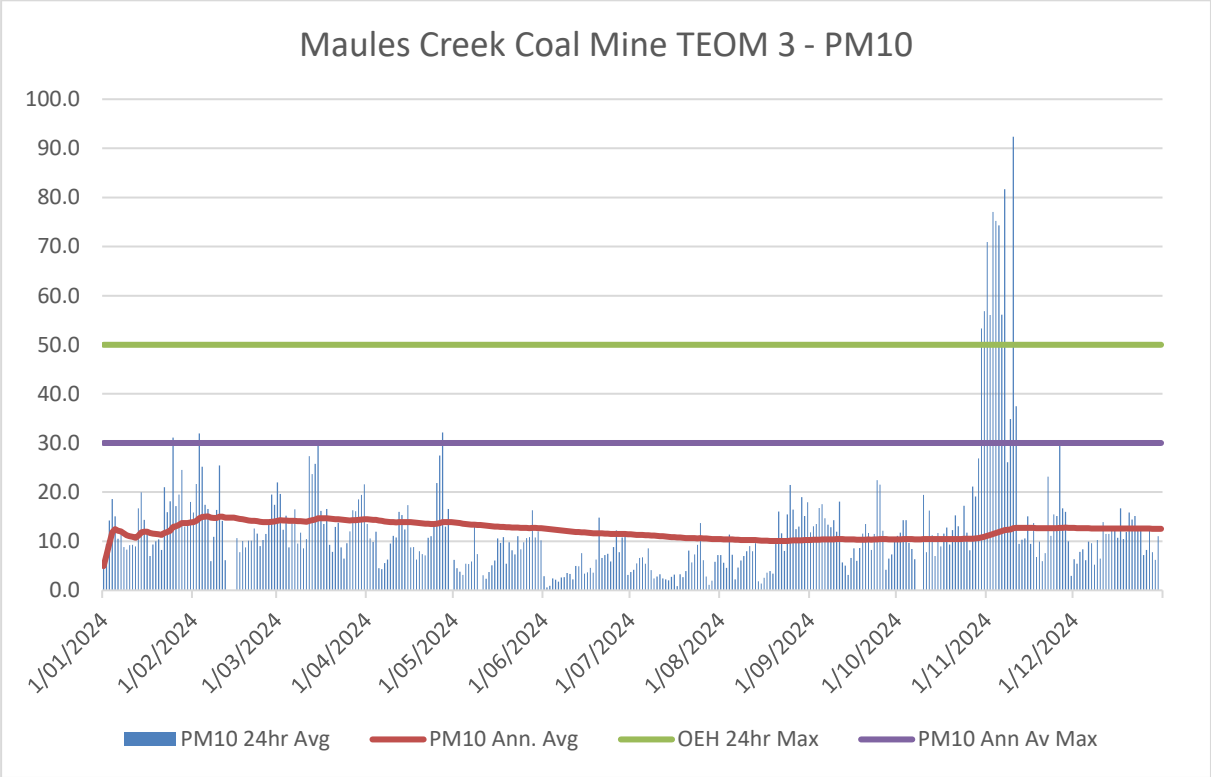


Figure 5: 24Hr and Annual Average PM_{10} (TEOM3) 2024

Table 11: Historical Air Quality Averages TEOM3

Year	TEOM 3 PM10 Annual Average
2020	16
2021	9.1
2022	12.5
2023	14.2
2024	12.5

PM_{10} 24Hr and Annual Average (HVAS)

The HVAS PM10 monitoring results collated during the reporting period did not exceed the 24-hour criterion of 50 µg/m³ or the rolling average criterion of 30 µg/m³ (Figure 6). The data shows a gradual downward trend due to increased rainfall in 2024 compared to the previous reporting period; however, the overall trend has remained relatively steady.

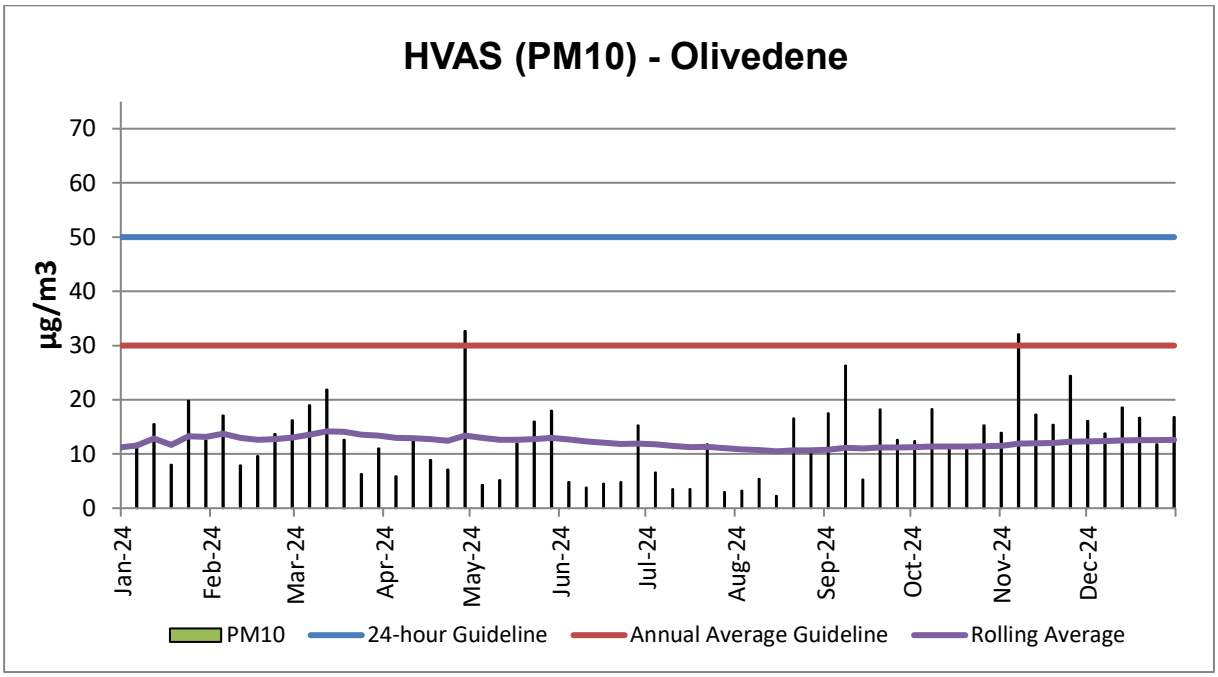


Figure 6: PM_{10} 24Hr and Annual Average HVAS

Table 12: Historical Air Quality Averages HVAS

Year	HVAS (µg/m3) Annual Average
2020	15.3
2021	9.8
2022	7.6
2023	15.2
2024	12.6

HVAS Total Suspended Particulates (TSP) Annual Average

The TSP rolling annual average during the reporting period did not exceed the 90 µg/m³ criteria this is inferred from the HVAS PM10 data (Figure 7).

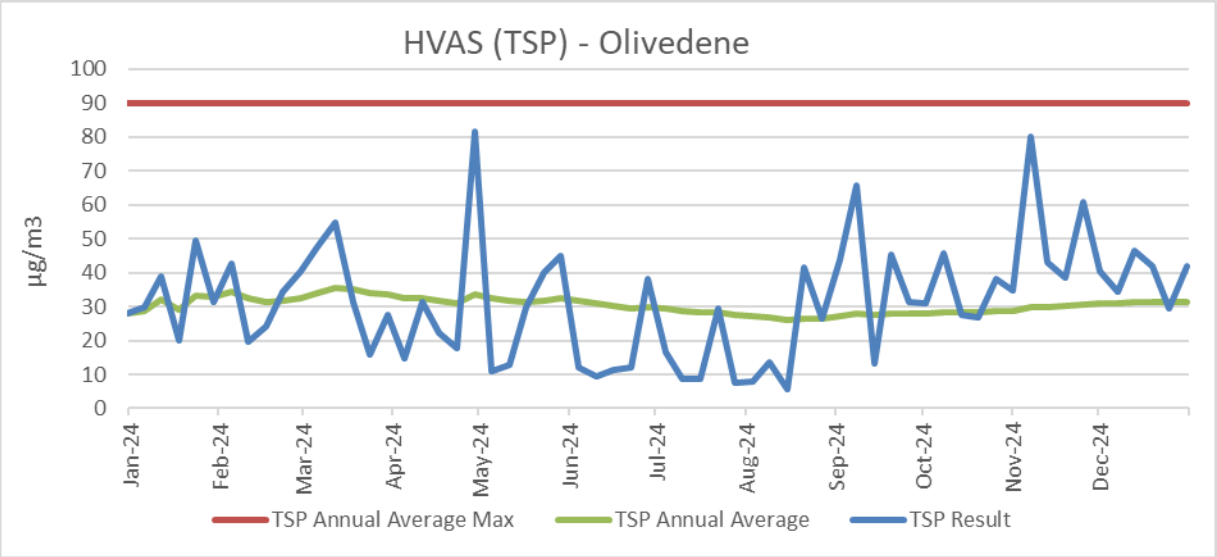


Figure 7: Annual Average HVAS TSP

Table 13: Historical Air Quality Averages TSP

Year	TSP (µg/m3) Annual Average
2020	38.25
2021	24.5
2022	19
2023	38
2024	31.5

Air Quality Historical Average:

The annual average of TEOM 1, TEOM 3, HVAS and TSP over the five previous reporting periods is shown above in Tables 10 - 13. A clear linear trend is not present due to varying rainfall totals received in each year.

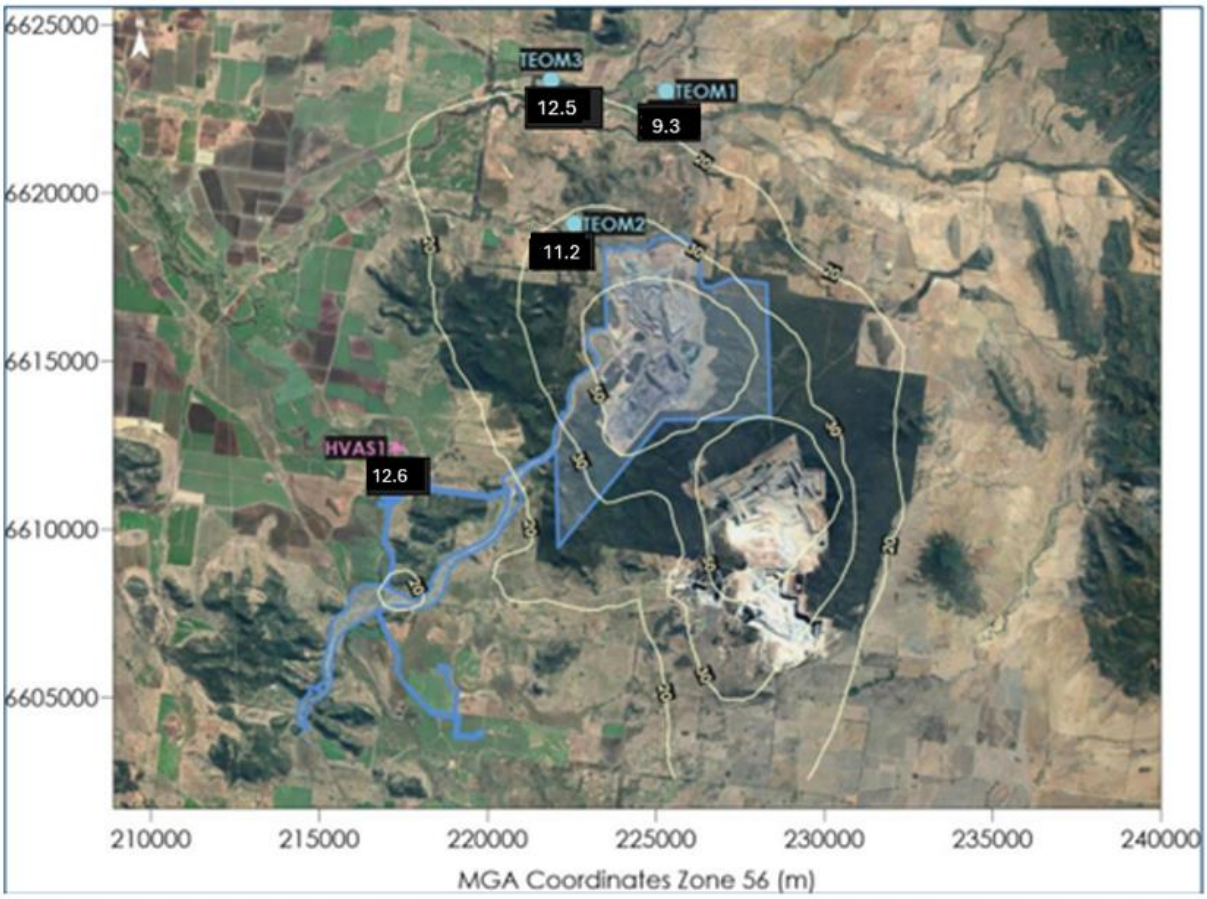


Figure 8: Comparison of Annual Average PM_{10} levels (µg/m^3) and 10 year prediction

All air quality parameters measured during 2024 have been compared with the 10 year modelling predictions, and were found to generally align with the modelling predictions seen in Figure 8.

6.2.3 Proposed Improvement Measures

Proposed measures to continuously improve include:

- Continued application of the BTM predictive modelling software and refinement where necessary;
- Continual increase of in-pit dumping;
- Continue overburden shaping to assist with enabling the placement of topsoil and rehabilitation establishment in the northern emplacement of the MCCM footprint; and
- Continued engagement with the EPA regarding the Namoi Regional Air Quality Monitoring network.

6.3 Greenhouse Gas

6.3.1 Environmental Management

Greenhouse Gas (GHG) emissions at MCCM are managed in accordance with Schedule 3 Condition 27 of PA 10_0138 and the AQGHGMP. The main sources of GHG emissions considered in the AQGHGMP are:

- Fuel consumption (diesel) during mining operations – Scope 1.
- Release of fugitive methane (CH_4) from the fracturing of coal seams – Scope 1
- Indirect emissions resulting from the MCCM's consumption and use of purchased electricity – Scope 2.

Electricity

A number of controls were applied to reduce electricity consumption at the MCCM during the reporting period, including:

- The energy efficiency of new electrical equipment is considered during procurement.
- Use of variable speed drives on pumps and conveyors in the CHPP.
- Avoiding idle running of conveyors in the CHPP.
- Management of lighting around the mine site, including the replacement of diesel powered lights with solar lights, and the use of LED lighting plants
- Use of bypass coal.

From October 2022 WHC offset Scope 2 emissions by purchasing 100% carbon neutral electricity across all operations.

Diesel Consumption

A number of controls were applied to reduce diesel consumption at the MCCM during the reporting period including:

- Ensuring dump trucks are fully loaded where possible prior to hauling to maximise efficiency, i.e. fuel used per unit of material moved.
- Maximising the efficiency of the mining fleet through regular maintenance;
- Mine planning efficiencies to minimise the gradient, length and height of loaded haul runs for dump trucks, where possible.
- In-pit and mobile refuelling facilities.
- Monitoring system for heavy vehicle use and fuel burn. This system also determines individual equipment utilisation which assists in minimising fleet size and associated wastage.
- Continued operation of the employee shuttle bus system to and from site.
- Maximising in-pit dumping, with the completion of out of pit dumping in March 2024.
- Use of the onsite simulator for driver education and training.

WHC are investigating technologies to reduce diesel emissions in the short term, including technologies to improve operational efficiencies and investigating diesel substitution options. For the longer term, WHC are engaging with OEM suppliers in relation to electrified digging units and low-carbon truck technology development pathways. Based on this engagement, WHC do not anticipate low-carbon truck electrified solutions suitable for our open cut mines to be commercially available before 2030.

6.3.2 Environmental Performance

Greenhouse Gas emissions associated with the MCCM are reported through participation in the National Pollutant Inventory (NPI) and as part of the Whitehaven Group in the National Greenhouse and Energy Report Scheme (NGERS). NPI data is publicly available on The Australian Department of Agriculture, Water and the Environment website. The total GHG Emissions attributed to the MCCM reported for the NGERS 2024 Financial Year (FY) reporting period was 311,207 t CO_2-e. This shows a 11% increase on previous years consistent with an increase to ROM coal and total over burden moved.

The following sections detail the three key GHG contributors calculated for the 2024 NGER reporting period. Prior years reported higher than the EA estimated fugitive emissions. This was a result of the emissions calculation method used for fugitive gas that utilised the Method 1 approach, which is an over-estimation versus a significantly lower and closely aligned to current Method 2 site specific emission factor applied during the development of the EA.

Diesel Usage

101,750kL of diesel (stationary and transport use) was consumed equating to 275,716 tCO_2-e GHG Emissions. Diesel usage was slightly higher than 2023 FY and estimated in the EA. This can be attributed to longer hauls which were experienced in relation to overburden placement in out of pit dumps.

Fugitive Emissions

There was a total of 9,344 tCO_2-e fugitive emissions from MCCM in the 2024 FY. This is slightly higher than the EA estimation of 7,434 tCO_2-e for 2024 FY. The EA prediction uses a global warming potential (GWP) for methane of 21 compared to NGERS 2024 FY that uses an updated GWP of 28.

Electricity Consumption

37,028 MWh power equating to approximately 25.179 kT CO2-e was consumed by MCCM. This is an increase from 2023 FY however less than the predicted consumption from the EA of Scope 2 emissions of 55.386 kT CO2-e.

Table 14: Greenhouse Gas Emissions FY2022-FY2024

	FY2022	FY2023	FY2024
Diesel usage (kL)	94, 622	92,063	101,750
Fugitive Emissions (tCO2-e)	7956	7816	9344
Electricity consumption (MWh)	35,600	29,892	37,028

6.3.3 Proposed Improvement Measures

Management measures described above will continue to be implemented during the next reporting period. In pit dumping will continue with reliance on out of pit dumps resulting in a reduction of diesel usage.

6.4 Noise

6.4.1 Environmental Management

Potential noise impacts associated with the MCCM are managed in accordance with the:

- Noise criteria and operating conditions prescribed under Schedule 3 Conditions 7 and 15 of PA 10_0138.
- EPL 20221 Conditions L4 and M8.
- The MCC Noise Management Plan (NMP) approved by DPE, and prepared to satisfy the requirements of the EPL and PA 10_0138.

Additionally, various controls were implemented to manage noise during the reporting period, including but not limited to:

- Real-time unattended noise monitoring systems at representative locations within the local area.
- Monthly compliance attended monitoring by independent acoustic consultants.
- Meteorological forecasting and daily risk reporting to advise of weather conditions in advance.
- Annual noise model validation (refer 6.4.2).
- Continued monitoring of TARP levels and dissemination of trigger alerts to MCCM personnel via SMS.
- Training of dispatch and supervisors regarding noise management and TARP's.
- Dispatch operator that monitors real time noise data and can advise of any required modifications to work practices. Modifications may include changing dumping strategies, reducing the number of machines operating or ceasing operations.
- Roaming inspections by personnel at offsite locations to identify any audible mine related noise.
- Installation of a Multi-Directional Noise Compass.
- Utilising overburden emplacement areas with acoustic shielding and higher windrows.
- Equipment sound power testing and analysis of fixed and mobile fleet.
- Operator training and awareness to reduce equipment noise.
- Use of 'silent horns' on the excavator and supporting truck fleet.
- Ongoing maintenance of the MCC mining fleet including any noise suppression equipment.
- Utilizing a double skinned exhaust system and an improved muffler design
- Low frequency noise assessments.

The MCCM noise monitoring network is illustrated in Figure 9 and includes:

- Continuous monitoring at real-time monitoring units that are utilised for daily management purposes.
- Monthly attended monitoring at six locations as described in the EPL (NM1 to NM6).

6.4.2 Environmental Performance

Attended Monitoring

The Noise Policy for Industry (NPfI) was introduced in late 2017. The application of the low frequency assessment consistent with the NPfI was applied during the reporting period.

Attended monitoring is completed on a monthly basis by an independent consultant and is used to assess compliance with licence and approval limits for mining generated noise. Monthly noise survey results are available in the EPL monitoring data reports available on the MCCM website. During this reporting period, there were no exceedances recorded.

Data trends over the life of the mine indicate that site-only LAeq noise levels have been low (either IA, NM, or less than 30 dB) for a large majority of measurements at all monitoring locations. At NM1 and NM2, site-only LAeq noise levels increased to 2020 and decreased from 2020 to 2024. At NM3, NM5, and NM6, site-only LAeq noise levels have remained very low throughout the life of the project. At NM4, site-only LAeq noise levels increased from 2014 to 2016 and decreased from 2016 to 2024.

Noise levels measured in 2024 were lower than noise levels predicted for 'Year 2023' in the NIA at all monitoring locations during all measurements. As noise levels reported in the NIA represent a worst-case prediction from the noise model, it is expected that noise levels measured during attended noise monitoring will typically be lower than predicted in the NIA.

Table 15: NM1 Measured LAeq, 15 Minute Compared to 5 Year Predicted LAeq, 15 Minute

Month	Applicable meteorological condition [1,2]	Measured MCCP $L_{Aeq,15minute}$	Predicted MCCP $L_{Aeq,15minute}$	Difference [3]
January	N/A	IA	-	N/A
February	N/A	IA	-	N/A
March	N/A	IA	-	N/A
April	N/A	IA	-	N/A
May	N/A	IA	-	N/A
June	N/A	<25	-	N/A
July	N/A	<20	-	N/A
August	N/A	<30	-	N/A
September	N/A	<20	-	N/A
October	N/A	<25	-	N/A
November	N/A	IA	-	N/A
December	N/A	<25	-	N/A

Table 16: NM2 Measured LAeq, 15 Minute Compared to 5 Year Predicted LAeq, 15 Minute

Month	Applicable meteorological condition [1,2]	Measured MCCP $L_{Aeq,15minute}$	Predicted MCCP $L_{Aeq,15minute}$	Difference [3]
January	N/A	IA	-	N/A
February	N/A	IA	-	N/A
March	N/A	<20	-	N/A
April	N/A	IA	-	N/A
May	N/A	<30	-	N/A
June	Noise-enhancing	34	39	-5 dB
July	N/A	<20	-	N/A
August	N/A	<25	-	N/A
September	N/A	<20	-	N/A
October	N/A	28	-	N/A
November	N/A	<20	-	N/A
December	N/A	<25	-	N/A

Table 17: NM3 Measured $L_{Aeq,\ 15\ Minute}$ Compared to 5 Year Predicted $L_{Aeq,\ 15\ Minute}$

Month	Applicable meteorological condition [1,2]	Measured MCCP $L_{Aeq,15minute}$	Predicted MCCP $L_{Aeq,15minute}$	Difference [3]
January	N/A	IA	-	N/A
February	N/A	IA	-	N/A
March	Noise-enhancing	<20	35	NC
April	N/A	IA	-	N/A
May	Noise-enhancing	33	35	-2
June	N/A	24	-	N/A
July	N/A	IA	-	N/A
August	N/A	IA	-	N/A
September	N/A	IA	-	N/A
October	N/A	<20	-	N/A
November	N/A	IA	-	N/A
December	N/A	<25	-	N/A

Table 18: NM4 Measured $L_{Aeq,\ 15\ Minute}$ Compared to 5 Year Predicted $L_{Aeq,\ 15\ Minute}$

Month	Applicable meteorological condition [1,2]	Measured MCCP $L_{Aeq,15minute}$	Predicted MCCP $L_{Aeq,15minute}$	Difference [3]
January	N/A	IA	-	N/A
February	N/A	IA	-	N/A
March	Noise-enhancing	IA	35	NC
April	N/A	IA	-	N/A
May	N/A	IA	-	N/A
June	N/A	<25	-	N/A
July	N/A	IA	-	N/A
August	N/A	IA	-	N/A
September	N/A	IA	-	N/A
October	N/A	<20	-	N/A
November	N/A	IA	-	N/A
December	N/A	<25	-	N/A

Table 19: NM5 Measured $L_{Aeq,\ 15\ Minute}$ Compared to 5 Year Predicted $L_{Aeq,\ 15\ Minute}$

Month	Applicable meteorological condition [1,2]	Measured MCCP $L_{Aeq,15minute}$	Predicted MCCP $L_{Aeq,15minute}$	Difference [3]
January	N/A	IA	-	N/A
February	N/A	IA	-	N/A
March	N/A	IA	-	N/A
April	Noise-enhancing	<25	35	NC
May	N/A	IA	-	N/A
June	N/A	30	-	N/A
July	N/A	25	-	N/A
August	N/A	<25	-	N/A
September	N/A	<20	-	N/A
October	N/A	<25	-	N/A
November	N/A	<20	-	N/A
December	N/A	IA	-	N/A

Table 20: NM6 Measured $L_{Aeq,\ 15\ Minute}$ Compared to 5 Year Predicted $L_{Aeq,\ 15\ Minute}$

Month	Applicable meteorological condition [1,2]	Measured MCCP $L_{Aeq,15minute}$	Predicted MCCP $L_{Aeq,15minute}$	Difference [3]
January	N/A	IA	-	N/A
February	N/A	IA	-	N/A
March	Noise-enhancing	IA	35	NC
April	N/A	IA	-	N/A
May	N/A	IA	-	N/A
June	N/A	<20	-	N/A
July	N/A	IA	-	N/A
August	N/A	IA	-	N/A
September	N/A	IA	-	N/A
October	N/A	<25	-	N/A
November	N/A	IA	-	N/A
December	N/A	<25	-	N/A

Notes:

1. NA indicates meteorological conditions during the measurement did not correspond with any modelled meteorological conditions and were not applicable for comparison.

2. NC indicates measured MCCP site L_{Aeq} noise levels were inaudible (IA), not measurable (NM), or expressed as a "less than" quantity (eg less than 30 dB), therefore measured and predicted noise levels were not comparable.

Table 21: Applicable Meteorological Conditions

Parameter	Night period	
	Standard meteorological conditions	Noise-enhancing meteorological conditions
Wind speed (m/s)	0.0 – 1.0	1.0 – 3.0
Wind direction (°)	All	All
Stability category	A-D	F

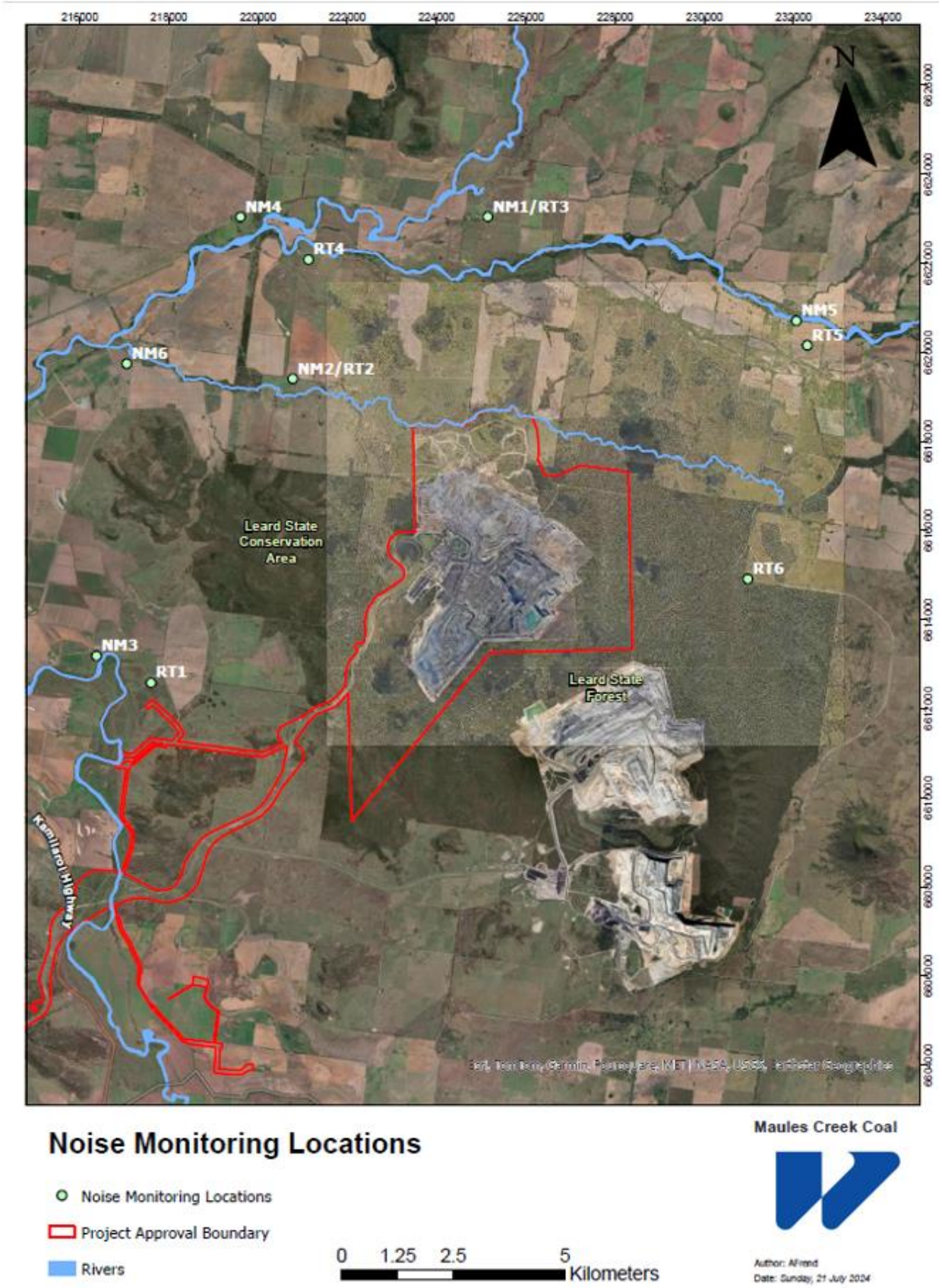


Figure 9: Noise Monitoring Network Locations

Annual Sound Power Testing

Sound power level testing of fixed and mobile plant was undertaken and results are provided in Appendix C. One-third of all plant are required to be measured on a three year-rolling basis. 78 individual pieces of mobile plant were tested during the reporting period. Sound power levels from all mobile plant were less than or equal to the predicted sound power targets described in the Project EA for modelling purposes. Results recorded for one piece of stationary plant within the CHPP was greater than the power targets described in the Project EA. This is a result of in-service testing, the layout and operation of the CHPP which increases background noise levels and reduces the available measurement positions used in the assessment. This is considered a technical non-compliance as the overall sound power of MCCM was consistent with predictions.

Performance measurements through monthly attended monitoring results support the position that MCC is operating generally in accordance with the respective Project Approval and EPL 20221 criteria for mining noise. MCCM is continuing to further develop solutions to manage sound power levels on mobile equipment. Such as ongoing work to improve exhaust systems on the Hitachi haul truck fleet.

Annual Noise Validation

MCCM engaged EMM to undertake a validation assessment of the site noise model to fulfil the requirements of the MCC Noise Management Plan (NMP) and Schedule 3 Condition 16(f).

A model of operational noise used for this assessment was created with GPS trace data of actual operations on the night of June 10 2024 to validate the site noise model. Real-time monitoring data from six locations over the winter period in 2024 were analysed to determine the upper range of measured mining noise. 90th percentile low pass LAeq was determined after data filtering then compared with the 90th percentile model. The model correlated well with actual measured levels at RT2, RT3, RT4 and RT6 but overestimated the noise impact at RT1 and underestimated noise impact at RT5.

While predictions from noise monitoring were similar to model predictions presented in the Project Acoustic Impact Assessment, analysis of real time data suggests the 2024 GPS model may be more representative of a worst-case scenario and not representative of typical operations during 2024. The model validation showed that the noise model was underpredicting the noise impact to RT5 but accurately predicted levels at RT6 on 10 June 2024. It is also possible that noise from other mining operations is contributing to measured noise levels at RT5 and RT6.

6.4.3 Proposed Improvement Measures

A number of improvement measures are proposed for the next reporting period including:

- Utilise the directional noise monitor to assess noise contributions of other mining operations
- Additional improvements to the real time environmental noise monitoring system.

- Transition to a higher volume of in-pit dumping
- Work collaboratively with Boggabri Coal and Tarrawonga Coal to minimise noise impacts

6.5 Blast

6.5.1 Environmental Management

Blast management measures are implemented at MCCM to support the management and control of post blast fume generation, dust impacts, rock fragmentation, blast overpressure and ground vibration. Blasting impacts associated with the MCCM are managed in accordance with the:

- Blasting criteria prescribed under Schedule 3 Conditions 18 to 20 of PA 10_0138.
- Blast Management Plan (BLMP), relevant MCC procedures and the BTM Blast Management Strategy (BTMBS) that have been approved to satisfy the requirements of the EPL and PA 10_0138.

During the reporting period a number of controls were applied to reduce the potential for impacts associated with blasting at the MCCM. The key controls implemented include, but were not limited to:

- Best practice blast design and drill practices in accordance with the relevant Australian Standards.
- Blast scheduling considering meteorological conditions, including wind speed and direction.
- Pre-blast assessment for each blast to determine blast exclusion zones, potential fume generation risks and appropriate controls measures to minimise potential risks.
- Review of blasts and investigations as required.
- Coordination of blasts to avoid cumulative impacts in accordance with the BLMP.
- The likelihood of fume generation is reduced through consideration of explosive product, geological conditions, best practice loading procedures, blast scheduling, 'sleep-time' and meteorological conditions.

Air blast overpressure and ground vibration monitoring are undertaken at four monitoring locations shown in Figure 10.

6.5.2 Environmental Performance

There were 111 blasts carried out during the reporting period. All blast monitors were fully operational during the reporting period. All events remained within the applicable criteria at these locations. Details of blasts are included in Appendix A. A complete capture rate for each unit occurred where blasts were above the trigger threshold. Table 22: Summary of Blasting Results summarises the blast monitoring results during the period.

As stated above there were no monitor exceedances of the applicable ground vibration and air blast overpressure limits during the 2024 reporting period at MCCM monitors. Both overpressure and ground vibration monitoring results are consistent with the predicted blasting impacts described within the EA. During the reporting period, there was no events where air blast overpressure monitoring results was above the 95th percentile limit.

Table 22: Summary of Blasting Results

Location	Parameter	Average	Maximum	100% Limit	Exceedance
BM1	Air blast overpressure (dB(Lin Peak))	91.9	112.7	120	-
	Vibration (mm/s)	0.07	0.44	10	-
BM2	Air blast overpressure (dB(Lin Peak))	95.7	111.5	120	-
	Vibration (mm/s)	0.1	0.9	10	-
BM3	Air blast overpressure (dB(Lin Peak))	95.1	110.0	120	-
	Vibration (mm/s)	0.1	1.2	10	-
BM4	Air blast overpressure (dB(Lin Peak))	94.0	113.3	120	-
	Vibration (mm/s)	0.1	1.9	10	-

6.5.3 Blast Fume

Of the 111 blasts conducted there were no significant blast fume events greater then Level 3C (*Australian Explosives Industry & Safety Group* guideline). There were 27 blasts with fume recorded in 2024, ranging from 1A to 3A. This showed a decrease from the previous year where 32 blasts recorded fume. All blasts were video recorded and categorised in line with the BLMP and relevant industry guidelines.

6.5.4 Proposed Improvement Measures

Continual refinement to blasting design, geological definition, and engagement with blasting product suppliers, shall occur during the next reporting period.

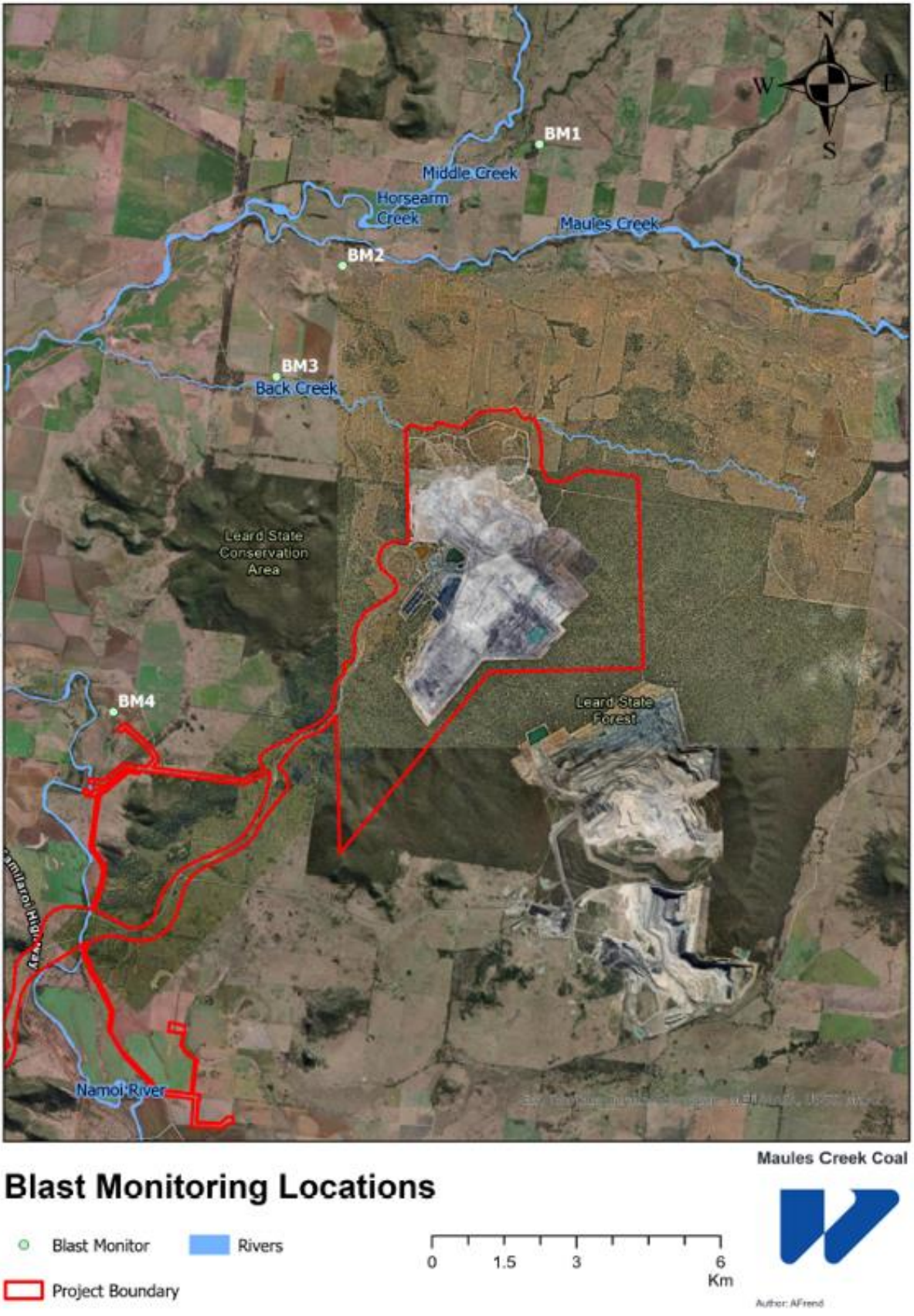


Figure 10: Blast Monitoring Network Location

6.6 Biodiversity

6.6.1 Environmental Management

Biodiversity was managed in accordance with:

- Schedule 3 Conditions 52 of the PA 10_0138; and
- the MCC Biodiversity Management Plan (BMP) and Biodiversity Offset Strategy (BOS) prepared to satisfy the requirements of PA 10_0138.

Various treatments were implemented during the reporting period to mitigate impacts of the MCCM including (but not limited to):

- weed monitoring and inspections;
- feral animal monitoring and inspections;
- seed management and collection;
- flora and fauna monitoring; and
- fuel load assessment.

6.6.2 Maules Creek Coal Mine (MCCM) – Biodiversity Offset Area (BOA) Management

The Commonwealth Department of Climate Change, Energy, the Environment and Water (CDCCEEW) approved the revised package of the MCCM Biodiversity Offset Strategy (BOS) on 9 November 2023 as part of the approval of the additional independent review and reciprocal approval of the MCCM BOS by NSW Department of Planning, Housing and Infrastructure (DPHI) occurred on 20 March 2024 as part of Modification 9 to PA 10_0138 to maintain and improve 14,881ha (NSW Revised BOS retained Teston North and Tralee) of native woodland and forest covering the Existing Offset Areas on properties adjacent to MCCM, Leard Forest and Leard State Conservation Area; adjacent to the Boonalla Aboriginal Area north of Gunnedah and the largest group of properties to the west of Barraba bordering Mount Kaputar National Park. Further, the Additional Offset Areas of Triangle, Neranghi North, Coonoor, Long Gully (near to and east/north east of Barraba) and Thornfield that complete the overall MCCM Revised BOS package (Existing and Additional Offsets) achieving the requirements of Condition 9a & 9b of EPBC 2010/5566 and Schedule 3 Condition 44 of PA 10_0138. In addition, Biodiversity Stewardship Sites in application (Rocklea North and Triangle West) as well as during other associated lands for a total area of nearly 18,500ha owned and managed on behalf of Maules Creek Joint Venture for biodiversity conservation and restoration undertaken in addition to MCCM site. Collectively, all these biodiversity properties are known as the Maules Biodiversity Management Area (BMA).

Weather Summary of MCCM Offset Properties

Regionally central meteorological station to the BMA is the Gunnedah Airport site (BOM 2024) which has recorded highly variable rainfall over the last 5 years; from the driest on record of 233mm in 2019, followed by above average rainfall years in 2020, 2021 and 2022 of 844mm, 990mm and 860mm respectively (resulting in a

numerous of major flooding events of the Namoi River). While in 2023 and 2024, the Gunnedah Airport site (BOM 2024) recorded 496mm and 572mm which are closer to the annual average rainfall of 572mm. WHC maintains eight meteorological stations across the MCCM BMA with a summary of weather conditions experienced during the 2024 reporting period:

- Roseglass - Maximum monthly average temperature was 35°C in January 2024. Minimum monthly average temperature was 7°C in June 2024. Annual temperature ranges were 2°C to 41°C in 2024. The total annual rainfall in 2024 was 492mm with the maximum in April (92mm) and minimum in March (22mm)
- Wirradale - Maximum monthly average temperature was 30°C in January 2024. Minimum monthly average temperature was 6°C in July 2024. Annual temperature ranges were 1°C to 35°C in 2024. The total annual rainfall in 2024 was 518mm with the maximum in January (69mm) and minimum in March (13mm)
- Wollandilly - Maximum monthly average temperature was 35°C in January 2024. Minimum monthly average temperature was 8°C in June 2024. Annual temperature ranges were 2°C to 42°C in 2024. The total annual rainfall in 2024 was 547mm with the maximum in April (102mm) and minimum in March (19mm)
- Teston South - Maximum monthly average temperature was 35°C in January 2024. Minimum monthly average temperature was 2°C in June 2024. Annual temperature ranges were -4°C to 42°C in 2024. The total annual rainfall in 2024 was 719mm with the maximum in April (126mm) and minimum in December (29mm)
- Kelso - Maximum monthly average temperature was 36°C in January 2024. Minimum monthly average temperature was 6°C in July 2024. Annual temperature ranges were 1°C to 41°C in 2024. The total annual rainfall in 2024 was 547mm with the maximum in April (122mm) and minimum in December (6mm)
- Triangle - Maximum monthly average temperature was 31°C in December 2024. Minimum monthly average temperature was 7°C in June 2024. Annual temperature ranges were 3°C to 37°C in 2024. The total annual rainfall in 2024 was 736mm with the maximum in February (130mm) and minimum in May (32mm)
- Long Gully - Maximum monthly average temperature was 30°C in December 2024. Minimum monthly average temperature was 4°C in June 2024. Annual temperature ranges were -2°C to 35°C in 2024. The total annual rainfall in 2024 was 742mm with the maximum in January (101mm) and minimum in March (27mm)
- Neranghi North - Maximum monthly average temperature was 31°C in January 2024. Minimum monthly average temperature was 6°C in July 2024. Annual temperature ranges were 0°C to 37°C in 2024. The total annual rainfall in 2024 was 755mm with the maximum in April (115mm) and minimum in January (19mm)

Offset Security Management

MCCM previously registered 9 Conservation Agreements between 14 March 2020 and 2 June 2021 on the land titles for 14 of the properties being secured as part of the MCCM Existing Offset Areas (plus Thornfield). Then a further 4 Conservation Agreements for the MCCM Additional Offset Areas were registered between 26 February and 19 March 2024 securing the overall MCCM Revised BOS package under Part 5 Division 3 of the Biodiversity Conservation Act 2016 completing the in perpetuity legal mechanism required by the Commonwealth EPBC Act Approval 2010/5566 Condition 13 & 13A plus NSW Project Approval 10_0138 Schedule 3 Conditions 45 & 45A. In 2024, WHC has recommenced consultation with NPWS for those Offsets Areas previously shown interest in being transferred to National Park Estate.

Infrastructure & Waste Management

During the reporting period, a total of 8.4km of new or repaired fencing (fauna friendly) was constructed along the perimeter of MCCM biodiversity properties (Roseglass, Teston South, Wollondilly, Onavale, Wirradale, Mt Lindesay, Thornfield Triangle, Long Gully and Olivedene) as well as maintenance of signage and gates undertaken as required to continue to restrict unauthorised access and minimise livestock incursion. During the reporting period, 1.7km of redundant internal or replacement of external fences were deconstructed from the Roseglass property. Any remaining derelict assets/infrastructure items will continue to be assessed, removed, and remediated as required prior to potential transfer of MCCM biodiversity properties to National Park Estate. No further remediation of hazardous material sites on the MCCM BMA occurred during the reporting period that originated from derelict assets/infrastructure items associated with previous agricultural management onsite.

Seed Management

The routine seed assessments for the MCCM BMA aims to identify on a seasonal basis the life cycle stage and development of native plants to identify what, where, when and how to target appropriate resources to collect seed for future revegetation programs. A total of 8 species were collected resulting in 1.9kg of local provident seed from MCCM biodiversity properties that was incorporated with other local and regionally provident seed sourced by reputable seed collectors as part of the WHC group wide revegetation planning. A local revegetation provider was engaged to propagate the seed to produce Box Gum and non-EEC/CEEC Woodland overstorey species seedlings required for the completed 2024 revegetation program as well as planning for the 2025 revegetation program for the MCCM BMA.

Revegetation Management

The MCCM BMP revegetation strategy focuses on restoration and revegetation of cleared non-native grassland (former cultivation) and derived native grasslands and assisting natural regeneration in better quality woodland areas. During the reporting period, no specific revegetation works were undertaken having materially completed primary revegetation of MCCM Offset Areas in 2023 and thus no longer requiring the understorey revegetation (direct seeding) program with only overstorey revegetation program potentially requiring ongoing maintenance revegetation towards the target Woodland PCT vegetation composition, structure and function.

Heritage Management

During the reporting period, annual heritage inspections were completed on the 227 known Aboriginal archaeological heritage sites and 9 historical heritage sites within the MCCM BMA. The sites are maintained with a total of 34km of demarcation fencing around all heritage site perimeters and signage to mitigate access and inadvertent disturbance. During this reporting period, 13 new archaeological heritage sites were identified on the Rocklea North, Onavale, Warriahdool South and Wollandilly West biodiversity properties. Further, 3km of new heritage site fencing or fence maintenance was carried out during 2024.

As mentioned above, the Aboriginal Heritage Conservation Strategy (AHCS) was approved by the former DPIE in November 2017 in accordance with PA 10_0138 Schedule 3 Condition 57 outlining an approach for conserving regional Aboriginal heritage values within the BTM mines and associated Biodiversity Offset Areas including assessing Cultural Values. The initial Cultural Values Surveys of the Existing MCCM Offset Areas was completed in 2019 and the report was acknowledged by the former DPIE on 29 June 2020 as fulfilling a number of commitments of the AHCS including endorsement by Registered Aboriginal Participants involved in the survey. Following PA 10_0138 MOD 9 BOS approval and Conservation Agreement registration in 2024, Cultural Values Surveys of the Additional MCCM Offset Areas were completed. A final Cultural Values Report will be prepared and consulted with the Registered Aboriginal Participants and community including an 'On-Country' event with access and educational opportunities in planning for the Onavale Offset Area (subject to Conservation Agreement Variation VC00492 under assessment by NSW Biodiversity Conservation Trust).

Habitat Management and Ecological Thinning

During the reporting period, habitat augmentation was undertaken with 178 new nest boxes targeted for Small Gliders, Greater Gliders, Microbats, Turquoise Parrots, Brown Treecreepers and Pale-headed Snakes were installed on the biodiversity properties of Roseglass, Bimbooria, Kelso, Velyama West, Louenville, Wollandilly, Wirradale and Mt Lindesay. This brings the total habitat augmentation constructed across MCCM BMA to 644 Nest Boxes since 2021 in accordance with the Leard Forest Regional Biodiversity Strategy as well as the previously installed 113 Coarse Woody Debris Habitat items on Velyama West biodiversity property linking remnant vegetation within the "east-west" corridor identified in MCCM PA 10_0138.

Previously the Leard Forest Regional Biodiversity Strategy (Umwelt, 2017) Stage 2 Strategy considered adaptive management such as ecological thinning for Box Gum Woodland restoration. Since 2020, an Ecological Thinning Assessment (Stage 1 AMBS, 2020) concluded that there was no evidence of direct impacts from Callitris (Cypress Pine) regrowth to native plant species richness (composition) or density (structure) within remnant Box Gum Woodland vegetation communities. Further Ecological Thinning Assessment (Stage 2 AMBS, 2022) concluded that no areas on MCCM BMA supported inappropriate Callitris regrowth therefore ecological thinning management could not be justified at this point in time. During the reporting period; the Ecological Thinning Assessment (Stage 3 AMBS, 2024) did not find any substantive change between Callitris regrowth and biodiversity values therefore no change to the need for ecological thinning; however a potential drop in Callitris

abundance was detected in response to previous ecological burns therefore the Ecological Thinning Assessment should be repeated in 5 years' time to reevaluate the potential correlation between cover and diversity of Callitris in Box Gum Woodland overtime.

Weed Management

WHC coordinated routine weed monitoring and inspections being undertaken across the MCCM BMA in March, May, June, September, November and December 2024. The priority weeds identified included legacy weeds inherited from previous owners management regimes such as Buffel Grass, African Love Grass, African Box Thorn, Mother of Millions, Prickly Pear, Velvet Tree Pear, Sweet Briar, Noogoora Burr, Bathurst Burr, Coolatai Grass and Johnson's Grass as well as a range of broadleaf weeds within revegetation areas. The weed monitoring/inspections ensure that timely and prioritised weed control is undertaken on a seasonal basis with the information directly given to spraying contractors to identify what, where, when and how to target appropriate resources across the MCCM BMA for weed control. During the reporting period, WHC implemented a weed control program across the MCCM biodiversity properties including 1370ha treated across Rocklea North, Roseglass, Bimbooria, Kelso, Velyama West, Louenville, Teston South and North, Tralee, Wollandilly, Onavale, Wirradale, Wongala South, Mt Lindesay, Thornfield, Triangle, Neranghi North, Coonoor, Long Gully, Ferndale, Ellerslie, Cattle Plain and Olivedene targeting primarily Broadleaf weeds within revegetation areas and along fire break tracks, as well as African Lovegrass, Buffel Grass, Rhodes Grass, Coolatai Grass, Prickly Pear, African Box Thorn, Sweet Briar, Blackberry, Velvet Tree Pear and Tiger Pear including spraying of fire break tracks. Only appropriately qualified and experienced weed contractors (AQF3 accreditation or higher for use of herbicide) were engaged to undertake weed control works for WHC.

Pest Animal Management

WHC aims to apply an even and consistent pest animal management effort by routinely scheduling rolling monitoring and control programs across MCCM BMA. This standardised approach can also be supplemented with periodic targeted programs that focus on specific areas with high pest animal detection, or, on species which have increasing rates of detection. Both the overall management and targeted programs are planned using data collected from grid based motion detection camera monitoring program, pest animal observations and the results of previous control programs. Monitoring demonstrated that certain animals like Eastern Grey Kangaroos and Feral Pigs were moderate to highly detectable across the year plus Feral Goats and Foxes locally or seasonally moderately detectable on specific biodiversity properties. All other pest animal species had a scarce to low detectability across 2024. The pest animal monitoring ensures that timely and prioritised pest animal control is undertaken on a seasonal basis identifying what, where, when and how to target appropriate resources across the MCCM BMA for pest animal management. During the reporting period, WHC implemented a comprehensive pest animal control program across the MCCM BMA with routine 1080 canid pest ejectors plus Hoggone baiting and trapping programs as well as Open Range Shooting undertaken throughout 2024. During the reporting period, there were 409 canid pest ejectors triggered from 1567 deployed and 5512 Hoggone baits consumed from 9872 presented across the MCCM BMA. A further 344 Feral Pigs were trapped and removed

from the MCCM BMA. Open range shooting programs were implemented in conjunction with the other pest animal programs resulting in an additional 131 Goats, 4 Rabbits/Hares, 666 Feral Pigs, 19 Deer and 16 Foxes being controlled in 2024. Feral Goat mustering continued during the reporting period resulted in 1204 Feral Goats being captured with saleable Goats on sold to an abattoir. Only appropriately qualified and experienced pest animal contractors (appropriate pest animal management qualifications, NSW fire arm licence and pesticide accreditation where relevant) were engaged to undertake pest animal control works for WHC.

Soil & Erosion Management

Annual inspections were undertaken including unsealed fire break tracks and associated drainage structures across the MCCM BMA to review appropriate erosion and sediment control measures required in accordance with the Blue Book (Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004)). A total of 61 observations were recorded within the MCCM BMA with only 12 locations requiring targeted additional track maintenance to mitigate further erosion and sedimentation. The remaining tracks/drainage structures are maintained during routine WHC Biodiversity fire break track maintenance program. There are also a number of legacy erosion sites inherited from previous owners management regimes that are subject to a separate annual inspection process and updates to the WHC erosion register made. During the reporting period, monitoring or remediation actions and investigations commensurate to the risk were undertaken for the 6 erosion sites identified within MCCM BMA.

Grazing Management

MCCM BMAs continued to be destocked and no strategic grazing occurring during the reporting period. There were 13 instances of stock incursion during the reporting period; with the stock on each occasion retrieved and fencing repaired as required.

Bushfire Management

In accordance with the BMP, annual fuel load monitoring was undertaken between September and November 2024 as part of planning and assessment of bushfire hazard and ecological burn program for 2025; with the results indicating moderate to very high overall fuel loads present. During the reporting period, 4 bushfires (lightning ignition) over 3.4ha on Roseglass and Triangle biodiversity properties and 1 controlled ecological burn over 7.31ha on Mt Lindesay biodiversity property. Other fire management implemented by WHC during the reporting period was maintenance carried out as required on 631.7km of access tracks to a zero fuel barrier standard across the MCCM BMA. WHC maintains regular communications throughout the reporting period with both the Liverpool Range and Namoi-Gwydir Zone RFS teams around planning of WHC BMA site ecological burn programs as well as maintain contact points in case of emergency. WHC maintains a specialist firefighting contractor for an oncall engagement during the fire season to respond in the event of a bushfire on WHC BMAs and non-mining lands.

Threatened Flora Fencing

During the reporting period, threatened flora inspections were completed on the 57 known threatened flora sites for Tylophora linearis, Pomaderris queenslandica, Thesium australe, Dichanthium setosum and Digitaria porrecta within the MCCM BMA with each site is maintained with a total of 46.7km of demarcation fencing around all site perimeters and signage to mitigate access and inadvertent disturbance.

Tylophora linearis Management

In accordance with the BMP, Stages 1 (Root Architecture) to 4 (Seed Propagation) of the Tylophora linearis translocation program had previously been completed in 2014 and 2015, with the Growth Study ongoing during the reporting period. Monitoring has continued of the 77 Tylophora linearis seedlings transplanted back in 2015 within the Wollandilly biodiversity property which were propagated from seed collected onsite at the MCCM during 2014 with only a proportion of the translocated Tylophora linearis persisting through the 2024 monitoring period. Quarterly inspections of the translocated and natural populations identified limited opportunities with reproductive material on a subset of established plants. Further Tylophora translocation was undertaken in February 2024 with 20 turves (plant/rootball and soil) removed from the MCCM 2024 clearing area and relocated to the Tylophora Topsoil Recipient site established on Teston South biodiversity property back in 2019 with 75% of the Tylophora linearis turves still healthy and above ground visible at the end of 2024. MCCM continues to work effectively towards the first part of the translocation program aim "…support the conservation of Tylophora linearis" with the results of monitoring supporting that the conservation of species habitat continues to be effectively achieved with all sub-populations of Tylophora linearis within Threatened Flora sites continuing to remain healthy and stable even with limited opportunities and results of translocation programs to date.

Pomaderris queenslandica Management

In accordance with the BMP, Stages 1 (Root Architecture) to 4 (Seed Germination) of the Pomaderris queenslandica translocation program had previously been completed in 2015 and 2016. The germination and propagation program has been continued since with additional seed collected, resulting in an additional 298 Pomaderris queenslandica being translocated adjacent to the existing enclosures within the Wollandilly biodiversity property in 2024. Monitoring of all Pomaderris queenslandica translocated between 2020 and 2024 recorded an 87.5% survival rate. The majority (72.1%) of plants translocated between 2020 and 2023 developed flowers and seed during 2024 attributed to higher than average rainfall in months leading up to the reproductive period of the species. The survival rate for plants in the Soil Stockpile and Translocation sites was 94.2%, and a census completed in the Soil Translocation site tallied 528 Pomaderris queenslandica within the enclosure. This is a significant step towards the stated aims for the translocation program which was to "…support the conservation of Pomaderris queenslandica, and to maintain a self-sustaining, genetically diverse population of the species within the WHC Offset Properties" with the results of monitoring supporting that younger translocated plants are more susceptible to water stress during hot dry condition but the older more established translocations appear more resilient to water stress and hot conditions as translocated populations become more resilient with time.

Monitoring Program

The 2024 ecological monitoring program of the Maules Creek BOA included winter bird surveys that were undertaken in July and August 2024; annual spring flora monitoring of 115 plots across 16 vegetation zones (VZs) undertaken during September and October 2024 and the fauna monitoring program completed surveys at 157 bird survey sites, 55 echolocation sites, 20 harp trap sites, 33 passive acoustic recorder sites and 54 motion detection camera sites between January 2024 and November 2024. During the winter bird surveys, seven threatened species (Diamond Firetail, Dusky Woodswallow, Grey-crowned Babbler [eastern subspecies], Little Lorikeet, Painted Honeyeater, Speckled Warbler and Turquoise Parrot) were recorded. During flora monitoring, four VZs (VZ 10, VZ 12, VZ 40 and VZ 41) were recorded as meeting or exceeding completion criteria for all four biometrics. Native plant species richness (NPS) completion criteria (native species richness benchmark for relevant biometric vegetation communities) was met or exceeded at 12 out of 16 VZs. Native overstorey cover (NOS) completion criteria (minimum overstorey cover benchmark for relevant biometric vegetation communities) was met or exceeded at 8 out of 16 VZs. Native midstorey cover (NMS) completion criteria (minimum midstorey cover benchmark for relevant biometric vegetation communities) was met or exceeded at 8 out of 16 VZs.

Native ground cover grass (NGCG) completion criteria (minimum groundcover benchmark for relevant biometric vegetation communities) was met or exceeded at all 16 VZs. Comparison of individual plot data shows that NPS slightly decreased from 90 out of 115 plots meeting or exceeding completion criteria in 2023, to 89 out of 115 plots in 2024. Native overstorey cover (NOS) increased from 61 out of 115 plots meeting or exceeding completion criteria in 2023, to 64 out of 115 plots in 2024. Native midstorey cover (NMS) increased from 53 out of 115 plots meeting or exceeding the completion criteria in 2023 to 60 out of 115 plots in 2024. Native ground cover grass (NGCG) slightly decreased from 113 out of 115 plots meeting or exceeding the completion criteria in 2023, to 112 out of 115 plots in 2024.

Bird, microbat and vertebrate surveys were taken across a range of vegetation types. Data in relation to species richness, average species and range of species is summarised in Table 23 below.

Table 23: Biodiversity Fauna Monitoring by Habitat Type

Fauna	Woodland			Naturally Regenerating			Rehabilitation		
	Richness	Average	Range	Richness	Average	Range	Richness	Average	Range
Bird	114	20.29	7-38	123	19.66	6-33	90	7.8	2-12
Microbat	19	12	5-17	18	11.33	8-14	15	7.09	0-14

Pre-Clearing and Clearing Surveys

The 2024 clearing program occurred between February 15 and April 30 2024 and consisted of the clearance of a total of 52ha to facilitate the expansion of the mining pit area and improve heavy vehicle access roads.

The ecological works for the clearing program consisted of the following activities;

- Weed mapping
- Threatened flora surveys
- Fauna pre-clearance surveys
- Clearance supervision
- Post-felling re-inspections

Prior to the commencement of any clearing activities the limits of clearing were surveyed and marked with pegs and flagging tape.

The pre-clearance and clearance flora and fauna surveys were conducted in several stages, some of which were ongoing throughout the entire clearing period and others conducted in discrete phases.

Targeted threatened flora surveys were conducted prior to the clearing activities in conjunction with weed mapping surveys. All threatened flora identified were recorded and their locations mapped with hand held GPS units.

Fauna pre-clearance surveys were also conducted in the week prior to the clearing works, to minimise the risk of birds nesting between the time of the survey and the commencement of clearing. This process ensures the maximum possible wellbeing of native fauna within the clearing areas as outlined in the BMP. Fauna pre-clearance surveys consisted of identifying, marking and documenting suitable fauna habitat features. These features include significant rock outcrops and crevices, large boulders, nests and, in particular, trees bearing hollows which have the potential to support species such as bats, gliders, possums, reptiles and birds. All fauna pre-clearing teams were equipped with endoscopic cameras to enable the examination of hollows considered likely to contain fauna. Features identified as likely to support resident fauna were marked with a large “H” using fluorescent spray paint and flagging tape. Habitat features were recorded using hand held GPS units.

In addition to the identification and marking of likely habitat features, nocturnal spotlight surveys were conducted throughout the clearing area to identify hollows in use by resident fauna such as the Squirrel Glider (*Petaurus norfolcensis*) and microbats. These surveys were conducted from dusk until approximately two hours after sunset.

Vegetation clearance was conducted following a two stage process, as follows:

- Stage 1 - After an area has been suitably surveyed for fauna habitat features, grubbing dozers then remove all understory vegetation leaving the marked habitat features isolated. Following grubbing works, habitat items were allowed to stand overnight. This was to allow resident fauna the opportunity to self-relocate to adjacent undisturbed vegetation.
- Stage 2 - In the following days, felling machinery conducted the removal of the isolated habitat items under the supervision of an ecology team. Habitat trees were shaken by the clearing machinery prior to felling to encourage fauna which had not already vacated the tree to do so. Following approval from the

ecologists, the habitat trees were felled as softly as possible. The ecology team then inspect the hollows and loose bark for resident fauna and rescue any that remain present.

Fauna was encountered throughout the 2024 clearance works, including species of mammals and birds. Threatened species under the Biodiversity Conservation Act 2016 (Formerly called the *Threatened Species Conservation* (TSC) Act 1995) and/or the *Environment Protection and Biodiversity Conservation* (EPBC) Act 1999 were also encountered.

The following threatened fauna species were encountered during 2024 clearing works:

- *Microchiroptera* (Microbats)

6.6.3 Proposed Improvement Measures

A number of improvement measures proposed for the next reporting period including:

- Follow up monitoring of revegetation and weed management works across the offset areas and associated adaptive management;
- Continued implementation and progression of research projects required under the EPBC approval (refer section 8.1.1.9) ;
- Implement improvements from audit findings.

6.7 Aboriginal Cultural Heritage

6.7.1 Environmental Management

Aboriginal cultural heritage is managed in accordance with the Aboriginal Archaeology and Cultural Heritage Management Plan (AACHMP) which was prepared to satisfy Schedule 3 Condition 58 and the SOC detailed in the PA 10_0138. The AACHMP was revised in 2023 by Whincop Archaeology, and was approved by DPIE in August 2024. The BTM Aboriginal Heritage Conservation Strategy, which aims to manage Aboriginal cultural heritage values across the three Leard precinct coal mines and associated biodiversity offset areas, was approved in November 2017.

6.7.2 Environmental Performance

Annual Monitoring Program

The Annual Site Audit (the Audit) was undertaken on 27-28 August 2024 with two Registered Aboriginal Parties (RAPs) accompanied by a qualified archaeologist. The Audit included an inspection of all extant previously identified Aboriginal cultural heritage sites within the approved project boundary of the MCCM; all sites located within the MCCM biodiversity offset areas are inspected as part of a broader biodiversity offsets annual inspection. The Audit assessed the condition of 40 extant sites including fencing, potential disturbance and photographic records. Any required fence maintenance identified during the audit was noted in the resulting

2024 Annual Site Audit Report. All Aboriginal cultural heritage objects recovered (salvaged) from the MCCM are stored securely at the Red Chief Local Aboriginal Land Council (LALC) as part of an existing Care Agreement, which was approved in early 2018. In accordance with the Care Agreement, Red Chief LALC is responsible for a regular audit of the artefact archive.

Additional Monitoring / Inspection of Sensitive Heritage Areas

In accordance with the approved MCCM AACHMP, archaeological inspection of the FY 2024 annual clearance areas was undertaken by Whincop Archaeology, accompanied by two RAPs. As part of this process, approximately 76.5 hectares of the FY25 clearance areas in the Leard State Forest were subject to archaeological inspection on 15-17 January 2024. The FY24 annual clearance area also included inspections of the location of thirty-one proposed drill pads and associated access tracks. A final clearance area (1.5 hectares near the CHPP) was also investigated. The 2024 archaeological field team consisted of one qualified archaeologist, and two Registered Aboriginal Parties. No new sites were identified during this process. The location of one existing isolated artefact (Leard SF IA13) was inspected, and the artefact was not located (the site has been cleared for impact regardless). The FY24 clearance area was investigated by the archaeological field team in accordance with the procedure outlined in section 6.4.2 of the approved MCCM Aboriginal Archaeology and Cultural Heritage Management Plan [AACHMP]. This process included a visual inspection of the ground surface prior to disturbance, with any 'sensitive' landforms (as defined in the approved MCCM AACHMP) targeted for detailed inspection. Excavations was not deemed necessary.

The archaeological FY 2025 annual clearance area was undertaken by Whincop Archaeology, accompanied by two RAPs. As part of this process, approximately 38.5 hectares of the FY25 clearance area was subject to archaeological inspection on 11 November 2024. The annual clearance area also included inspection of several proposed drill pads and associated access tracks. The archaeological field team consisted of two qualified archaeologists, and two Registered Aboriginal Parties. No new sites were identified during this process. The FY25 clearance area was investigated by the archaeological field team in accordance with the procedure outlined in section 6.4.2 of the approved MCCM Aboriginal Archaeology and Cultural Heritage Management Plan [AACHMP]. No new Aboriginal objects were identified within the FY25 clearance area.

Other Archaeological Investigations

In addition to proposed annual clearance areas, several additional archaeological investigations were undertaken at the MCCM within 2024 as part of the proposed Maules Creek Continuation Project (MCCP). Archaeological survey included areas within the Leard State Forest, Back Creek, and along a proposed pipeline alignment on the north side of Rangeri Road. Some of these survey areas were within the existing MCCM Project Boundary. While several new artefact sites were identified within these surveys, they are largely located within 200 metres of Back Creek and associated tributaries. The management of these new sites will be incorporated into the MCCM AACHMP once the MCCP is approved.

Archaeological Salvage Report

All artefact sites identified within the MCCM disturbance area have been salvaged in previous reporting periods through a combination of surface collection, test excavation and open-area excavation. The MCCM Archaeological Salvage report is being prepared and will be completed in the near future.

Aboriginal Heritage Conservation Strategy (AHCS)

As mentioned above, the Aboriginal Heritage Conservation Strategy (AHCS) was approved by the former DPIE in November 2017 in accordance with PA 10_0138 Schedule 3 Condition 57 outlining an approach for conserving regional Aboriginal heritage values within the BTM mines and associated Biodiversity Offset Areas including assessing Cultural Values. The initial Cultural Values Surveys of the Existing MCCM Offset Areas was completed in 2019 and the report was acknowledged by the former DPIE on 29 June 2020 as fulfilling a number of commitments of the AHCS including endorsement by Registered Aboriginal Participants involved in the survey. Following PA 10_0138 MOD 9 BOS approval and Conservation Agreement registration in 2024, Cultural Values Surveys of the Additional MCCM Offset Areas were completed. A final Cultural Values Report will be prepared and consulted with the Registered Aboriginal Participants and community including an 'On-Country' event with access and educational opportunities in planning for the Onavale Offset Area (subject to Conservation Agreement Variation VC00492 under assessment by NSW Biodiversity Conservation Trust).

Ongoing Consultation

In accordance with the AACHMP, meetings with RAPs are convened on a yearly basis. In accordance with the approved AACHMP, one RAP meeting was held during 2024, and was open to all RAPs; the meeting was held in person in Boggabri on 3 July 2024.

Management of Quinine Bush

Quinine Bush (Alstonia constricta) continues to be mapped across the project as part of the land pre-clearance surveys, with the aim of identifying opportunities for seed collection and propagation. Ecologists have also been trained on the identification of potential Aboriginal scarred trees during pre-clearance surveys.

6.7.3 Proposed Improvement Measures

In 2024, several aspects of cultural heritage work will continue, including the continued implementation of the approved MCCM Aboriginal Archaeology Cultural Heritage Management Plan (AACHMP). In particular, the latest AACHMP was updated in 2023/2024 to reflect the current status of Aboriginal sites. The AACHMP, which was updated by Whincop Archaeology, reviewed by Whitehaven Coal, and approved by DPIE.

6.8 Historic Heritage

6.8.1 Environmental Management

Historic heritage is managed in accordance with Schedule 3 Condition 58 of PA 10_0138 and the Statement of Commitments included in Appendix 5 of PA 10_0138, as well as specific management measures contained within the Maules Creek Historic Heritage Management Plan (HHMP). The MCCM HHMP was revised in 2021/2022 and was approved by DPIE on 16 March 2022.

The original Historic Heritage Assessment undertaken as part of the EA identified five historic heritage sites within MCC owned land. In 2016, an assessment was undertaken to address the proposed realignment of a river water pipeline in proximity to two potential historic heritage sites (Harparary Site Complex), which were deemed to be of local significance and were subsequently added to the MCCM HHMP. The recently approved HHMP (March 2022) includes performance measures for the protection and management of seven historic heritage sites.

6.8.2 Environmental Performance

A site inspection of all known historic heritage sites within the vicinity of the Maules Creek Coal Mine was undertaken as per Section 4.3.1 of the HHMP to ensure protective fencing was installed and adequate, to monitor the ingress of weeds at the seven historic heritage sites. The site inspection included an assessment of the structural integrity of Velyama Shearing Shed and headstones within the Velyama Burial Ground. All historic heritage sites were considered to be in a generally stable condition, with the exception of the Warriahdool Hut, which is collapsing. A structural engineering report on the Velyama Shearing Shed identified several necessary repairs to the structure in order to maintain long-term structural integrity. These repairs are in the process of being undertaken at the Velyama Shearing Shed. The two trees immediately adjacent to this structure have been removed, as per advice from Whincop Archaeology (the dead tree was threatening to fall on the shed, while the live tree was actively pushing on the shed and causing structural issues).

As predicted in the EA, the mining activity has not directly impacted the historic heritage items, although the extreme deterioration and unsafe condition of the two Harparary Complex structures has resulted in the deliberate demolition of these buildings. While this has resulted in a partial loss of historic heritage value, each site maintains an intact archaeological record that retains historic heritage values of local significance (their significance is primarily associated with the historical and archaeological values associated with the archaeological deposits at the site). An asbestos clearance program was undertaken at the site of the two former Harparary structures; this activity was overseen and monitored by Whincop Archaeology to ensure minimal disturbance to the archaeological record.

The Warriahdool Hut is in a deteriorating condition due to natural weathering and insect activity. A report prepared by Whincop Archaeology has recommended that this structure be deliberately demolished to minimise impact to the underlying archaeological deposit; measured drawings and a photographic archive have already been compiled for this heritage site. The eastern facade of the hut has now completely collapsed.

6.8.3 Proposed Improvement Measures

Biennial monitoring of historic heritage sites will continue in 2025, with maintenance and weed control to be undertaken as required. The demolition of the derelict, collapsing structure at Warriahdool Hut will improve the safety of this site and will ensure its associated archaeological deposits can be effectively maintained. A restoration project aimed at repairing the structure of the Velyama Sheering Shed will continue in 2025.

6.9 Traffic

6.9.1 Environmental Management

Traffic impacts associated with the MCCM are managed in accordance with Schedule 3 Condition 59 to 66 of the PA 10_0138 and the Traffic Management Plan (TMP). Various management measures were implemented during the reporting period to mitigate the traffic impacts of the MCCM including:

- A code of conduct for drivers of heavy and light vehicles;
- Notification to contractors and staff regarding the driver code of conduct and to advise of any updated access arrangements;
- Nominated access routes for all vehicles travelling to and from the MCCM, reinforced by approved signage and quarterly audits;
- Provision of a shuttle bus service for employees to access site;
- Consideration of school bus pick up and drop off times when scheduling shift changeovers;
- Monitoring of traffic volumes, road safety inspections, quarterly auditing of approved access routes;
- Results for coal transport monitoring are made publicly available on the MCC website annually;
- Community feedback via MCCM community contact line, website request and email, as well as consultation with the Community Consultative Committee (CCC); and
- Consultation with the relevant authorities to obtain necessary permits prior to the movement of oversized loads on public roads.

6.9.2 Environmental Performance

MCC conducts an annual audit regarding local road access restrictions as described in the TMP. Over the course of the 2024 reporting period analysis of employee transport records demonstrates wage employees utilising the bus services ranged from 86.56% to 88.26%.

There was two complaints regarding traffic generated by the MCCM during the reporting period.

The Boggabri access road off the Kamilaroi Highway is the primary access for mine related traffic this assists in reducing vehicle interactions of mine and public traffic on Therribri Road.

6.9.3 Proposed Improvement Measures

Annual audits of restricted roads, quarterly monitoring of traffic volumes to the site and responses to any community complaints will continue to be implemented during the next reporting period. Section 6 of the MCC TMP requires quarterly traffic surveys to be undertaken, these surveys assess operations, maintenance and CHPP wages employees that utilise the bus service. Results from these surveys are presented in Table 24 below.

Table 24: Traffic Survey Results

Period	Wages Employees Accessing Site During Survey Period	Wages Employees Utilising Bus	Bus Utilisation (%)
Q1	31539	27718	87.88
Q2	32879	29019	88.26
Q3	32158	28026	87.15
Q4	27124	23478	86.56

6.10 Waste Management

MCC aims to implement all reasonable and feasible measures to minimise waste and ensure it is appropriately stored, handled and disposed of. Waste materials at MCCM are managed in accordance with:

- Schedule 3 Condition 70 of PA 10_0138.
- Condition A1 & A3 of the EPL.
- The Hazardous Materials Management Plan (HMMP) & Pollution Incident Response Management Plan (PIRMP).
- The legal and strategic framework for managing waste in NSW.

MCCM waste streams include general waste, hazardous waste and sewage, which are collected and disposed of at authorised waste disposal sites by a licenced contractor. Sewage waste from the CHPP office building is treated on site.

Any mineral waste material within the operation that is determined to be potentially acid forming (PAF) are placed (buried) in the OEA or within mined-out sections of the open cut and covered with non-acid generating material at a location to minimise further oxidation. Additional management measures are detailed in the approved Forward Program.

6.10.1 Environmental Performance

Inspections of waste management practices are carried out to ensure general, hydrocarbon and recyclable waste are segregated with waste stream data provided by the licenced contractors. During the reporting period general waste output increased by approximately 14% when compared with the previous reporting period.

A total of 866t of general waste and 265t of solid recyclable material was removed in the 2024 reporting period. Approximately 2274 kl of septic waste and 1202 kl of used oils were collected by a licenced contractor with the oils taken for recycling. Additionally, 96t of regulated waste and 17.3kl of coolant was removed from site.

Waste management was consistent with the relevant management details in the EA and there were no significant incidents relating to waste management practices during the reporting period.

6.10.2 Proposed Improvement Measures

MCC will continue to monitor and report waste streams on a regular basis to effectively manage waste generated by the operation of the MCCM.

MCC will continue to manage and check for potential PAF material and dispose of this material as per the requirements of the Forward Program.

6.11 Hazardous Materials

6.11.1 Environmental Management

Hazardous materials at the MCCM are managed and disposed of in accordance with the relevant Australian standards. Any spillages of potentially hazardous materials are required to be reported immediately to determine the appropriate response.

6.11.2 Environmental Performance

No reportable or significant incidents involving hazardous materials occurred during the reporting period. Minor leaks and spills associated with plant maintenance and operation were managed on site. The PIRMP was not required to be activated for any significant reportable incidents relating to hazardous materials. This will continue to be managed during the next reporting period.

Explosives

No environmental incidents involving explosives handling or storage occurred during the reporting period.

6.11.3 Proposed Improvement Measures

Continued operation of a bioremediation area will occur during the next reporting period.

7 WATER MANAGEMENT

7.1 Surface Water Management

7.1.1 Environmental Management

The MCCM water management system aims to ensure there are no adverse impacts to water quality in the receiving environment through early detection of any potential hazards and developing appropriate corrective actions. Potential impacts to surface water quality are managed in accordance with:

- The surface water criteria prescribed under schedule 3 condition 36 to 40 of the PA 10_0138.
- EPL Conditions P1, L1, L2and M2.
- The MCC Water Management Plan (WMP) prepared to satisfy the requirements of the EPL and PA 10_0138.

During the reporting period various controls strategies were implemented to manage surface water quality including:

- Prior to disturbance of land, appropriate erosion and sediment controls were established.
- Maintenance of a number of sediment dams previously constructed to collect runoff from disturbed areas, which is then used for dust suppression or pumped to the mine water dam for re-use on site.
- A combination of temporary and permanent clean and dirty water drains have been established to divert runoff from undisturbed areas and collect runoff from disturbed areas.
- Additional erosion and sediment control measures have been used for other small disturbance areas including silt fences, rock checks and other measures as required.
- Any water collected within the open cut pits was contained and reused on-site.
- Maintaining an up-to-date water balance to ensure on-site water demands are satisfied whilst minimising offsite water impacts.
- Validation of the site water balance model.
- Regular sampling and inspections of the onsite and surrounding surface water system.

Surface water monitoring locations are illustrated in Figure 11, and a summary of the surface water quality findings from the reporting period is provided below.

Figure 11: Surface Water Dams, Discharge Points and Monitoring Locations

7.1.2 Environmental Performance

Surface Water Quality

Routine surface water monitoring is conducted in surrounding watercourses on a monthly basis where the pH, EC, TSS and Oil and Grease monitoring results are detailed in Appendix D. Samples are collected consistent with Water Sampling Methods, AS/NZS5667.1 and AS/NZS 5667.6. All laboratory analysis is conducted by a NATA accredited laboratory. Laboratory pH in creeks and rivers surrounding the project are all trending generally within the ANZECC acceptable range for Irrigation, Ecosystem Health and Recreation. No community complaints were received during the reporting period in relation to surface water quality.

Overall, the surface water quality results recorded during the reporting period were generally consistent with historical trends recorded during baseline monitoring and previous years of operations at the MCCM. Additionally, the monitoring results are consistent with the EA prediction that the Project will not adversely affect surface water quality in downstream receiving waters. Water quality trends from 2020 are included in Appendix D and show that EC, TDS and TSS values fluctuate between wet and dry periods since commencement of monitoring.

Preliminary Trigger Values (PTVs) for twenty six key water quality parameters for Maules Creek, Back Creek and the Namoi River have been included in the WMP. Where insufficient data is available, ANZECC eco-system trigger values have been adopted (eleven parameters) in Appendix D. Trigger values have been developed using background data for fifteen parameters. The adopted trigger values will be refined as the operational stages of the MCCM proceeds. Monitored values above the PTV's are related to variable flow and upstream effects not attributable to the operation.

Onsite Water Quality

MCC monitors 'mine water' defined in the WMP as water that has come into contact with coal (e.g. groundwater inflows and surface runoff to the open cut pit or stormwater runoff from the ROM and product coal stockpiles). The water quality sampling of any 'mine water' conducted during the 2024 reporting period has been characterised as coal contact water and results shown are in Appendix D.

Flow

Throughout the reporting period, flow in the Namoi River has been largely dictated by natural flows following wet weather activities. Inflow pumping from the Namoi River did occur during the reporting period (310ML). This is attributed to the higher than average annual rainfall recorded in 2024 at the mine site providing an adequate supply of water for operational use.

Discharge Monitoring

Controlled discharge events did not occur at MCC during the reporting period.

Geomorphological Assessment

Thirteen sites were sampled for both water quality and macroinvertebrates during the spring 2024 survey, compared to ten sites sampled for macroinvertebrates and water quality in autumn 2024. The assessment included macroinvertebrate monitoring as well as physical and chemical monitoring in accordance with Australian River Assessment System (AusRivAS) guidelines as required in the Water Management Plan (WMP).

Macroinvertebrate communities generally had a low diversity across all sites, with the main factor determining species composition being size of the waterway and duration of water persistence. Two of the sites in Back Creek were dry, with the rest having isolated pools of varying sizes. Flow in the Namoi River has undergone moderate to large perturbations in the intervening months since the autumn survey period, with two small to moderate flow peaks, and two large ones peaking at 4.9 and 5.7 m. Macroinvertebrate abundance and richness at each site was higher in spring 2024 compared to autumn 2024, however the total richness across all sites has decreased since the autumn by eight taxa, mostly in control sites. The overall decrease in taxa richness, is likely influenced by the constantly low bodies of water and lack of flow, in Back Creek and lower, more consistent flow in the Namoi. Change in water levels from regular rainfall and frequent flooding in 2022 to decreasing water availability in 2023 has resulted in the drying of many sites. However recent rain in 2024 has led to fresher flows in Maules Creek, and three more sites containing water.

Flow in Maules Creek was relatively consisted throughout 2024, with no large increases in river level. Sections of Maules Creek were dry, remnant pools were generally larger than those in Back Creek and had a broader suite of habitat features such as rocks, gravel beds, roots, and edge vegetation. Both flooding and drying constitute disturbances in river ecosystems, potentially reducing macroinvertebrate abundance and diversity.

Between the autumn and spring 2024 survey seasons, an additional three sites along Back Creek had water. The pools at these sites were likely filled with locally derived run-off rather than by flow along the creek, so retained some level of isolation from other pools along the creek. This isolation meant that colonisation of the pools was reliant on aerial dispersal or hatching from the sediment egg-bank, rather than from the downstream drift of invertebrates in the water.

There was a significant difference between turbidity and DO% measured at Back Creek sites upstream of the mine and those downstream. Sites downstream of MCCM had a turbidity range 87.8 to 220 NTU and DO% of 19.8 to 38.9 %, compared to the upstream with 2.9 to 16.3 NTU and 19.4 to 38.9 % respectively. The higher turbidity readings downstream are likely due to bed substrate, which was mud and clay compared to sand and rock upstream. Water circulation by wind could have caused agitation of the bed and suspended sediments in the water column, with very fine particles not settling. The low dissolved oxygen at downstream sites is likely to be a result of the high suspended particle load, since bacterial activity on sediment is often a significant consumer of oxygen (Boulton et al. 2016).

Back Creek is the closest waterway to MCCM, but the ephemeral nature of this waterway potentially limits its effectiveness in this monitoring program to periods when the creek is flowing. This is the only time when samples

can be collected, but it's also the most likely time when impacts from the mine will spread via overland or downstream flow, along the creek. Regardless of the ephemerality of flow in Back Creek, any impacts to aquatic ecosystems that come from MCCM would likely first be expressed in Back Creek.

Historical agricultural practices have reduced the extent of the riparian zone to a narrow band of trees along Back Creek, Maules Creek, and the Namoi River, which are occasionally connected to larger patches of native vegetation such as Travelling Stock Reserves. Clearing of large parts of the broader catchment, and subsequent cropping and stock management, have contributed large volumes of sediment run-off during high rainfall. The composition of riparian vegetation is still mostly dominated by natives in the tree and shrub layer. The groundcover layer is relatively healthy and has recovered from the drought following months of rainfall. There was no difference in RARC between upstream and downstream sites along Back Creek, where scores were relatively low at most sites.

Riparian vegetation and macroinvertebrate communities appear to be in poor to moderate condition along all three waterways. Riparian vegetation condition, as measured by RARC, did not change since the previous survey. There was no indication at the sites sampled, that there was an impact to macroinvertebrate diversity from MCCM. However, it is unlikely that impacts to aquatic ecology would occur along Back Creek during the current dry period.

7.2 Groundwater

7.2.1 Environmental Management

Groundwater at MCCM is managed in accordance with:

- the groundwater criteria prescribed under schedule 3 conditions 36 to 40 of the PA 10_0138;
- EPL 20221 Conditions P1 and M2; and
- the MCCM WMP prepared to satisfy the requirements of the EPL and PA 10_0138. The WMP was updated in 2023 to align with ongoing development of the mine.

Currently groundwater monitoring is conducted on a network of regional bores and privately owned bores as illustrated in Figure 13.

The groundwater sampling sites on privately owned land are sampled biannually for depth to water and water quality. The regional bores are currently sampled monthly for depth to water and quarterly for water quality. Once the baseline groundwater quality of the regional bore network has been established, water quality monitoring will be conducted on a biannual basis as per the WMP. Bores are sampled in accordance with the Approved Water Sampling Methods and AS/NZS5667.11. All laboratory analysis is conducted by a NATA accredited laboratory.

In 2010, eight groundwater monitoring bores and four vibrating wire piezometers were constructed within former exploration holes ('MAC' bores) to collect pre-mining information as part of the Environmental Assessment (EA). All of these bores were progressively removed by mining or external activities, with the exception of one bore (MAC1280).

A replacement monitoring network was developed by MCCM in consultation with DPI-Water in 2013. The majority of the replacement bores were installed between 2013 and 2014. The replacement bores have the prefix 'RB' or 'BCM'. The two 'BCM' bores were installed along Back Creek to investigate the potential for a shallow water table to be present that could support vegetation occurring within the riparian zone along the drainage line. The progression of mining resulted in the removal of RB01, RB01A, RB02 and RB02A in 2017, and an alternative sampling location was identified, and continued to be sampled, pending amendment of the EPL.

A network of 17 additional monitoring bores and vibrating wire piezometers (VWPs) were proposed as part of the EA to monitor the cumulative impact of the BTM complex on the groundwater regime. The bores were also installed between 2013 and 2014 and positioned in lines radiating out from the Maules Creek Mine. The purpose of these sites was to monitor for depressurisation in the Permian strata and any potential water level drawdown within the surrounding alluvial aquifer.

The monitoring sites are either PVC monitoring bores (standpipes) for shallow strata, or arrays of multi-level VWPs installed within multiple coal seams at different depths. Paired VWP arrays with a shallow standpipe were installed in some sites to allow for monitoring of the connectivity between shallow aquifers and deeper coal seams. Where possible, the sites chosen were placed adjacent to existing shallow alluvial monitoring bores monitored by the NSW government to further assist in monitoring and understanding connectivity between the different geological units. These bores have the prefix 'REG' indicating they are for monitoring behaviour of 'regional' groundwater systems.

7.2.2 Environmental Performance

Parameters recorded as part of the scheduled groundwater monitoring for this reporting period are summarised below and results are provided in Appendix E. The appendix also includes graphs that compare the measured groundwater levels with predicted water levels from the 2020 groundwater model for each bore, in addition to presenting water level and water quality observations against triggers that were generally developed in accordance with the methodology proposed in the Water Management Plan.

Regional Groundwater Bores

The Cumulative Rainfall Departure (CRD) has displayed a general decreasing trend since late 2022 indicating continued reduced rainfall conditions. Declining water levels, with a >1 m change between December 2023 and December 2024, were observed at boreholes MAC1280, RB05a, RB05b, REG7a and REG15. RB05a has displayed a long-term declining trend. This bore is installed into the coal measures and declining water levels are attributed

to continued depressurisation of this formation as mining progresses. RB05b is a new bore, drilled in 2023 and monitors the Braymont seam. The water level data for this bore has indicated a slight decreasing trend over the 2023 and 2024 monitoring period. Water levels decreased at REG15 by 1.75 m between December 2023 and December 2024 and has displayed an overall 3 m decline in water levels since the start of monitoring in June 2023. This period is largely defined by a decreasing CRD trend which may be responsible for declining water levels. The current available data is not sufficient to confirm the mechanisms controlling water levels at this site, future data will establish the trend. A largely climate influenced trend has been observed at MAC1280 and REG7a. Both bores displayed a significant increase in water levels towards the end of 2022, coinciding with high rainfall, with water levels declining over the course of 2023 and 2024. Water levels at MAC1280 are typically within the trigger threshold range. Measurements recorded in October and November 2024 show water levels dipping just below the 5th percentile threshold by <0.22 m. Declining water levels at REG7a over 2023 and 2024 represent a return to baseline conditions with water levels within the trigger threshold range throughout 2024.

pH is neutral and within the guidelines at most sites, with the exception of MAC1280 and REG15a which have displayed alkaline water quality. REG15a is a new bore in the monitoring network, with limited water quality available to establish a trend but the 2024 data indicated a pH of 12 in September and December. MAC1280 has consistently displayed alkaline pH conditions but has indicated stable conditions since 2016. These bores are likely grout affected, due to cement grout used to seal the anulus of the borehole. TDS concentrations were below the ANZECC guidelines at most monitoring boreholes in 2024. Two exceedances of the ANZECC livestock guideline were observed at REG13 (3,220 mg/L in February) and BCM04 (3,080 mg/L in September). However subsequent results were compliant at both sites. Sulphate concentrations were below the ANZECC guidelines at almost all boreholes, with the exception of REG13. This site has historically displayed significant fluctuations in sulphate with an overall increasing trend. However, the values are consistently within the 5th and 95th percentile thresholds. As noted during the previous annual review, MAC1280 displayed a correlation between groundwater levels and water quality in 2023. An increase in water levels towards the end of 2022 coincided with a decrease in pH and TDS and a significant increase in sulphate. These parameters then showed recovery towards baseline over the 2023 and 2024 monitoring period.

Private Groundwater Bores

Similar to the regional monitoring bores, the private groundwater bores indicated small changes in water levels, between 0.1 and 0.6 m, between August 2023 and August 2024 and <0.5 m overall change during the 2024 monitoring period. Most bores indicate a good correlation with the climate CRD trend. Some monitoring bores situated in the volcanics, namely GW006567, MOR1, MOR2, Teston, Tralee, show a lag response to rainfall, most likely due to slow recharge. The 2024 trend data for the NSW monitoring bores show a strong correlation between the rainfall CRD trend and water level trend.

Vibrating Wire Piezometers

The data collected by the VWP data loggers is downloaded on a monthly basis. The VWPs measure water pressure (equivalent to water level) within select coal seams and observations from sensors at different depths show groundwater level differences that occur vertically within the geological sequence. VWP water level variations demonstrate different trends that are often related to climatic conditions and/or mining. Trend graphs of the model simulated vs observed trend for each VWP is provided in **Error! Reference source not found.**E. The following observations are made regarding water levels from VWPs: The VWPs that are in close proximity to the active mining areas indicate that depressurisation is occurring as mining progresses, which is consistent with numerical modelling. Decreasing trends in certain coals seams that are monitored by REG01 (VW4), REG08, REG10, RB03, RB04, and RB05 were observed, which are consistent with long-term depressurisation that has been ongoing during mining activities, since the pit floor moved below the water table. Additionally, Boggabri Mine is progressing northwards towards Maules Creek Mine, and a cumulative impact is likely to be contributing to the observed depressurisation in the seams accessed by both mines.

The total change in water levels at each VWP, between end 2023 and end 2024 is shown in Figure 12. This does not account for seasonal fluctuations but does provide an indication of total mine impact during the 2024 annual period. As discussed above, the indicates that the greatest impact is along the eastern boundary of the pit at RB03 and RB04, and propagates north towards RB05 and REG10 and further east at REG8. VWPs REG2, REG7, REG9 (VW2 and VW3) showed no significant total change (generally ≤1 m) in water levels between end 2023 and end 2024. Groundwater levels in REG02, REG07 and REG09 have remained stable since the onset of monitoring, suggesting that mining induced depressurisation has not extended this far to the east/southeast.

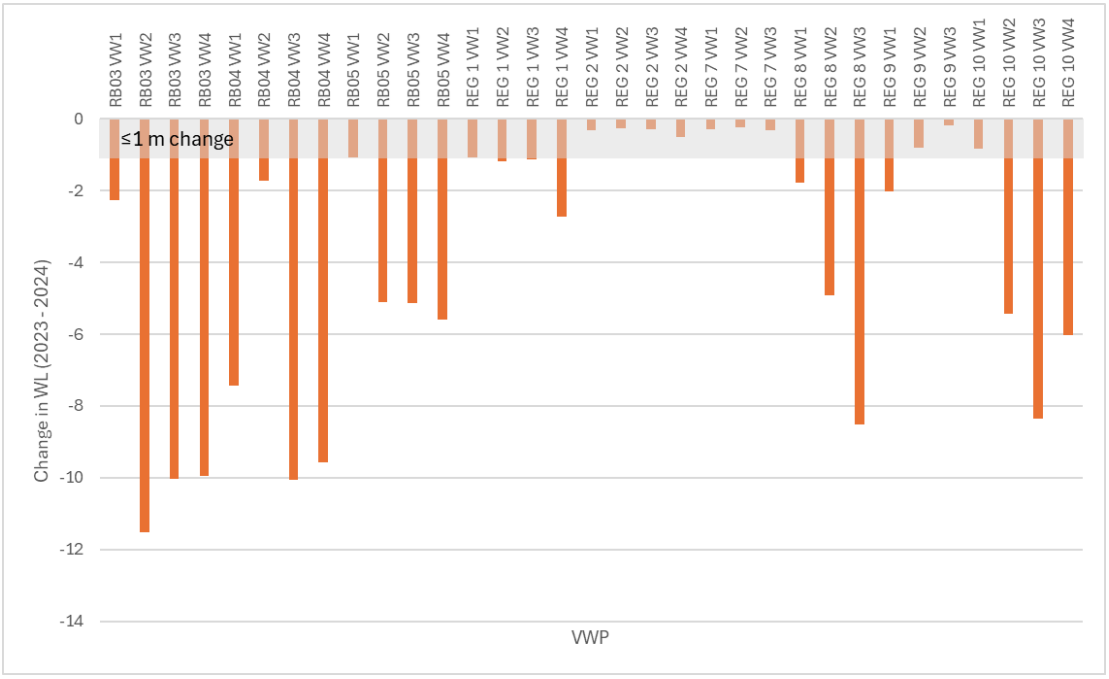


Figure 12: Total change in VWP water levels from 2023 to end of 2024

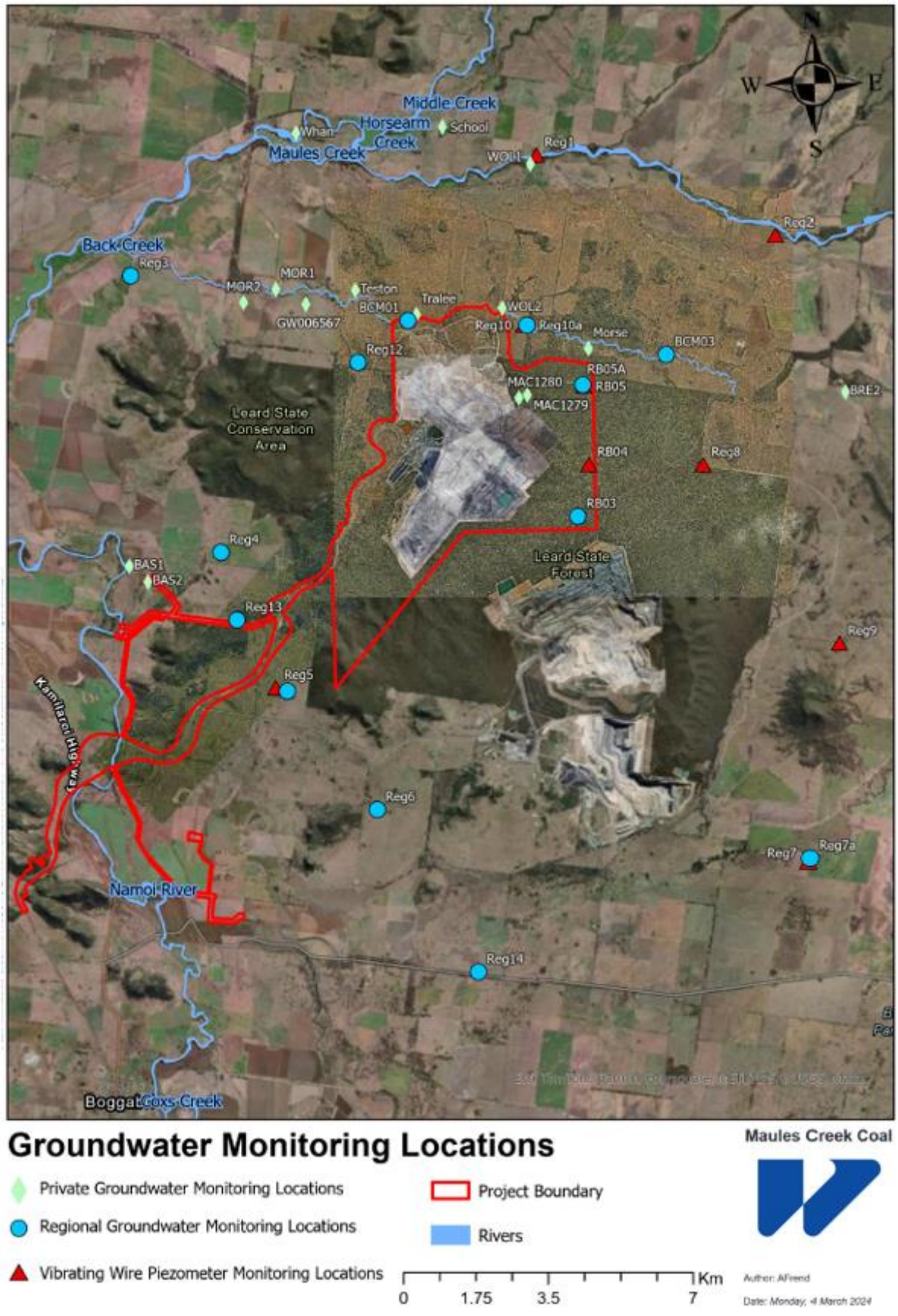


Figure 13: Groundwater Monitoring Locations

7.2.3 Trigger events

An analysis of trigger events as per the WMP was undertaken and the outcomes are provided in Table 21. A series of figures and tables that support these findings are provided in Error! Reference source not found.E.

Groundwater level trigger values were based on the 5th and 95th percentile values of all manual observations that were collected from regional monitoring and water supply bores until the end 2020 for most boreholes, as outlined in the updated WMP. Boreholes WOL2 and RB05a are exceptions to this, with the trigger values calculated from start of monitoring until 2018 and 2017, respectively. Groundwater levels are expected to exceed the 5th/95th percentile threshold in 10% of measurements, given that future fluctuations are representative of baseline conditions.

Groundwater quality triggers are based on the following criteria:

- key parameters including pH, TDS and sulphate concentrations that are either greater than the 95th percentile of baseline data or less than the 5th percentile of baseline data;
- ionic balance results which exceed the ± 10% margin (charge of cations should balance that of anions in natural groundwaters); and
- dissolved metal concentrations that exceed ANZECC guidelines for stock and/or irrigation water. Dissolved metals are used for guideline comparison because of their higher bio-availability when compared to total metals. Three exceedances of appropriate ANZECC guidelines based on beneficial use is a control trigger for metals. Note, for bores that are only sampled biannually, the latest three data points were considered.

For the VWPS next to the mining area, a two-tier approach based on numerical modelling results has been adopted to develop triggers, which is a different approach compared to computing percentile thresholds from the baseline dataset. The first tier is the model predicted maximum drawdown, with the second tier being the lowest predicted groundwater elevation. Both tiers must be exceeded to be to an exceedance event.

- Sensor REG2_VW2 and REG7_VW1 are not predicted to exhibit impacts to groundwater levels from mining activities. Triggers for these sensors are computed from percentile thresholds.

The following colour codes have been assigned to Table 25.

- Green shows no triggers occurred in 2024.
- Red shows that at least or more triggers occurred in 2024. This data is contextualised in terms of historical trends, climate trends, proximity to the mining operations and ANZECC guidelines.
- Black shows triggers with an associated action and response.

Table 25: Groundwater Trigger Events

Bore	Geology	TARP			
		Triggered?		Trigger / Significance / Source	Action and Response
MAC 1280	Permian	Level	Yes	Two minor exceedances, below the 5th percentile threshold, in October and November 2024.	No action, continue to monitor.
		pH	No	No trigger.	No action, continue to monitor.
		TDS	Yes	Typically, within range, decreased below the 5th percentile threshold in December 2024.	No action, continue to monitor.
		SO_4	Yes	Sulphate has continued to decrease since December 2022 and is now within the threshold range.	No action, continue to monitor.
		Ionic	Yes	One exceedance of 27.9% in June 2024.	Query results with the laboratory.
		Metals	Yes	Molybdenum consistently elevated above the long-term irrigation standards but does not exceed the livestock standards.	No action, continue to monitor.
RB05A	Merriown Seam	Level	Yes	Mine related drawdown. Consistent with decreasing water levels at VWP RB05. The drawdown curve matches the model simulated drawdown for this bore with predicted elevations matching the actual elevations at the end of 2024.	The groundwater elevation is within the predicted range of drawdown for this bore. The trigger for this bore should be changed to a model-based trigger.
		pH	No	No trigger.	No action, continue to monitor.
		TDS	Yes	TDS concentrations are typically within range at this bore but displayed a period of elevated TDS concentrations between August 2023 and September 2024.	The long-term increasing trend is most likely linked to decreasing water levels. Continue to monitor.
		SO_4	No	No trigger.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	No	No trigger.	No action, continue to monitor.
REG12	Boggabri Volcanics	Level	Yes	Climate controlled. Bore shows a lag response to rainfall recharge. Water levels have increased above the 95th percentile threshold.	No action, continue to monitor.
		pH	Yes	Change from threshold is negligible.	No action, continue to monitor.
		TDS	Yes	Increasing trend evident although typically in range.	No action, continue to monitor.

Bore	Geology	TARP			
		Triggered?		Trigger / Significance / Source	Action and Response
		SO_4	Yes	Minor exceedances noted, typically within range.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	Yes	Three exceedances of iron concentrations of the long-term irrigation standards. Increasing iron concentrations may be related to reducing pH conditions at this site, however future trend data will confirm.	Currently no action, assess trend in future monitoring.
REG13	Boggabri Volcanics	Level	Yes	Climate controlled. Bore shows a lag response to rainfall recharge, similar to REG12. Water levels have increased above the 95th percentile threshold.	No action, continue to monitor.
		pH	Yes	Data suggests that this bore is grout affected. The reducing values are likely representative of dilution over time towards actual pH conditions of the aquifer.	The percentile thresholds need to be recalculated using only the stabilised data.
		TDS	Yes	Likely a result of lower pH conditions which increases mineral solubility and mobilises more ions into solution.	No action, continue to monitor.
		SO_4	No	No trigger.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	Yes	Consistent exceedance of manganese concentrations in 2024 above the long term irrigation standard.	No action, continue to monitor.
REG14	Basement	Level	Yes	Climate controlled. Good correlation with CRD trend.	No action, continue to monitor.
		pH	Yes	Change from threshold is negligible. pH is neutral.	No action, continue to monitor.
		TDS	Yes	One exceedance in 2024, typically in range.	No action, continue to monitor.
		SO_4	No	No trigger.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	No	No trigger.	No action, continue to monitor.
REG3	Boggabri Volcanics	Level	Yes	Climate controlled. Good correlation with CRD trend.	No action, continue to monitor.

Bore	Geology	TARP			
		Triggered?		Trigger / Significance / Source	Action and Response
		pH	Yes	pH is consistently neutral, trend stable since 2020.	No action, continue to monitor.
		TDS	Yes	Climate controlled. Good correlation with CRD trend. Typically within range.	No action, continue to monitor.
		SO_4	No	No trigger.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	No	No trigger.	No action, continue to monitor.
REG4	Boggabri Volcanics	Level	Yes	Climate controlled. Good correlation with CRD trend, although a lag response is evident, possibly due to the depth of the screen (65.5 to 71.5m). Typically within range in 2024.	No action, continue to monitor.
		pH	Yes	pH is neutral and trend stable since 2018. Historical data fluctuated significantly, impacting the threshold calculation.	Review the trigger thresholds for this bore and the historical controls on water quality between 2014-2018.
		TDS	Yes	One exceedance noted in February, similar to several other bores, typically within range.	No action, continue to monitor.
		SO_4	No	No trigger.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	No	No trigger.	No action, continue to monitor.
REG5	Boggabri Volcanics	Level	Yes	Climate controlled. Generally within the threshold range in 2024, slightly exceeding the 95th percentile threshold in late 2024 (August to December).	No action, continue to monitor.
		pH	No	No trigger.	No action, continue to monitor.
		TDS	Yes	One exceedance noted, typically within range.	No action, continue to monitor.
		SO_4	No	No trigger.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	Yes	Consistent exceedance of manganese concentrations in 2024 above the long term irrigation standard.	No action, continue to monitor.

Bore	Geology	TARP			
		Triggered?		Trigger / Significance / Source	Action and Response
REG6	Boggabri Volcanics	Level	Yes	Climate controlled. Good correlation with CRD trend. Exceeds the 95th percentile threshold throughout 2024.	No action, continue to monitor.
		pH	Yes	One exceedance noted, negligible change from threshold.	No action, continue to monitor.
		TDS	No	No trigger.	No action, continue to monitor.
		SO_4	Yes	One exceedance noted, negligible change from threshold.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	No	No trigger.	No action, continue to monitor.
REG 7A	Alluvium	Level	Yes	Climate controlled. Good correlation with CRD trend. Two exceedance in January and July 2024 but typically within range in 2024.	No action, continue to monitor.
		pH	No	No trigger.	No action, continue to monitor.
		TDS	Yes	Increasing trend over time, typically exceeding the threshold since 2020. Values currently well below ANZECC guideline.	No action, continue to monitor.
		SO_4	No	No trigger.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	Yes	Three exceedances of manganese concentrations in 2024 above the long-term irrigation standard.	No action, continue to monitor.
GW967138_	Alluvium	Level	No	No trigger.	No action, continue to monitor.
GW967138_	Alluvium	Level	No	No trigger.	No action, continue to monitor.
GW041027_	Alluvium	Level	No	No trigger.	No action, continue to monitor.
GW030129_	Alluvium	Level	No	No trigger.	No action, continue to monitor.
BAS1	TBC	pH	No	No trigger.	No action, continue to monitor.
		TDS	No	No trigger.	No action, continue to monitor.
		SO_4	Yes	Slight exceedance of the 95th percentile threshold (2 mg/L).	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	No	No trigger.	No action, continue to monitor.

Bore	Geology	TARP			
		Triggered?		Trigger / Significance / Source	Action and Response
BAS2	TBC	Level	No	No trigger.	No action, continue to monitor.
BRE2	Hard rock	Level	Yes	Climate controlled. Good correlation with CRD trend.	No action, continue to monitor.
		pH	No	No trigger.	No action, continue to monitor.
		TDS	No	No trigger.	No action, continue to monitor.
		SO_4	Yes	Sulphate concentrations increased above the 95th percentile threshold in February but remained well below the ANZECC guideline.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	No	No trigger.	No action, continue to monitor.
GW006567	TBC	Level	Yes	Water levels have increased by 1 m since 2015. Recent data correlates with increased rainfall trends.	No action, continue to monitor.
		pH	Yes	Fluctuating pH conditions, reducing from 8.55 in 2019 to 8.15 in August 2024.	Review the trigger thresholds for this bore.
		TDS	Yes	Increasing TDS may be linked to reducing pH conditions which increases mineral solubility and mobilises more ions into solution. TDS concentrations are well below ANZECC guidelines.	Review the trigger thresholds for this bore.
		SO_4	Yes	Similar to TDS, the sulphate trend appears to correlate well with the changing pH conditions. Sulphate concentrations are well below ANZECC guidelines.	Review the trigger thresholds for this bore.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	No	No trigger.	No action, continue to monitor.
MOR1	Boggabri Volcanics	Level	Yes	Climate controlled. Good correlation with CRD trend.	No action, continue to monitor.
		pH	Yes	Climate controlled. Trend correlates with CRD trend.	No action, continue to monitor.
		TDS	Yes	Climate controlled. Trend correlates with CRD trend.	No action, continue to monitor.
		SO_4	No	No trigger.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	No	No trigger.	No action, continue to monitor.

Bore	Geology	TARP			
		Triggered?		Trigger / Significance / Source	Action and Response
MOR2	Boggabri Volcanics	Level	Yes	Climate controlled. Good correlation with CRD trend. Lag response to rainfall evident.	No action, continue to monitor.
		pH	No	No trigger.	No action, continue to monitor.
		TDS	Yes	Climate controlled. Trend correlates with CRD and water level trend.	No action, continue to monitor.
		SO_4	No	No trigger.	No action, continue to monitor.
		Ionic	No	No trigger.	Whitehaven to confirm reporting requirements with laboratory.
		Metals	No	No trigger.	No action, continue to monitor.
Morse GW 1869	Sand stone	Level	Yes	Climate controlled. Mostly stable but shows good response to increased rainfall.	No action, continue to monitor.
		pH	Yes	One trigger exceedance, negligible exceedance of the 95th percentile threshold (0.02).	No action, continue to monitor.
		TDS	Yes	Increase in TDS at this bore in 2024 correlates with an increase in sodium and chloride at this site. However concentrations are well below the ANZECC guidelines. Close monitoring of this bore is recommended. Should the trend continue, then external controls should be investigated.	Currently no action, assess trend in future monitoring.
		SO_4	No	No trigger.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	Yes	No trigger.	No action, continue to monitor.
School (Filt)	Gravel	pH	No	No trigger.	No action, continue to monitor.
		TDS	Yes	TDS below 5th percentile threshold at <14 mg/L. Risk is low.	No action, continue to monitor.
		SO_4	Yes	Sulphate below 5th percentile at 1 mg/L in August 2024. Risk is low.	No action, continue to monitor.
		Metals	No	No trigger.	No action, continue to monitor.

Bore	Geology	TARP			
		Triggered?		Trigger / Significance / Source	Action and Response
Teston	Hard rock (Boggabri Volcanics)	Level	Yes	Teston has displayed an increasing trend over time, and currently exceeds the 5th percentile threshold. The data indicates this bore is likely situated in the Boggabri volcanics and increasing water levels may just be a function of the tightness of the rock and response to recharge. Water levels increased by 0.4 m between August 2023 and August 2024.	The trend is increasing and does not indicate a mine related impact.
		pH	No	No trigger.	No action, continue to monitor.
		TDS	No	No trigger.	No action, continue to monitor.
		SO_4	No	No trigger.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	Yes	Consistent exceedance of manganese and iron concentrations in 2024 above the long term irrigation standard.	No action, continue to monitor.
Tralee	Basalt	Level	Yes	Climate controlled. Mostly stable but shows good response to increased rainfall.	No action, continue to monitor.
		pH	No	No trigger.	No action, continue to monitor.
		TDS	Yes	Tralee has exhibited recurring spikes in TDS in February each year (notable in 2023 and 2024). This has been observed at several other bores in 2024 and suggests a response to rainfall.	No action, continue to monitor.
		SO_4	No	No trigger.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	Yes	Consistent exceedance of manganese concentrations in 2024 above the long term irrigation standard.	No action, continue to monitor.
Whan	TBC	Level	No	No trigger.	No action, continue to monitor.
		pH	No	No trigger.	No action, continue to monitor.
		TDS	No	No trigger.	No action, continue to monitor.
		SO_4	Yes	Sulphate below 5th percentile at 3 mg/l in February 2024. Risk is low.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.

Bore	Geology	TARP			
		Triggered?		Trigger / Significance / Source	Action and Response
		Metals	No	No trigger.	No action, continue to monitor.
WOL1	TBC	Level	Yes	Climate controlled. Good correlation with CRD trend.	No action, continue to monitor.
		pH	Yes	Fluctuating pH conditions, reducing from 7.47 in 2014 to 7.04 in August 2024.	No action, continue to monitor.
		TDS	Yes	Increasing TDS may be linked to reducing pH conditions which increases mineral solubility and mobilises more ions into solution. TDS concentrations are well below ANZECC guidelines.	No action, continue to monitor.
		SO_4	Yes	Climate controlled. Trend correlates with CRD trend.	No action, continue to monitor.
		Ionic	No	No trigger.	No action, continue to monitor.
		Metals	No	No trigger.	No action, continue to monitor.
Roma Wind	Alluvium	Level	Yes	Climate controlled. Good correlation with CRD trend.	Review the trigger thresholds for this bore.
Roma MB	Alluvium	Level	Yes	Climate controlled. Good correlation with CRD trend.	Review the trigger thresholds for this bore.
Bright on	Alluvium	Level	Yes	Climate controlled. Good correlation with CRD trend.	Review the trigger thresholds for this bore.

The findings of the above TARP analysis were applied to the performance measure criteria outlined in the WMP. It was found that all sites applicable to the performance measures criteria showed no impact attributable to mining. Boreholes BCM01, BCM03 and REG5a have been dry throughout the historical monitoring record and no data is available for comparison at these sites. REG10a has been dry for ten months and no TARP could be analysed for this bore over the reporting period. The 2024 water quality data shows no exceedances of the ANZECC guidelines for pH, TDS or sulphate.

Based on these criteria and the data available, the site is considered to be compliant with the Aquifer Interference Policy requirements.

7.2.4 Groundwater Inflows

Annual site water balance estimates (WRM, 2024) of groundwater inflows that report to the mining area against the modelled inflows predicted (AGE, 2022). This data shows a significant increase in inflow between 2017 (10 ML) and 2018 (578 ML), as a result of deepening of the pit below the regional water table. Inflows in the pit ranged between 100 and 300 ML per annum between 2019 and 2022 but increased in 2023 (548 ML). The inflows reported in the 2024 water balance report showed a significant reduction in groundwater inflow to the pit at 37

ML. As mining progresses, groundwater inflows are predicted to vary with the changing mine layout, depending on the interception of porous rock water sources and the area of the mine being developed. A comparison of the 2024 groundwater inflows (WRM, 2024), of 37 ML, against the predicted inflow of 777 ML (AGE, 2022), shows that the predicted estimates are significantly higher than that of the site water balance model. It is important to note that estimates for the numerical groundwater models represent groundwater removed by pumping, water that evaporates from the highwall, and water bound with coal and spoil. In contrast, the water balance method only estimates the volume of water that flows into the mine water circuit. Both methods are therefore not directly comparable due to differing underlying assumptions.

7.2.5 Validation of Groundwater Model

At the time of this assessment, the 2024 updated calibrated model was not available. Updates to the predictions will be incorporated into the 2025 annual review.

7.2.6 Proposed Improvement Measures

The groundwater monitoring program and management measures described above will continue to be implemented during the next reporting period. New bores need to be included in the WMP and triggers established for these sites.

Triggers for the following monitoring sites should be recalculated:

- RB05a triggers should be changed to model-based triggers as the model predicts drawdown at this site. As such, this bore will consistently exceed any percentile threshold-based triggers.
- The triggers for Roma Windmill, Roma MB, Brighton Bore 3, REG12, REG13, REG4, REG6, REG3 and Teston should be revised to account for natural fluctuations associated with changing recharge.
- The data shows that the current model does not accurately predict drawdown within the Braymont seam, notably at Reg8 VW1. The Tier 1 and 2 triggers for this site will be recalculated following the 2024 model update.

7.3 Water Supply

Table 26: Water Take For the 2023-2024 Water Year

Passive Take Licenses						
Water Licence #	**Water Sharing Plan**	**Water Source and Management Zone**	**Share Units (ML)**	**Available Water (ML)**	**Passive Take (ML)**	**Usage (ML)**
WAL 27385	Namoi Alluvial Groundwater Sources 2020	Upper Namoi Zone 4 Namoi Valley (Keepit Dam to Gin's Leap) Groundwater Source	38	76	119	43
WAL 36548			36	36 [1]		20
WAL 12613			50	100		56
WAL12479		Upper Namoi Zone 11 Maules Creek Groundwater Source	78	78 [1]	4	4
WAL29467	NSW Murray Darling Basin Porous Rock Groundwater Sources 2020	Gunnedah - Oxley Basin Mdb Groundwater Source	306	382.5	956	264
WAL29588			0	0		0
WAL36641			800	1,000		692
License Extraction Points						
Water Licence #	**Water Sharing Plan**	**Water Source and Management Zone**	**Share Units (ML)**	**Available Water (ML)**	**Pumped Take (ML)**	**Total take (ML)**

WAL12718	Namoi Alluvial Groundwater Sources 2020	Upper Namoi Zone 4 Namoi Valley (Keepit Dam To Gin's Leap) Groundwater Source	102	204	50.6	50.6
WAL12722			77	297 [2]	257.2	257.2
WAL12811		Upper Namoi Zone 5 Namoi Valley (Gin's Leap to Narrabri) Groundwater Source	135	270	0	0
WAL12791			112	224	0.1	0.1
WAL12479		Upper Namoi Zone 11 Maules Creek Groundwater Source	78	156	90MW833037	
WAL27383			0	0	Not assigned to any works approval	
WAL12480			215	430	Not assigned to any works approval	
WAL41585	Maules Creek Water Source	Maules Creek Tributaries Management Zone	30	30	0	0
WAL13050	Upper Namoi and Lower Namoi Regulated River Water Sources	Lower Namoi Regulated River Water Source (High Security)	3,000	3,000	25.9	25.9

1 – Maules Creek Share. Available water shared 50:50 with Tarrawonga Coal Mine.
2 – Additional water purchased in 2024 within licensed extraction volumes.

It is noted that the 2023 Annual Return passive take reporting included a minor reporting error. The licensing for Namoi Alluvial Groundwater Sources 2020, Zone 11 passive take included WAL 12491 with 77 share units. This should have been WAL 12479 with 78 share units. This reporting error did not impact the previous Zone 11 passive take compliance and has been corrected in this report.

7.4 Site Water Balance

A review of the water balance found that inflows to the site during the reporting period were higher than the predictions made in the EA for Year 10 of MCCM operations. Rainfall and runoff (1,743 ML) was higher than the

predictions in the EA for Year 10 (1,103 ML, respectively). Actual Namoi River pumping inflow (310 ML) was much lower than predicted in the Year 10 (1,860 ML).

Net CHPP water usage (1,064 ML) is significantly less than the consumed predicted in the EA for Year 10 (2,598), this is potentially due to the differences between the predicted and actual proportion of ROM coal that is bypassed therefore increasing wash time.

Dust suppression usage (1,194 ML) was significantly higher than predicted in the EA for Year 10 (453 ML). This is due to actual haul road lengths being significantly greater than what was assumed in the EA, as well as active management measures in place to minimise dust emissions. Estimated in-pit groundwater inflows (37 ML) is lower than the predictions in the EA for Year 10 (350 ML).

Table 27: Site Water Balance (Calendar Year 2024)

Aspect	Volume (ML)
Change in Storage	
Start of 2024[1]	1,171
End of 2024[1]	885
Net Change in Storage	-286
Water Inflows	
Namoi River Pumping	310
MAC1498 Bore	0
Olivedene Bore	0
Brighton Bore	107
Roma Bore	219
Rainfall & runoff^	1,743
CHPP Water Recycling	2,947
In-pit Groundwater Seepage	37
Total Inflows	5,363
Water Outflows	
CHPP water supply	4,011
Dust suppression	1,194
Evaporation from storages[3]	362
Clearing / construction process water	82
Offsite discharge	0
Licence Discharge	0
Total Outflows	5,649
Water Balance (2024)	-286[2]

1 Includes recorded volumes in RWD and MWD1&2, as well as estimated volumes in sediment dams, highwall dams and pits

2 For a balanced system, this value should equal the "net change in storage"

8 REHABILITATION

The Rehabilitation Strategy for MCCM is described in Section 7.16 of the EA. State and Commonwealth approvals both specify that the rehabilitation of MCCM must be consistent with the Rehabilitation Strategy Condition 71 of Schedule 3 of PA 10_0138 and Condition 26 of EPBC 2010/5566. The Forward Program summarises the key elements of the Rehabilitation Strategy and a description of activities and mine landforms. The rehabilitation area will be returned to a mixture of native vegetation communities including grassy woodland, shrubby woodland/open forest and riparian forest natural forest and woodland. Below, Table 28 summarises the rehabilitation objectives.

Table 28: Rehabilitation Objectives

Feature	Objective
Mine site	• Safe, stable and non-polluting • Constructed landforms drain to the natural environment
Final void	• Minimise the size and depth of the final void as far as is reasonable and feasible • Minimise the drainage catchment of the final void as far as is reasonable and feasible
Surface Infrastructure	• To be decommissioned and removed, unless the Executive Director Mineral Resources agrees otherwise

All land, other than the final void	• Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of:
	  ○ Local native plant species; and
	  ○ A landform consistent with the surrounding environment, in accordance with the Revised Biodiversity Offset Strategy and the BMP (I.e. Conditions 45 and 53 of Schedule 3 of PA 10_0138 respectively).

Community	• Ensure public safety • Minimise the adverse socio-economic effects associated with mine closure

8.1 Rehabilitation Performance

At the completion of the reporting period, all domains were classed as ‘active’ with 25 ha of rehabilitation being prepared for final landform across the Western Out of Pit Dump Area including shaping to final landform, topsoiling and seeding of native grasses. In preparation for planting of tube stock seedlings. Table 29 summarises the rehabilitation status for the MCCM for CY23, 24 and 25.

Table 29: Rehabilitation Status

Mine Area Type	2023 (Actual)	2024 (Actual)	2025 (Forecast)
A. Total mine footprint (ha)	1,820	1,870	1,870
B. Total active disturbance (ha)	1,523	1,549	1,436
C. Land being prepared for rehabilitation (ha)	21	25	12.62
D. Land under active rehabilitation (ha)	296	322.4	335.02
E. Completed rehabilitation (ha)	-	-	-

Decommissioning and Demolition Activities

As anticipated in the Forward Program, no decommissioning activities of permanent infrastructure was undertaken during the reporting period.

Other Rehabilitation Activities

There were no other rehabilitation activities in the reporting period.

Departmental Sign-off of Rehabilitation Areas

Departmental sign-off has not been requested.

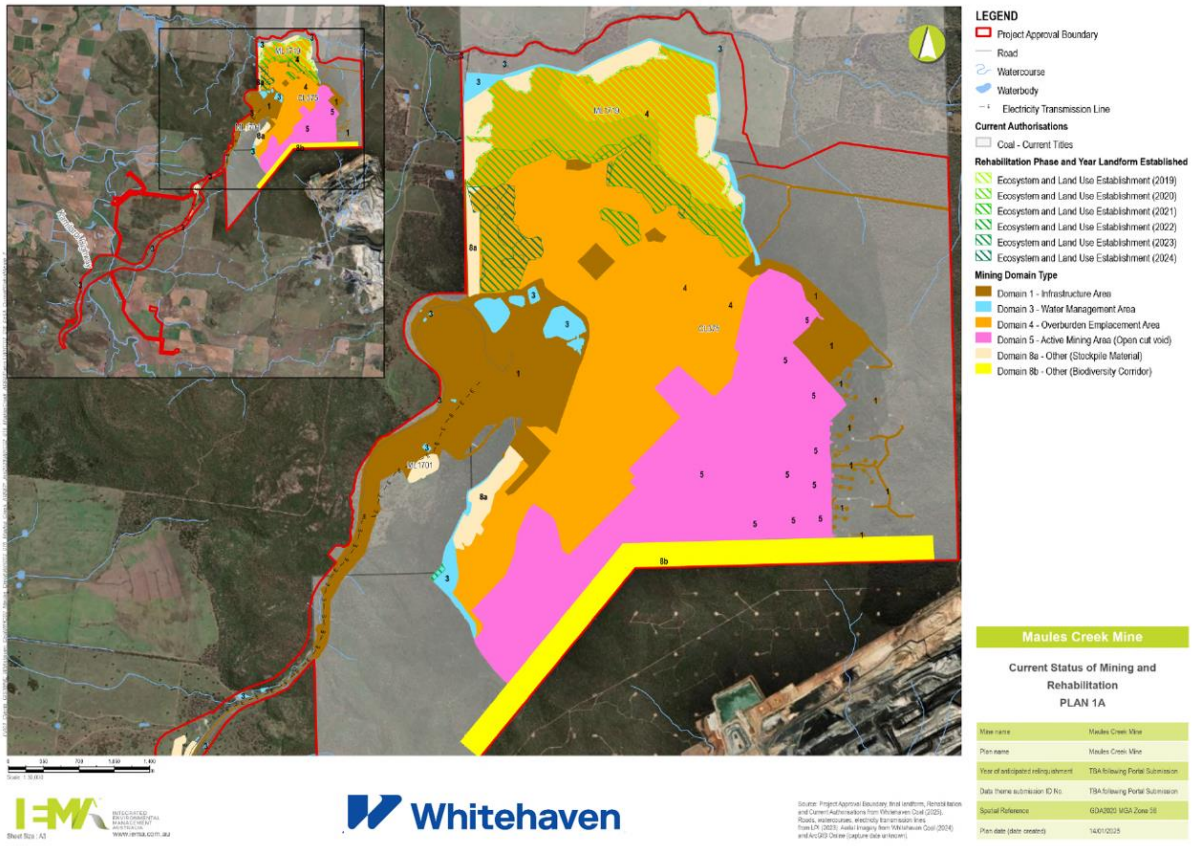


Figure 14: Mining and Rehabilitation Year 1 – CY24

8.2 Monitoring

Greenfields Agricultural and Environmental Services (Greenfields) was commissioned by Maules Creek Coal Mine to undertake the annual rehabilitation monitoring for 2024. In accordance with the MCCM Mine Operations Plan (Mod 8), Mine Site Rehabilitation Plan (2016), EPBC 2010/5566, on ground monitoring was undertaken by Benn Knott, Senior Ecologist with Greenfields on the 8th to the 15th of November 2024. Monitoring of rehabilitation at MCCM was undertaken to:

- evaluate the progress of rehabilitation areas towards meeting the rehabilitation performance indicators and completion criteria;
- determine the requirement for any maintenance and/or contingency measures (e.g. supplementary plantings, erosion control and weed control); and assess the success of MCCM rehabilitation methods/practices.

Fixed monitoring plots measuring 20 x 50 m were established at each rehabilitation and reference monitoring site. Within each plot, a 20 x 20 m quadrat were incorporated to assess floristic composition. The 20 x 20 m quadrat are sampled using a nested method (which segments the quadrat) as described by Morrison et al. (1995) and Lewis et al. (2008).

Monitoring conducted in 2024, recorded a total of 189 species within the 21 monitoring plots, including 127 native species and 62 exotic species. This is an increase of 123 species from the 2023 annual rehabilitation monitoring. Native species richness increased from the previous year's monitoring, with monitoring conducted in 2024 recording a total average of 18.09 species across all sites in comparison with a total average of 17.25 species in 2023. It is expected that as rehabilitation matures mid and overstorey densities will increase with more dominant grasses becoming more prevalent.

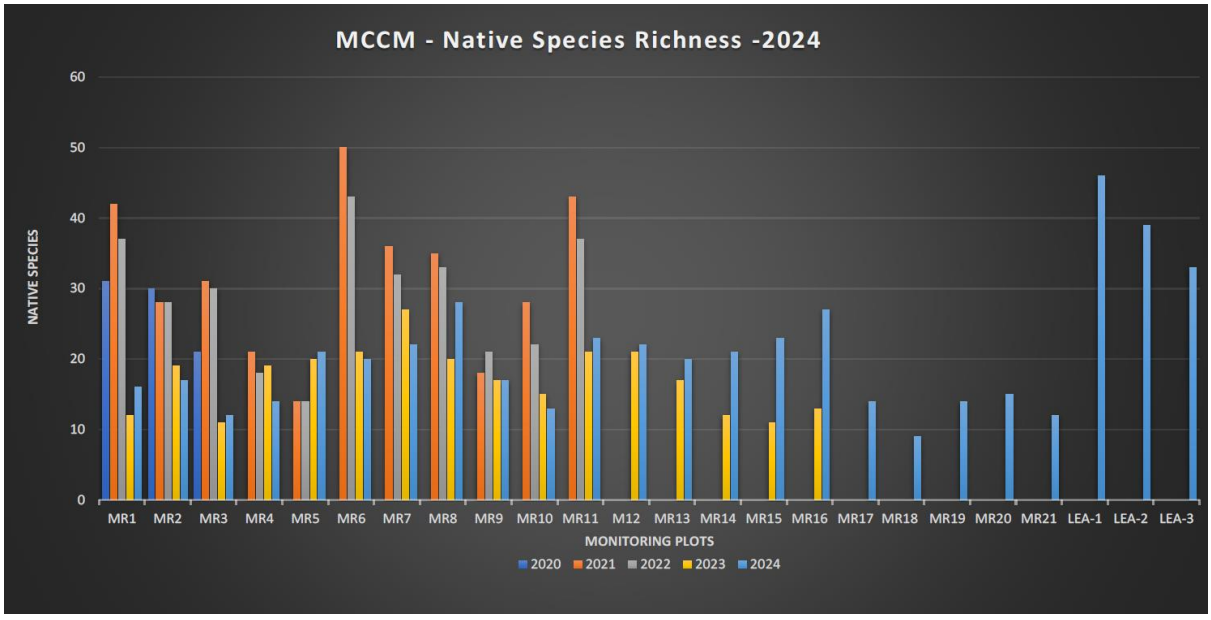


Figure 15: Native Species Richness (20 x 20 m plots) 2020-2024.

8.3 Topsoil Balance

During the reporting period topsoil and subsoils were stripped and stockpiled to address the objectives in the SHMP within the Forward Program. In line with Condition 39 of Schedule 3 of PA 10_0138, and Conditions 26(b), 27(c) and 27(d) of EPBC 2010/5566, the management of topsoil at the MCCM is undertaken in accordance with the Soil Management Protocol.

Detailed soil surveys have been undertaken within the disturbance footprint, prior to the stripping of topsoil. An independent consultant completed surveys assessing the suitability of topsoil and subsoil for use on mine rehabilitation. Topsoil volumes stored to date are summarised in Table 30 and MCCM will continue to monitor topsoil volumes to ensure appropriate volumes are recovered for later use on rehabilitation areas. A number of topsoil stockpiles may also require relocation during the following reporting period to enable progression of mining operations.

Table 30: Topsoil Balance 2024

Area	MIA / Construction	Mining Operations	Still to clear / strip	Totals	EA Total for rehab	Net difference
2014 Soil Balance (m^3)	539,166	252,490		791,656		
2015 Soil Balance (m^3)	145,990	349,928		495,918		
2016 Soil Balance (m^3)		852,524		852,524		
2017 Soil Balance (m^3)		762,718		762,718		
2018 Soil Balance (m^3)		251,075		251,075		
2019 Soil Balance (m^3)		225,173		225,173		
2020 Soil Balance (m^3)		127,086		127,086		
2021 Soil Balance (m3)		72,000		72,000		
2022 Soil Balance (m^3)		92,029		92,029		
2023 Soil Balance (m3)		167,049		167,049		
2024 Soil Balance (m3)		93,524		93,524		
Total Soil Balance (m^3)	**685,156**	**3,245,596**	**279,826**	**3,930,752**	**2,368,000**	**1,562,752**

8.4 Trials, Research Projects and Initiatives

In accordance with Condition 15 & 16 of the MCCM EPBC Approval 2010/5566, MCC has funded ~$650,000 to date out of the total $1 million into research of Box Gum Woodland mining rehabilitation as well as fully expending the required $1.5 million funding of research for threatened species recovery actions for the Regent Honeyeater, Swift Parrot and South-eastern (Corbens) Long-eared Bat. In accordance with approved Research Project Plans; Maules Creek Coal funded the following activities during 2024 including:

- Commenced the revision of the Research Project Plan for Box Gum Woodland mining rehabilitation to optimize the previous allocation for Adaptive Management, contributing to a Final Report by a Consultant. This revision also ensures alignment of the Box Gum Research with the updated MCCM Mine Site Rehabilitation Plan. The final funding was utilised to manage Swift Parrot mainland winter monitoring program, implementing new survey protocols to evaluate habitat use and movement patterns across south-east Australia;
- The final funding was utilised for targeted surveys of Regent Honeyeater; nest-protection measures and Noisy Miner management plus the coordination of range-wide volunteer surveys, newsletter and maintenance of sightings database and coordination and fieldwork for captive release program; and
- The final funding was utilised for critical habitat mapping and genetic testing across its entire range for the Corbens (formerly South-eastern) Long-eared Bat.

The findings of these research projects will be used to inform MCC on potential improvements to rehabilitation and restoration practices in particular during Box-Gum Woodland revegetation activities but also the management of threatened species both onsite and in the Offset Areas.

8.5 Key Issues to Achieving Successful Rehabilitation

The key issues to achieving successful rehabilitation at MCCM include:

- Excessive erosion (short term high intensity rainfall)
- Weed and feral animal infestation.
- Poor vegetation establishment and growth (including the Box-Gum Woodland EEC/CEEC).
- Landform instability.

In cases where rehabilitation performance is sub-optimal, additional management measures have been and will continue to be implemented (e.g. replanting, repairing landform and water management features, application of mulch/fertilisers, feral animal and weed control etc.). During the reporting period erosion repairs were undertaken to fill in minor riling's which formed due to major rain events in recent years. Since doing so ground covers have responded quickly and the repaired sections have fared well.

8.6 Actions and Proposed Improvements

MCCM will continue to progressively shape available overburden dumps when final landform elevation is reached. Targeting the north-western extent of the overburden emplacement area to connect up to the already established north eastern rehabilitation area. In the upcoming reporting period, tube stock seedlings will be planted across the 2024 rehabilitation areas. Additional monitoring of erosion and vegetation within these areas will also be carried out.

9 COMMUNITY

Social impacts and opportunities associated with the MCCM are managed in accordance with the Social Impact Management Plan (SIMP), Schedule 3 Condition 78 and the Statement of Commitments (SoC) Appendix 5 of PA 10_0138.

9.1 Community Engagement Activities

MCCM uses a wide variety of community engagement and consultation methods including:

- MCCM Community Consultative Committee (CCC)
- Boggabri-Tarrawonga-Maules Creek (BTM) combined CCC
- Whitehaven Open Day and MCCM mine tour
- local school visits including presentations to students and teachers in and out of schools
- sponsorship and engagement with local community groups and events, and associated mine tours
- sponsorship and engagement with the Gunnedah, Narrabri, and Boggabri business chambers
- meetings as required with neighbours and local residents
- meetings with a range of stakeholders including government and non-government agencies
- Whitehaven website
- MCCM phone hotline and dedicated email address, and local media updates.

MCCM operates a Community Consultative Committee, with meetings held quarterly during the reporting period. In addition, a joint meeting between Maules Creek Coal, Boggabri Coal and Tarrawonga Coal Mines CCC's were held in May and November 2024. Minutes of these meetings are posted on the Whitehaven website.

MCCM is also involved in and attends various community events and information forums as part of engaging with the local Community including Business Chamber forums, Council meetings, Industry forums, local School and Business functions, Community gatherings and Charities across four LGA areas.

Whitehaven engages regularly with local councils via face-to-face meetings, regularly attending meetings with the Gunnedah and District Chamber of Commerce and Industry, Narrabri and District Business Chamber, and the Boggabri Business Chamber. These meetings provide opportunity for the local business to engage directly with Whitehaven on a broad subject base.

9.2 Community Contributions & Initiatives

Whitehaven supports a range of not-for-profit organisations and charities, in 2024 our community investment contributions of over $1.2m were spread across:

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

Whitehaven and MCCM also hosted the NSW Whitehaven Open Day in August 2024. The event was attended by about 1,500 people with close to 400 participants being provided a tour to the MCCM.

The MCCM Social Impact Management Plan (SIMP) outlines a number of objectives to monitor the effect of the MCCM within the local community relating to housing, employment, training, economic development, community infrastructure and traffic. The following reports on the activities, monitoring and results with regards to the objectives outlined in the SIMP.

Housing

To reduce pressure on the local short term housing market, third party accommodation was supplied to contractors at the Civeo Accommodation Villages, predominantly in Boggabri with some to Narrabri. In addition, with the ramp up of mining employment this third party accommodation is also available to mine operations employees at a subsidised rate, to assist in reducing peak rental/leasing concerns in the local area. The fee for use, increases every three months in order to encourage employees to move into the local community permanently. Whitehaven has a strong focus on employing local people at its operations and this subsidised approach has been positively received as a short term housing solution by new employees to the mine as they investigate and look to relocate to the local area. WHC will continue to monitor in conjunction with local councils the ongoing housing and accommodation market to ensure impacts are managed. It is acknowledged the housing market is becoming tighter as more people move from the city to regional areas. At the end of the reporting period the residential vacancy rate for Gunnedah was 0.7% and 0.1% in the Narrabri LGA. In 2023, Whitehaven commenced its first sub division project of 18 lots in Gunnedah directly increasing the stock of housing in the LGA. These lots will either be sold as vacant land or house and land packages to increase housing supply in the region. Whitehaven is looking at other options to continue improving housing supply in line with workforce numbers. In 2024, WHC settled on one block, exchanged contract on another, and two more are under offer. Further, WHC has begun building on 4 of the lots with a view to selling once built.

Employment and Training

At the end of the reporting period, the total full time equivalent (FTE) Workforce was 832 personnel with 559 personnel employed with Whitehaven Coal and 273 personnel employed through labour hire contract partners. Whitehaven Coal continue to focus on local employment with 63% of MCCM employees residing in the Local

Government Area's (LGA's) of Gunnedah and Narrabri. The remaining 37% of WHC MCCM employees (including management and professional staff) have permanent residence listed as being outside the Narrabri and Gunnedah LGAs.

In 2024, MCCM offered 83 permanent roles to residents of the Gunnedah LGA and Narrabri LGA, 37 of them were employed by Whitehaven Coal and 46 through labour hire contract partners. 50 new recruits are based in the Gunnedah LGA and 33 new recruits are based in the Narrabri LGA.

The associated transport solution of both residential and non–residential workforce is satisfied by the ongoing shuttle bus service that is provided by MCCM for both operational employees as well as staff/management where this is practicable.

Whitehaven's *Workforce Diversity Policy* promotes the strong representation of women, Indigenous and young people at MCCM. Of the MCCM workforce at the end of the 2024 period:

- 80 were Indigenous (WHC Employees)
- 82 were women (WHC Employees)
- 97 commenced roles as a trainee operators (new to mining).
- Whitehaven and MCCM provide training opportunities for apprenticeships in order to support local employment and increase local skill levels. As a part of the WHC MCCM apprenticeship program two more apprenticeships were accepted (mechanic apprentice). This takes the total number of apprenticeships accepted under the program to 72, since 2011.

Provision of employment figures and amount of local spend by WHC is also available and provided to councils as requested to assist the councils in their forward planning, these figures are also included in financial reports released by WHC.

Economic Development

MCCM contributes financially to the economy at both state and federal level and to the communities in which we operate. Employees and contractors also add a significant economic contribution to the Gunnedah, Narrabri and Tamworth local government areas through their local expenditure.

In 2024 MCCM spent (on an equity joint venture basis):

- $223 m in salaries, wages, taxes and superannuation to employees
- $276 m in royalties to the New South Wales Government
- $241m in port and rail charges for track access haulage costs and port costs
- $761k for VPA to the Narrabri Shire

Community Infrastructure

During the CY2024 period WHC spent approximately $295 million with regional businesses and suppliers in the Narrabri, Gunnedah, Tamworth and Liverpool Plains Shires. Local expenditure will remain a focus in future years.

9.3 Community Complaints

Whitehaven maintains a dedicated Community Hotline 1800 WHAVEN (1800 942836) for all sites, including MCCM. The contact line continues to be advertised on the Whitehaven Coal website, MCCM CCC meeting and minutes, in Community Newsletters and newspaper advertising.

A summary of the complaints (by category) received by MCCM over the last two reporting years are detailed in Table 31. The Community Complaints Register is also available on the Whitehaven Coal website and a summary provided at CCC meetings.

Table 31: Summary of Community Complaints and Enquiries

Category	2023	2024
Air quality	0	1
Traffic	1	2
Lighting	0	0
Noise	1	0
Blasting	0	0
Social impacts	0	0
Other	1	4
TOTAL	3	7

Note: a single complaint may involve multiple categories.

9.4 Complaint Trends

The total number of complaints received in 2024 was higher than those recorded in the 2023 reporting period. The increase in complaints was driven by three complaints received during the period regarding groundwater and one complaint regarding the Community Consultative Committee.

9.5 Actions and Improvements

A complaint was made to the DPHI regarding the lack of Aboriginal representation on the CCC. In response, MCC provided evidence detailing the ongoing efforts made to recruit an Aboriginal representative since the resignation of the previous member. Despite these efforts, which have included newspaper advertisements,

applications through the website, and word of mouth, MCC has been unsuccessful in securing an Aboriginal representative. Recruitment efforts continue to be discussed as a standing agenda item at each MCC CCC meeting.

Additionally, a complaint was lodged with the DPHI concerning the daily upload of noise and dust data to the MCC public website. It was noted that while uploads were occurring regularly, there were instances where they did not. MCC investigated the issue and identified the cause, subsequently implementing an automated system to ensure that when manual uploads are missed, the system will automatically upload the required data to the public website.

All complaints were closed out and responded to in a timely manner. For the complaints in relation to air quality and groundwater, all monitoring data was compliant with licencing conditions.

10 INDEPENDENT AUDITS

10.1 Independent Environmental Audit 2024

The most recent IEA was undertaken in 2024 by an independent consultant approved by the DPI&E as required under Schedule 5, Condition 10 of the PA10_0138

A copy of the audit report and the action plan in response to the audit recommendations is available on the Whitehaven Coal website. These include recommendations that may have been relevant during the audit period however outside the applicable Annual Review reporting period. The following actions were identified during the 2024 IEA outlined in the Table 32.

The next IEA will be undertaken in 2027.

Table 32: IEA Recommendations and Actions

Item No	Assessment Requirement	Comment	Response/Action	MCC Response and Status
Sch.3-12	**Attenuation of Plant** The Applicant must: a) ensure that: • all mining trucks and water carts used on the site are commissioned as noise suppressed (or attenuated) units; • ensure that all equipment and noise control measures deliver sound power levels that are equal to or better than the sound power levels identified in the EA, and correspond to best practice or the application of the best available technology economically achievable; • where reasonable and feasible, improvements are made to existing noise suppression equipment as better technologies become available; and monitor and report on the implementation of these requirements annually on its website.	Sound Power Level (SPL) Testing is conducted annually on one-third of all plant on a three year-rolling basis and results are detailed in the annual reviews. In 2021 and 2022, 55 and 37 pieces of mobile plant were tested respectively. SPLs were exceeded for some stationary equipment within the CHPP, but the SPL testing was unable to measure each fixed plant within the CHPP without the influence of other equipment. It was noted that whilst not all fixed and individual mobile plant met the predicted SPLS, the total measured SPL was equal to or less than the model for Year 5 Project EA site total. In 2023, 133 individual pieces of mobile plant were tested. SPLs of one stationary plant within the CHPP was higher the predicted levels as a result of in-service testing, the layout and operation of the CHPP. The total measured SPL was equal to or less than the model for Year 5 Project EA site total.	Historical NC – no further action required.	MCC will continue to undertake sound power testing as detailed in PA10-0138. No further action required, item closed.
Sch.5-13	The Applicant must, within 3 months of the date of this approval: (a) make the following information for the project publicly available on its website, on a daily basis and in a clearly understandable form: daily weather forecasts for the coming week; proposed operational responses to these weather forecasts;	The Site received a query from the Department of Planning regarding dust report in May 2024. The Site found that air quality and noise monitoring data was not available on the website on a daily basis, specially during days when the environmental team is not onsite. The Site self-reported to the Department on 23 May 2024 regarding this non-compliance. It was rectified	Non-compliance has been rectified and closed out. No further action required.	MCC will continue to monitor and report on operational responses to noise and dust monitoring data as detailed in PA10-0138. No further action required, item closed

<table>
<tr>
<td></td>
<td>real-time noise and air quality monitoring data (subject to any necessary caveats); and
any operational responses that were taken in response to the noise and air quality monitoring data, and
(b) make provision on its website for the provision of on-line and/or email comments by members of the community regarding this information,
to the satisfaction of the Planning Secretary.</td>
<td>immediately through updating the website with the required information and implementing a new roster system to publish the data. A new automated system was then developed and launched to enable automated update of the website to ensure compliance.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M2.2</td>
<td>Air Monitoring Requirements
POINT 18
<table>
<tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr>
<tr><td>PM10</td><td>micrograms per cubic metre</td><td>Continuous</td><td>AM-22</td></tr>
</table>
POINT 19
<table>
<tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr>
<tr><td>PM10</td><td>micrograms per cubic metre</td><td>Every 6 days</td><td>AM-18</td></tr>
</table>
POINT 20,21,22,23
<table>
<tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr>
<tr><td>Particulates - Deposited Matter</td><td>grams per square metre per month</td><td>Monthly</td><td>AM-19</td></tr>
</table></td>
<td>MCC reported a non-compliance against this condition for TEOM3 non-compliance event between 7/10/23 - 9/11/23.
MCC reported, due to the exceptional weather event TEOM3 was damaged by water ingress and was not recording accurately.
The access to the TEOM during that period was cut off due to flooding, and MCC were unable to undertake the required maintenance, this resulted in the monitor being down between 7/10/23-9/11/23. This resulted in a monitoring frequency of 89.31% of a minimum 90% frequency rate.
This is considered a technical non-compliance as due to the declared state of emergency maintenance work was not able to be completed.</td>
<td>Historic incident. No further action required.</td>
<td>Completed, item closed.</td>
</tr>
</table>

11 INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD

11.1 Non-Compliances

The compliance status of the MCCM against relevant approvals during the reporting period was assessed in Section 1 as of the end of the reporting period (31 December 2024). Further details of any actions undertaken or proposed for non-compliances, including within the following reporting period, are summarised in Table 33**Error! Reference source not found.**.

Table 33: Non-Compliance Details and Proposed Action Plan

Non - Compliance	Date / Location	Cause	Action Plan	Estimated Completion Date
Schedule 3 Condition 12 a)	20/11/24 MCC CHPP	Individual fixed plant items located at the CHPP do not have the ability to be measured in isolation of the running plant. This has resulted in a Technical non-compliance of one piece of fixed plant whilst undertaking sound power testing. Overall site sound power level is compliant.	Continue maintenance program, testing and reporting	Complete
Schedule 5 Condition 7	2/10/2024 MCCM	Since the resignation of the previous Aboriginal Representative on the MCC CCC a replacement has been unable to be appointed due to lack of interest from the community.	MCC has been actively trying to recruit an Aboriginal; representative through the use of newspaper advertisements, applications on the MCC public website and directly through word of mouth. This will continue until such time as an Aboriginal Representative is recruited to the CCC.	Ongoing
Schedule 5 Condition 13 (a)	31/5/2024 MCCM	On occasions the daily upload of noise and dust data to the MCC public website was not undertaken. This was a manual process which relied on individuals to completed the upload.	Implement an automatic system which recognises when a manual upload of the appropriate data has not occurred to the public website, and	Complete

Non - Compliance	Date / Location	Cause	Action Plan	Estimated Completion Date
			automatically publish the data.	

11.2 Reportable Incidents or Exceedances

Each type of incident or exceedance has been described in Table 4 of this report. All reportable non-compliances have been reported to the relevant agencies in line with the reporting process.

11.3 Regulatory Actions

During the reporting period a single warning letter was issued to MCC. This warning letter related to the daily upload of noise and dust data to the MCC public website. This has been discussed in Section 9.5.

12 ACTIONS AND PROPOSED IMPROVEMENTS

Activities to be completed in the next reporting period to improve the environmental and community performance of the MCCM, in addition to those separately identified in Section 11 include. Implementing revised management plans, progressing overburden shaping and rehabilitation opportunities, undertaking research related projects regarding Box-Gum Grassy Woodlands, and continuing identification of community support opportunities.

APPENDIX A

Blast Monitoring Records

Blast Monitoring Records

The records presented in Table A-1 have been included to satisfy the blast reporting requirements of Schedule 3 Condition 19 and 20 of PA 10_0138.

Table A-1
Blast Monitoring Records

Date	Time	ID/Location	BM1 mm/s	BM1 dBL	BM2 mm/s	BM2 dBL	BM3 mm/s	BM3 dBL	BM4 mm/s	BM4 dBL
Exceedance Criteria (0% (5%))			10 (5)	120 (115)	10 (5)	120 (115)	10 (5)	120 (115)	10 (5)	120 (115)
2/01/2024	12:28	JEB08-40-OB BRT07-50-OB	0.15	93.5	0.17	90.4	0.19	97.2	0.18	96.7
5/01/2024	12:24	TSU330-03-57-RL	0.02	92	0.04	85.9	0.05	89.5	0.02	83.1
8/01/2024	15:29	TSU330-03-54-RL	0.02	82	0.04	79.3	0.05	81.1	0.05	89.5
11/01/2024	12:08	NAG02-07-OB-D VEL02-06-OB	0.04	97.8	0.06	101.9	0.11	98.4	0.24	102.1
15/01/2024	12:22	BRT07-49-OB BRT07-48-PS JEB04-46-PS	0.1	96.5	0.12	96.8	0.18	100	0.25	102.9
17/01/2024	12:16	BRT03-56-OB	0.06	84.8	0.11	88.9	0.09	100	0.08	95.9
18/01/2024	16:18	VEL02-10-OB	0.02	82.8	0.03	103.9	0.05	95.6	0.08	96
20/01/2024	12:17	NAG02-07-OB-E	0.02	80.5	0.03	103.6	0.06	93.8	0.06	88
23/01/2024	12:24	HRN360-04-58-OB	0.03	88.4	0.05	94.2	0.09	102.4	0.07	86.2
25/01/2024	15:55	JEB08-42-RL JEB08-40-OB-B	0.13	83.9	0.19	94.3	0.16	93.8	0.25	96.4
27/01/2024	12:02	FLX07-34-OB	0.02	90.8	0.05	109.1	0.06	100.2	0.04	98.9
30/01/2024	12:18	MER08-39-OB	0.07	91.8	0.17	99.6	0.16	103.4	0.17	94.1
7/02/2024	12:15	BRT07-52-OB BRT07-48-PS	0.1	112.7	0.13	108.9	0.17	104.5	0.23	109.6
10/02/2024	10:28	NAG02-09-OB TRA07-36-PA	0.04	104.2	0.05	104	0.14	99.7	0.21	104.4
12/02/2024	12:17	FLX07-39-CO	0.03	91	0.04	91	0.05	98.2	0.03	101.3
16/02/2024	12:27	JEA04-46-OB JEA05-45-OB-C-Rock-Toe NAG08-35-PS	0.14	93.8	0.24	90	0.32	103	0.36	88.5
20/02/2024	12:32	BRT03-57-OB BRT03-56-OB-B	0.09	95.4	0.06	91.9	0.07	88.5	0.06	91.2
24/02/2024	12:31	JEA05-46-OB	0.04	88.1	0.08	82.1	0.13	98.6	0.09	85.1
27/02/2024	12:21	JEA05-44-OB	0.04	75.4	0.06	107.2	0.06	102.2	0.05	89.4

1/03/2024	12:17	TRA07-39-PA	0.01	81.1	0.02	96.9	0.02	94.3	0.01	86.9
2/03/2024	13:11	NAG02-10-OB	0.03	92.2	0.05	98.7	0.09	102.3	0.16	91.7
5/03/2024	15:21	MER08-41-OB-A BRT03-55-PS	0.05	84.8	0.09	97.7	0.1	93.4	0.1	86.5
9/03/2024	12:14	BRT07-51-OB	0.09	108.8	0.08	95.7	0.09	103.1	0.1	101.1
11/03/2024	12:24	VEL08-33-OB	0.05	85.7	0.07	98.5	0.07	103.1	0.09	93.4
14/03/2024	12:34	BRT03-55-OB TSL03-60-OB BRT03-60-PS	0.12	102.4	0.15	100	0.15	95.4	0.11	87.3
18/03/2024	12:27	JEA05-47-OB	0.02	93	0.05	87.7	0.06	92.9	0.06	93.1
20/03/2024	12:42	VEL08-39-OB	0.07	88.4	0.17	88.4	0.11	94.3	0.1	91.5
22/03/2024	12:19	BRT03-60-OB	0.08	105.8	0.09	102.8	0.13	88.5	0.37	84.6
23/03/2024	12:02	TEA02-10-OB	0.09	89.4	0.1	88.4	0.23	89.7	0.17	87.7
28/03/2024	11:41	JEB04-46-OB JEB04-47-TOE	0.03	86.5	0.07	90.8	0.1	92.3	0.07	93.9
2/04/2024	11:26	BRT03-58-OB	0.11	101	0.14	102.9	0.21	109.1	0.18	109.9
3/04/2024	15:38	BRT08-46-OB	0.13	85.1	0.12	98.3	0.17	93.9	0.13	83.7
12/04/2024	10:37	VEL08-35-OB JEB08-41-OB-C JEB07-41-OB-C	0.11	87.7	0.13	83	0.16	90.3	0.14	88.5
15/04/2024	11:28	JEA04-47-TOE	0.01	89.2	0.02	85.4	0.03	90.3	0.03	99.5
20/04/2024	15:19	VEL08-36-OB	0.16	95.6	0.24	107.4	0.26	98.6	0.23	104.6
23/04/2024	11:24	BRT03-60-TOE	0.03	94.6	0.04	92.7	0.04	88.7	0.04	98.7
27/04/2024	16:10	JEB04-47-OB	0.03	89	0.05	87.6	0.06	88.5	0.07	96.8
1/05/2024	11:30	BRT-03-54-OB	0.03	99.7	0.005	100	0.05	89	0.04	101.8
4/05/2024	11:05	VEL08-38-OB	0.17	86.5	0.21	89	0.2	93.6	0.16	99.1
7/05/2024	15:25	BRT03-61-OB BRT03-60-PS-B	0.07	94.4	0.12	94.1	0.14	97.5	0.12	99
10/05/2024	15:57	JEB05-49-OB	0.03	79.1	0.05	80.2	0.08	90	0.08	88.5
17/05/2024	11:55	BRL07-51-OB	0.08	88.1	0.1	86.9	0.19	90.3	0.09	87.9
21/05/2024	11:33	JEB05-46-OB VEL04-45-PS	0.06	100.7	0.12	103.1	0.18	103.3	0.14	102.3
24/05/2024	15:19	HRN356-12-55-OB HRN11-42-PS	0.17	87.3	0.22	91	0.25	94.1	0.19	89.5
29/05/2024	11:31	MER04-45-OB	0.05	82.8	0.2	90.3	0.15	89.4	0.16	97.3
31/05/2024	11:20	BRL07-46-OB	0.03	92.8	0.05	100.9	0.05	102.3	0.04	100.3
3/06/2024	11:11	JEB05-49-TO	0.01	78.7	0.03	92.9	0.02	77.6	0.02	82.2
5/06/2024	15:24	HRN04-58-OB	0.01	99.8	0.03	94.9	0.02	90.6	0.01	86.9

8/06/2024	15:39	MER04-47-OB	0.06	83.9	0.09	91.3	0.14	74.9	0.12	82.2
11/06/2024	15:39	VEL05-49-PS BRL07-49-OB	0.06	81.4	0.11	98.8	0.17	90.1	0.1	93.7
15/06/2024	15:32	HRN360-12-60-OB	0.05	106.4	0.06	102.6	0.06	101.6	0.06	88
18/06/2024	15:33	MER05-49-OB	0.05	82	0.08	85.2	0.16	84.6	0.15	82.2
22/06/2024	11:50	HRN360-12-57-OB TSL03-58-OB	0.1	107.6	0.07	105.4	0.13	100	0.1	94.9
24/06/2024	15:25	MER05-46-OB	0.03	77	0.07	86.6	0.08	83.1	0.12	86.1
28/06/2024	15:31	ONV04-60-OB TNN03-56-OB-A	0.06	94.7	0.08	95.5	0.12	90.3	0.12	84.2
1/07/2024	15:25	MER05-45-OB	0.08	85.5	0.12	88.4	0.16	83.8	0.16	88.8
6/07/2024	11:37	JEB06-46-OB + Oversize Rocks NAG08-34-PS	0.08	105.5	0.19	108.1	0.14	105.1	0.3	105
8/07/2024	15:23	ONV04-57-OB	0.06	89.9	0.08	92	0.08	96.4	0.09	97.9
13/07/2024	15:36	NAG08-35-OB	0.07	88.5	0.11	91.5	0.14	93.4	0.15	87.4
16/07/2024	16:12	JEA06_47_OB Oversize Rocks	0.01	89.2	0.02	109.4	0.02	97.9	0.01	100.6
18/07/2024	11:24	JEA06-47-OB VEL04-45-OB	0.11	94	0.23	93.4	0.2	82.9	0.13	91
22/07/2024	11:32	HRN-350-04-57-OB	0.02	89.9	0.02	88.9	0.02	84.1	0.02	102.5
24/07/2024	15:35	VEL04-47-OB MER04-47-PA	0.04	80.2	0.08	96.9	0.1	88.3	0.08	94.4
30/07/2024	15:31	JEA07-46-OB BRL07-48-TO & Rocks	0.1	97.3	0.14	96.7	0.18	102.2	0.12	107.4
3/08/2024	15:32	HRN356-08-52-OB	0.05	98.8	0.06	92.6	0.08	92.8	0.06	92.4
6/08/2024	15:32	VEL04-46-OB MER05-46-OB-B & BRL Rocks	0.12	88.7	0.23	86.7	0.35	91.2	0.23	91
12/08/2024	15:25	ONV0-55-OB	0.06	101.4	0.09	97.3	0.1	98.4	0.12	113.3
17/08/2024	15:55	JEA07-48-OB LRN08-39-PS	0.14	85.1	0.24	90.9	0.15	85	0.11	89.8
24/08/2024	15:28	LRN08-39-CA	0.44	93.5	0.87	102.7	1.22	110	1.86	102.7
26/08/2024	15:27	HRD12-59-PA NAG08-37-PA	0.01	93.7	0.02	91.7	0.01	91	0.01	81.7
30/08/2024	15:32	VEL04-48-OB	0.08	97	0.09	99.8	0.08	101.5	0.1	100.1
2/09/2024	11:10	JEA07-51-PS	0.05	90.6	0.11	105.4	0.1	89.5	0.12	98.7
3/09/2024	16:43	HRN08-54-OB	0.07	93.8	0.08	90.6	0.09	97.6	0.09	90.3
7/09/2024	15:26	JEA07-47-OB VEL04-45-TO BRL Rocks	0.06	95.4	0.08	100.8	0.1	95.7	0.08	88.5
13/09/2024	16:18	HRN358-10-41-OB TSU04-57-PS	0.09	103.2	0.14	101.1	0.15	101.1	0.11	110.2

16/09/2024	11:23	TNN03-58-OB	0.02	91.6	0.02	100	0.02	87.5	0.02	94.6
17/09/2024	16:44	NAG04-45-OB	0.04	90.5	0.09	86.2	0.14	87.6	0.12	94.4
21/09/2024	15:45	TSU04-57-OB	0.03	92.7	0.05	91.3	0.04	99.1	0.02	85.3
25/09/2024	15:39	VEL04-49-OB	0.07	92.3	0.14	103.2	0.12	102.2	0.08	99
27/09/2024	15:37	LRN08-35-CA	0.15	103	0.25	106.7	0.31	99.9	0.52	103.8
5/10/2024	16:16	HRN-360-04-62-OB ONV-04-61-OB ONV-04-54-OB BRT-03-59-OB	0.28	99.3	0.34	106.8	0.36	100.8	0.33	99.6
8/10/2024	15:37	JEB-06-47-PA JEB-06-45-TO VEL-05-45-OB	0.05	90	0.09	95	0.08	102.9	0.09	81.3
12/10/2024	15:29	NAG-04-46-PA	0.02	102.1	0.04	91.3	0.05	99.3	0.05	104.6
14/10/2024	11:43	ONV08-51-OB	0.08	91.7	0.08	91.2	0.11	95.2	0.09	91.9
19/10/2024	15:49	JEA-06-50-OB JEB-07-47-PA-A	0.04	88.3	0.05	99.1	0.06	98.7	0.04	82.5
24/10/2024	16:34	HRN12-55-OB ONV08-52-OB	0.06	99.5	0.06	105.5	0.08	98.6	0.06	94.1
26/10/2024	12:19	JEB07-45-PA-B	0.02	98.4	0.03	84.9	0.02	95.7	0.02	87.8
30/10/2024	15:11	ONV12-58-OB	0.06	90.6	0.1	90.5	0.12	93	0.1	94.3
2/11/2024	15:31	HRN358-10-42-RL	0.07	85.8	0.09	85.4	0.08	91.2	0	91.3
4/11/2024	12:26	NAG04-48-OB	0.04	100	0.08	104.2	0.13	101	0.07	97.7
6/11/2024	15:26	ONV12-59-OB	0.06	88.5	0.08	100.3	0.07	89.2	0.09	91.7
9/11/2024	15:37	FLX08-58-PA	0.01	87	0.02	106.5	0.01	95	0.01	92.8
11/11/2024	11:28	MER06-48-OB	0.06	94.9	0.11	89.1	0.09	86.6	0.09	84.6
13/11/2024	12:45	TSU04-68-OB	0.03	87.3	0.04	109.2	0.03	107.8	0.03	98.6
16/11/2024	15:17	FLX08-35-CO	0:43	91.8	0.05	93.1	0.06	95.1	0.04	104
18/11/2024	12:32	HRN11-42-PS-B MER06-46-OB	0.13	91.5	0.29	84.8	0.25	86.1	0.28	82.8
22/11/2024	15:24	NAG04-48-OB BRL07-50-OB	0.06	94.6	0.09	90.3	0.11	98	0.1	94.7
23/11/2024	15:15	FLX08-35-CO-PA-B	0.04	97.8	0.08	92.8	0.07	96.1	0.05	93.2
25/11/2024	11:14	BRT03-61-PS	0.43	92.4	0.42	103.5	0.32	98.9	0.16	102.7
26/11/2024	11:17	HRN358-10-39-RL-A	0.04	87.2	0.08	100.6	0.07	98.2	0.06	102.7
28/11/2024	12:15	TNN03-62-OB BRT03-62-OB	0.19	99	0.27	98.1	0.29	98.9	0.12	99.3
7/12/2024	15:09	TSU08-50-OB TSL08-52-PS	0.11	85.1	0.16	106.8	0.24	94.8	0.23	91.3
9/12/2024	14:08	TNN03-62-OB-B	0.01	93	0.02	93.4	0.01	96.7	0.01	89.6
11/12/2024	15:25	JEA07-51-OB FLX08-34-PS	0.08	98.6	0.23	97.4	0.24	99.6	0.19	98

13/12/2024	15:27	LRN04-48-OB	0.02	98.9	0.03	96.3	0.02	98	0.03	83.1
17/12/2024	12:33	HRN358-10-40-OB BRT03-62-OB-B	0.11	89.9	0.1	91.7	0.11	96.8	0.1	93.9
20/12/2024	15:17	TSL08-52-PS-B	0.06	85.1	0.08	85.2	0.1	106.9	0.1	80.2
21/12/2024	11:25	LRN04-49-OB	0.02	87.3	0.05	91.7	0.04	91.9	0.04	92.6
23/12/2024	10:45	LRN08-36-OB	0.1	90.5	0.16	111.5	0.22	102.6	0.23	97.6
28/12/2024	15:13	JEB06-51-PS	0.07	83.9	0.12	100.1	0.18	87.7	0.13	110
30/12/2024	16:22	TSU08-52-OB	0.09	86.3	0.1	102.4	0.12	93.7	0.11	88

APPENDIX B

Coal Transport Records

Appendix B
Coal Transport Records

The records presented in Appendix B have been included to satisfy the coal transport reporting requirements of Condition 65 (a) and (b) of PA 10_0138. The amount of coal transported from the site on a monthly basis and the date and time of each rail movement generated by the MCCM has been listed in Table B-1 and Table B-2 below.

Table B-1
Coal Transported Monthly

Month	Coal Transported (MT)
January	0.84
February	0.75
March	0.71
April	0.58
May	0.73
June	0.79
July	0.60
August	0.65
September	0.84
October	0.70
November	0.70
December	0.81
Total	8.70

Table B-2

Daily Train Movements

Date & Time of Load Completion			
1/01/2024 6:59	13/01/2024 23:55	28/01/2024 18:12	12/02/2024 9:40
1/01/2024 11:09	14/01/2024 5:33	28/01/2024 21:49	12/02/2024 15:30
2/01/2024 0:24	15/01/2024 0:50	29/01/2024 2:11	12/02/2024 22:39
2/01/2024 3:57	15/01/2024 5:53	29/01/2024 5:43	13/02/2024 1:14
2/01/2024 7:30	15/01/2024 15:49	29/01/2024 11:39	13/02/2024 4:06
2/01/2024 11:59	15/01/2024 19:22	30/01/2024 7:33	13/02/2024 8:00
2/01/2024 22:42	16/01/2024 3:52	30/01/2024 10:45	13/02/2024 11:44
3/01/2024 2:09	16/01/2024 6:42	30/01/2024 14:01	13/02/2024 21:03
3/01/2024 14:26	16/01/2024 12:07	30/01/2024 17:44	14/02/2024 7:31
4/01/2024 4:56	16/01/2024 20:54	30/01/2024 21:21	14/02/2024 16:45
4/01/2024 8:02	17/01/2024 11:28	31/01/2024 3:46	14/02/2024 21:13
4/01/2024 10:41	17/01/2024 15:18	31/01/2024 3:49	15/02/2024 2:40
4/01/2024 15:06	17/01/2024 18:06	31/01/2024 19:50	15/02/2024 14:49
5/01/2024 0:47	18/01/2024 4:01	31/01/2024 23:09	16/02/2024 1:54
5/01/2024 7:10	19/01/2024 0:20	1/02/2024 8:16	16/02/2024 7:28
5/01/2024 17:27	19/01/2024 2:56	1/02/2024 10:58	16/02/2024 16:17
5/01/2024 23:35	19/01/2024 6:22	1/02/2024 19:58	16/02/2024 21:24
6/01/2024 5:05	19/01/2024 11:04	2/02/2024 3:20	17/02/2024 4:35
6/01/2024 8:24	19/01/2024 15:50	2/02/2024 8:38	17/02/2024 11:42
6/01/2024 14:21	20/01/2024 5:57	2/02/2024 10:56	17/02/2024 14:22
6/01/2024 17:12	20/01/2024 9:52	2/02/2024 14:07	18/02/2024 3:21
6/01/2024 21:34	20/01/2024 20:28	2/02/2024 16:42	18/02/2024 6:47
7/01/2024 0:13	20/01/2024 23:06	2/02/2024 19:59	18/02/2024 11:13
7/01/2024 4:12	21/01/2024 9:47	3/02/2024 2:07	18/02/2024 15:05
7/01/2024 9:04	21/01/2024 12:20	3/02/2024 6:27	18/02/2024 18:25
7/01/2024 12:05	21/01/2024 23:47	3/02/2024 9:55	19/02/2024 5:33
7/01/2024 19:55	22/01/2024 13:33	3/02/2024 12:50	19/02/2024 20:57
8/01/2024 3:09	22/01/2024 17:33	3/02/2024 17:40	20/02/2024 1:56
8/01/2024 5:38	23/01/2024 0:24	3/02/2024 23:18	20/02/2024 6:05
8/01/2024 8:53	23/01/2024 4:16	4/02/2024 2:20	20/02/2024 10:29
8/01/2024 11:26	23/01/2024 6:40	4/02/2024 14:59	20/02/2024 19:02
8/01/2024 14:19	23/01/2024 19:16	4/02/2024 18:14	21/02/2024 7:25
9/01/2024 0:14	24/01/2024 6:32	5/02/2024 1:18	21/02/2024 10:07
9/01/2024 11:24	24/01/2024 10:41	5/02/2024 5:52	21/02/2024 16:40
9/01/2024 14:16	24/01/2024 20:43	9/02/2024 17:10	22/02/2024 3:04
9/01/2024 20:10	24/01/2024 23:39	9/02/2024 21:47	22/02/2024 5:45
9/01/2024 23:05	25/01/2024 15:12	10/02/2024 1:25	22/02/2024 9:29
10/01/2024 4:18	25/01/2024 18:24	10/02/2024 4:18	22/02/2024 20:23
10/01/2024 6:33	25/01/2024 20:56	10/02/2024 13:37	23/02/2024 7:51
10/01/2024 13:15	26/01/2024 3:36	10/02/2024 16:42	23/02/2024 15:50
10/01/2024 18:16	26/01/2024 22:43	10/02/2024 20:53	23/02/2024 20:55
10/01/2024 21:29	27/01/2024 1:55	11/02/2024 3:22	24/02/2024 10:25
11/01/2024 1:27	27/01/2024 6:08	11/02/2024 6:22	24/02/2024 13:30
12/01/2024 4:52	27/01/2024 9:44	11/02/2024 15:46	24/02/2024 16:09
12/01/2024 21:16	27/01/2024 20:57	11/02/2024 18:54	24/02/2024 22:09
13/01/2024 8:23	28/01/2024 1:55	11/02/2024 21:41	25/02/2024 2:09
13/01/2024 12:31	28/01/2024 10:03	12/02/2024 1:20	25/02/2024 12:22
13/01/2024 16:31	28/01/2024 12:34	12/02/2024 6:29	25/02/2024 16:48

25/02/2024 20:42	12/03/2024 9:54	31/03/2024 1:13	24/04/2024 16:24
26/02/2024 1:42	12/03/2024 18:12	31/03/2024 5:53	25/04/2024 1:11
26/02/2024 10:47	13/03/2024 0:50	31/03/2024 11:45	25/04/2024 4:17
26/02/2024 19:12	13/03/2024 0:50	31/03/2024 16:10	25/04/2024 10:53
26/02/2024 22:33	13/03/2024 18:39	31/03/2024 18:29	25/04/2024 14:38
27/02/2024 1:40	14/03/2024 1:50	1/04/2024 1:37	25/04/2024 17:15
27/02/2024 5:29	14/03/2024 4:52	1/04/2024 4:49	25/04/2024 19:49
27/02/2024 7:48	14/03/2024 7:51	1/04/2024 8:25	25/04/2024 23:39
27/02/2024 11:01	14/03/2024 21:12	1/04/2024 11:28	26/04/2024 13:56
27/02/2024 14:20	15/03/2024 1:22	1/04/2024 17:01	26/04/2024 16:35
28/02/2024 5:51	15/03/2024 4:45	1/04/2024 19:59	26/04/2024 19:03
28/02/2024 8:07	15/03/2024 7:40	2/04/2024 2:22	26/04/2024 22:12
28/02/2024 19:55	16/03/2024 9:40	2/04/2024 9:31	27/04/2024 2:37
29/02/2024 5:40	16/03/2024 16:36	6/04/2024 4:19	27/04/2024 7:35
29/02/2024 9:30	18/03/2024 20:57	6/04/2024 13:44	27/04/2024 21:14
29/02/2024 15:24	19/03/2024 15:07	7/04/2024 9:31	28/04/2024 3:22
29/02/2024 18:54	19/03/2024 18:04	7/04/2024 16:41	28/04/2024 5:32
29/02/2024 22:05	20/03/2024 6:07	7/04/2024 19:50	28/04/2024 8:27
1/03/2024 11:49	21/03/2024 1:46	8/04/2024 2:02	28/04/2024 11:20
2/03/2024 0:28	21/03/2024 7:03	8/04/2024 20:55	28/04/2024 15:02
2/03/2024 8:06	21/03/2024 16:35	9/04/2024 4:49	29/04/2024 8:48
2/03/2024 20:39	21/03/2024 22:29	9/04/2024 18:19	29/04/2024 11:58
3/03/2024 5:34	22/03/2024 20:33	10/04/2024 7:03	29/04/2024 14:15
3/03/2024 11:54	22/03/2024 23:21	11/04/2024 1:39	29/04/2024 21:14
3/03/2024 15:56	23/03/2024 2:04	11/04/2024 14:10	30/04/2024 3:30
3/03/2024 18:11	23/03/2024 5:49	12/04/2024 18:10	30/04/2024 8:17
4/03/2024 0:50	23/03/2024 15:05	13/04/2024 0:29	30/04/2024 16:09
4/03/2024 4:52	23/03/2024 23:50	13/04/2024 13:17	30/04/2024 19:20
4/03/2024 15:58	24/03/2024 10:45	14/04/2024 0:17	1/05/2024 0:35
4/03/2024 22:00	24/03/2024 15:59	14/04/2024 11:40	1/05/2024 4:52
5/03/2024 5:47	24/03/2024 20:24	14/04/2024 16:35	1/05/2024 19:33
5/03/2024 15:35	25/03/2024 5:14	15/04/2024 6:21	2/05/2024 0:51
5/03/2024 19:38	25/03/2024 7:39	15/04/2024 18:18	2/05/2024 5:48
6/03/2024 3:56	25/03/2024 11:02	17/04/2024 3:18	2/05/2024 8:23
6/03/2024 7:33	25/03/2024 23:36	18/04/2024 2:16	2/05/2024 15:45
6/03/2024 17:48	26/03/2024 4:42	18/04/2024 7:21	2/05/2024 21:11
6/03/2024 21:33	26/03/2024 12:14	18/04/2024 10:58	3/05/2024 12:04
7/03/2024 0:08	26/03/2024 17:39	18/04/2024 15:43	4/05/2024 3:02
7/03/2024 8:49	26/03/2024 23:48	19/04/2024 17:57	4/05/2024 5:26
7/03/2024 23:49	27/03/2024 2:13	21/04/2024 6:09	4/05/2024 7:58
8/03/2024 2:36	27/03/2024 16:05	21/04/2024 14:02	4/05/2024 16:11
8/03/2024 8:40	28/03/2024 12:09	21/04/2024 19:04	4/05/2024 21:32
8/03/2024 11:49	28/03/2024 17:49	21/04/2024 22:04	5/05/2024 3:27
8/03/2024 16:43	28/03/2024 21:12	22/04/2024 1:22	5/05/2024 7:18
9/03/2024 2:54	29/03/2024 0:16	22/04/2024 15:39	5/05/2024 15:52
9/03/2024 8:12	29/03/2024 4:44	22/04/2024 19:11	5/05/2024 18:21
9/03/2024 16:59	29/03/2024 9:36	22/04/2024 23:02	5/05/2024 20:50
9/03/2024 20:48	29/03/2024 16:10	23/04/2024 1:52	5/05/2024 23:11
10/03/2024 8:50	29/03/2024 23:39	23/04/2024 7:49	6/05/2024 1:30
10/03/2024 17:02	30/03/2024 10:38	23/04/2024 21:59	6/05/2024 15:11
11/03/2024 5:46	30/03/2024 14:36	24/04/2024 6:15	6/05/2024 20:02
11/03/2024 12:29	30/03/2024 17:51	24/04/2024 9:24	6/05/2024 22:56
11/03/2024 18:10	30/03/2024 21:31	24/04/2024 13:16	7/05/2024 3:15

7/05/2024 17:54	27/05/2024 15:32	11/06/2024 22:21	26/06/2024 11:59
7/05/2024 21:29	27/05/2024 23:05	12/06/2024 23:48	27/06/2024 0:07
8/05/2024 7:15	28/05/2024 5:06	13/06/2024 2:34	27/06/2024 5:03
8/05/2024 13:14	28/05/2024 11:49	13/06/2024 5:36	28/06/2024 3:50
8/05/2024 16:23	28/05/2024 15:45	13/06/2024 10:29	28/06/2024 6:20
8/05/2024 21:06	28/05/2024 18:44	13/06/2024 20:09	28/06/2024 10:16
9/05/2024 1:47	28/05/2024 22:35	14/06/2024 7:41	28/06/2024 22:12
9/05/2024 11:56	29/05/2024 0:46	15/06/2024 1:03	29/06/2024 1:55
10/05/2024 5:25	29/05/2024 9:46	15/06/2024 11:44	29/06/2024 4:49
10/05/2024 12:46	29/05/2024 13:47	15/06/2024 20:02	29/06/2024 7:28
10/05/2024 16:54	29/05/2024 20:08	16/06/2024 4:47	29/06/2024 16:39
10/05/2024 21:13	30/05/2024 16:24	16/06/2024 7:34	30/06/2024 6:48
11/05/2024 1:56	30/05/2024 19:44	16/06/2024 10:10	30/06/2024 9:58
11/05/2024 15:21	30/05/2024 22:37	16/06/2024 12:39	30/06/2024 16:48
11/05/2024 17:38	31/05/2024 9:29	16/06/2024 17:37	2/07/2024 4:33
11/05/2024 22:48	31/05/2024 13:46	16/06/2024 23:59	2/07/2024 7:03
12/05/2024 16:13	31/05/2024 18:15	17/06/2024 14:13	2/07/2024 10:39
13/05/2024 0:02	1/06/2024 1:29	17/06/2024 22:59	2/07/2024 17:46
13/05/2024 6:31	1/06/2024 11:47	18/06/2024 1:58	2/07/2024 21:26
13/05/2024 11:00	1/06/2024 20:43	18/06/2024 8:07	3/07/2024 5:31
13/05/2024 18:02	2/06/2024 3:47	18/06/2024 12:52	3/07/2024 16:05
13/05/2024 22:32	2/06/2024 7:38	18/06/2024 21:46	4/07/2024 9:11
14/05/2024 7:08	2/06/2024 18:01	19/06/2024 0:58	4/07/2024 23:18
15/05/2024 1:02	3/06/2024 1:18	19/06/2024 3:33	6/07/2024 0:14
15/05/2024 4:07	3/06/2024 21:11	19/06/2024 7:02	6/07/2024 12:54
15/05/2024 6:18	4/06/2024 4:16	19/06/2024 19:52	7/07/2024 2:58
15/05/2024 10:30	4/06/2024 7:07	19/06/2024 23:35	7/07/2024 8:30
15/05/2024 20:57	4/06/2024 22:26	20/06/2024 2:42	7/07/2024 14:53
15/05/2024 23:55	5/06/2024 1:24	20/06/2024 18:07	8/07/2024 14:06
16/05/2024 10:24	5/06/2024 3:54	20/06/2024 22:26	9/07/2024 1:32
16/05/2024 14:45	5/06/2024 9:56	21/06/2024 16:01	9/07/2024 11:16
17/05/2024 7:11	5/06/2024 18:31	21/06/2024 21:52	9/07/2024 23:52
18/05/2024 5:41	5/06/2024 23:05	22/06/2024 0:42	10/07/2024 4:49
18/05/2024 8:32	6/06/2024 10:07	22/06/2024 4:08	10/07/2024 9:14
18/05/2024 10:59	6/06/2024 13:14	22/06/2024 12:18	11/07/2024 1:11
18/05/2024 14:27	6/06/2024 16:40	22/06/2024 20:27	11/07/2024 4:46
19/05/2024 7:22	7/06/2024 6:30	23/06/2024 4:52	12/07/2024 17:10
19/05/2024 10:28	7/06/2024 11:33	23/06/2024 7:23	12/07/2024 21:18
19/05/2024 17:42	8/06/2024 0:10	23/06/2024 9:51	13/07/2024 14:42
24/05/2024 4:37	8/06/2024 3:05	23/06/2024 14:28	16/07/2024 5:51
24/05/2024 7:59	8/06/2024 5:13	23/06/2024 16:53	16/07/2024 14:44
24/05/2024 17:18	8/06/2024 15:31	23/06/2024 20:14	17/07/2024 16:17
25/05/2024 3:58	8/06/2024 19:13	23/06/2024 23:23	18/07/2024 11:34
25/05/2024 12:02	8/06/2024 23:59	24/06/2024 1:43	18/07/2024 15:42
25/05/2024 16:21	9/06/2024 5:39	24/06/2024 4:03	18/07/2024 20:26
25/05/2024 18:58	9/06/2024 9:12	24/06/2024 20:25	19/07/2024 16:41
25/05/2024 23:42	10/06/2024 0:38	24/06/2024 22:40	20/07/2024 12:41
26/05/2024 5:33	10/06/2024 7:57	25/06/2024 7:58	20/07/2024 23:34
26/05/2024 9:50	10/06/2024 19:42	25/06/2024 10:54	21/07/2024 12:28
26/05/2024 14:46	10/06/2024 22:59	25/06/2024 14:07	21/07/2024 17:00
26/05/2024 20:48	11/06/2024 2:13	25/06/2024 21:17	22/07/2024 7:12
27/05/2024 7:50	11/06/2024 4:38	26/06/2024 4:55	22/07/2024 9:48
27/05/2024 12:30	11/06/2024 9:30	26/06/2024 7:16	22/07/2024 12:16

22/07/2024 21:37	18/08/2024 0:50	4/09/2024 22:49	29/09/2024 9:53
23/07/2024 4:16	18/08/2024 4:25	5/09/2024 3:53	29/09/2024 12:40
23/07/2024 19:25	19/08/2024 5:30	5/09/2024 9:22	29/09/2024 21:34
24/07/2024 5:01	19/08/2024 17:22	5/09/2024 22:07	30/09/2024 3:43
24/07/2024 13:42	19/08/2024 23:09	6/09/2024 1:07	30/09/2024 15:27
24/07/2024 16:26	20/08/2024 11:50	6/09/2024 22:30	4/10/2024 22:18
25/07/2024 4:53	21/08/2024 4:22	8/09/2024 19:02	5/10/2024 1:47
26/07/2024 0:05	21/08/2024 8:04	8/09/2024 22:47	5/10/2024 21:34
26/07/2024 4:38	22/08/2024 1:35	10/09/2024 4:12	6/10/2024 1:36
27/07/2024 7:56	22/08/2024 7:37	10/09/2024 7:00	6/10/2024 7:17
28/07/2024 2:51	22/08/2024 23:36	11/09/2024 4:05	6/10/2024 16:31
28/07/2024 5:51	23/08/2024 7:41	12/09/2024 2:00	6/10/2024 19:58
28/07/2024 8:21	23/08/2024 13:23	12/09/2024 17:08	7/10/2024 1:29
29/07/2024 2:48	23/08/2024 16:30	13/09/2024 0:52	7/10/2024 9:35
29/07/2024 6:49	23/08/2024 19:16	13/09/2024 16:45	7/10/2024 12:38
29/07/2024 14:12	24/08/2024 0:02	14/09/2024 12:33	8/10/2024 2:24
30/07/2024 13:01	24/08/2024 11:24	15/09/2024 2:02	8/10/2024 23:13
30/07/2024 22:46	24/08/2024 18:26	16/09/2024 2:26	9/10/2024 1:43
31/07/2024 16:59	24/08/2024 20:54	16/09/2024 22:11	9/10/2024 4:22
31/07/2024 21:03	25/08/2024 3:55	17/09/2024 8:06	9/10/2024 6:41
1/08/2024 0:04	25/08/2024 9:58	17/09/2024 11:53	9/10/2024 21:33
1/08/2024 3:27	25/08/2024 17:14	18/09/2024 1:25	10/10/2024 10:36
1/08/2024 9:46	25/08/2024 21:31	18/09/2024 22:11	10/10/2024 15:45
1/08/2024 14:01	26/08/2024 0:27	19/09/2024 7:56	12/10/2024 7:00
6/08/2024 8:14	26/08/2024 12:53	19/09/2024 16:24	12/10/2024 15:44
6/08/2024 17:40	26/08/2024 17:25	20/09/2024 6:28	13/10/2024 6:33
6/08/2024 19:54	27/08/2024 8:40	20/09/2024 23:13	13/10/2024 15:14
6/08/2024 22:54	27/08/2024 20:22	21/09/2024 8:38	13/10/2024 17:56
7/08/2024 21:28	28/08/2024 0:24	21/09/2024 13:55	14/10/2024 14:10
8/08/2024 3:05	28/08/2024 6:21	21/09/2024 16:40	14/10/2024 19:24
8/08/2024 5:27	28/08/2024 14:51	21/09/2024 23:19	15/10/2024 0:20
9/08/2024 3:24	29/08/2024 2:26	22/09/2024 18:51	15/10/2024 9:20
9/08/2024 18:09	29/08/2024 10:31	23/09/2024 0:50	15/10/2024 22:52
10/08/2024 20:15	29/08/2024 13:05	23/09/2024 12:03	16/10/2024 3:22
11/08/2024 5:43	29/08/2024 23:53	23/09/2024 15:33	16/10/2024 15:17
11/08/2024 11:47	30/08/2024 12:13	24/09/2024 0:43	17/10/2024 3:31
12/08/2024 2:11	30/08/2024 17:56	24/09/2024 22:51	17/10/2024 10:13
12/08/2024 4:26	30/08/2024 21:52	25/09/2024 2:45	17/10/2024 13:26
12/08/2024 17:00	31/08/2024 0:51	25/09/2024 5:53	17/10/2024 16:36
12/08/2024 20:30	31/08/2024 3:36	25/09/2024 10:33	18/10/2024 0:03
13/08/2024 6:47	31/08/2024 11:35	25/09/2024 13:34	18/10/2024 15:45
13/08/2024 11:09	31/08/2024 15:30	25/09/2024 17:02	18/10/2024 18:35
13/08/2024 15:06	1/09/2024 0:50	26/09/2024 10:38	18/10/2024 20:54
14/08/2024 4:42	1/09/2024 4:23	26/09/2024 17:09	19/10/2024 1:25
15/08/2024 1:06	1/09/2024 10:59	26/09/2024 20:23	19/10/2024 21:51
15/08/2024 3:46	1/09/2024 21:14	27/09/2024 8:38	20/10/2024 2:18
15/08/2024 6:16	2/09/2024 5:44	27/09/2024 12:29	20/10/2024 5:59
16/08/2024 10:18	2/09/2024 11:21	27/09/2024 16:06	20/10/2024 12:56
16/08/2024 12:34	2/09/2024 18:14	27/09/2024 21:54	20/10/2024 16:49
16/08/2024 17:13	3/09/2024 0:43	28/09/2024 16:39	21/10/2024 4:57
16/08/2024 21:05	3/09/2024 6:40	29/09/2024 0:38	21/10/2024 7:43
17/08/2024 1:11	3/09/2024 12:38	29/09/2024 3:32	21/10/2024 21:18
17/08/2024 15:07	4/09/2024 19:13	29/09/2024 6:20	22/10/2024 5:14

22/10/2024 8:10	14/11/2024 10:47	5/12/2024 2:42	18/12/2024 12:00
22/10/2024 17:13	14/11/2024 15:00	5/12/2024 5:20	18/12/2024 21:15
22/10/2024 21:24	14/11/2024 17:43	5/12/2024 10:22	19/12/2024 5:15
23/10/2024 11:09	14/11/2024 22:01	6/12/2024 7:48	19/12/2024 11:52
23/10/2024 14:56	15/11/2024 10:27	6/12/2024 13:43	19/12/2024 16:35
24/10/2024 10:18	15/11/2024 16:22	6/12/2024 21:40	19/12/2024 19:12
24/10/2024 23:49	16/11/2024 8:28	7/12/2024 1:39	20/12/2024 6:56
26/10/2024 9:50	17/11/2024 2:12	7/12/2024 11:03	20/12/2024 11:13
26/10/2024 13:48	17/11/2024 4:53	7/12/2024 20:27	20/12/2024 16:11
26/10/2024 17:05	17/11/2024 10:37	7/12/2024 23:18	20/12/2024 21:02
27/10/2024 18:56	17/11/2024 15:30	8/12/2024 8:58	20/12/2024 23:43
28/10/2024 1:57	18/11/2024 1:21	8/12/2024 18:01	21/12/2024 2:56
28/10/2024 6:06	18/11/2024 8:54	8/12/2024 20:28	21/12/2024 17:55
29/10/2024 0:32	18/11/2024 11:53	9/12/2024 12:53	21/12/2024 20:27
29/10/2024 14:50	22/11/2024 4:48	9/12/2024 15:35	22/12/2024 13:17
30/10/2024 3:31	22/11/2024 12:54	9/12/2024 18:34	22/12/2024 18:50
30/10/2024 6:16	22/11/2024 15:34	9/12/2024 23:59	22/12/2024 22:52
30/10/2024 8:32	23/11/2024 4:24	10/12/2024 2:49	23/12/2024 8:21
30/10/2024 10:51	23/11/2024 6:51	10/12/2024 14:29	24/12/2024 1:05
30/10/2024 13:42	23/11/2024 10:31	10/12/2024 17:14	24/12/2024 4:58
31/10/2024 2:16	23/11/2024 20:37	10/12/2024 21:02	26/12/2024 11:41
31/10/2024 9:10	24/11/2024 8:39	10/12/2024 23:51	26/12/2024 14:00
1/11/2024 19:37	24/11/2024 12:05	11/12/2024 5:21	26/12/2024 16:48
2/11/2024 6:26	24/11/2024 14:59	11/12/2024 8:08	26/12/2024 20:31
3/11/2024 0:14	24/11/2024 20:48	11/12/2024 15:17	26/12/2024 23:08
3/11/2024 19:59	25/11/2024 8:10	12/12/2024 1:02	27/12/2024 1:59
4/11/2024 4:53	25/11/2024 14:25	12/12/2024 3:45	27/12/2024 4:39
5/11/2024 15:01	25/11/2024 18:59	12/12/2024 8:28	27/12/2024 7:46
7/11/2024 1:53	25/11/2024 21:25	12/12/2024 15:41	27/12/2024 14:18
8/11/2024 3:35	25/11/2024 23:54	12/12/2024 21:08	27/12/2024 20:38
8/11/2024 6:53	26/11/2024 4:16	12/12/2024 23:48	28/12/2024 1:39
8/11/2024 11:25	26/11/2024 12:23	13/12/2024 17:37	28/12/2024 5:42
8/11/2024 15:02	27/11/2024 1:21	13/12/2024 23:40	28/12/2024 8:36
9/11/2024 1:30	27/11/2024 5:02	14/12/2024 5:16	28/12/2024 12:54
9/11/2024 4:31	27/11/2024 8:20	14/12/2024 11:01	28/12/2024 16:07
9/11/2024 10:35	27/11/2024 10:59	14/12/2024 19:31	28/12/2024 19:47
9/11/2024 13:05	27/11/2024 20:46	15/12/2024 0:41	28/12/2024 22:07
9/11/2024 21:14	27/11/2024 23:02	15/12/2024 9:44	29/12/2024 0:15
10/11/2024 6:27	28/11/2024 3:51	15/12/2024 14:09	29/12/2024 2:26
10/11/2024 9:05	28/11/2024 23:09	15/12/2024 16:52	29/12/2024 7:00
10/11/2024 15:34	29/11/2024 16:24	15/12/2024 22:50	29/12/2024 15:27
10/11/2024 17:40	29/11/2024 20:57	16/12/2024 1:14	29/12/2024 20:37
10/11/2024 19:53	30/11/2024 12:20	16/12/2024 3:50	29/12/2024 23:11
10/11/2024 22:30	30/11/2024 19:43	16/12/2024 7:00	30/12/2024 1:48
11/11/2024 17:59	1/12/2024 3:41	16/12/2024 9:13	30/12/2024 7:49
12/11/2024 1:47	1/12/2024 19:11	16/12/2024 15:12	30/12/2024 11:46
12/11/2024 10:21	2/12/2024 6:07	16/12/2024 18:22	30/12/2024 16:59
12/11/2024 15:25	2/12/2024 11:43	17/12/2024 0:16	31/12/2024 3:20
13/11/2024 0:08	3/12/2024 14:10	17/12/2024 4:38	31/12/2024 6:29
13/11/2024 3:29	3/12/2024 18:27	17/12/2024 19:19	31/12/2024 15:43
13/11/2024 6:01	4/12/2024 9:39	17/12/2024 21:38	31/12/2024 18:11
13/11/2024 8:41	4/12/2024 15:46	18/12/2024 2:18	
14/11/2024 4:48	4/12/2024 18:53	18/12/2024 5:06	

APPENDIX C

Annual Sound Power Testing

Table C-1

Sound Power Level Testing Results

Plant ID	Model	EA Model		2024	
		Lw	Lw(A)	Lw	Lw(A)
TRACKED BULLDOZERS					
DOZ127	D10	129	127	122	119
DOZ320	D10	129	127	122	119
DOZ322	D10	129	127	124	121
DOZ323	D10	129	127	123	121
DOZ324	D10	129	127	124	122
WHEEL LOADERS					
WLO812	WA1200	122	115	115	111
DRILLS					
DRG456	MD6290	122	118	119	117
EXCAVATORS					
EXC223	3600	131	119	120	114
EXC241	3600	131	119	119	115
EXC261	8000	131	119	122	116
EXC262	8000	131	119	122	117
WATERCARTS					
WAT501	CAT777D	122	115	119	115
WAT501	CAT777D	122	115	121	115
WAT832	CAT777D	122	115	118	113
WAT838	CAT777D	122	115	119	115
WAT846	CAT777D	122	115	120	116
WAT847	CAT773	122	115	117	113
REAR DUMP TRUCKS					
RDT001	EH5000	124	117	121	116
RDT004	EH5000	124	117	123	117
RDT005	EH5000	124	117	121	116
RDT006	EH5000	124	117	121	115
RDT008	EH5000	124	117	121	116
RDT010	EH5000	124	117	123	117
RDT011	EH5000	124	117	121	116
RDT012	EH5000	124	117	122	116
RDT013	EH5000	124	117	121	115
RDT014	EH5000	124	117	124	117
RDT015	EH5000	124	117	122	116
RDT016	EH5000	124	117	123	116
RDT017	EH5000	124	117	122	115
RDT018	EH5000	124	117	120	115
RDT019	EH5000	124	117	121	116
RDT020	EH5000	124	117	122	115
RDT021	EH5000	124	117	120	114
RDT022	EH5000	124	117	121	116
RDT024	EH5000	124	117	122	115
RDT025	EH5000	124	117	123	116
RDT026	EH5000	124	117	122	115
RDT027	EH5000	124	117	122	115

RDT028	EH5000	124	117	123	116
RDT029	EH5000	124	117	122	115
RDT031	EH5000	124	117	121	115
RDT032	EH5000	124	117	124	117
RDT033	EH5000	124	117	121	115
RDT034	EH5000	124	117	121	115
RDT035	EH5000	124	117	122	116
RDT036	EH5000	124	117	123	116
RDT038	EH5000	124	117	123	116
RDT039	EH5000	124	117	121	115
RDT041	EH5000	124	117	121	115
RDT042	EH5000	124	117	122	115
RDT043	EH5000	124	117	122	115
RDT044	EH5000	124	117	122	115
RDT045	EH5000	124	117	122	115
RDT051	EH3500	124	117	120	115
RDT052	EH3500	124	117	120	115
RDT053	EH3500	124	117	120	115
RDT054	EH3500	124	117	120	115
RDT055	EH3500	124	117	121	116
RDT102	789D	124	117	122	116
RDT103	789D	124	117	122	116
RDT104	789D	124	117	122	116
RDT837	789C	124	117	121	115
RDT838	789C	124	117	121	115
RDT839	789C	124	117	121	115
RDT844	789C	124	117	121	115
RDT874	789C	124	117	121	115
RDT875	789C	124	117	123	116
RDT882	789C	124	117	123	116
RDT883	789C	124	117	123	116
RDT887	789C	124	117	123	116
RDT888	789C	124	117	123	116
RDT889	789C	124	117	123	116
RDT890	789C	124	117	123	116
RDT891	789C	124	117	123	116
RDT892	789C	124	117	123	116
RDT895	789C	124	117	123	116
RDT899	789C	124	117	123	116
STATIONARY PLANT					
Coal Preparation Plant		133	117	127	113
Conveyors (200m section)		113	108	108	103
Conveyors (500m section)		117	112	111	106
Primary ROM sizer		117	109	115	109
Secondary ROM sizer		121	112	117	113
Product Stacker		111	104	106	96
Product Reclaimer		122	115	112	102
Raw Coal Transfer Station		117	103	116	106
CPP product Transfer Station		117	103	116	105
Train Loadout		114	103	N/A	N/A

APPENDIX D

Surface Water

Appendix D

Surface Water

The surface water monitoring results for the reporting period are detailed in the table below.

Table D-1

Location	Date	pH Value	Electrical Conductivity @ 25°C	Total Dissolved Solids (TDS)	Suspended Solids (SS)	Turbidity	Total Alkalinity as CaCO3	Calcium (filt.)	Magnesium (filt.)	Sodium (filt.)	Potassium (filt.)	Aluminium (total)	Cadmium (total)	Chromium (total)	Copper (total)	Lead (total)	Manganese (total)	Nickel (total)	Selenium (total)	Silver (total)	Zinc (total)	Boron (total)	Iron (Total)	Arsenious Acis, As (III)	Arsenic Acid As (V)	Mercury	Nitrite + Nitrate as N	Total Nitrogen	Total Phosphorus as P	Total Anions	Total Cations
		pH Unit	µS/cm	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L
SW1	12/01/2024	7.49	344	229	<5	3.6	137	29	11	29	1	0.35	<0.0001	<0.001	0.003	<0.001	0.107	<0.001	<0.01	<0.001	<0.005	<0.05	0.75	0.6	0.9	<0.0001	<0.01	0.2	0.18	3.64	2.24
	12/02/2024	7.19	328	228	<5	3.8	134	28	10	28	1	0.06	<0.0001	<0.001	<0.001	<0.001	0.108	<0.001	<0.01	<0.001	<0.005	<0.05	0.41	<0.5	0.6	<0.0001	0.05	<0.1	0.14	3.46	1.92
	12/03/2024	7.04	358	230	<5	2.9	141	27	10	30	1	0.08	<0.0001	<0.001	<0.001	<0.001	0.106	<0.001	<0.01	<0.001	0.034	<0.05	0.42	0.7	0.6	<0.0001	<0.01	<0.1	0.15	3.5	4.31
	12/04/2024	7.26	350	221	<5	3.9	140	28	10	27	1	0.05	<0.0001	<0.001	<0.001	<0.001	0.101	<0.001	<0.01	<0.001	<0.005	<0.05	0.46	1	0.7	<0.0001	0.01	<0.1	0.15	3.42	5.58
	13/05/2024	7.49	350	210	<5	2.5	129	31	13	28	2	0.02	<0.0001	<0.001	<0.001	<0.001	0.085	<0.001	<0.01	<0.001	<0.005	<0.05	0.34	<0.5	0.5	<0.0001	0.04	<0.1	0.17	3.55	3.88
	11/06/2024	7.17	404	256	6	1.8	141	32	12	31	1	0.04	<0.0001	<0.001	<0.001	<0.001	0.076	<0.001	<0.01	<0.001	<0.005	<0.05	0.36	0.6	0.6	<0.0001	0.05	0.2	0.15	4.05	3.96
	12/07/2024	7.10	386	247	10	2	122	27	11	30	2	0.08	<0.0001	0.002	<0.001	<0.001	0.086	<0.001	<0.01	<0.001	<0.005	<0.05	0.46	<0.5	0.8	<0.0001	0.11	0.7	0.19	3.61	0.84
	12/08/2024	7.47	431	294	<5	4.8	140	38	15	38	2	0.31	<0.0001	<0.001	<0.001	<0.001	0.065	<0.001	<0.01	<0.001	<0.005	<0.05	0.36	0.5	1	<0.0001	0.04	0.2	0.1	4.83	4.96
	12/09/2024	7.34	441	300	6	3.6	135	35	14	34	2	0.37	<0.0001	<0.001	<0.001	<0.001	0.075	<0.001	<0.01	<0.001	<0.005	<0.05	0.83	1.3	2.1	<0.0001	0.02	0.2	0.15	4.43	3.14
	11/10/2024	7.31	435	271	<5	2.6	149	38	16	35	2	0.04	<0.0001	<0.001	<0.001	<0.001	0.073	<0.001	<0.01	<0.001	<0.005	<0.05	0.41	<0.5	0.8	<0.0001	0.14	0.1	0.12	4.56	4.79
	11/11/2024	7.36	450	276	<5	4.8	157	38	15	34	2	0.1	<0.0001	<0.001	0.002	<0.001	0.059	<0.001	<0.01	<0.001	<0.005	<0.05	0.34	0.5	1.2	<0.0001	0.02	0.2	0.13	5.07	4.66
	12/12/2024	7.38	478	298	<5	2.7	156	40	14	34	2	0.05	<0.0001	<0.001	<0.001	<0.001	0.067	<0.001	<0.01	<0.001	0.007	<0.05	0.32	<0.5	<0.5	<0.0001	0.02	0.2	0.1	4.98	4.68
SW2	12/01/2024																														
	12/02/2024																														

	12/03/2024	Dry																													
	12/04/2024																														
	13/05/2024																														
	11/06/2024																														
	12/07/2024																														
	12/08/2024																														
	12/09/2024																														
	11/10/2024																														
	11/11/2024																														
	12/12/2024																														
SW4	12/03/2024	Dry																													
	11/06/2024																														
	12/09/2024																														
	12/12/2024																														
SW5	12/03/2024	8.05	606	332	27	23.1	203	40	24	48	3	1.43	<0.0001	0.001	<0.001	<0.001	0.128	0.002	<0.01	<0.001	0.011	<0.05	1.46	<0.5	1.6	<0.0001	<0.01	0.4	0.4	0.08	0.04
	11/06/2024	7.81	530	358	62	114	144	33	20	43	5	0.78	<0.0001	<0.001	0.004	<0.001	0.11	0.004	<0.01	<0.001	<0.005	<0.05	0.83	0.6	1.6	<0.0001	2.9	1.9	4.8	0.4	0.23
	12/09/2024	8.35	754	447	16	10.5	225	48	33	64	3	0.2	<0.0001	<0.001	0.002	<0.001	0.05	0.002	<0.01	<0.001	<0.005	<0.05	0.22	<0.5	1	<0.0001	0.03	0.4	0.4	0.09	0.02
	12/12/2024	8.14	670	405	77	73.1	214	43	27	53	4	5.01	<0.0001	0.006	0.005	<0.001	0.17	0.009	<0.01	<0.001	0.015	<0.05	4.58	<0.5	1.1	<0.0001	0.28	0.5	0.8	0.23	0.12
SW6	12/01/2024	8.21	404	254	45	16.7																									
	12/02/2024	8.23	396	288	24	22.7																									
	12/03/2024	8.08	605	314	25	20.7																									
	12/04/2024	8.1	768	504	33	25.2	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	13/05/2024	8.2	776	442	39	21.5																									
	11/06/2024	7.84	532	373	70	120																									
	12/07/2024	8.03	648	445	293	305																									

	12/08/2024	7.96	389	309	187	199																									
	12/09/2024	8.37	762	440	22	17.1																									
	11/10/2024	8.69	755	398	67	48.6																									
	11/11/2024	8.71	522	330	49	35.1																									
	12/12/2024	8.23	657	392	88	42.9																									
SW7	12/01/2024	8.16	396	248	38	18.9	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	12/02/2024	8.27	400	278	26	22.7																									
	12/03/2024	8.15	598	309	32	26.1																									
	12/04/2024	8.41	812	530	38	29.1																									
	13/05/2024	8.23	723	416	38	24.2																									
	11/06/2024	7.86	532	361	79	129																									
	12/07/2024	8.00	610	438	352	272																									
	12/08/2024	7.96	387	309	168	192																									
	12/09/2024	8.44	760	462	38	24.6																									
	11/10/2024	8.74	755	413	44	35.3																									
	11/11/2024	8.69	527	322	56	37.6																									
	12/12/2024	8.24	639	404	114	99.2																									
SW8	12/03/2024	8.24	565	296	35	29	38	23	43	3	1.63	<0.0001	0.001	<0.001	<0.001	0.099	0.002	<0.01	<0.001	<0.005	<0.05	1.66	<0.5	1.6	<0.0001	38	0.01	0.4	0.4	5.74	2.03
	11/06/2024	7.88	528	338	67	133	32	19	43	5	0.91	<0.0001	<0.001	0.005	<0.001	0.117	0.004	<0.01	<0.001	<0.005	<0.05	0.92	1.2	1.7	<0.0001	32	2.85	2.1	5	5	5.16
	12/09/2024	8.46	758	435	30	20.6	54	34	60	3	0.2	<0.0001	<0.001	0.002	<0.001	0.044	0.002	<0.01	<0.001	<0.005	<0.05	0.22	<0.5	1.7	<0.0001	54	<0.01	0.4	0.4	7.44	8.18
	12/12/2024	8.23	575	356	111	108	39	24	44	5	8.31	<0.0001	0.009	0.006	<0.001	0.181	0.012	<0.01	<0.001	0.01	<0.05	7.3	<0.5	1	<0.0001	39	0.18	0.4	0.6	5.96	0.72
SW9	12/03/2024	Dry																													
	11/06/2024																														
	12/09/2024																														
	12/12/2024																														

Sampling was unable to be taken at all monitoring locations as Back Creek and Upper Maules Creek are ephemeral. NR = not recorded

Table D-2
Sediment Dam Triggers

Parameter	100th percentile
Oil and grease (mg/L)	10
pH	6.5-8.5
Total suspended solids (mg/L)	50

Table D-3
Off-site Discharge Monitoring Laboratory Results

Location	Date	pH	Electrical Conductivity @ 25°C	Total Dissolved Solids @180°C	Suspended Solids	Turbidity	Total Alkalinity as CaCO3	Calcium	Magnesium	Sodium	Potassium	Aluminium (total)	Cadmium (total)	Chromium (total)	Copper (total)	Lead (total)	Manganese (total)	Nickel (total)	Selenium (total)	Silver (total)	Zinc (total)	Boron (total)	Iron (total)	Arsenious Acid, As (III)	Arsenic Acid, As (V)	Mercury	Nitrite + Nitrate as N	Total Nitrogen as N	Total Phosphorus as P	Oil and Grease
		pH Unit	µS/cm	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L
HWD8	No Discharge																													
HWD9	No Discharge																													
HWD10	No Discharge																													
HWD11	No Discharge																													
WCWD	No Discharge																													
SD3	No Discharge																													
SD12	No Discharge																													

Table D-4
On-site Surface Water Monitoring

Site	Parameter	Units	Frequency	Samples	Date	Min	Mean	Max/Only Value
Mine Void	TSS	mg/L	Every 2 Months	1	13/02/2024	-	-	<5
	Conductivity	µs/cm				-	-	1180
	Oil & Grease	mg/L				-	-	<5
	pH	pH				-	-	8.28
Mine Void	TSS	mg/L	Every 2 Months	1	11/04/2024	-	-	<5
	Conductivity	µs/cm				-	-	1240
	Oil & Grease	mg/L				-	-	<5
	pH	pH				-	-	8.02
Mine Void	TSS	mg/L	Every 2 Months	1	06/06/2024	-	-	5
	Conductivity	µs/cm				-	-	1340
	Oil & Grease	mg/L				-	-	<5
	pH	pH				-	-	8.35
Mine Void	TSS	mg/L	Every 2 Months	1	14/08/2024	-	-	<5
	Conductivity	µs/cm				-	-	1310
	Oil & Grease	mg/L				-	-	<5
	pH	pH				-	-	8.37
Mine Void	TSS	mg/L	Every 2 Months	1	11/10/2024	-	-	21
	Conductivity	µs/cm				-	-	1330
	Oil & Grease	mg/L				-	-	<5
	pH	pH				-	-	8.30
Mine Void	TSS	mg/L	Every 2 Months	1	9/12/2024	-	-	<5
	Conductivity	µs/cm				-	-	1360
	Oil & Grease	mg/L				-	-	<5
	pH	pH				-	-	8.16

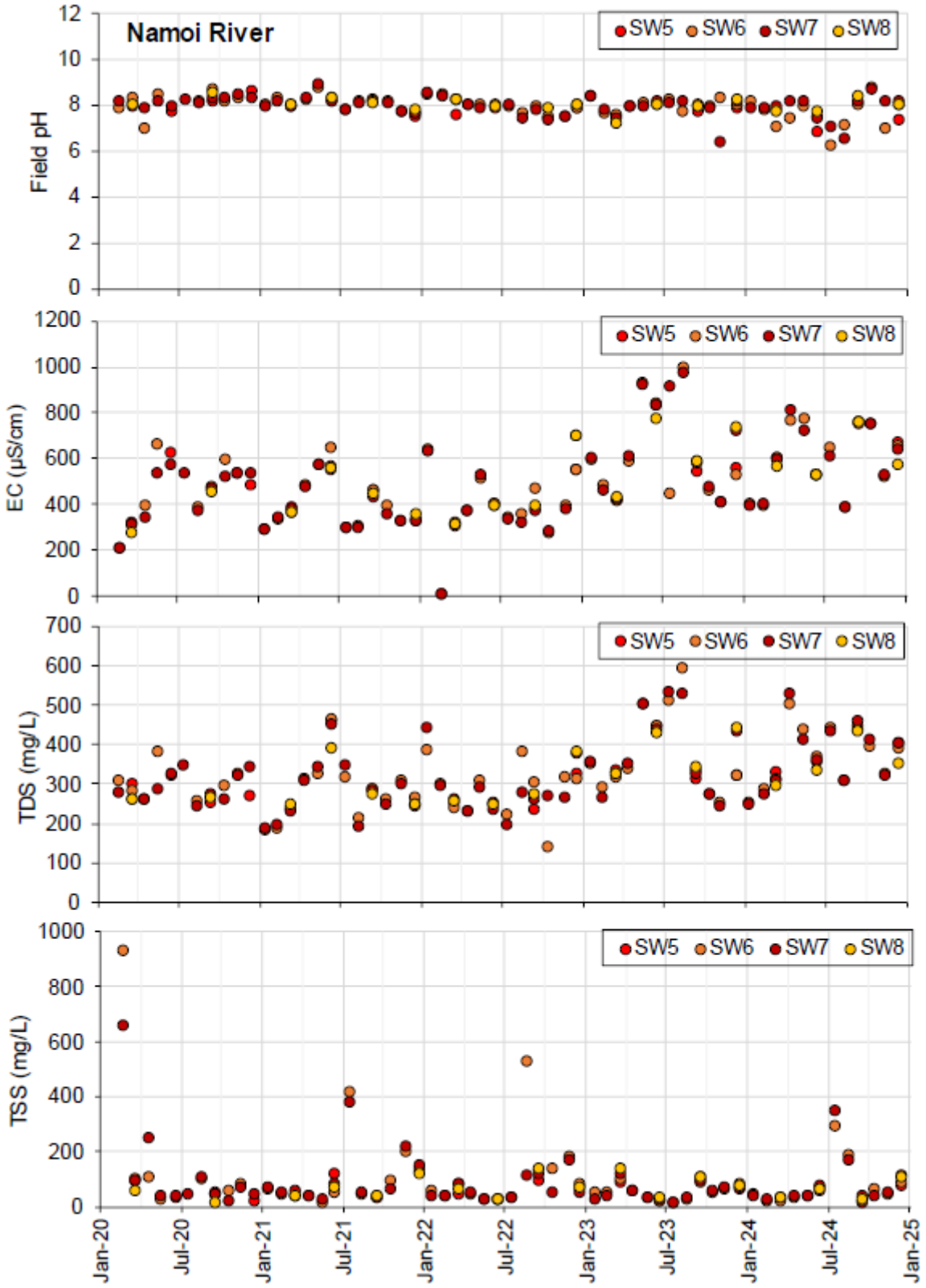


Figure D-1 – Namoi River surface water quality trends (5 year summary – 2020 to 2024)

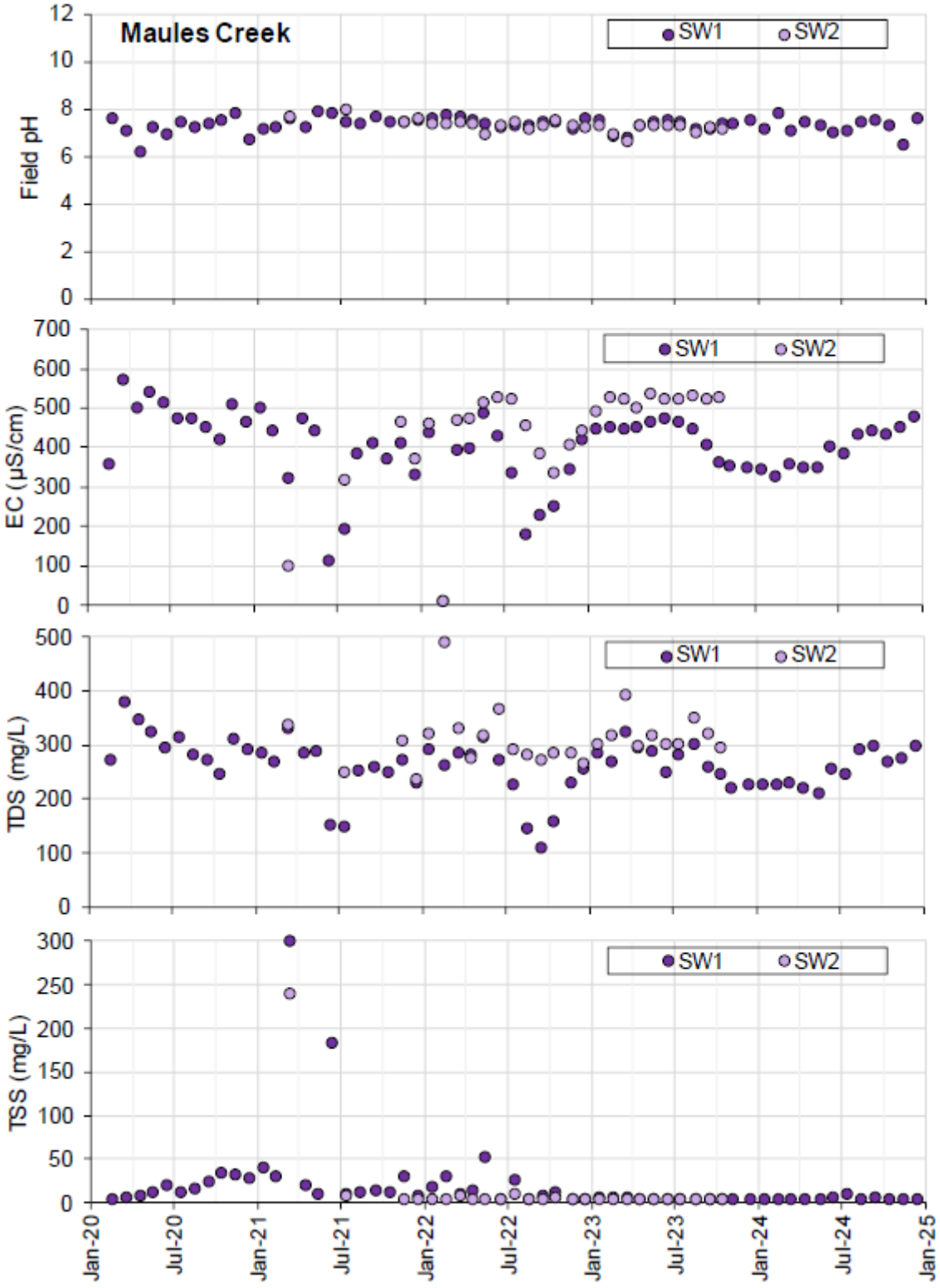


Figure D-2 – Maules Creek surface water quality trends (5 year summary – 2020 to 2024)

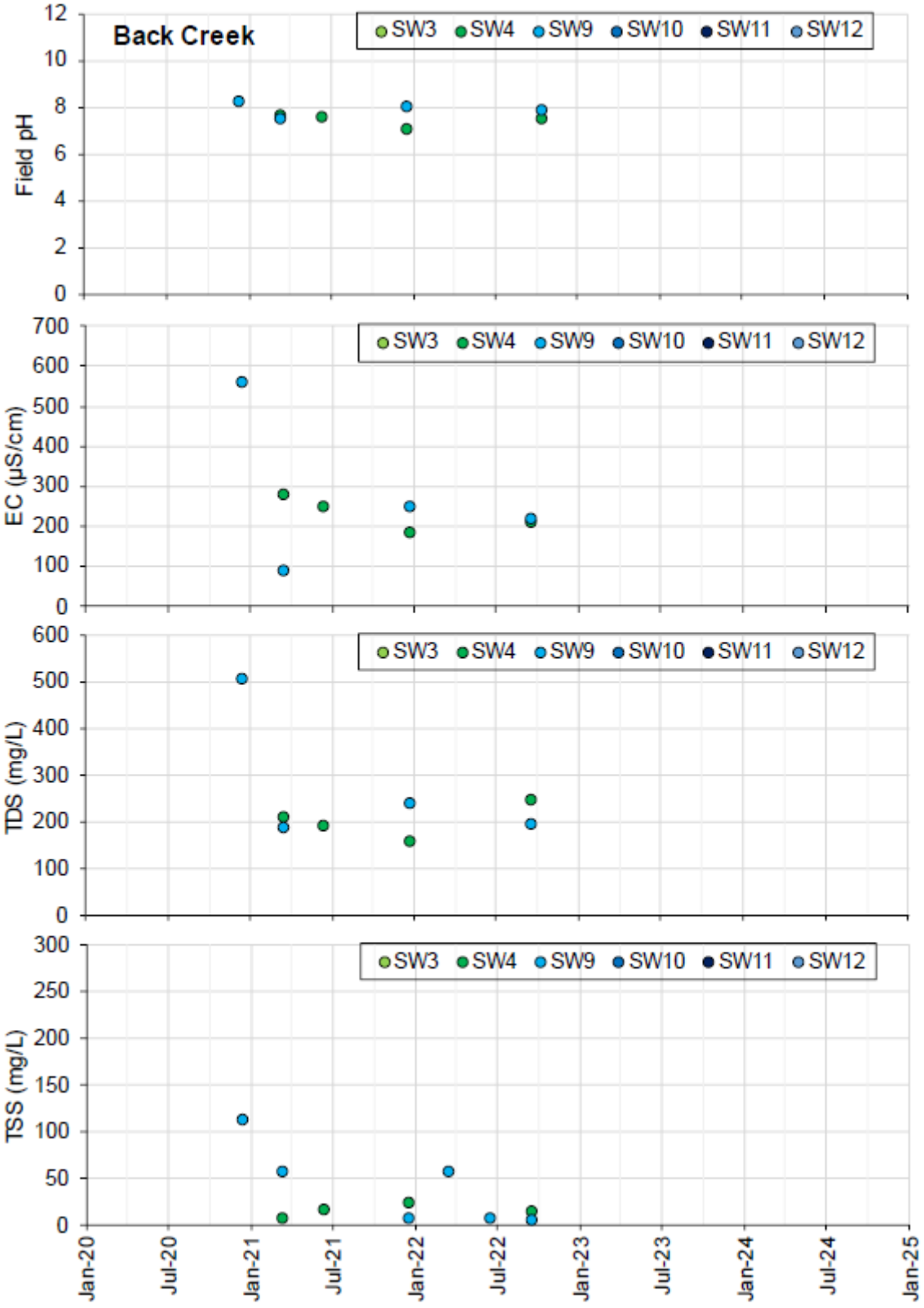


Figure D-3 – Back Creek surface water quality trends (5 year summary – 2020 to 2024)

APPENDIX E

Groundwater

Appendix E

Table E-1

Groundwater monitoring network bore details

Bore ID	Managed by [a]	Geology [b]	Status [c]	Type [d]	Easting (m)	Northing (m)	Ground elevation [e] (m AHD)	Depth (mbgl)	Screen or VWP sensor depth (m bgl)	Purpose [f]	Water quality analysis [g]
BCM01	BTM	Alluvium	A	SP (dry)	223,841	6,618,371	273.4	10	6.75 - 9.75	4	Q
BCM03	BTM	Alluvium	A	SP (dry)	230,085	6,617,546	305	10	6.75 - 9.75	4	Q
BCM04	MCCM	Volcanics	A	SP (LL)	224,115	6,618,252	276.86	20	14.0 – 20.0	3, 4, 5,	Q
BCM05	MCCM	Alluvium or weathered overburden (first	A	SP (LL)	226,653	6,618,293	287.13	20	14.0 – 20.0	3, 4, 5, 7, 10 11	Q
Brighton Bore	MCCM	Alluvium	A	SP	219,194	6,603,840	TBC	TBC	TBC	3, 5, 7,	Q
Brighton Bore	MCCM	Alluvium	A	SP (LL)	219,942	6,604,179	TBC	16.4	12.8 – 15.8	3, 5, 7,	Q
GW030129_1	WaterNSW	Alluvium	A	SP	217,135	6,619,637	248	24.4	23.2 - 24.4	1, 7	Q
GW030472_1	WaterNSW	Alluvium	A	SP	225,148	6,602,611	248	101.5	23.8 - 25	1, 7	Q
GW030472_2	WaterNSW	Alluvium	A	SP	225,148	6,602,611	248	101.5	57.3 - 59.7	1, 7	Q
GW030472_3	WaterNSW	Alluvium	A	SP	225,148	6,602,611	248	101.5	94.5 - 101.5	1, 7	Q
GW041027_1	WaterNSW	Alluvium	A	SP	232,730	6,620,523	318.5	18	8.25 - 14.25	1, 7	Q
GW967138_1	WaterNSW	Alluvium	A	SP	227,001	6,622,422	313.6	82.5	7-10	1, 7	Q
GW967138_2	WaterNSW	Alluvium	A	SP	227,001	6,622,422	313.6	82.5	71 - 77	1, 7	Q
MAC1218	MCCM	Permian	D	SP	224,016	6,613,693	361.4	110	107-110	6	-
MAC1219	MCCM	Permian	D	SP	224,172	6,613,678	370.4	163	107-220	6	-
MAC1259	MCCM	Permian	D	SP	224,959	6,616,286	317	98	94-97	6	-
MAC1261	MCCM	Permian	D	SP	226,750	6,614,872	382.3	180	161-164	6	-
MAC1279	MCCM	Permian	D	SP	226,446	6,616,312	326.9	144	70-73	6	-
MAC1280	MCCM	Permian	A	SP (LL)	226,525	6,616,503	323.5	60	56-59	5, 6, 8,	Q
MAC1283	MCCM	Permian	D	SP	224,989	6,616,291	318.2	91	61-64	6	-
MAC252	MCCM	Permian	D	SP	266,231	6,614,775	340.6	260	92.5-98.5	6	-
MAC263	MCCM	Permian	D	VWP	226,037	6,614,513	348.3	234	105 / 183	6	-
MAC267P	MCCM	Permian	D	VWP	227,440	6,616,472	405.6	299	164 / 257	6	-
MAC268P	MCCM	Permian	D	VWP	227,498	6,614,521	416.8	318	107-220	6	-

Bore ID	Managed by [a]	Geology [b]	Status [c]	Type [d]	Easting (m)	Northing (m)	Ground elevation [e] (m AHD)	Depth (mbgl)	Screen or VWP sensor depth (m bgl)	Purpose [f]	Water quality analysis [g]
RB01	MCCM	Permian	D	VWP	224,058	6,612,333	433.1	205	97 / 140.5 / 194.5	2, 6	-
RB01A	MCCM	Permian	D	SP	224,058	6,612,341	432.4	205	213.5 - 219.5	2, 5, 6	-
RB02	MCCM	Permian	D	VWP	224,860	6,613,267	381.7	220.5	110 / 162 / 225	2, 6	-
RB02A	MCCM	Permian	D	SP	224,853	6,613,266	398.1	270	227 - 233	2, 5, 6	-
RB03	MCCM	Permian	A	VWP	227,947	6,613,635	407.9	324.4	164 / 242 / 289 / 317	2, 6, 10	-
RB04	MCCM	Permian	A	VWP	228,213	6,614,910	437.5	354	209 / 272.5 / 309 / 339	2, 6, 10	-
RB05	MCCM	Permian	A	VWP	228,071	6,616,813	328	382	107 / 231 / 280 / 382	2, 6, 10	-
RB05A	MCCM	Permian	A	SP (LL)	228,065	6,616,810	328.4	245.3	239 - 245	2, 5, 6,	Q
RB05B	MCCM	Braymont seam	A	SP (LL)	228,066	6,616,825	327.49	110	104.0 – 110.0	2, 5, 8,	Q
REG1	BTM	Permian	A	VWP	226,946	6,622,396	286.2	255.2	118.7 / 134.5 / 193.5 / 281.5	1, 2, 4, 10	-
REG10	BTM	Permian	A	VWP	226,723	6,618,261	287.1	189.4	55 / 144.2 / 178 / 185.5	1, 2, 4, 6, 10	-
REG10A	BTM	Alluvium	A	SP (dry)	226,717	6,618,260	287.1	10	6.75 - 9.75	1, 2, 4,	Q
REG10B	BTM	Braymont seam	A	SP (LL)	226,650	6,618,298	287.08	43	37.0 – 43.0	2, 5, 8,	Q
REG12	BTM	Volcanics	A	SP (LL)	222,632	6,617,358	285.6	48.3	38.4 - 44.4	1, 4, 5,	Q
REG13	BTM	Volcanics	A	SP (LL)	219,713	6,611,129	277.1	133	128 - 132	1, 5, 10	Q
REG14	BTM	Alluvium	A	SP (LL)	225,547	6,602,649	250.2	102	90 - 96	1, 5, 10	Q
REG15	BTM	Alluvium	A	SP (LL)	229,243	6,622,360	297.75	29.9	23.9 – 29.9	5, 7, 10,	Q
REG15A	BTM	Permian coal	A	SP (LL)	229,250	6,622,354	297.76	100.5	93.4 – 99.4	5, 10	Q
REG16	BTM	Alluvium	A	SP (LL)	227,084	6,622,320	287.13	30	24.0 – 30.0	5, 7, 10,	Q
REG16A	BTM	Permian coal	A	SP (LL)	227,074	6,622,316	287.13	59.9	53.9 – 59.9	5, 10	Q
REG2	BTM	Permian	A	VWP	232,722	6,620,459	317	255.2	60 / 120 / 200 / 260	1, 2, 4,	-
REG3	BTM	Volcanics	A	SP (LL)	217,164	6,619,558	241.6	57	50.50 - 56.50	1, 2, 5,	-
REG4	BTM	Volcanics	A	SP (LL)	219,323	6,612,763	260	72.5	65.5 - 71.5	1, 5, 10	Q
REG4A	MCCM	Alluvium	A	SP (LL)	219318	6612774.6	259.99	40	33.9 – 39.9	5, 7, 10	Q
REG5	BTM	Volcanics	A	SP (LL)	220,649	6,609,521	252.2	78.7	72.2 - 78.2	1, 2, 5,	Q
REG5A	BTM	Alluvium	A	SP (dry)	220,646	6,609,514	252	22	18 - 21	1, 2, 5,	Q
REG6	BTM	Volcanics	A	SP (LL)	223,100	6,606,534	250.7	96	88.0 - 94.0	1, 5, 10	Q

Bore ID	Managed by [a]	Geology [b]	Status [c]	Type [d]	Easting (m)	Northing (m)	Ground elevation [e] (m AHD)	Depth (mbgl)	Screen or VWP sensor depth (m bgl)	Purpose [f]	Water quality analysis [g]
REG7	BTM	Permian	A	VWP	233,543	6,605,348	291.6	255.2	67.5 / 148.2 / 242.5	1, 2, 4,	-
REG7A	BTM	Alluvium	A	SP (LL)	233,545	6,605,359	291.7	36	24 - 30	1, 2, 4,	Q
REG8	BTM	Permian	A	VWP	230,030	6,616,113	341.6	TBC	91.5 / 221 / 274	1, 6, 10	-
REG9	BTM	Permian	A	VWP	234,233	6,610,591	346.8	279.2	116.8 / 175.2 / 268	1, 6, 10	-
Roma MB	MCCM	Alluvium	A	SP (LL)	218,612	6,605,871	TBC	89	TBC	3, 5, 7,	Q
Roma	MCCM	Alluvium	A	SP (LL)	219,058	6,606,417	TBC	~12	TBC	3, 5, 7,	Q
WRD01	MCCM	Weathered	A	SP (LL)	226,091	6,618,354	286.76	20	14.0 – 20.0	5, 9, 10	Q
WRD02	MCCM	Volcanics	A	SP (LL)	223,510	6,616,824	297.23	49.9	43.9 – 49.9	5, 7, 9,	Q

Notes

Complete records are unavailable for some groundwater bores.

a. Owner: MCCM = Maules Creek Coal Mine network; BTM = BTM complex network; and WaterNSW = WaterNSW network;
b. Geology: Permian = Permian coal measures and Volcanics = Boggabri Volcanics;
c. Status: D = decommissioned, A = active and P = proposed
d. SP: standpipe; SP (LL): standpipe with existing pressure transducer;
e. Ground elevation: Elevation of water supply bores interpolated from groundwater model digital elevation model. TBC = to be confirmed.
f. Purpose: Each monitoring site within the network has an identified purpose, or multiple purposes depending on the site location and geological unit it is monitoring. The purposes of the monitoring locations include to:
    1. record regional groundwater levels/pressures and trends;
    2. determine water levels within overlying hydrostratigraphic units and connectivity between units;
    3. detect any significant changes to groundwater levels and quality at water supply works;
    4. detect any significant changes to groundwater levels and quality in vicinity of high-priority groundwater dependent ecosystems;
    5. monitor trends in groundwater quality in main hydrostratigraphic units;
    6. detect localised depressurisation due to mine activities;
    7. monitor groundwater in alluvium;
    8. provide a verification of pressure recorded by VWP sensors grouted into drillholes;
    9. determine changes in groundwater level and quality around the out of pit emplacement;
    10. verify groundwater model predictions; and
    11. assess interaction between groundwater and surface water.
g. Water quality analysis: Frequency of analysis of Q = quarterly.

Table E-1

Private Groundwater Bores Details

Bore ID	Managed by [a]	Geology [b]	Easting (m)	Northing (m)	Ground elevation [c] (m AHD)	Depth (m bgl)	Screen depth (m bgl)	Water quality analysis [d]
BAS1	Third party on WHC land	TBC	217,107	6,612,427	239	TBC	TBC	Bi
BAS2 (Olivedene)	MCCM	TBC	217,548	6,612,037	238	TBC	TBC	Bi
BRE2	Third party	Hard rock	234,377	6,616,639	354	96.3	TBC	Bi
Brighton Extraction	MCCM	Alluvium	219,808	6,603,952	TBC	TBC	TBC	Bi
GW002831	Third party on WHC land	TBC	221,313	6,620,116	TBC	TBC	TBC	Bi
GW006567	Third party on WHC land	TBC	221,374	6,618,792	265.9	59.1	28.7 - 29.3 / 57.9 - 58.5	Bi
MOR1	Third party on WHC land	TBC	220,649	6,619,125	260	TBC	TBC	Bi
MOR2	Third party on WHC land	TBC	219,871	6,618,803	256	TBC	TBC	Bi
MORSE	Third party on WHC land	Sandstone	228,203	6,617,691	302	63.1	TBC	Bi
Roma Irrigation	MCCM	Alluvium	218,867	6,606,221	TBC	TBC	TBC	Bi
School	Third party	Gravel	224,673	6,623,048	282	8.4	TBC	Bi
TESTON	Third party on WHC land	Hard rock	222,568	6,619,102	270	45.4	TBC	Bi
TRALEE	Third party on WHC land	Basalt	224,102	6,618,538	278	33.8	TBC	Bi
WHAN	Third party	TBC	221,134	6,622,897	264	10	TBC	Bi
WOL1	Third party on WHC land	TBC	226,799	6,622,149	290	7.2	TBC	Bi
WOL2	Third party on WHC land	TBC	226,119	6,618,673	285	TBC	TBC	Bi

Table E-2

Regional Groundwater Bores

Date	RB05A	REG3	REG4	REG5	REG5A	REG6	REG7A	REG10A	REG12	REG13	REG14	BCM01	BCM03	Roma Windmill	Roma MB	Brighton Bore 3
Jan-24	86.91	12.48	20.56	17.58	*dry*	18.88	6.15	*Insufficient sample*	23.02	19.28	18.42	*dry*	*dry*	7.50	8.74	8.09
Feb-24	87.72	12.73	20.50	17.62	*dry*	18.96	6.35	*dry*	22.96	19.33	18.72	*dry*	*dry*	7.65	8.99	8.18
Mar-24	87.54	12.73	20.52	17.63	*dry*	19.24	6.27	*dry*	22.96	19.34	18.67	*dry*	*dry*	7.73	9.05	8.22

Apr-24	88.67	12.60	20.46	17.60	*dry*	18.97	6.45	*dry*	22.91	18.92	18.23	*dry*	*dry*	8.31	9.88	8.03
May-24	87.23	NA	20.45	17.61	*dry*	19.05	6.65	*Insufficient sample*	22.24	19.46	18.05	*dry*	*dry*	8.23	9.61	8.45
Jun-24	88.37	12.38	20.04	17.58	*dry*	19.03	6.71	*dry*	22.89	19.40	18.02	*dry*	*dry*	8.89	10.30	8.34
Jul-24	90.30	12.28	20.43	17.59	*dry*	19.12	16.82	*dry*	22.92	19.52	17.98	*dry*	*dry*	9.38	9.64	8.60
Aug-24	90.80	12.20	20.30	17.52	*dry*	19.02	6.80	*dry*	22.87	19.40	17.85	*dry*	*dry*	9.17	9.46	8.50
Sep-24	91.20	12.35	20.96	17.60	*dry*	19.01	6.83	*dry*	22.86	15.52	17.92	*dry*	*dry*	8.08	9.25	8.48
Oct-24	91.50	12.15	20.22	16.80	*dry*	19.03	6.80	10.33	22.79	19.30	17.98	*dry*	*dry*	8.24	9.53	8.40
Nov-24	92.80	12.70	20.18	17.50	*dry*	19.02	7.06	10.57	22.70	18.89	18.35	*dry*	*dry*	8.22	9.52	8.50
Dec-24	92.38	12.63	20.05	17.50	*dry*	18.99	7.09	*dry*	22.73	19.34	17.98	*dry*	*dry*	11.24	9.70	9.49

Shaded cells indicate dry bore NA = no information available

Table E-3

Registered Monitoring Bores Groundwater Levels (mbgl)

Month	BCM05		RB05B		REG4A		REG10B		REG15		REG16		WRD01		WRD02		BCM04	
Method	Telem	Man	Telem	Man	Telem	Man	Telem	Man	Telem	Man	Telem	Man	Telem	Man	Telem	Man	Telem	Man
Jan	9.25		48.57		20.71		4.07		4.79		3.51		19.94		29.13		15.63	
Feb	9.26		48.65		20.73		4.15		5.14		3.62		19.92		29.72		15.68	
Mar	9.26		48.72		20.65		4.18		5.30		3.68		19.88		30.43		15.69	
Apr	9.24		48.74		20.57		4.21		5.39		3.75		19.87		29.18		15.70	
May	9.22		48.82		20.59				5.49		3.80		19.82		29.10		15.68	
Jun	9.22		48.91		20.63		4.03		5.62		3.90		19.87		29.77		15.71	
Jul	9.19				20.47		3.98		5.65		3.96		19.82		28.87		15.69	
Aug	9.17				20.42				5.61		3.97		19.81		28.71		15.69	
Sep	9.17	11.1	49.05	49.85	20.52	21.55		5.06	5.62	6.8	4.08	4.76	19.85		28.84	29.3	15.70	16.77
Oct	9.19				20.40				5.85		4.24		19.88		28.57		15.71	
Nov	9.22				20.38				6.08		4.38		19.90		28.50		15.75	
Dec	9.26	10.21		50.28	20.53	21.25		5.31	6.25	7.02	4.49	5.04	19.95		28.87	29.09	15.81	16.71

Note: 'Telem' values presented are monthly averages calculated from 6-hour interval daily telemetry data, 'Man' describes manual dip measurements

Table E-4

Groundwater Monitoring Results and Comparison with ANZECC Guideline Trigger Values

Location	Date	Lab pH value	Lab Electrical conductivity @ 25°C	TDS @ 180°C	Sulfate as SO4	Aluminium (filt.)	Arsenic (filt.)	Barium (filt.)	Cadmium (filt.)	Copper (filt.)	Lead (filt.)	Lithium (filt.)	Manganese (filt.)	Molybdenum (filt.)	Nickel (filt.)	Zinc (filt.)	Boron (filt.)	Iron (filt.)	Ammonia as N	Nitrite as N	Nitrate as N	Total anions	Total cations	Ionic balance
		pH Unit	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%
ANZECC Guideline value	Drinking water	6.5-8.5	-	600	500/250	0.2**	0.01	0.2*	0.002*	2/1	0.01*	-	0.5*/0.1**	0.05*	0.02*	3	4*	0.3**	0.5	3	50	-	-	-
	Livestock drinking water	-	-	3000-13000	1000-2000	5	0.5	-	0.01	0.5-5	0.1	-	-	0.15	1	20	5	-	-	30	-	-	-	-
	Long-term irrigation water	6.0-8.5	-	-	-	5	0.1	-	0.01	0.2	2	2.5	0.2	0.01	0.2	2	0.5	0.2	-	-	-	-	-	-
Limit of reporting		0.1	1	1	1	0.01	0.001	0.001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.005	0.05	0.05	0.01	0.01	0.01	0.01	0.01	0.01
RB05a	1/03/2024	7.54	1970	1450	75	0.04	0.00	0.30	0.000	0.00	0.00	0.03	0.10	0.02	0.01	0.01	0.06	0.35	0.76	0.03	0.76	19.8	21.8	4.78
	5/06/2024	7.54	1950	1140	85	0.02	<0.001	0.28	<0.0001	<0.001	<0.001	0.03	0.11	0.01	0.01	0.01	0.06	0.11	0.75	<0.01	0.08	21	20.4	1.55
	13/09/2024	7.61	1860	1160	69	0.02	<0.001	<0.001	<0.0001	0.00	<0.001	0.03	0.08	0.01	0.01	0.02	0.06	0.13	0.72	0.02	0.01	21.2	20.6	1.58
	10/12/2024	7.5	1890	1050	58	<0.01	<0.001	0.27	<0.0001	0.01	<0.001	0.03	0.07	0.01	0.01	0.04	0.08	<0.05	0.64	0.2	0.12	21.2	20.7	1.3
REG3	26/02/2024	7.75	1300	1140	99	<0.01	0.00	0.02	<0.0001	0.00	<0.001	<0.001	0.18	0.01	0.00	0.01	<0.05	<0.05	0.14	<0.01	0.12	13.5	12.9	2.06
	3/06/2024	7.73	1260	774	86	<0.01	0.00	0.02	<0.0001	<0.001	<0.001	0.00	0.20	0.01	0.00	<0.005	0.06	0.06	0.11	<0.01	0.12	14.6	13.4	4.41
	12/09/2024	7.78	1230	728	97	<0.01	0.00	<0.001	<0.0001	<0.001	<0.001	0.00	0.09	0.02	<0.001	<0.005	<0.05	<0.05	0.14	<0.01	0.04	13.9	13.3	2.13
	9/12/2024	7.78	1220	765	79	<0.01	0.00	0.02	<0.0001	<0.001	<0.001	0.00	0.20	0.01	<0.001	0.01	0.08	<0.05	0.1	0.01	1.59	13.2	13.1	0.64
REG4	28/02/2024	7.81	1260	1160	24	<0.01	<0.001	0.01	<0.0001	0.00	<0.001	0.04	0.02	0.00	<0.001	0.02	0.06	<0.05	0.01	<0.01	0.26	12.20	12.4	1.22
	13/06/2024	7.83	1260	716	23	<0.01	0.00	0.02	<0.0001	0.00	<0.001	0.04	0.03	0.01	<0.001	0.02	0.08	<0.05	<0.01	<0.01	0.27	12.9	12.9	0.12
	10/09/2024	7.92	1110	678	16	<0.01	0.00	<0.001	<0.0001	0.00	0.00	0.04	0.04	0.00	0.00	0.02	<0.05	<0.05	0.06	<0.01	0.25	12.8	12.8	<0.01
	11/12/2024	7.75	1120	607	11	<0.01	<0.001	0.02	<0.0001	<0.001	<0.001	0.02	0.04	0.00	<0.001	0.02	0.08	<0.05	<0.01	<0.01	0.1	12.6	12.3	1.14
REG5	28/02/2024	7.82	1920	1510	228	<0.01	<0.001	0.01	<0.0001	<0.001	<0.001	0.00	0.35	0.00	0.00	0.05	<0.05	<0.05	0.29	<0.01	0.51	18.4	18.2	0.47
	13/06/2024	7.86	1880	1050	236	<0.01	<0.001	0.01	<0.0001	<0.001	<0.001	0.01	0.34	0.00	<0.001	0.05	<0.05	<0.05	0.26	<0.01	0.03	19.5	18.8	1.63

	16/09/2024	7.9	1760	1070	232	<0.01	<0.001	<0.001	<0.0001	<0.001	<0.001	0.01	0.36	0.00	0.00	0.07	0.07	<0.05	0.22	<0.01	0.04	20.1	19.3	2.06
	11/12/2024	7.92	1770	1100	206	<0.01	<0.001	0.01	<0.0001	<0.001	<0.001	0.00	0.36	0.00	<0.001	0.06	0.05	<0.05	0.17	<0.01	<0.01	19.2	18.9	0.76
REG6	29/02/2024	7.77	2020	1170	137	<0.01	0.00	0.05	0.000	<0.001	<0.001	0.01	0.14		0.00	0.47	0.08	<0.05	0.12	<0.01	<0.01	19.2	20.3	2.63
	14/06/2024	7.81	2010	1200	157	<0.01	0.00	0.04	0.000	<0.001	<0.001	0.01	0.13	0.01	0.00	0.26	0.08	<0.05	0.02	<0.01	0.18	19.6	19.5	0.13
	16/09/2024	7.85	1790	1070	112	<0.01	0.00	<0.001	<0.0001	0.00	<0.001	0.01	0.08	0.02	0.00	0.03	0.08	<0.05	<0.01	<0.01	0.3	18.6	17.8	2.27
	13/12/2024	8.17	1860	1050	96	<0.01	<0.001	0.07	<0.0001	<0.001	<0.001	0.01	0.03	0.02	0.00	<0.005	0.08	<0.05	0.03	<0.01	1.28	18.9	18	2.33
REG7a	29/02/2024	7.29	914	628	57	0.05	0.00	0.11	<0.0001	0.00	<0.001	0.00	0.21	0.00	0.00	0.06	<0.05	<0.05	0.02	0.02	0.65	9.21	10.5	6.77
	13/06/2024	7.31	876	554	57	<0.01	0.00	0.10	<0.0001	0.00	<0.001	0.00	0.22	<0.001	<0.001	0.03	<0.05	<0.05	<0.01	0.02	0.47	8.91	9.76	4.55
	10/09/2024	7.4	814	554	42	0.01	0.00	<0.001	<0.0001	0.00	0.00	0.00	0.21	<0.001	0.00	0.03	<0.05	<0.05	0.03	<0.01	0.16	8.97	9.56	3.21
	13/12/2024	7.31	819	486	42	<0.01	0.00	0.09	<0.0001	<0.001	<0.001	0.00	0.12	<0.001	<0.001	0.02	<0.05	<0.05	<0.01	0.02	0.26	9.06	9.14	0.41
REG12	27/02/2024	7.43	2370	1700	73	0.03	0.00	0.08	0.000	0.00	0.00	0.04	0.12	0.00	0.00	0.04	0.11	0.25	0.07	<0.01	0.02	25.2	27.5	4.36
	12/06/2024	7.43	2460	1480	94	<0.01	0.00	0.08	<0.0001	0.00	<0.001	0.04	0.09	0.00	0.00	0.03	0.11	0.22	0.06	<0.01	0.01	27.7	25.7	3.8
	17/09/2024	7.53	2360	1400	68	<0.01	0.00	<0.001	<0.0001	<0.001	<0.001	0.03	0.14	0.00	0.00	0.01	0.12	0.06	0.04	<0.01	0.02	25.7	25.7	0.03
	10/12/2024	7.42	3160	1430	57	<0.01	0.00	0.09	<0.0001	<0.001	<0.001	0.04	0.07	0.00	0.00	0.02	0.12	0.22	0.03	<0.01	<0.01	26.6	26.3	0.43
REG13	28/02/2024	7.63	3650	3220	1190	0.02	0.00	0.05	0.002	0.01	0.00	0.01	0.49	0.01	0.01	2.07	0.17	<0.05	0.1	<0.01	<0.01	39.8	44.4	5.52
	13/06/2024	7.56	3800	2640	1180	<0.01	<0.001	0.04	0.001	0.00	<0.001	0.01	0.48	0.01	0.00	1.45	0.17	<0.05	0.1	<0.01	0.32	40.4	41.2	1.06
	10/09/2024	7.61	3660	2520	1210	<0.01	<0.001	<0.001	<0.0001	0.00	<0.001	0.01	0.45	0.01	0.00	0.08	0.17	<0.05	0.09	<0.01	<0.01	39.7	40.6	1.09
	11/12/2024	7.62	4660	2610	1160	<0.01	<0.001	0.05	<0.0001	<0.001	<0.001	0.02	0.47	0.01	0.00	0.10	0.18	<0.05	0.08	<0.01	<0.01	38.9	38	1.12
REG14	29/02/2024	7.6	1100	912	70	0.01	0.00	0.03	0.000	0.00	0.00	0.00	0.15	0.01	0.00	0.61	<0.05	0.06	0.02	<0.01	0.02	10.7	12.5	7.62
	14/06/2024	7.58	958	602	73	<0.01	0.00	0.03	<0.0001	<0.001	<0.001	<0.001	0.12	0.00	0.00	0.01	<0.05	0.06	0.03	<0.01	<0.01	11.8	10	7.84
	13/09/2024	7.57	923	585	51	<0.01	0.00	<0.001	<0.0001	<0.001	<0.001	<0.001	0.11	0.01	0.00	0.03	<0.05	<0.05	0.05	<0.01	<0.01	10.4	10.2	0.8
	13/12/2024	7.63	917	548	42	<0.01	0.00	0.03	<0.0001	<0.001	<0.001	<0.001	0.12	0.01	<0.001	<0.005	<0.05	0.17	0.02	<0.01	<0.01	9.91	10	0.56
Mac 1280	1/03/2024	11.8	2520	1680	41	1.85	0.00	0.08	<0.0001	0.01	<0.001	0.09	0.00	0.04	0.01	0.01	<0.05	<0.05	3.27	1.08	1.09	21	24	6.54
	5/06/2024	12	2800	1480	22	0.58	0.00	0.12	<0.0001	0.03	<0.001	0.10	<0.001	0.09	0.01	<0.005	<0.05	<0.05	4.24	1.34	1.1	39.6	22.3	27.9
	17/09/2024	12	3160	1720	18	2.04	<0.001	<0.001	<0.0001	0.00	<0.001	0.09	<0.001	0.02	0.01	<0.005	<0.05	<0.05	4.97	1.12	0.06	24.4	26.6	4.25

	10/12/2024	11.7	2810	1290		1.67	<0.001	0.11	<0.0001	0.04	<0.001	0.09	<0.001	0.03	0.01	<0.005	<0.05	<0.05	5.61				
MOR1	14/02/2024	7.39	1500	1180	44	<0.01	<0.001	0.12	<0.0001	0.01	<0.001	0.02	0.00	0.00	0.00	0.01	0.13	<0.05	0.09	0.04	14.5	15.8	15.9	0.24
	5/08/2024	7.08	1390	972	42	<0.01	<0.001	0.23	<0.0001	0.01	<0.001	0.01	0.00	<0.001	<0.001	0.02	0.14	<0.05	0.02	0.13	27.7	15.2	16.4	3.75
Mor 2	14/02/2024	7.88	325	297	1	<0.01	<0.001	0.00	<0.0001	0.00	<0.001	0.01	0.08	<0.001	<0.001	<0.005	<0.05	<0.05	0.02	<0.01	0.05	3.54	3.21	5
	5/08/2024	7.69	418	238	<1	<0.01	<0.001	0.01	<0.0001	<0.001	<0.001	0.01	0.29	<0.001	0.00	<0.005	0.06	<0.05	<0.01	<0.01	<0.01	3.98	4.42	5.16
Teston	14/02/2024	7.6	1300	984	14	<0.01	<0.001	0.06	<0.0001	0.00	<0.001	0.02	0.28	0.00	<0.001	<0.005	0.07	2.15	0.25	<0.01	0.07	16.1	14	6.93
	5/08/2024	7.5	1460	931	14	<0.01	<0.001	0.06	<0.0001	<0.001	<0.001	0.01	0.28	0.00	<0.001	<0.005	0.08	1.92	0.17	<0.01	<0.01	16.5	17.3	2.29
Tralee	14/02/2024	7.36	1320	943	29	<0.01	<0.001	0.07	<0.0001	0.00	<0.001	0.01	2.33	<0.001	0.00	0.01	<0.05	0.17	6.7	0.04	0.08	15.3	14	4.42
Morse	14/02/2024	7.82	1200	1030	23	<0.01	<0.001	0.01	<0.0001	0.01	<0.001	0.03	0.42	<0.001	0.00	0.02	0.06	0.42	0.56	<0.01	0.03	15.1	13.2	6.94
	5/08/2024	7.66	1530	1040	18	<0.01	<0.001	0.01	<0.0001	<0.001	<0.001	0.02	0.59	<0.001	0.00	0.01	0.06	1.87	0.98	0.12	<0.01	17.3	18.1	2.31
Bre2	14/02/2024	7.84	2660	1980	60	<0.01	0.00	0.09	<0.0001	<0.001	<0.001	0.02	0.29	0.00	<0.001	0.01	0.08	2.08	1.87	<0.01	0.71	30.2	25.4	8.59
	5/08/2024	8.12	3200	1890	20	<0.01	0.00	0.07	<0.0001	<0.001	<0.001	0.02	0.14	0.00	<0.001	<0.005	0.09	0.12	2.19	0.06	<0.01	32	32.7	1.06
Wol1	14/02/2024	7.13	617	470	50	<0.01	<0.001	0.02	<0.0001	0.01	<0.001	0.00	0.01	<0.001	<0.001	0.02	<0.05	<0.05	0.02	<0.01	2.16	6.11	6.8	5.36
	5/08/2024	7.04	622	427	58	<0.01	<0.001	0.01	<0.0001	<0.001	<0.001	0.00	<0.001	0.00	<0.001	0.02	<0.05	<0.05	<0.01	<0.01	1.7	6.18	6.48	2.36
Bas1	15/02/2024	7.05	520	386	31	<0.01	<0.001	0.03	<0.0001	0.00	<0.001	0.00	2.23	0.00	0.00	0.01	<0.05	<0.05	0.02	0.02	0.3	5.96	5.7	2.19
Whan	14/02/2024	7.15	309	270	3	<0.01	<0.001	0.03	<0.0001	<0.001	<0.001	0.00	0.20	<0.001	<0.001	0.01	<0.05	3.37	0.37	0.02	0.9	3.43	3.39	0.48
	6/08/2024	7.25	412	262	13	<0.01	<0.001	0.02	<0.0001	0.01	<0.001	0.00	0.02	<0.001	<0.001	0.03	<0.05	<0.05	0.18	<0.01	0.57	4.05	4.38	3.9
School raw	14/02/2024	7.55	381	316	14	<0.01	<0.001	0.01	<0.0001	0.00	<0.001	0.00	0.01	<0.001	<0.001	0.03	<0.05	<0.05	0.08	0.01	1.28	4.21	4.17	0.48
	6/08/2024	7.07	229	178	9	<0.01	<0.001	0.01	<0.0001	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	0.43	<0.05	<0.05	<0.01	<0.01	0.72	2.2	2.67	
School filt	14/02/2024	7.02	22	14	2	<0.01	<0.001	<0.001	<0.0001	0.16	<0.001	<0.001	0.00	<0.001	<0.001	0.02	<0.05	<0.05	0.04	0.01	0.94	0.22	0.18	
	6/08/2024	7.02	16	10	<1	<0.01	<0.001	<0.001	<0.0001	0.05	<0.001	<0.001	<0.001	<0.001	0.00	0.09	<0.05	<0.05	0.07	<0.01	0.36	0.12	0.13	
GW006567	14/02/2024	8.09	2340	1690	59	<0.01	<0.001	0.10	<0.0001	<0.001	<0.001	0.01	0.10	0.00	<0.001	<0.005	0.07	0.23	0.15	<0.01	0.23	25.5	22	7.26
	5/08/2024	8.15	2510	1400	78	<0.01	<0.001	0.09	<0.0001	<0.001	<0.001	0.01	0.07	0.00	<0.001	0.01	0.08	0.14	0.15	<0.01	0.02	24.9	26.6	3.13

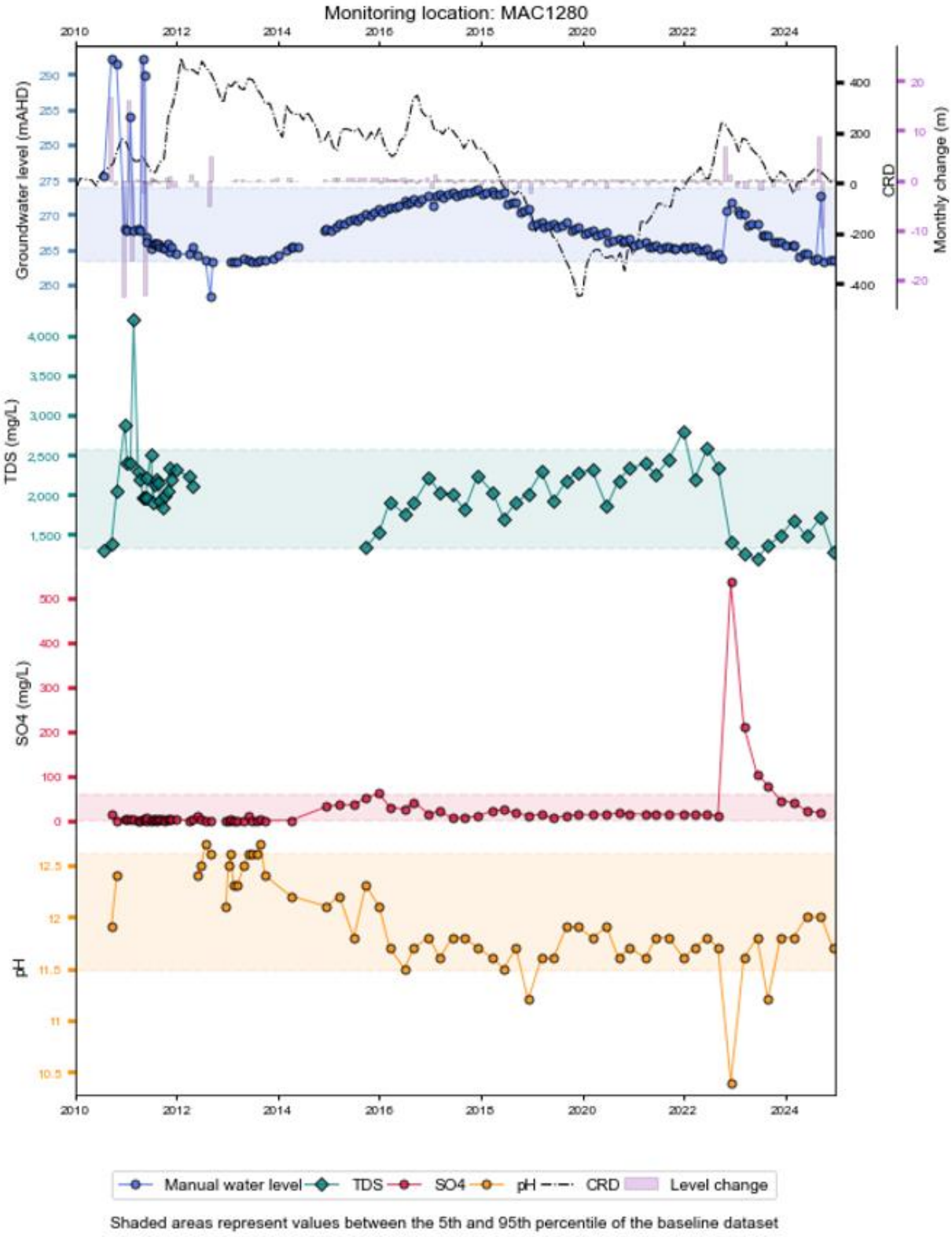
Table E-5

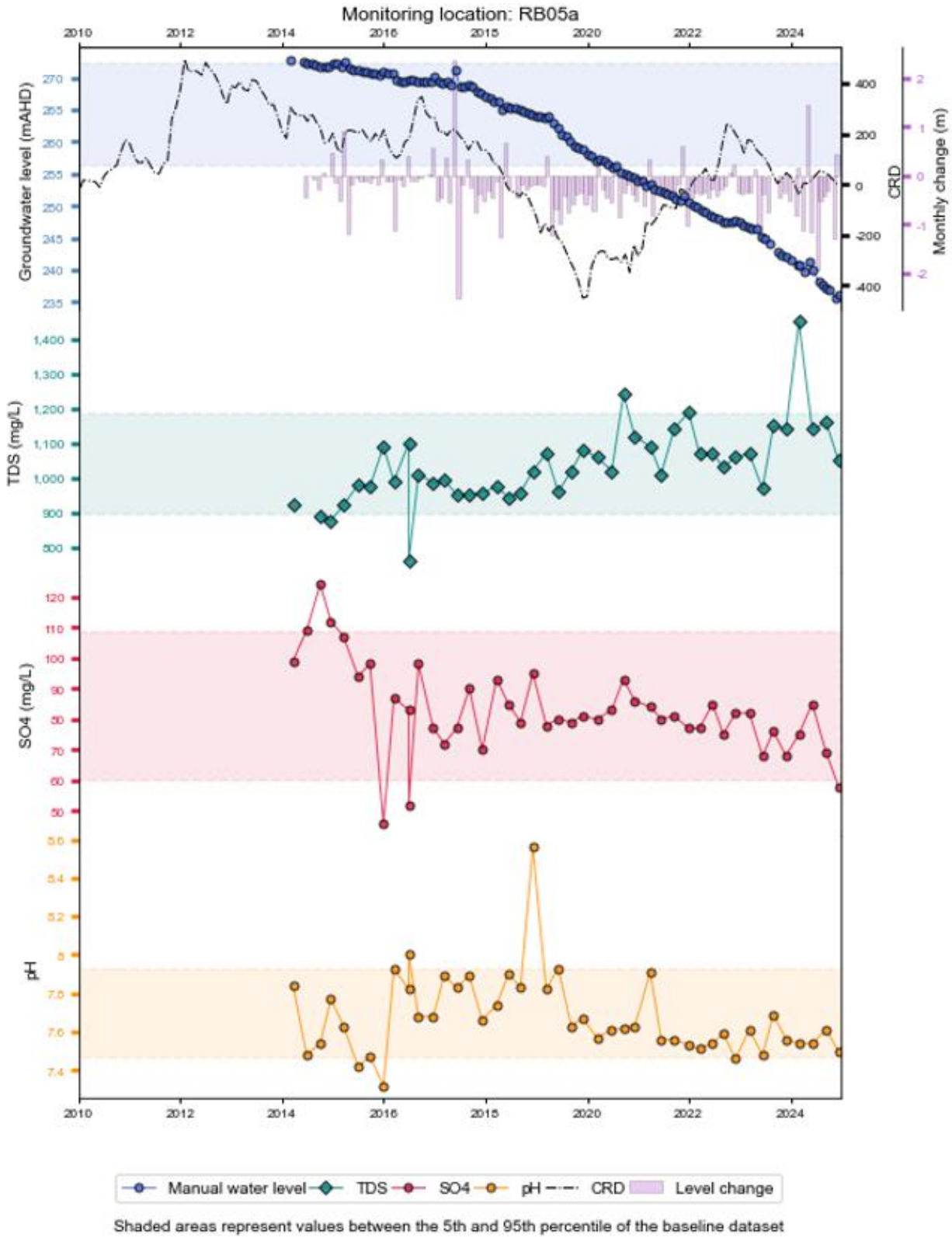
Private Groundwater Bores Levels (mbgl)

Date	MOR1	MOR2	BRE2	WOL1	WOL2	School	Whan	Tralee	Morse	Bas1	Bas2	Teston
Feb-24	11.60	12.50	13.35	3.49	*Blocked at 5m*	*Tap*	3.83	14.24	19.62	*Tap*	8.17	18.68
Aug-24	11.38	12.47	13.50	2.98	*Blocked at 5m*	*Tap*	4.00	*Blocked at 14m*	19.98	*Tap*	8.66	18.50

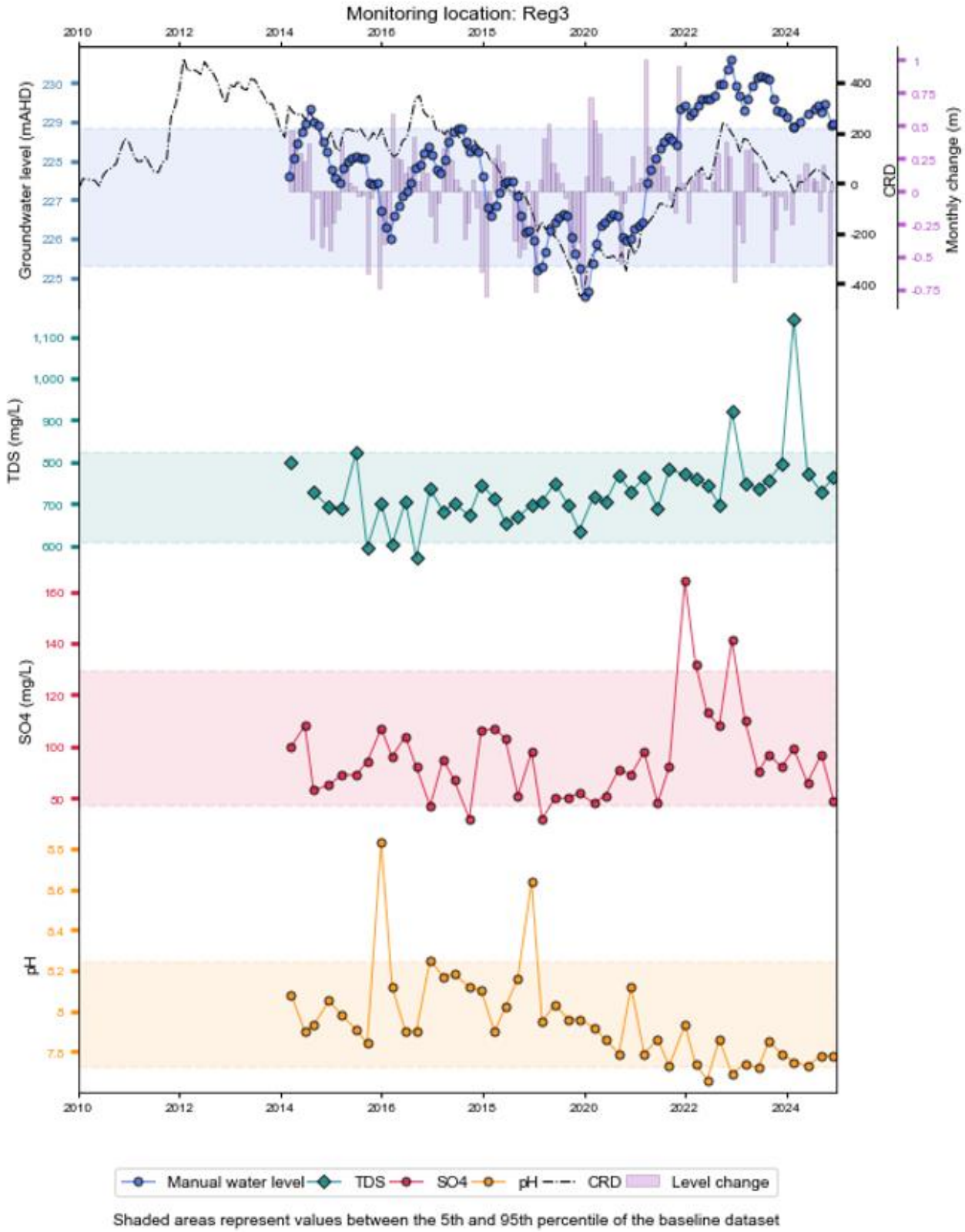
Figure E-1

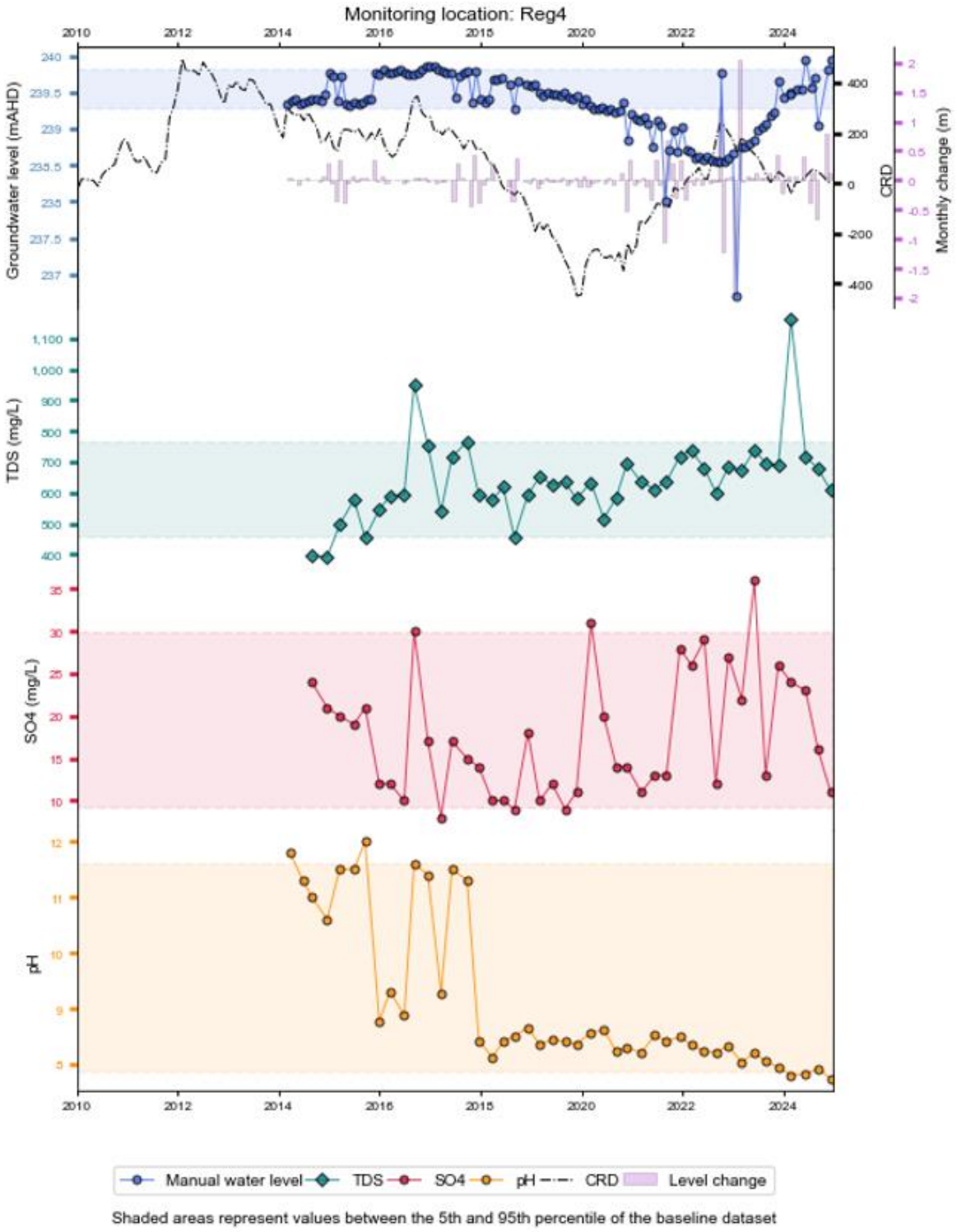
Stacked Hydrographs

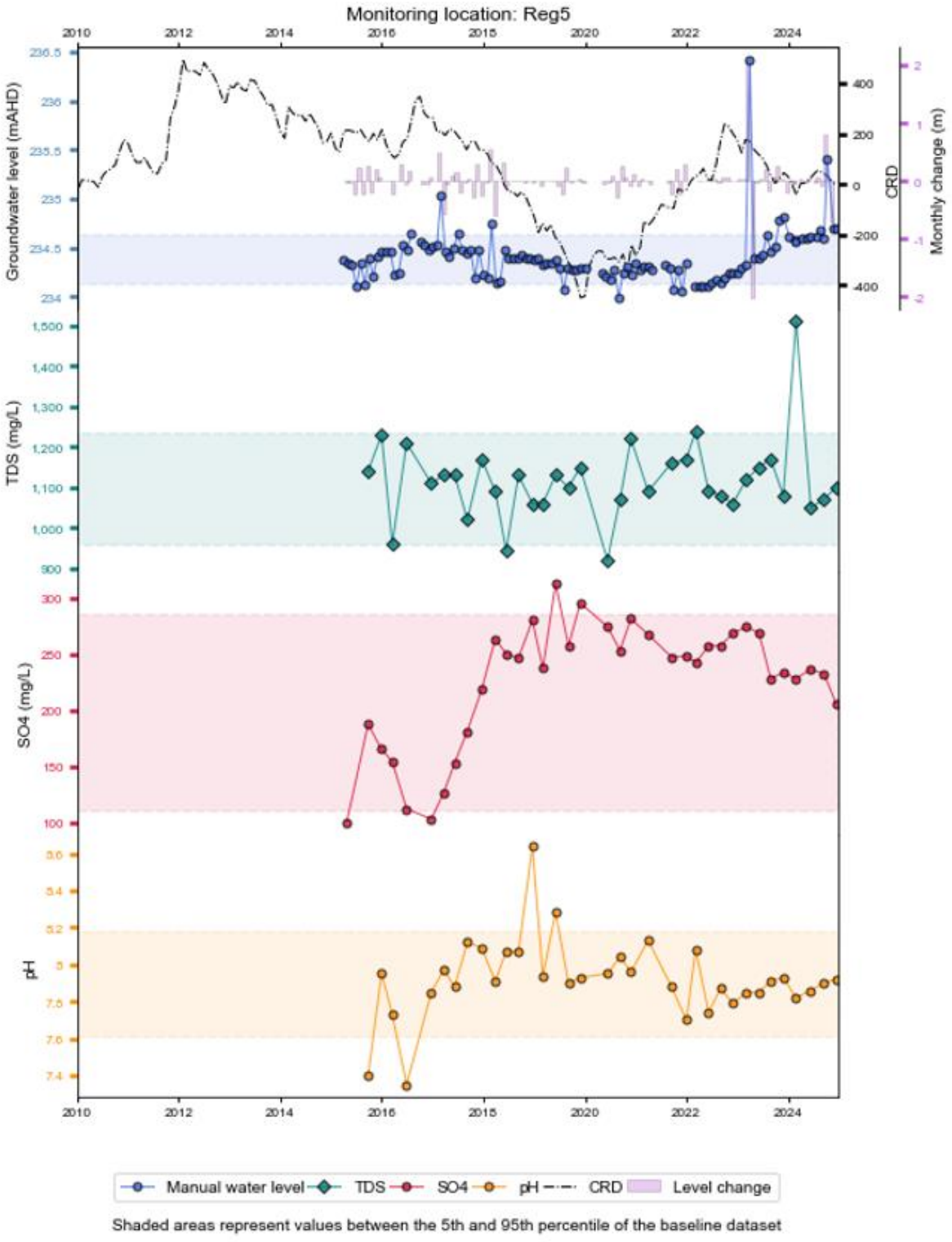


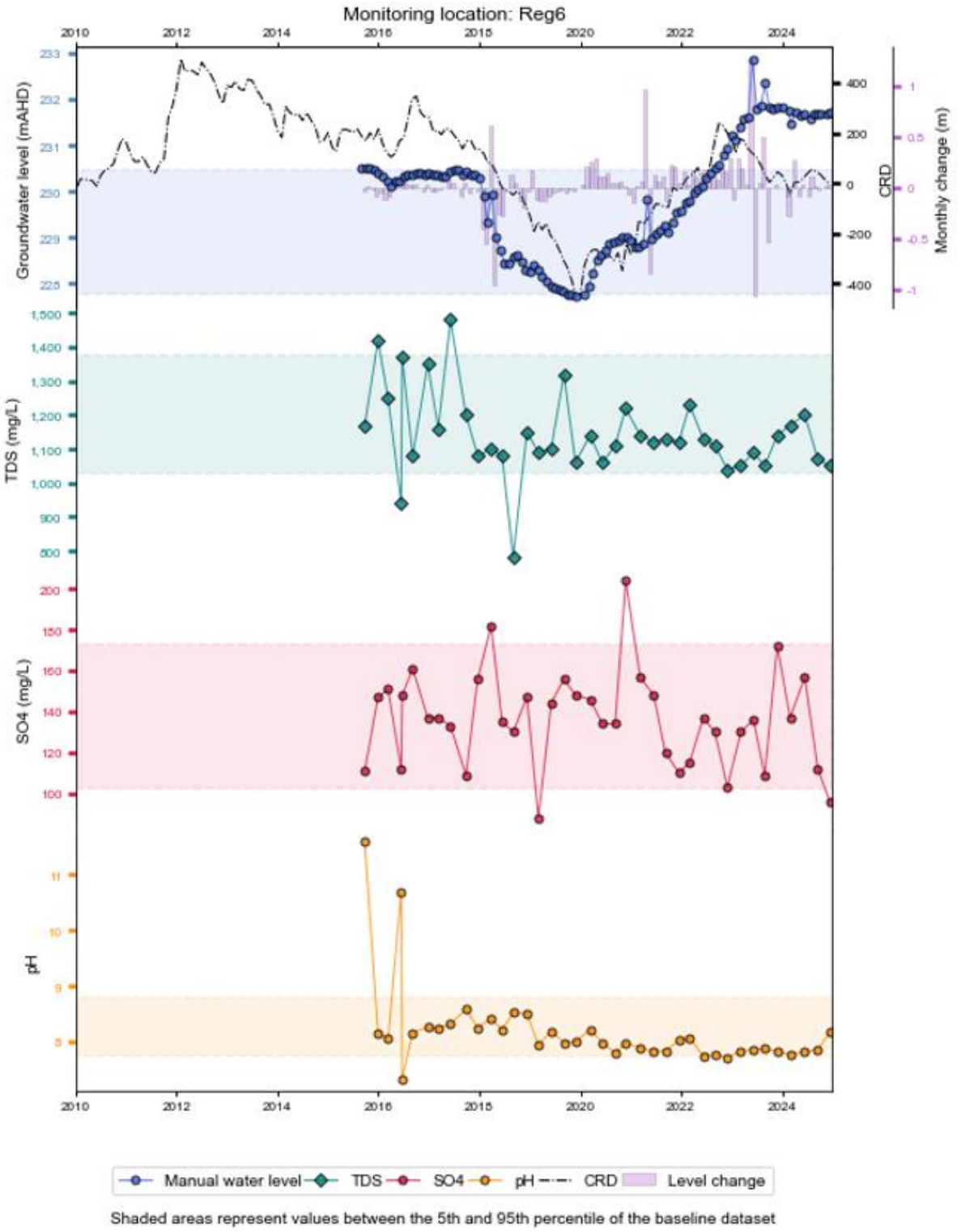


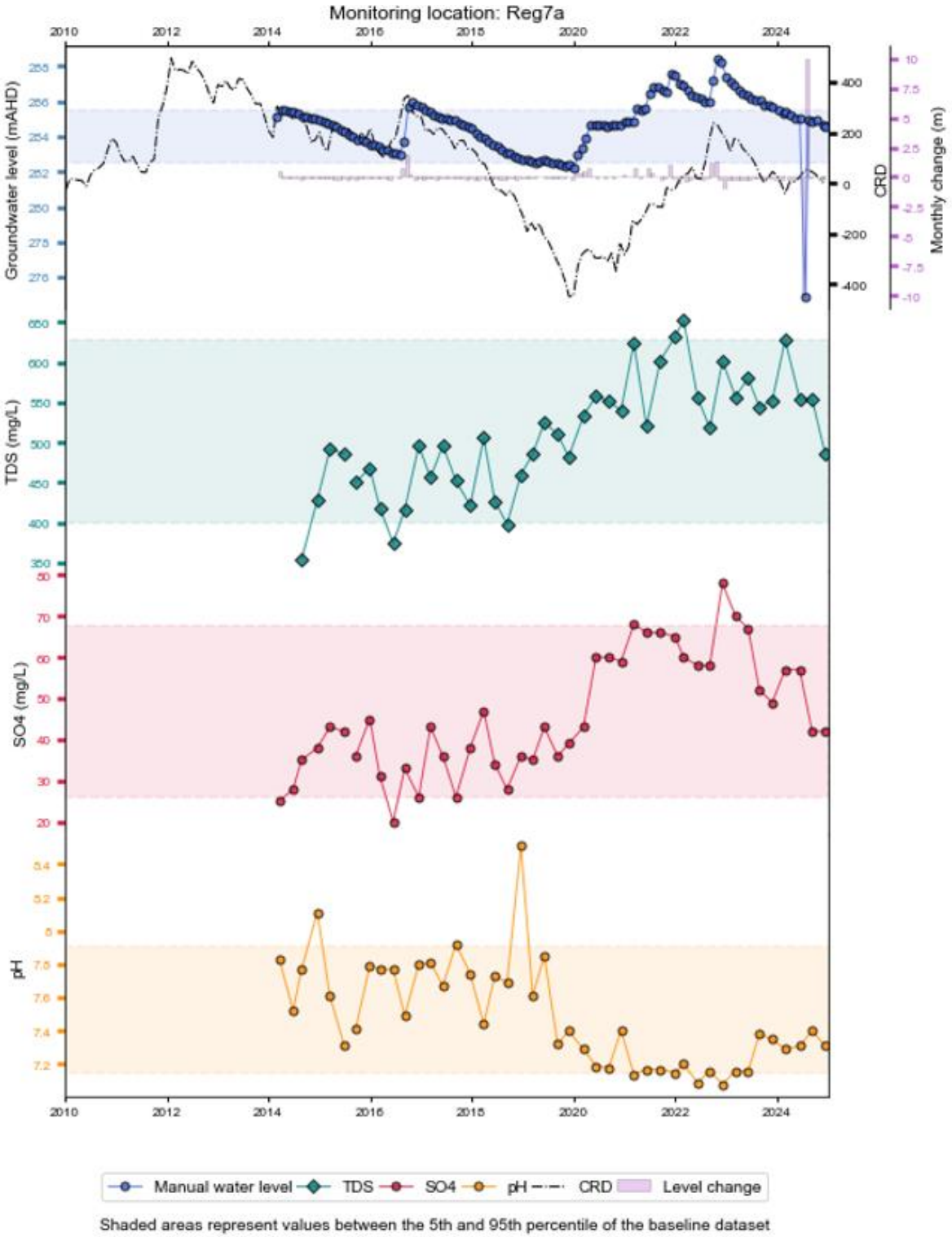
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset

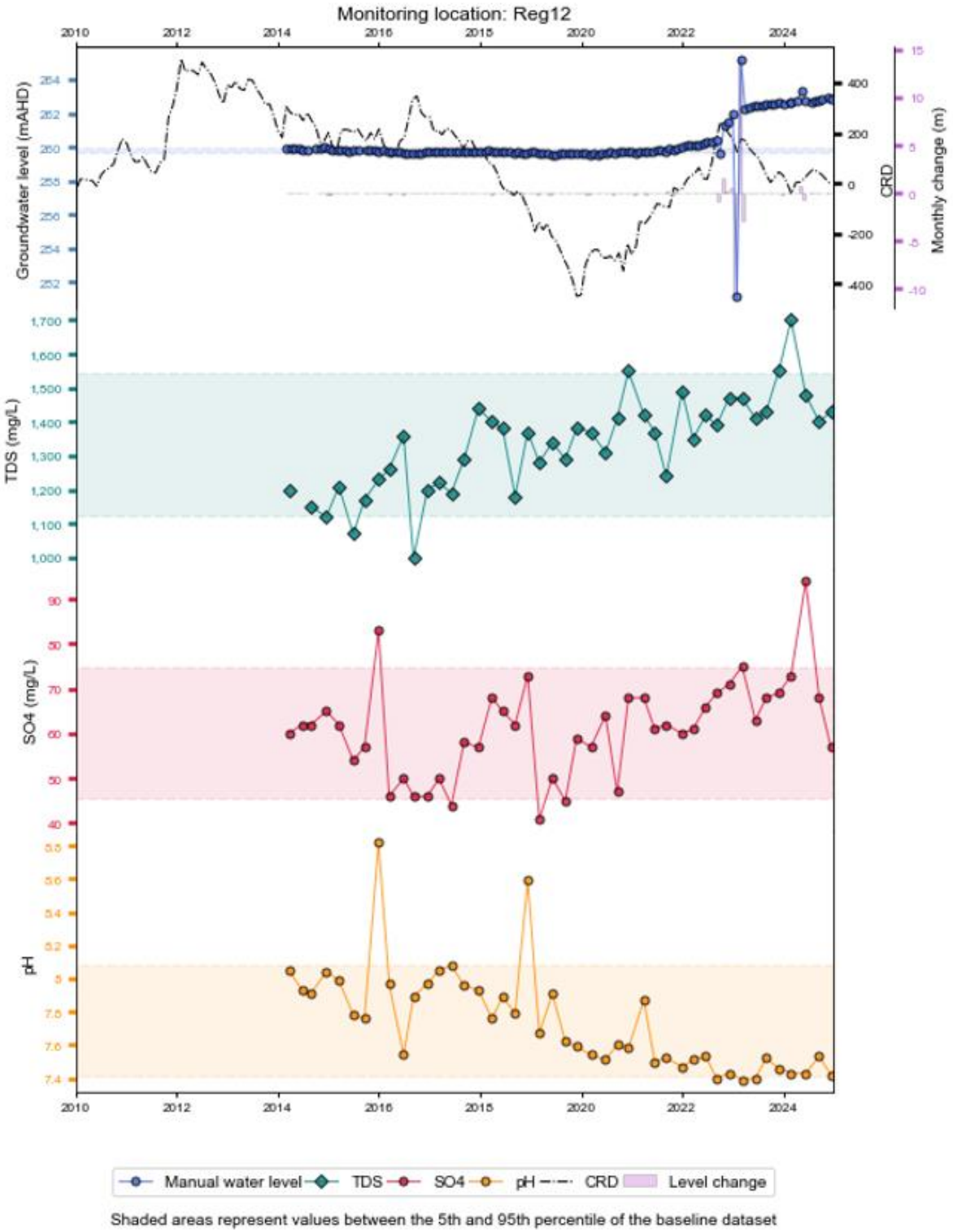

Monitoring location: Reg3
Groundwater level (mAHD)
CRD
Monthly change (m)
TDS (mg/L)
SO4 (mg/L)
pH
Manual water level
TDS
SO4
pH
CRD
Level change
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset


Monitoring location: Reg4
Groundwater level (mAHD)
CRD
Monthly change (m)
TDS (mg/L)
SO4 (mg/L)
pH
Manual water level
TDS
SO4
pH
CRD
Level change
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset

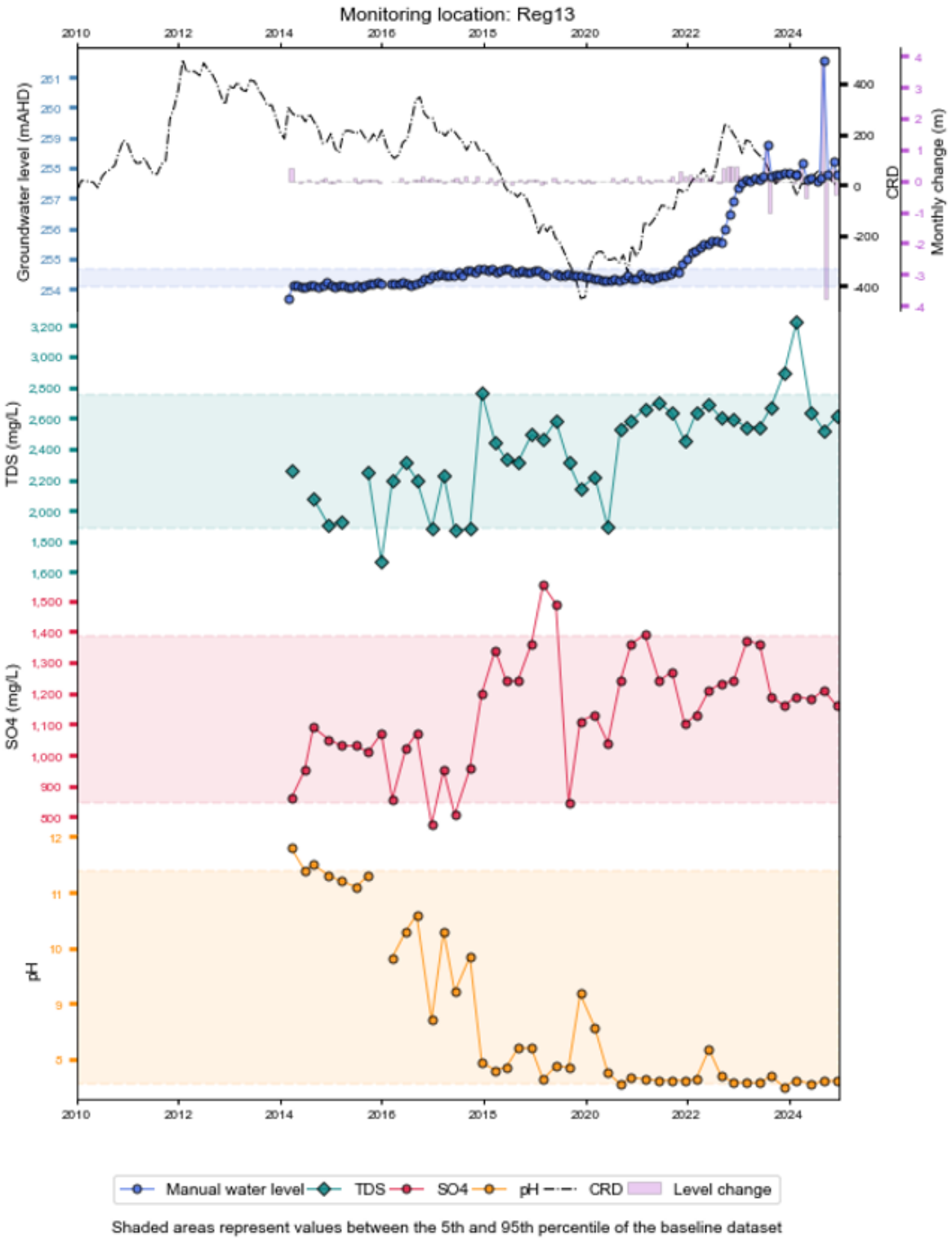

Monitoring location: Reg5
Groundwater level (mAHD)
CRD
Monthly change (m)
TDS (mg/L)
SO4 (mg/L)
pH
Manual water level
TDS
SO4
pH
CRD
Level change
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset

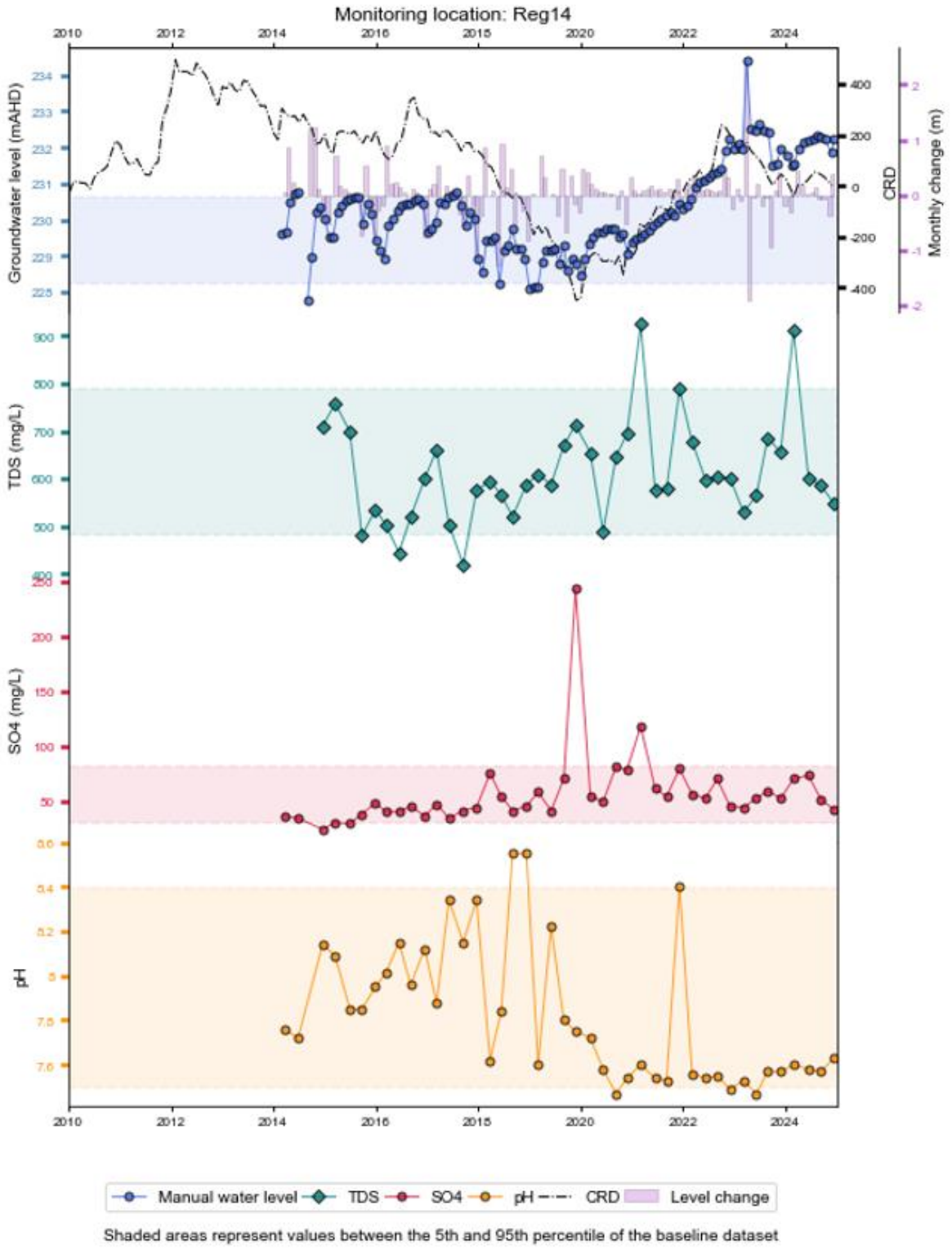

Monitoring location: Reg6
Groundwater level (mAHD)
CRD
Monthly change (m)
TDS (mg/L)
SO4 (mg/L)
pH
Manual water level
TDS
SO4
pH
CRD
Level change
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset

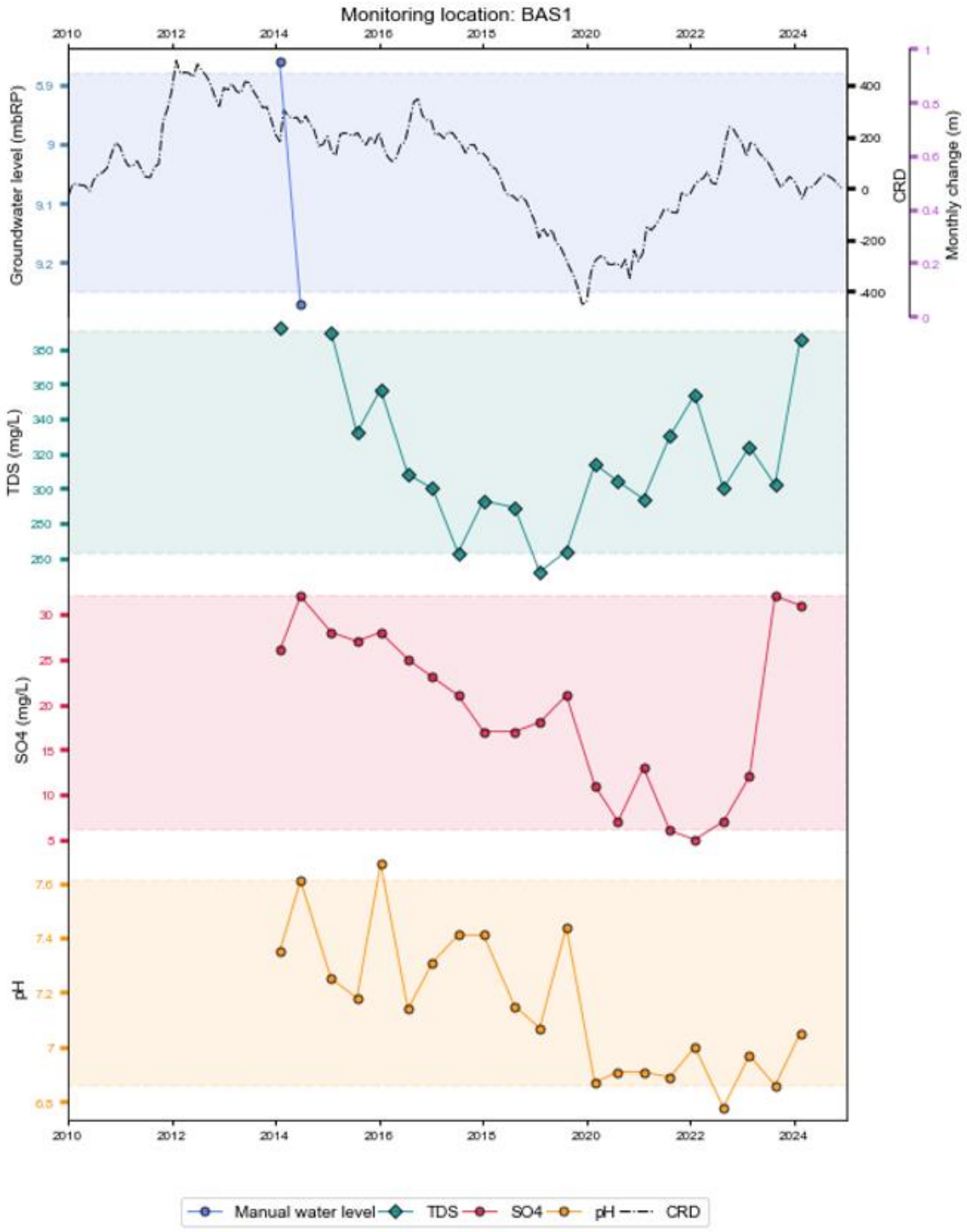

Monitoring location: Reg7a
Groundwater level (mAHD)
CRD
Monthly change (m)
TDS (mg/L)
SO4 (mg/L)
pH
Manual water level
TDS
SO4
pH
CRD
Level change
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset



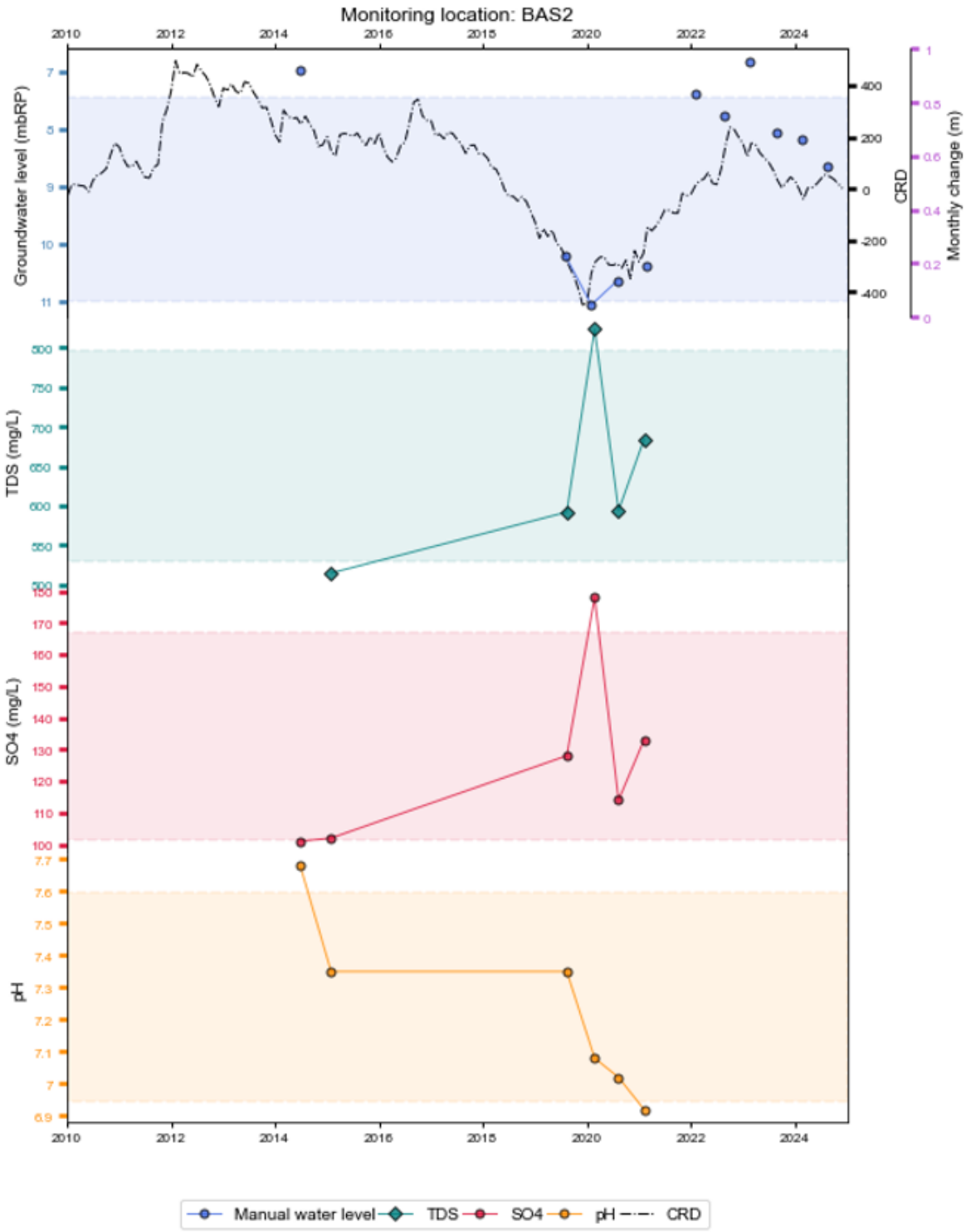
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset


Monitoring location: Reg13
Groundwater level (mAHD)
CRD
Monthly change (m)
TDS (mg/L)
SO4 (mg/L)
pH
Manual water level
TDS
SO4
pH
CRD
Level change
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset

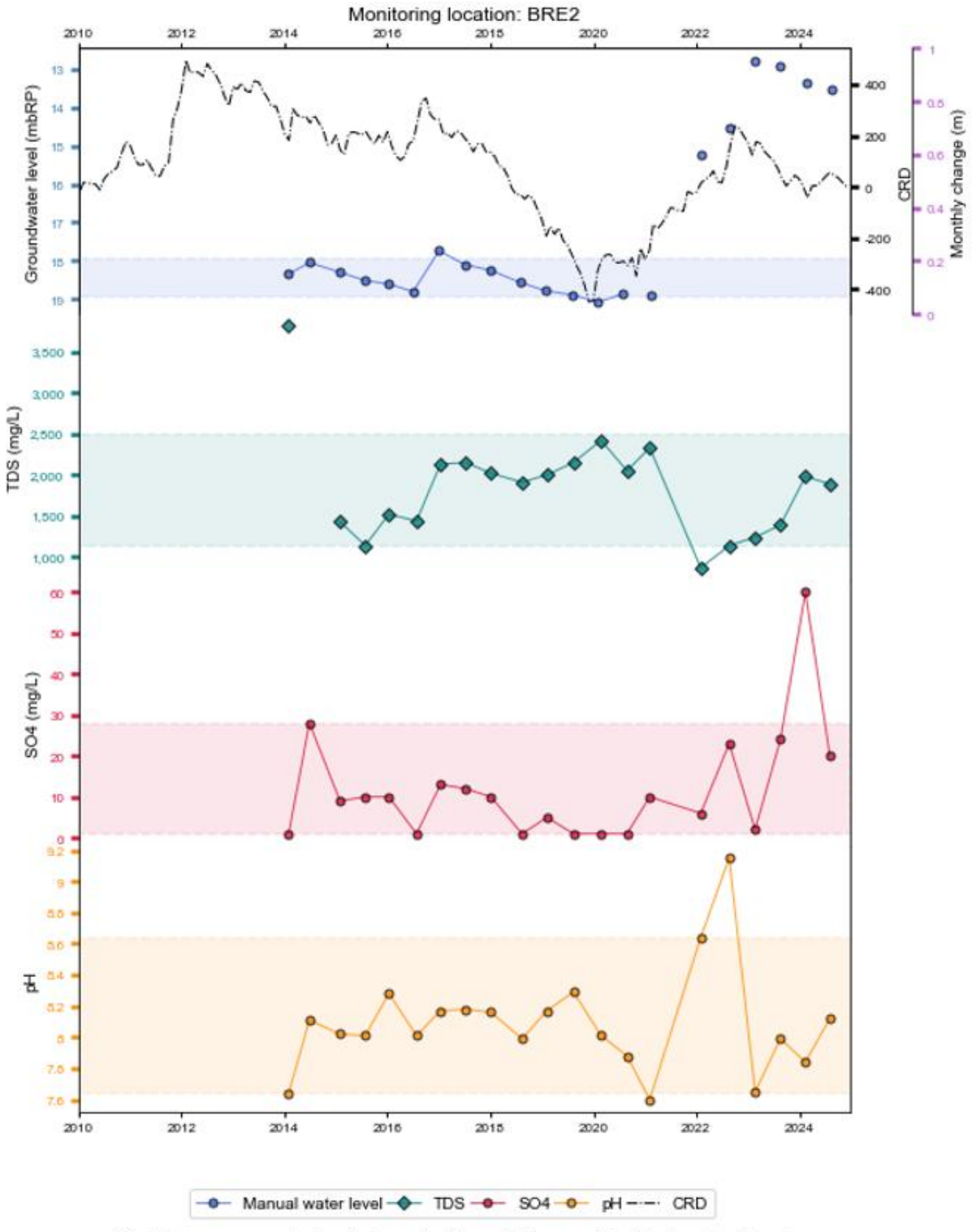

Monitoring location: Reg14
Groundwater level (mAHD)
CRD
Monthly change (m)
TDS (mg/L)
SO4 (mg/L)
pH
Manual water level
TDS
SO4
pH
CRD
Level change
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset



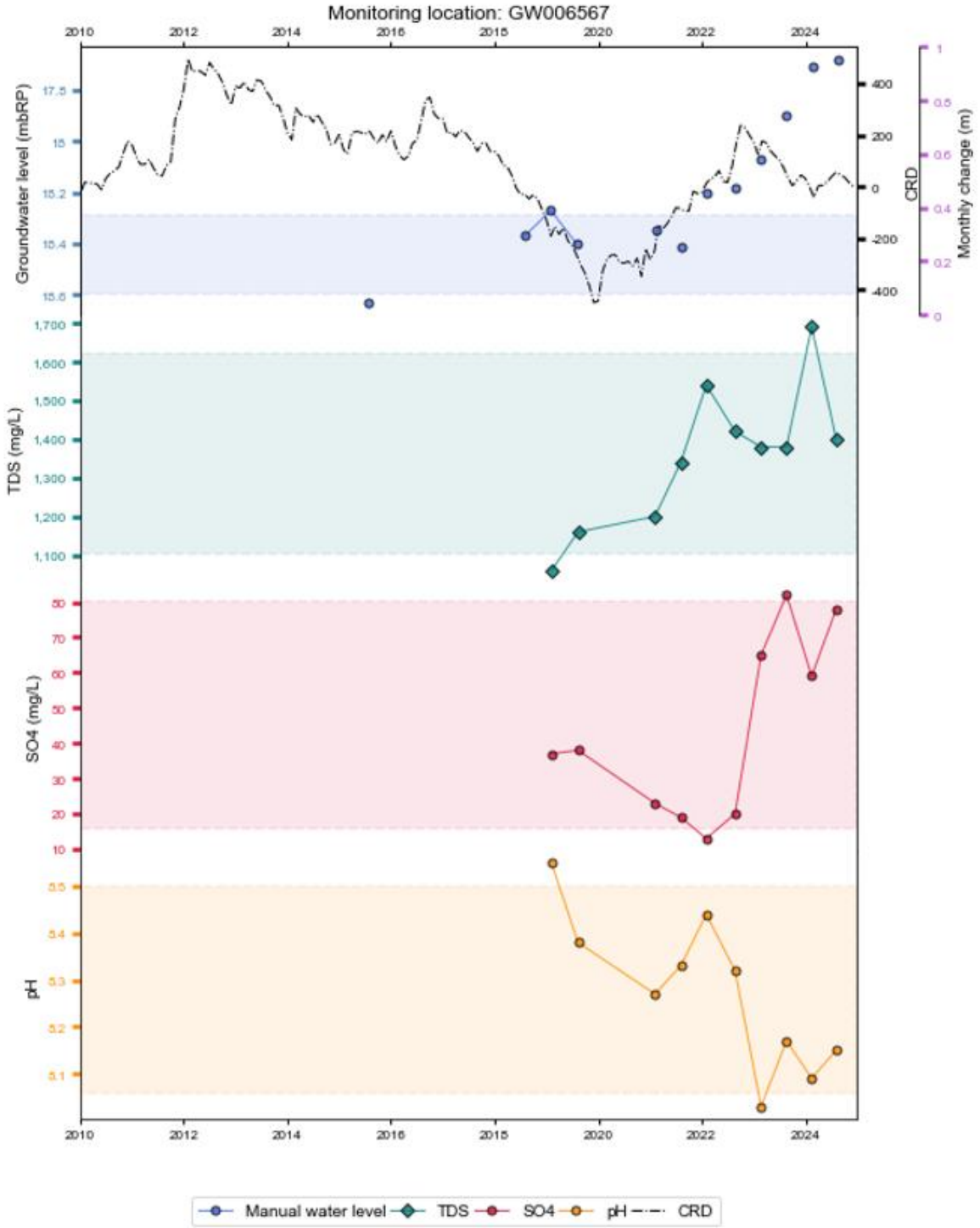
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset



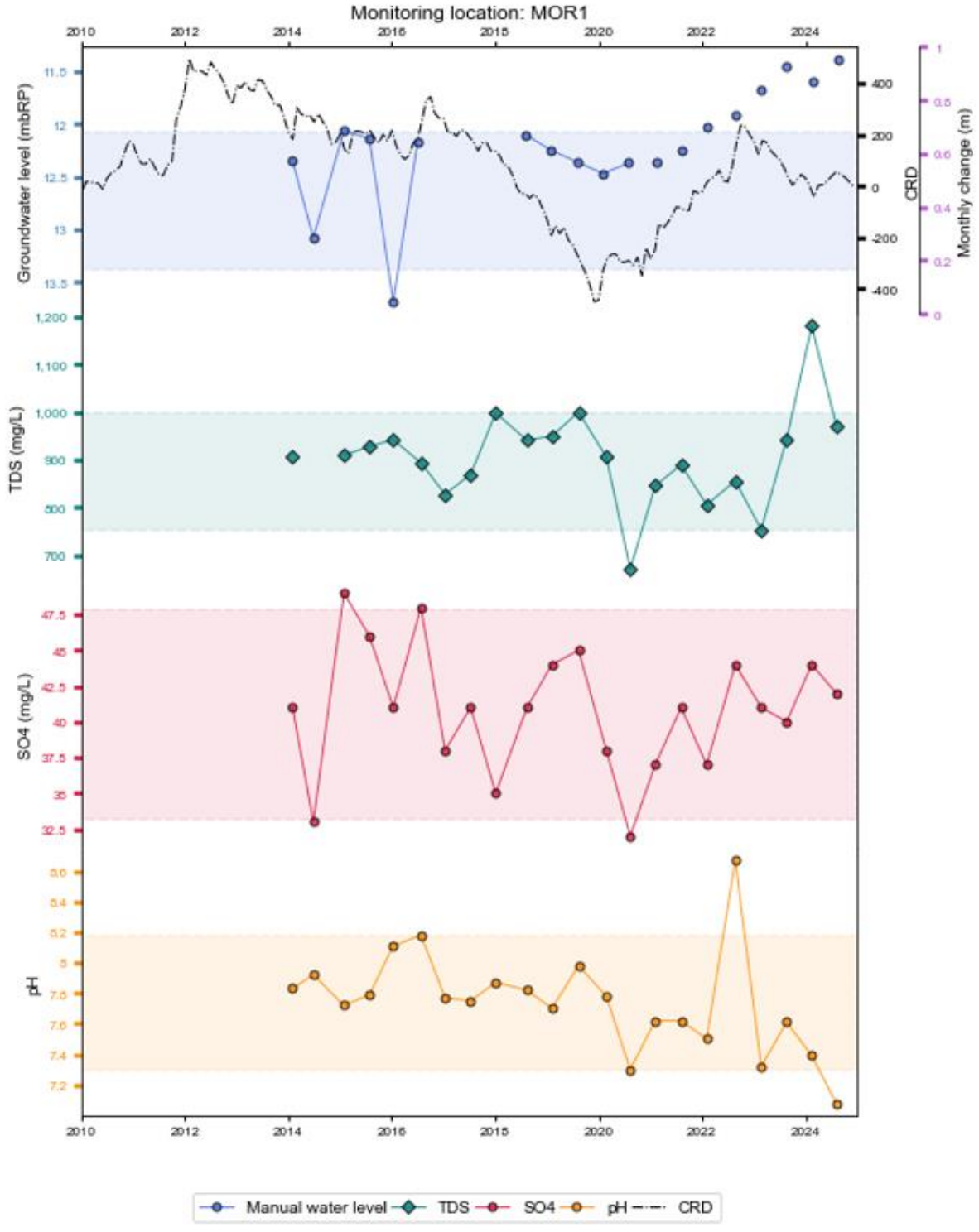
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset



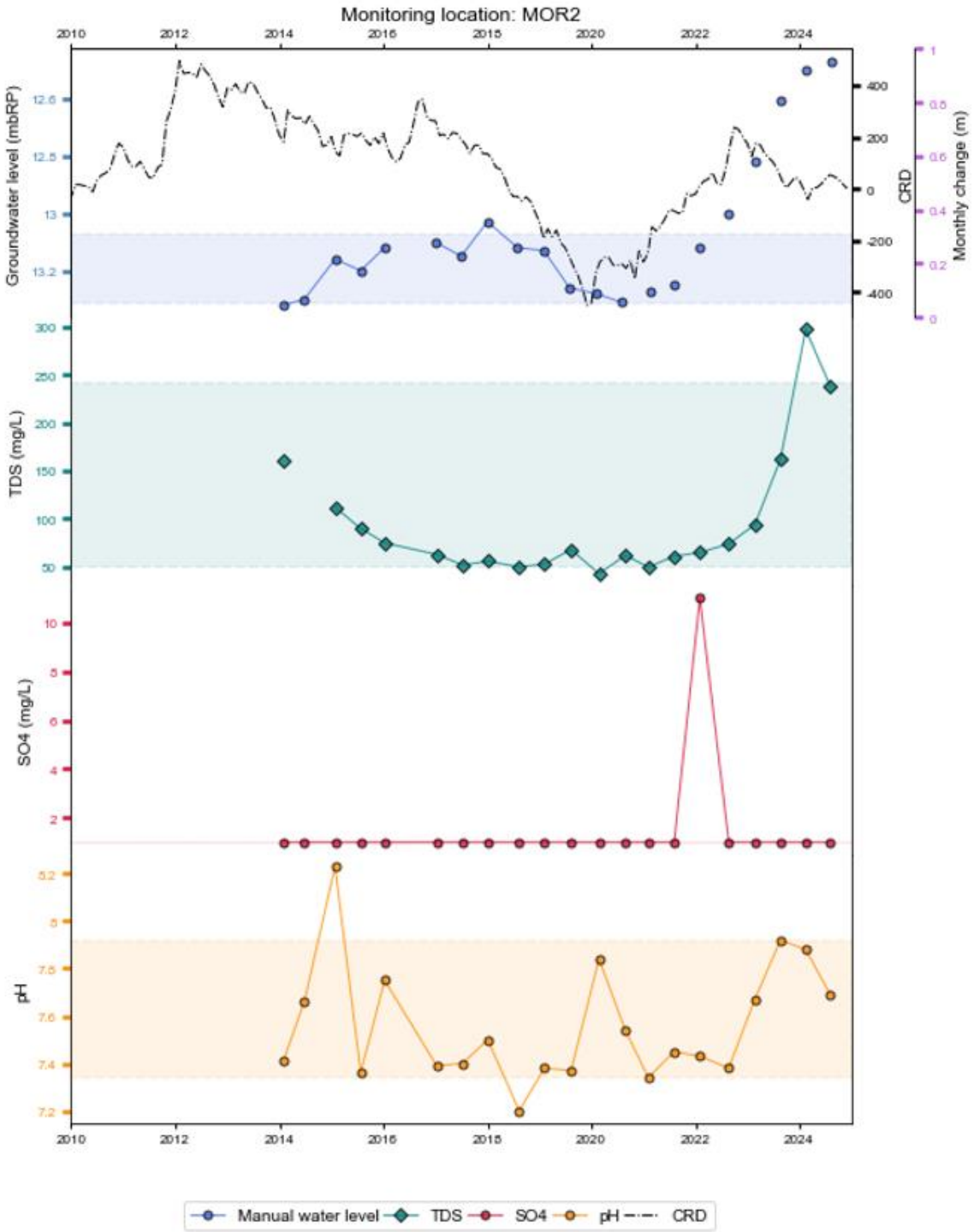
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset



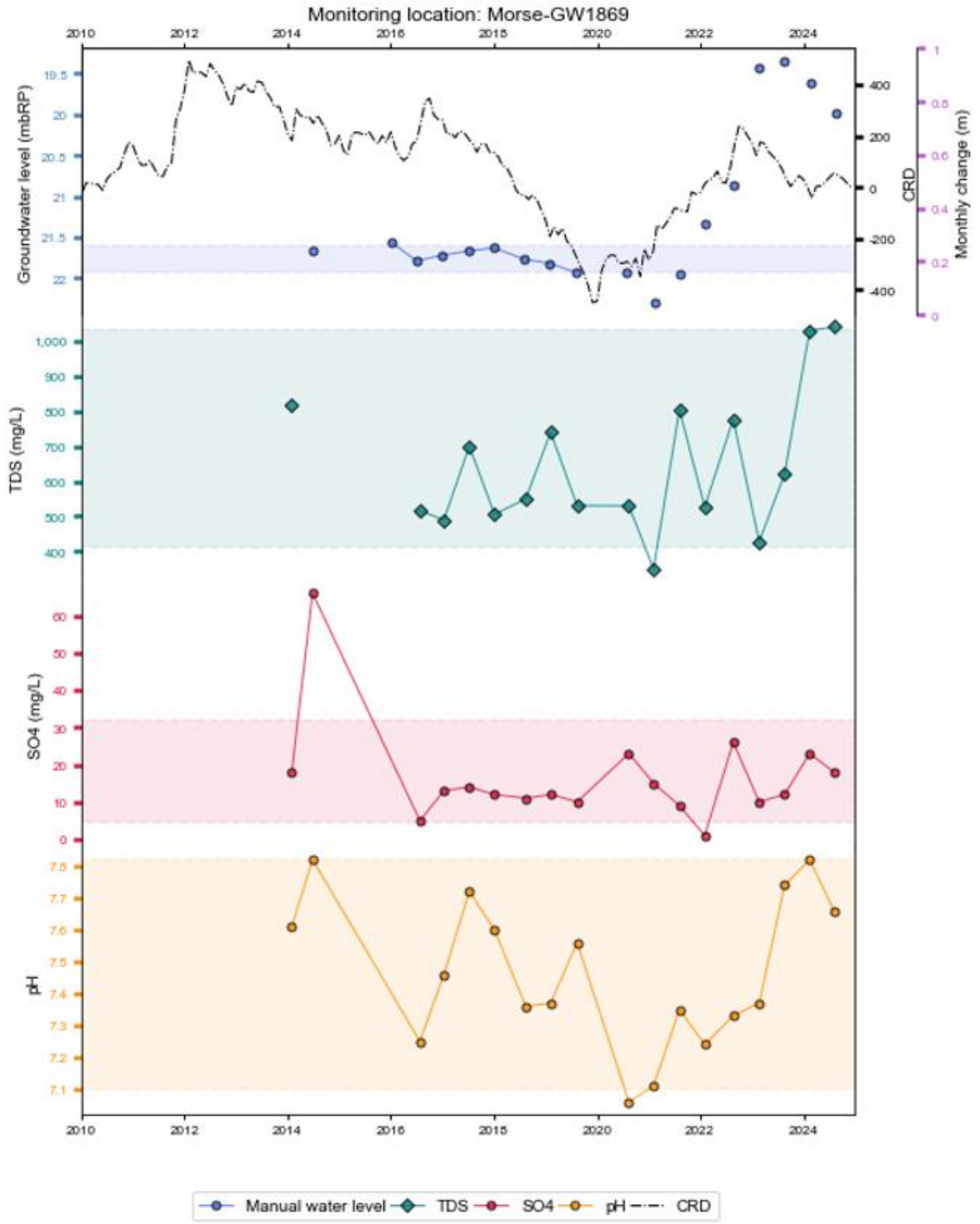
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset



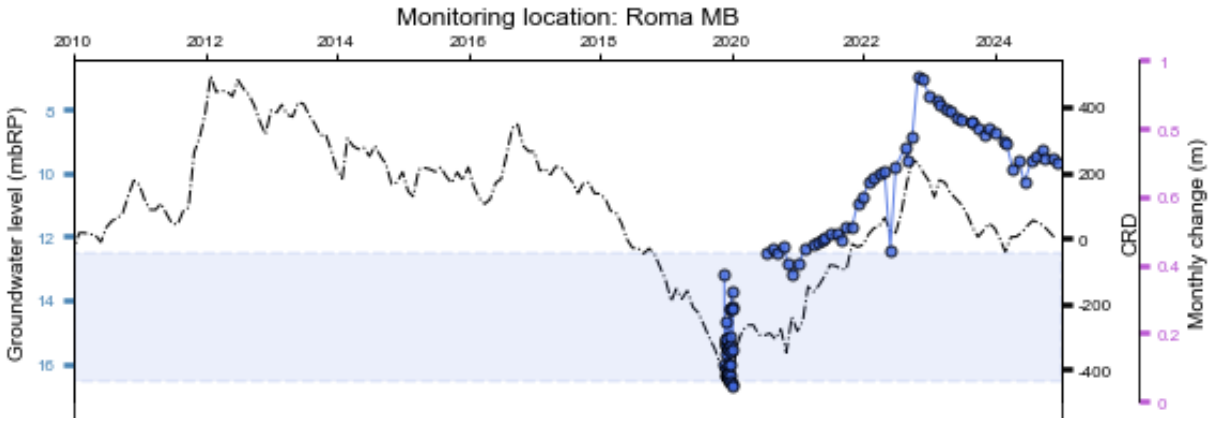
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset

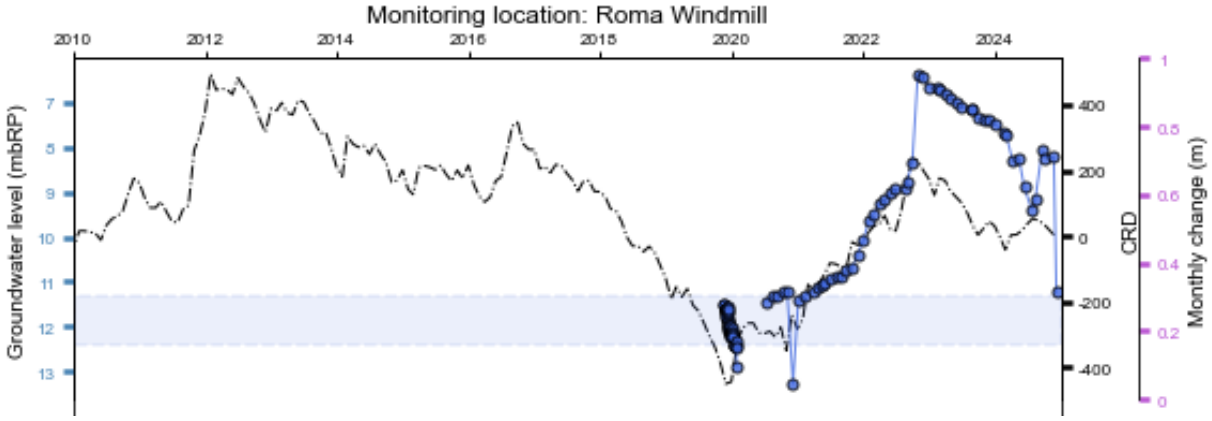


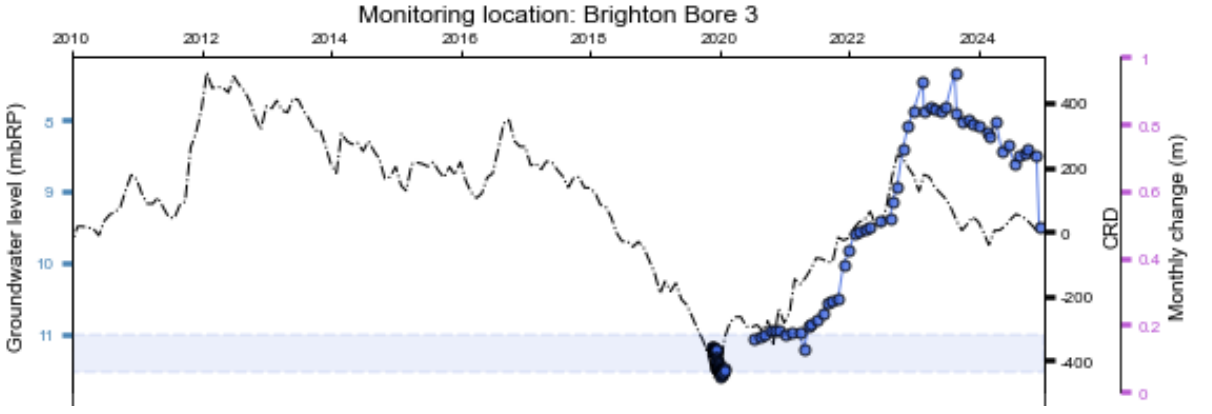
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset

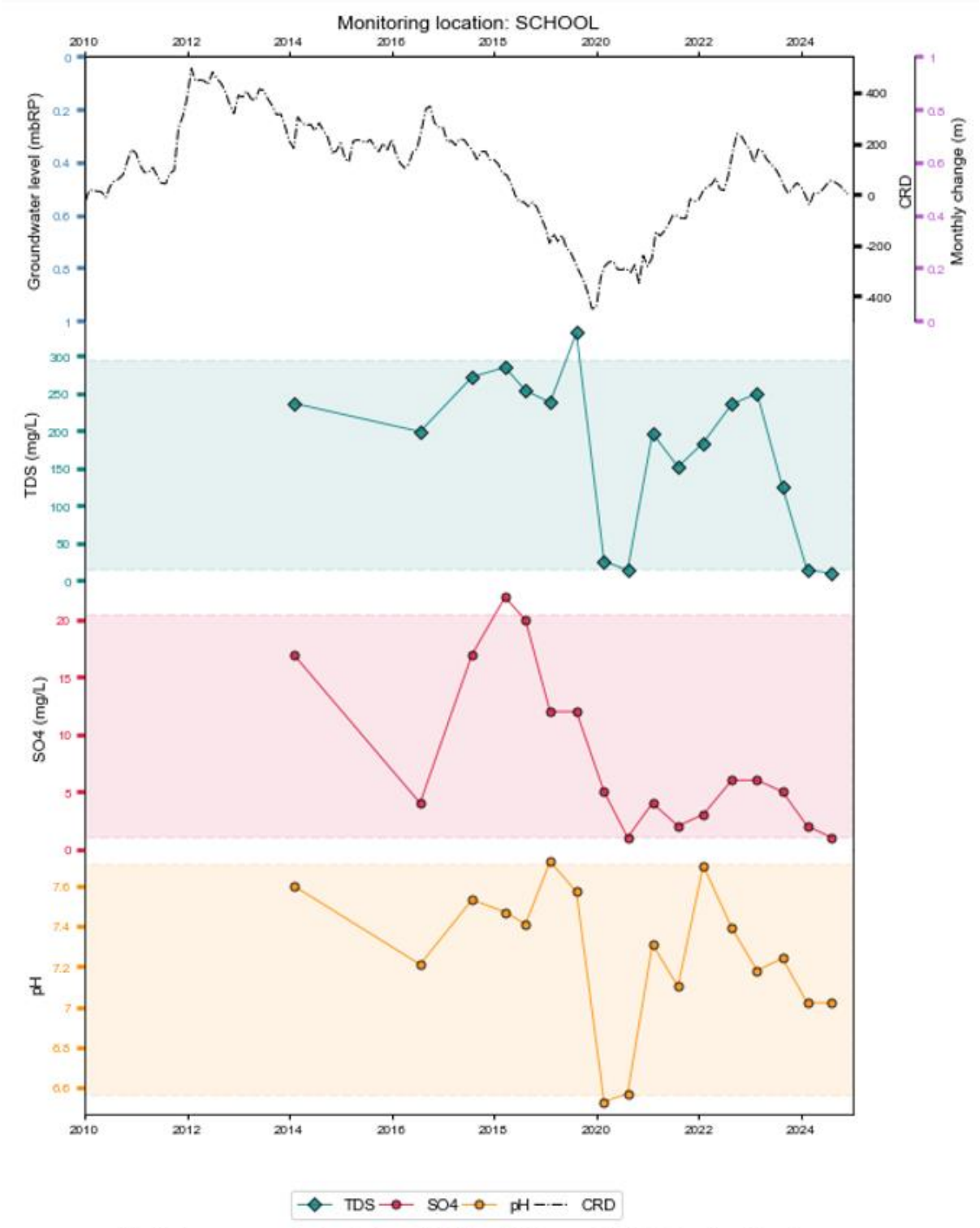


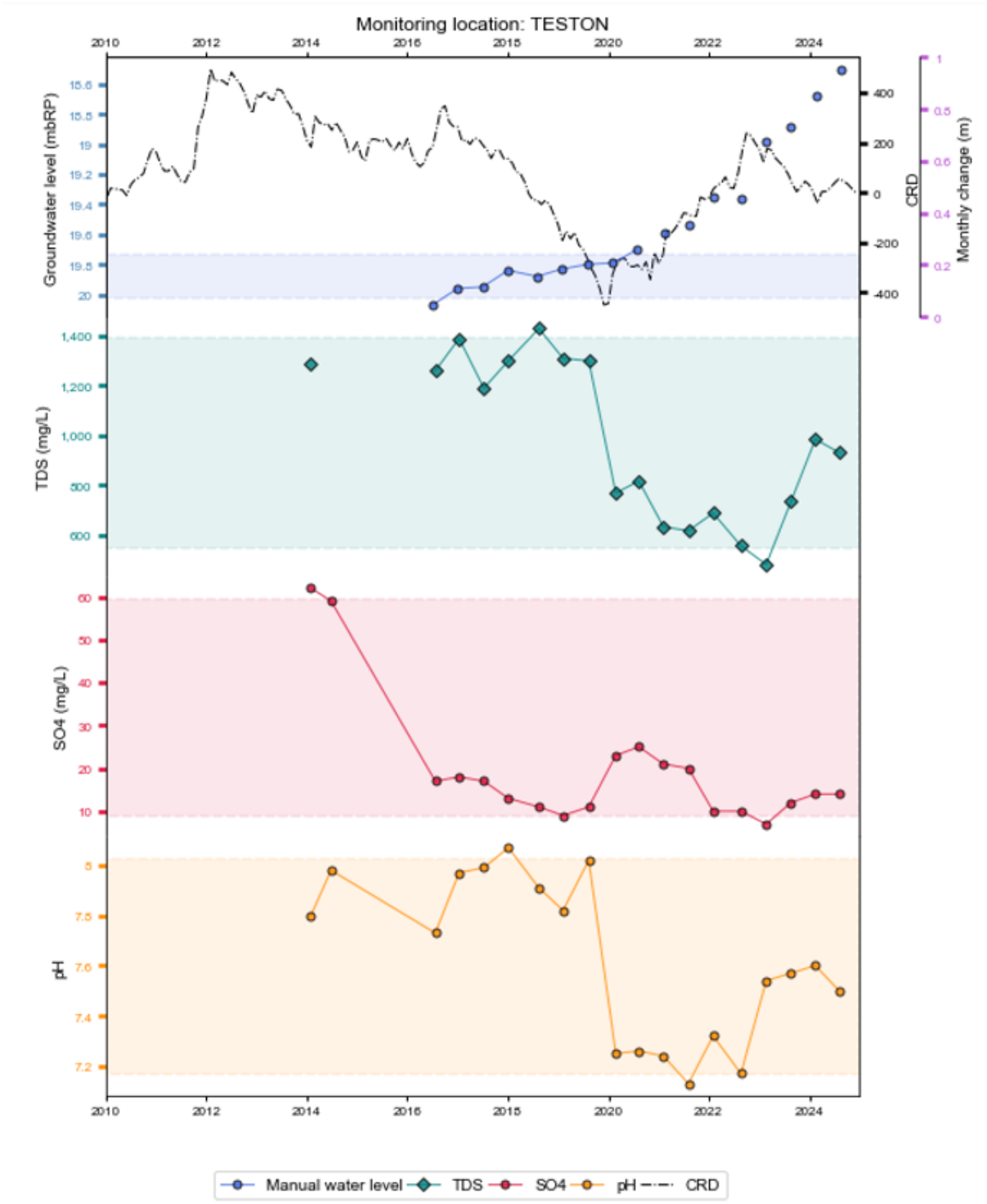
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset


Monitoring location: Roma MB
2010
2012
2014
2016
2018
2020
2022
2024
Groundwater level (mbRP)
5
10
12
14
16
400
200
0
-200
-400
CRD
1
0.8
0.6
0.4
0.2
0
Monthly change (m)

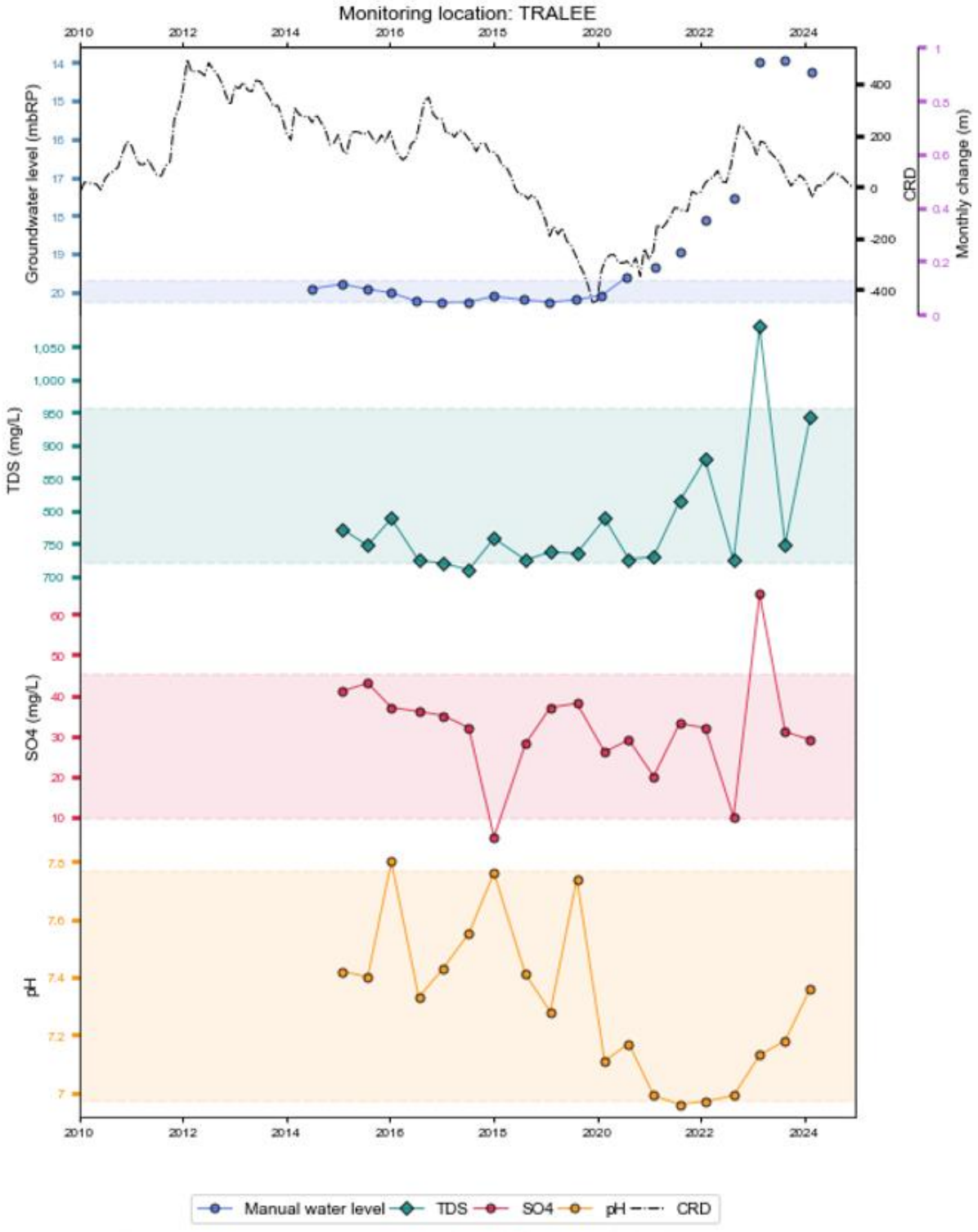

Monitoring location: Roma Windmill
2010
2012
2014
2016
2018
2020
2022
2024
Groundwater level (mbRP)
7
5
9
10
11
12
13
400
200
0
-200
-400
CRD
1
0.8
0.6
0.4
0.2
0
Monthly change (m)


Monitoring location: Brighton Bore 3
2010
2012
2014
2016
2018
2020
2022
2024
Groundwater level (mbRP)
5
9
10
11
400
200
0
-200
-400
CRD
1
0.8
0.6
0.4
0.2
0
Monthly change (m)

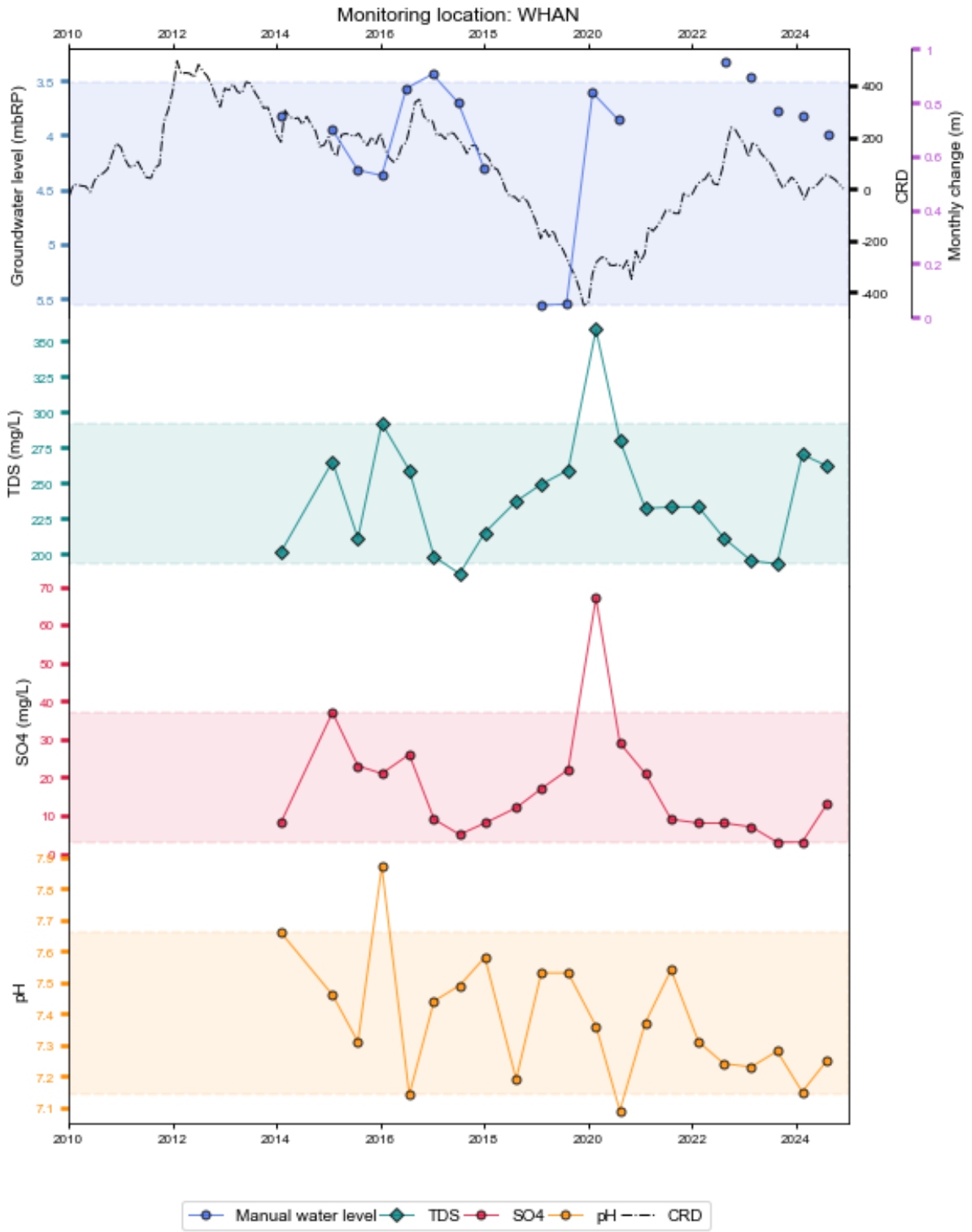

Monitoring location: SCHOOL
Groundwater level (mbRP)
CRD
Monthly change (m)
TDS (mg/L)
SO4 (mg/L)
pH
TDS
SO4
pH
CRD
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset



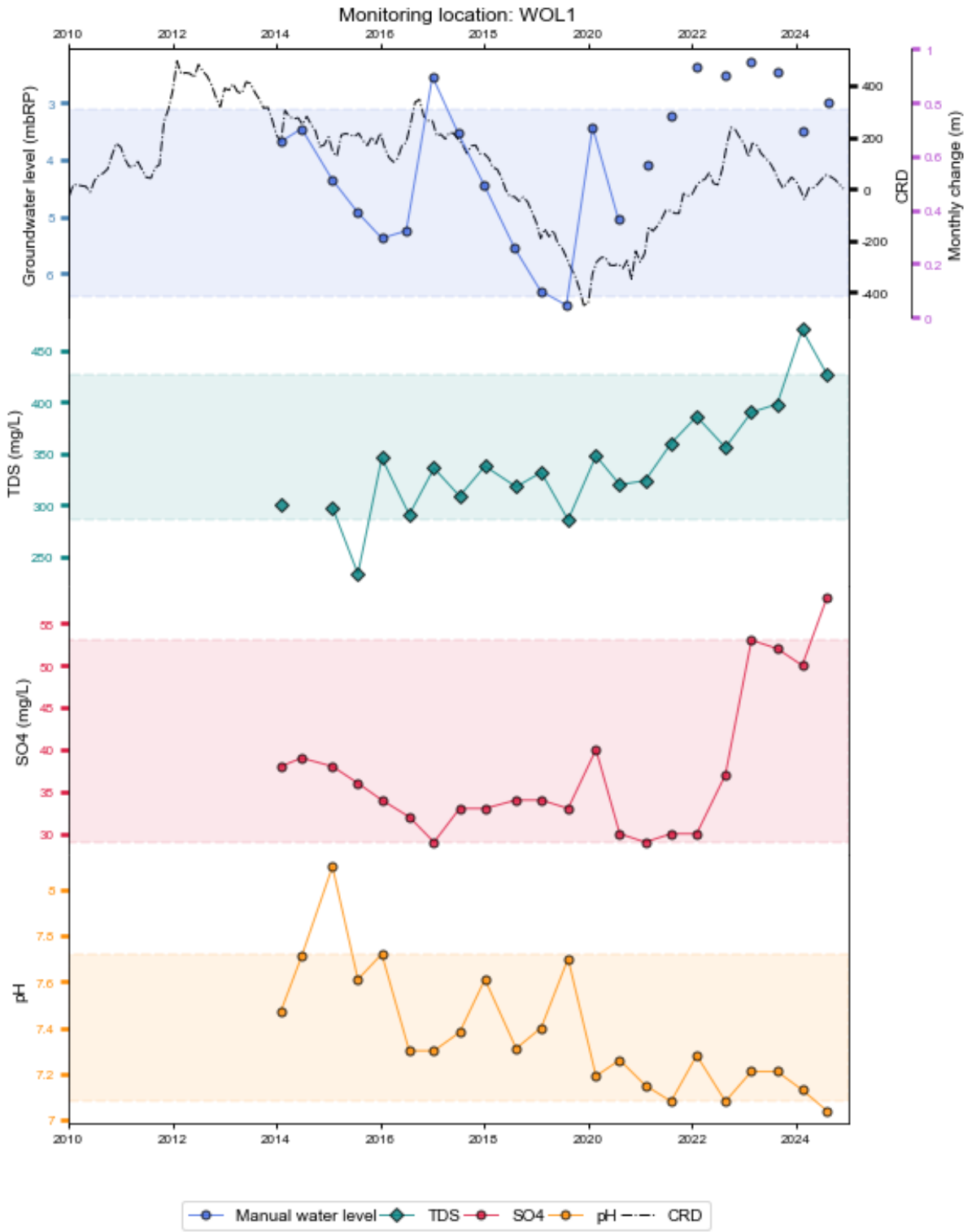
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset



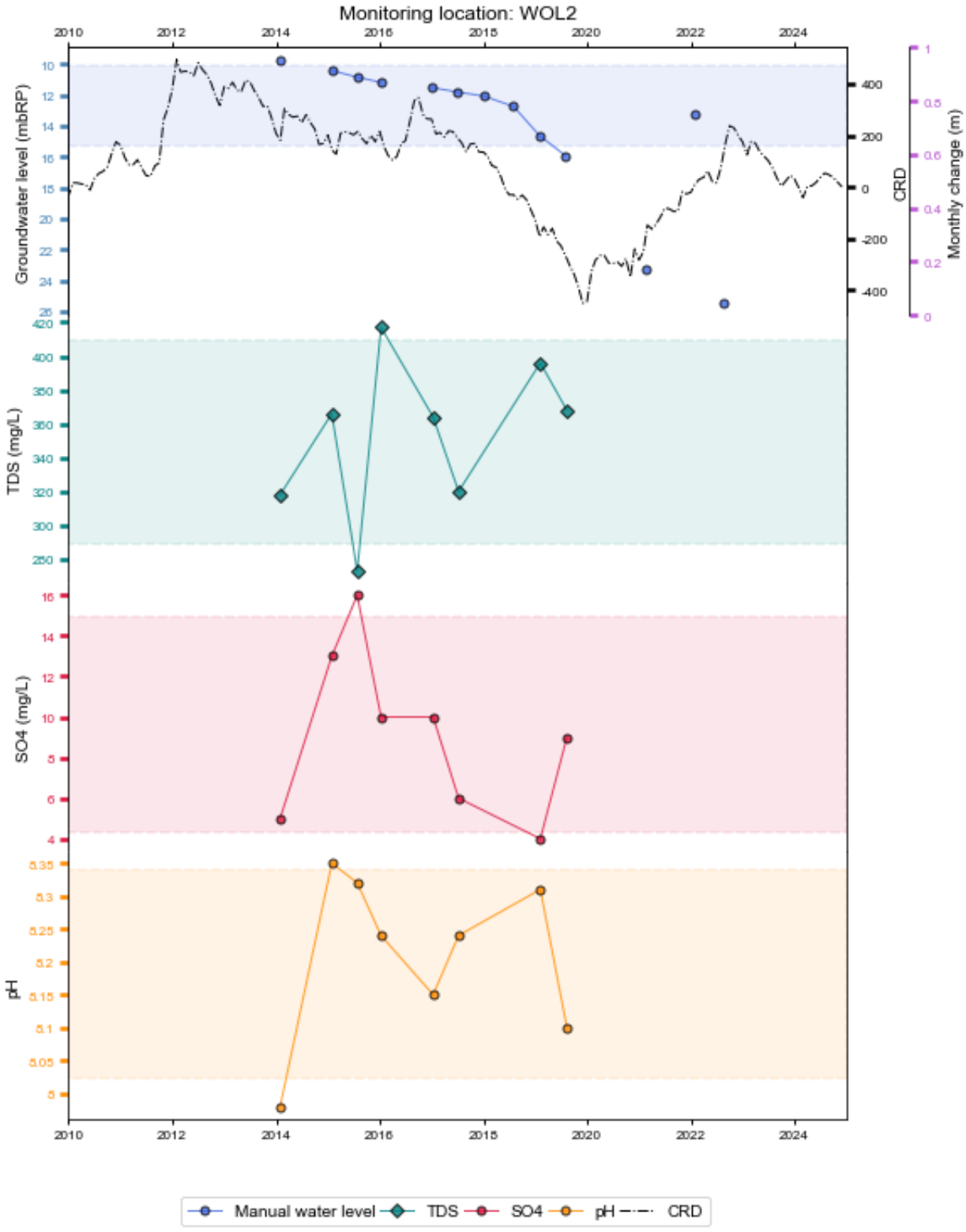
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset



Shaded areas represent values between the 5th and 95th percentile of the baseline dataset



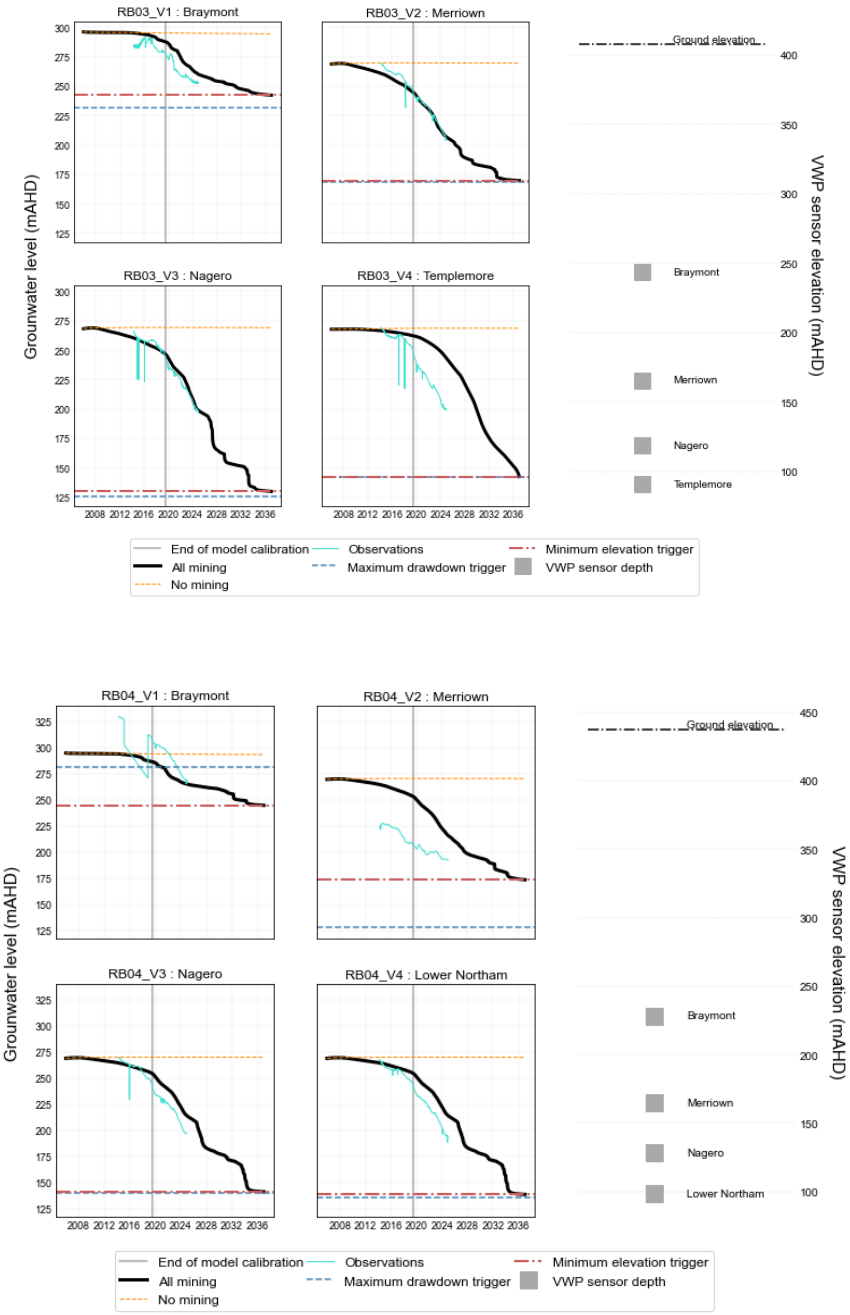
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset

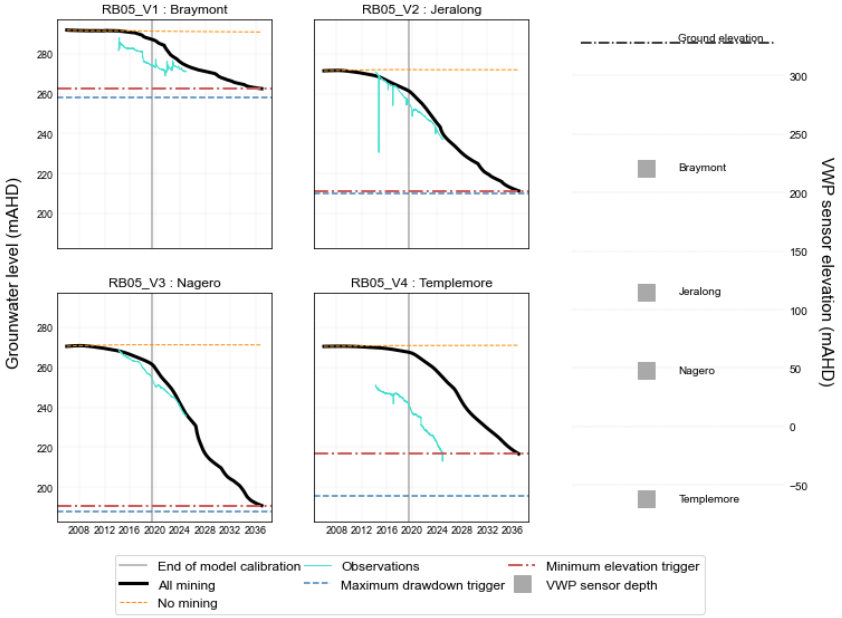


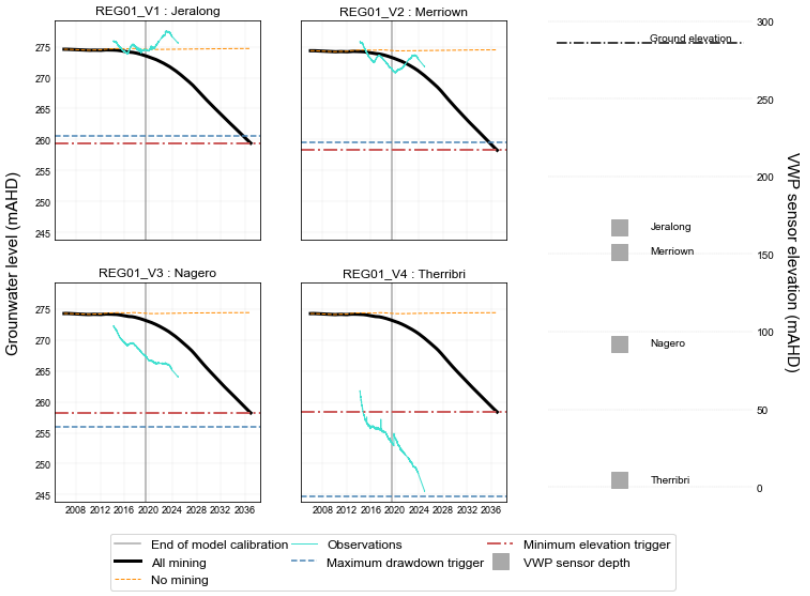
Shaded areas represent values between the 5th and 95th percentile of the baseline dataset

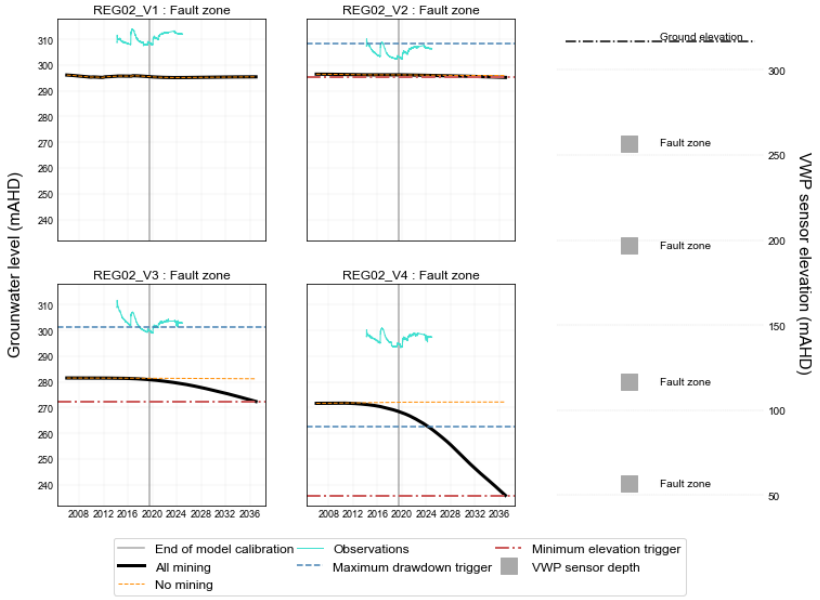
Figure E-2

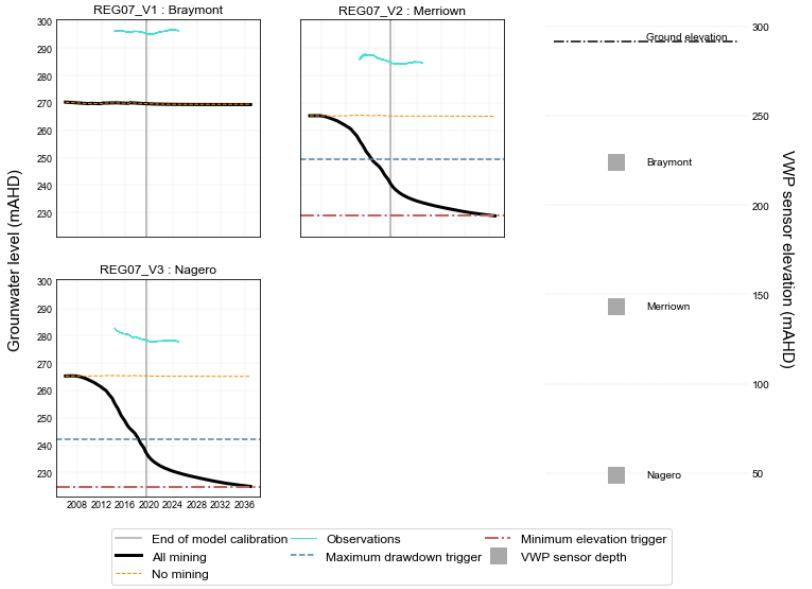
VWP Observed and Simulated Water Levels

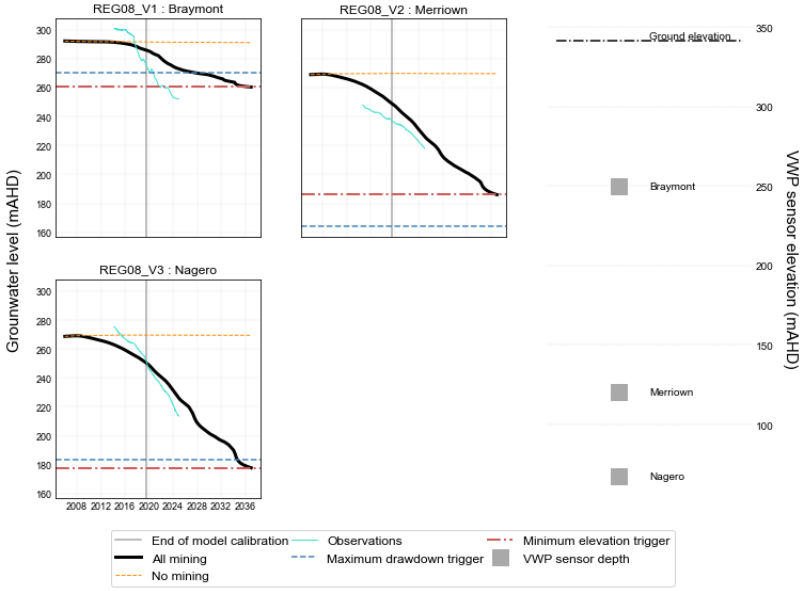


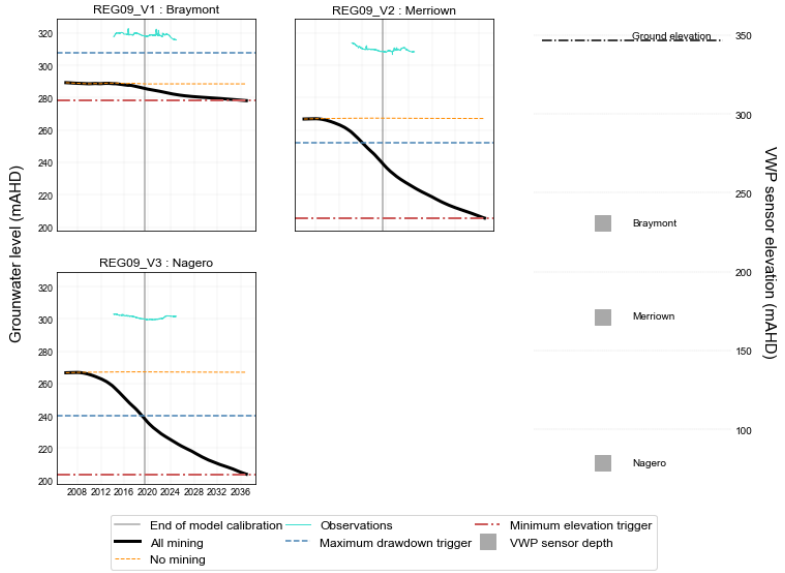

RB05_V1 : Braymont
RB05_V2 : Jeralong
RB05_V3 : Nagero
RB05_V4 : Templemore
Grounwater level (mAHD)
VWP sensor elevation (mAHD)
Ground elevation
Braymont
Jeralong
Nagero
Templemore
End of model calibration
All mining
No mining
Observations
Maximum drawdown trigger
Minimum elevation trigger
VWP sensor depth

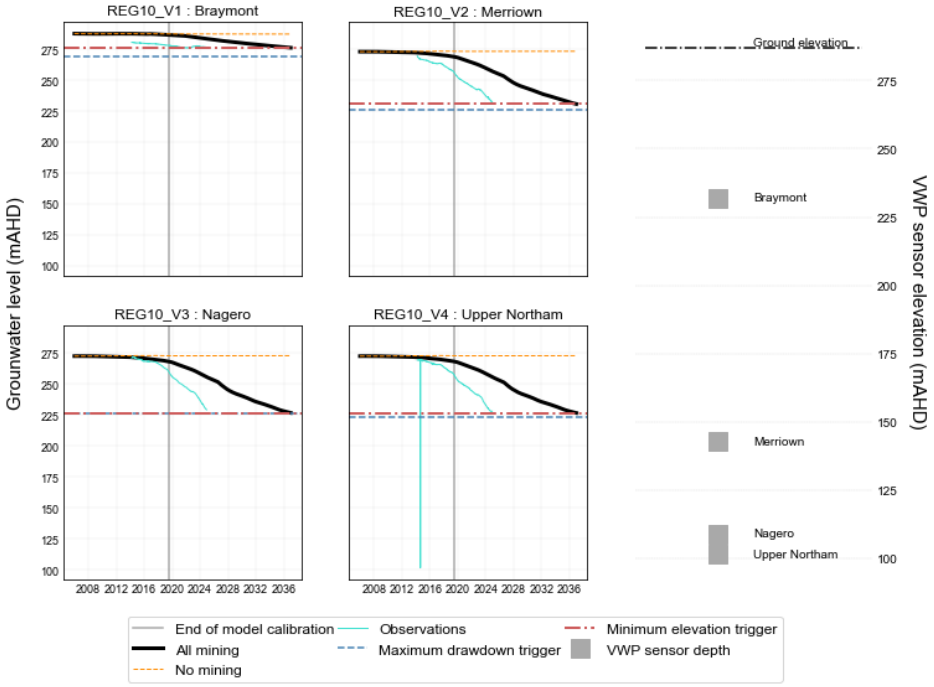

REG01_V1 : Jeralong
REG01_V2 : Merriown
REG01_V3 : Nagero
REG01_V4 : Therribri
Grounwater level (mAHD)
VWP sensor elevation (mAHD)
Ground elevation
Jeralong
Merriown
Nagero
Therribri
End of model calibration
All mining
No mining
Observations
Maximum drawdown trigger
Minimum elevation trigger
VWP sensor depth

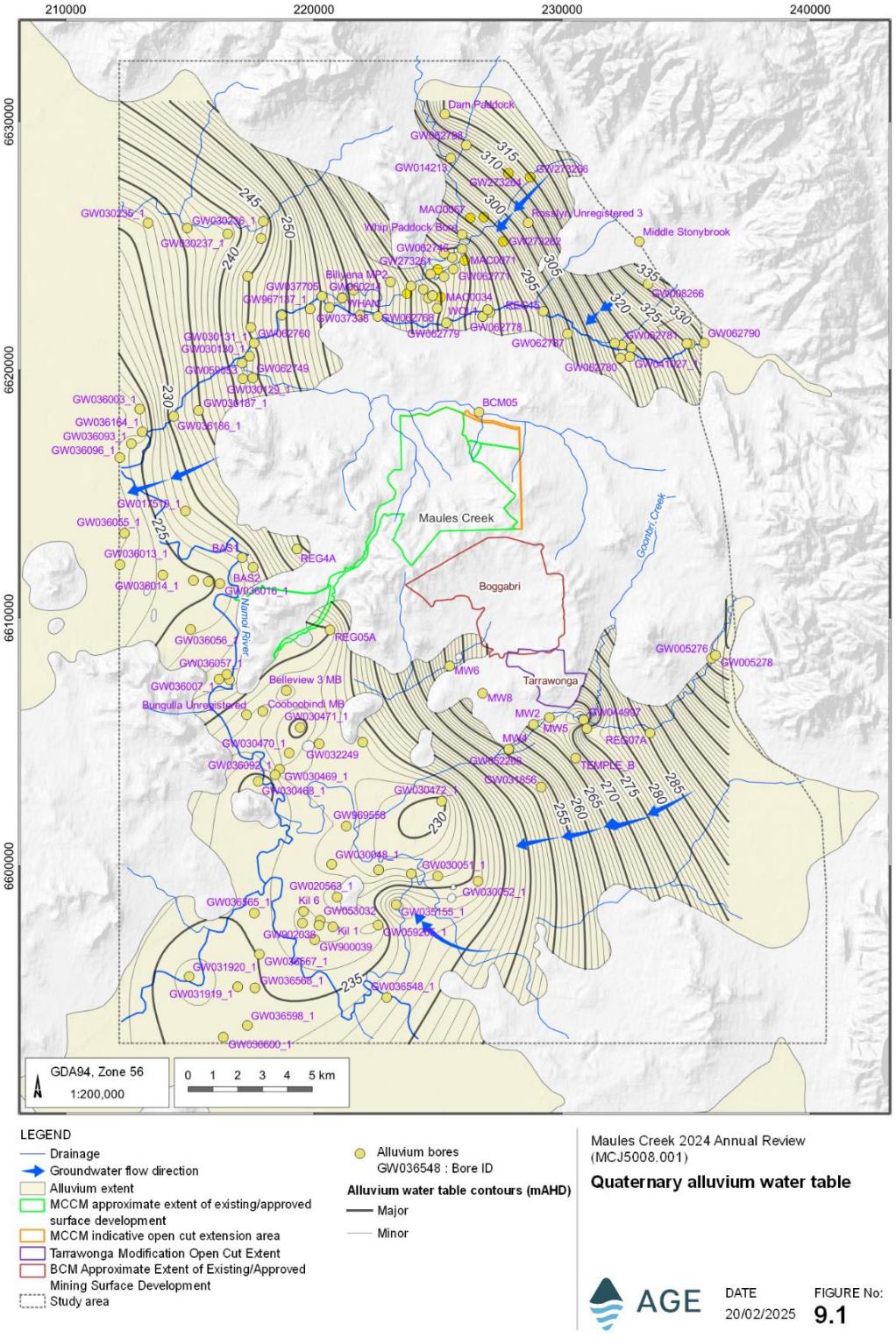

REG02_V1 : Fault zone
REG02_V2 : Fault zone
REG02_V3 : Fault zone
REG02_V4 : Fault zone
Grounwater level (mAHD)
VWP sensor elevation (mAHD)
Ground elevation
Fault zone
Fault zone
Fault zone
Fault zone
End of model calibration
All mining
No mining
Observations
Maximum drawdown trigger
Minimum elevation trigger
VWP sensor depth


REG07_V1 : Braymont
REG07_V2 : Merriown
REG07_V3 : Nagero
Grounwater level (mAHD)
VWP sensor elevation (mAHD)
Ground elevation
Braymont
Merriown
Nagero
End of model calibration
All mining
No mining
Observations
Maximum drawdown trigger
Minimum elevation trigger
VWP sensor depth


REG08_V1 : Braymont
REG08_V2 : Merriown
REG08_V3 : Nagero
Grounwater level (mAHD)
VWP sensor elevation (mAHD)
Ground elevation
Braymont
Merriown
Nagero
End of model calibration
All mining
No mining
Observations
Maximum drawdown trigger
Minimum elevation trigger
VWP sensor depth


REG09_V1 : Braymont
REG09_V2 : Merriown
REG09_V3 : Nagero
Grounwater level (mAHD)
VWP sensor elevation (mAHD)
Ground elevation
Braymont
Merriown
Nagero
End of model calibration
All mining
No mining
Observations
Maximum drawdown trigger
Minimum elevation trigger
VWP sensor depth


REG10_V1 : Braymont
REG10_V2 : Merriown
REG10_V3 : Nagero
REG10_V4 : Upper Northam
Grounwater level (mAHD)
VWP sensor elevation (mAHD)
Ground elevation
Braymont
Merriown
Nagero
Upper Northam
End of model calibration
All mining
No mining
Observations
Maximum drawdown trigger
Minimum elevation trigger
VWP sensor depth



Source: 1 second SRTM Derived DEM-S - © Commonwealth of Australia (Geoscience Australia) 2011.; GEODATA TOPO 250K Series 3 - © Commonwealth of Australia (Geoscience Australia) 2006.;
G:\Projects\MCJ5008.001 Maules Creek Mine Annual Review – 2024 Water Year\3_GIS\Workspaces\001_Deliverable1\09.01_MCJ5008_Quaternary alluvium water table.qgz

APPENDIX F

Attended Noise Monitoring

LAeq, 15minute and 1minute Generated by MCCM Against Operational Night Noise Criteria

Table F-1 – January Noise Monitoring

Location	Start date and Time	Wind		Stability class	Very enhancing? [1]	Limits, dB [1]		Site levels, dB [2]		Exceedances, dB	
		Speed m/s	Direction [3]			$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}
NM1	16/01/2024 22:30	2.9	85	D	No	35	45	IA	IA	Nil	Nil
NM2	16/01/2024 23:30	4.0	63	D	Yes	44	50	IA	IA	Nil	Nil
NM3	16/01/2024 23:30	4.0	63	D	Yes	40	50	IA	IA	Nil	Nil
NM4	16/01/2024 23:00	3.3	70	D	Yes	40	50	IA	IA	Nil	Nil
NM5	16/01/2024 22:00	3.8	74	D	Yes	40	50	IA	IA	Nil	Nil
NM6	16/01/2024 23:55	3.0	55	D	No	35	45	IA	IA	Nil	Nil

Table F-2 - February Noise Monitoring

Location	Start date and Time	Wind		Stability class	Very enhancing? [1]	Limits, dB [1]		Site levels, dB [2]		Exceedances, dB	
		Speed m/s	Direction [3]			$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}
NM1	27/02/2024 22:30	4.3	83	D	Yes	40	50	IA	IA	Nil	Nil
NM2	27/02/2024 23:38	4.2	72	D	Yes	44	50	IA	IA	Nil	Nil
NM3	27/02/2024 23:21	3.8	65	D	Yes	40	50	IA	IA	Nil	Nil
NM4	27/02/2024 23:00	4.3	72	D	Yes	40	50	IA	IA	Nil	Nil
NM5	27/02/2024 22:00	3.1	80	D	Yes	40	50	IA	IA	Nil	Nil
NM6	28/02/2024 00:04	3.7	66	D	Yes	40	50	IA	IA	Nil	Nil

Table F-3 - March Noise Monitoring

Location	Start date and Time	Wind		Stability class	Very enhancing? [1]	Limits, dB [1]		Site levels, dB [2]		Exceedances, dB	
		Speed m/s	Direction [3]			$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}
NM1	18/03/2024 22:30	2.3	99	E	No	40	50	IA	IA	Nil	Nil
NM2	18/03/2024 23:30	0.6	324	F	No	44	50	<20	25	Nil	Nil
NM3	19/03/2024 00:22	1.0	180	F	No	40	50	<20	<25	Nil	Nil
NM4	18/03/2024 23:00	2.0	86	F	No	40	50	IA	IA	Nil	Nil
NM5	18/03/2024 22:00	3.0	91	D	No	40	50	IA	IA	Nil	Nil
NM6	18/03/2024 23:55	1.2	15	F	No	40	50	IA	IA	Nil	Nil

Table F-4 - April Noise Monitoring

Location	Start date and Time	Wind		Stability class	Very enhancing? [1]	Limits, dB [1]		Site levels, dB [2]		Exceedances, dB	
		Speed m/s	Direction [3]			$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}
NM1	1/04/2024 22:30	0.5	216	F	No	35	45	IA	IA	Nil	Nil
NM2	1/04/2024 23:30	0.3	0	F	No	39	45	IA	IA	Nil	Nil
NM3	2/04/2024 0:20	0.5	186	F	No	35	45	IA	IA	Nil	Nil
NM4	1/04/2024 23:00	0.5	140	F	No	35	45	IA	IA	Nil	Nil
NM5	1/04/2024 22:00	1.1	209	F	No	35	45	<25	30	Nil	Nil
NM6	1/04/2024 23:55	0.3	0	F	No	35	45	IA	IA	Nil	Nil

Table F-5 - May Noise Monitoring

Location	Start date and Time	Wind		Stability class	Very enhancing? [1]	Limits, dB [1]		Site levels, dB [2]		Exceedances, dB	
		Speed m/s	Direction [3]			$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}
NM1	1/05/2024 22:30	3.3	124	D	Yes	40	50	IA	IA	Nil	Nil
NM2	1/05/2024 23:30	2.3	141	E	No	39	45	<30	<30	Nil	Nil
NM3	2/05/2024 00:21	1.0	151	F	No	35	45	33	36	Nil	Nil
NM4	1/05/2024 23:00	2.8	135	D	No	35	45	IA	IA	Nil	Nil
NM5	1/05/2024 22:00	3.2	122	D	Yes	40	50	IA	IA	Nil	Nil
NM6	1/05/2024 23:55	1.6	148	E	No	35	45	IA	IA	Nil	Nil

Table F-6 - June Noise Monitoring

Location	Start date and time	Wind		Stability class	Very enhancing? [1]	Limits, dB [1]		Site levels, dB [2]		Exceedances, dB	
		Speed m/s	Direction [3]			$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}
NM1	10/06/2024 22:30	0.6	29	F	No	35	45	<25	<25	Nil	Nil
NM2	10/06/2024 23:30	1.1	213	F	No	39	45	34	36	Nil	Nil
NM3	11/06/2024 00:20	0.5	227	F	No	35	45	24	29	Nil	Nil
NM4	10/06/2024 23:00	0.3	35	F	No	35	45	<25	<25	Nil	Nil
NM5	10/06/2024 22:00	0.5	135	F	No	35	45	30	33	Nil	Nil
NM6	10/06/2024 23:55	0.3	0	F	No	35	45	<20	23	Nil	Nil

Table F-7 - July Noise Monitoring

Location	Start date and time	Wind		Stability class	Very enhancing? [1]	Limits, dB [1]		Site levels, dB [2]		Exceedances, dB	
		Speed m/s	Direction [3]			$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}
NM1	24/07/2024 22:30	0.3	75	F	No	35	45	<20	25	Nil	Nil
NM2	24/07/2024 23:30	0.3	331	F	No	39	45	<20	<20	Nil	Nil
NM3	25/07/2024 00:21	0.5	136	F	No	35	45	IA	IA	Nil	Nil
NM4	24/07/2024 23:00	0.1	226	F	No	35	45	IA	IA	Nil	Nil
NM5	24/07/2024 22:01	0.5	68	F	No	35	45	25	30	Nil	Nil
NM6	24/07/2024 23:56	0.4	317	F	No	35	45	IA	IA	Nil	Nil

Table F-8 - August Noise Monitoring

Location	Start date and time	Wind		Stability class	Very enhancing? [1]	Limits, dB [1]		Site levels, dB [2]		Exceedances, dB	
		Speed m/s	Direction [3]			$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}
NM1	21/08/2024 22:30	0.3	316	F	No	35	45	<30	32	Nil	Nil
NM2	21/08/2024 23:00	0.6	242	F	No	39	45	<25	<25	Nil	Nil
NM3	21/08/2024 23:20	0.7	217	F	No	35	45	IA	IA	Nil	Nil
NM4	21/08/2024 23:47	0.6	33	F	No	35	45	IA	IA	Nil	Nil
NM5	21/08/2024 22:00	0.3	59	F	No	35	45	<25	27	Nil	Nil
NM6	21/08/2024 23:25	0.7	210	F	No	35	45	IA	IA	Nil	Nil

Table F-9 - September Noise Monitoring

Location	Start date and time	Wind		Stability class	Very enhancing? [1]	Limits, dB [1]		Site levels, dB [2]		Exceedances, dB	
		Speed m/s	Direction [3]			$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}
NM1	23/09/2024 22:30	0.3	4	F	No	35	45	<20	<20	Nil	Nil
NM2	23/09/2024 23:30	0.3	194	F	No	39	45	<20	<20	Nil	Nil
NM3	23/09/2024 23:45	0.3	85	F	No	35	45	IA	IA	Nil	Nil
NM4	23/09/2024 23:00	0.5	218	F	No	35	45	IA	IA	Nil	Nil
NM5	23/09/2024 22:00	0.2	36	F	No	35	45	<20	<20	Nil	Nil
NM6	23/09/2024 23:57	0.3	166	F	No	35	45	IA	IA	Nil	Nil

Table F-10 - October Noise Monitoring

Location	Start date and time	Wind		Stability class	Very enhancing? [1]	Limits, dB [1]		Site levels, dB [2]		Exceedances, dB	
		Speed m/s	Direction [3]			$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}
NM1	22/10/2024 22:30	0.3	20	F	No	35	45	<25	25	Nil	Nil
NM2	22/10/2024 23:30	0.4	125	F	No	39	45	28	<30	Nil	Nil
NM3	22/10/2024 23:29	0.4	125	F	No	35	45	<20	<20	Nil	Nil
NM4	22/10/2024 23:00	0.5	170	F	No	35	45	<20	<20	Nil	Nil
NM5	22/10/2024 22:00	0.2	249	F	No	35	45	<25	29	Nil	Nil
NM6	23/10/2024 00:02	0.4	170	F	No	35	45	<25	<25	Nil	Nil

Table F-11 - November Noise Monitoring

Location	Start date and time	Wind		Stability class	Very enhancing? [1]	Limits, dB [1]		Site levels, dB [2]		Exceedances, dB	
		Speed m/s	Direction [3]			$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}
NM1	5/11/2024 22:30	2.6	166	D	No	35	45	IA	IA	Nil	Nil
NM2	5/11/2024 23:30	2.8	188	D	No	39	45	<20	<25	Nil	Nil
NM3	5/11/2024 23:17	2.2	182	E	No	35	45	IA	IA	Nil	Nil
NM4	5/11/2024 23:00	2.3	157	E	No	35	45	IA	IA	Nil	Nil
NM5	5/11/2024 22:00	2.9	170	D	No	35	45	<20	<20	Nil	Nil
NM6	6/11/2024 00:00	2.2	162	E	No	35	45	IA	IA	Nil	Nil

Table F-12 - December Noise Monitoring

Location	Start date and time	Wind		Stability class	Very enhancing? [1]	Limits, dB [1]		Site levels, dB [2]		Exceedances, dB	
		Speed m/s	Direction [3]			$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}
NM1	19/12/2024 22:32	3.5	142	D	Yes	40	50	<25	<25	Nil	Nil
NM2	19/12/2024 23:30	4.6	133	D	Yes	44	50	<25	27	Nil	Nil
NM3	19/12/2024 23:19	4.4	132	D	Yes	40	50	<25	30	Nil	Nil
NM4	19/12/2024 23:00	2.9	133	D	No	35	45	<25	<25	Nil	Nil
NM5	19/12/2024 22:00	3.4	147	D	Yes	40	50	IA	IA	Nil	Nil
NM6	19/12/2024 23:59	4.2	136	D	Yes	40	50	<25	<25	Nil	Nil

Notes:

1. Site-only LAeq,15minute attributed to MCCP, including modifying factors if applicable.

2. Indicates the application of a 2dB low frequency modifying factor. IA/NM – Inaudible NM – Not measurable

3. Noise limits are adjusted by +5 dB during 'very enhancing meteorological conditions' in accordance with the NPfI.

4. Degrees magnetic north, "-" indicates calm conditions

APPENDIX G

DPHI RESPONSE TABLE

Table G-1

Item	DPHI Response	MCCM response
1	Section 6.2.2 i. A comparison of Deposited Dust levels to previous reporting periods. ii. A comparison of PM10 levels to previous reporting periods.	i. Section 6.2.2 was updated, comparisons to include a table of deposited dust levels for 2022, 2023 and 2024. ii. Figure 4 and Figure 5 have been updated to show the PM10 levels from the past three reporting periods.
2	Section 6.3 i. A comparison of diesel usage and fugitive emissions to previous reporting periods. ii. Additional detail on the measures implemented during the reporting period as required by Schedule 3, Condition 27 of the consent.	i. Comparison of diesel usage and fugitive emissions for the past three reporting periods have been added in Table 10. ii. Section 6.3 has been updated to include additional details on the greenhouse gas emissions at MCCM.